AN ECONOMIC STUDY OF MAIZE MARKETING IN KENYA 1952 - 1966

by
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CHAPTER I

INTRODUCTION

This thesis deals with Kenya's maize marketing policy between 1942 and 1966. Maize is the most important staple of the African diet and the major item of African food production in Kenya. It is one of the most important cash crops of African smallholders and a major cash crop of the large mixed farming sector. It supplies about 40 per cent of the total caloric requirements of the population. Of the other staples, wheat and rice are produced and consumed primarily in the modern sector. Most wheat is produced by large farmers and sold directly to the urban areas. Most rice is produced and marketed by a single large irrigation scheme for smallholders. Both wheat and rice are also often imported. Other than maize, staples produced by African smallholders include millets, sorghums, pulses, and various root crops. These are often of great importance in the particular local diets, but the total marketings of all of them together are only a fraction of the marketings of maize. Thus, in Kenya, when one talks of the African food supply or of a shortage of food one talks of maize.

The date 1942 was chosen as a starting point for the discussion because in that year the Government passed legislation establishing producer price guarantees for maize and other staple foods, placing ceilings on consumer prices of staples, and setting up a government marketing organization to purchase and dispose of the crops placed under

price controls. An organization with this same general purpose was still in existence in 1972, but this discussion of maize marketing terminates with 1966 because of the great changes that took place about that time in the maize industry. The chief of these was the introduction of hybrid maize on a commercial scale into both the large farm and smallholder sectors. This so changed the cost relationships of maize and other crops that the maize marketing organization faced a completely different problem after 1966 from the one it had dealt with up to that time. Major emphasis in the chapters that follow is placed on the period from 1952 to 1966, for it was during those years that the maize control organization experienced its greatest difficulties in the management of maize marketing policy. These difficulties resulted from the decline of the world maize price in 1952 to a level, near which it subsequently remained, at which the maize policy-makers found they could not break even on either exports or imports given their price policies. Examination of the implications of this situation is the basic aim of the analysis.

Chapter II establishes basic physical facts about maize production and consumption in Kenya during the period covered: the relative importance of maize and other crops in production and consumption, the geographical structure of the industry, and the location and magnitude of the major deficit and surplus areas. Chapter III is an account of the historical development of maize marketing policy and of the institutions of maize marketing. Chapter IV analyzes the problems that the maize marketing organization encountered between 1952 and 1966 in its attempts to pursue basically conflicting objectives. Chapter V summarizes the main findings of the thesis and gives a short account of the

problems encountered by the maize marketing policy-makers since 1966.

Main data sources for this investigation are published official documents of the Kenya Government and the Maize Marketing Board. I was able to obtain these during my stay in Kenya from 1964 to 1966. A great deal of additional information came from extensive personal interviews conducted between July and December of 1966 with European and African farmers; Assistant Agricultural Officers, Chiefs, and Sub-chiefs in the Government Service; officials of the Kenya Farmers' Association, the Maize Marketing Board and the Kenya Agricultural Produce Marketing Board; and many others. Much of the data one can obtain through all of these channels in a less developed country tends to be inconsistent. A large part of the work on this research project consisted of checking and comparing various pieces of information in order to extract a valid and consistent account of events.

CHAPTER II

MAIZE IN KENYA AGRICULTURE 1952-1966

This chapter combines a statement of the importance of maize in the production and consumption of food in Kenya with a short description of some important geographical aspects of staple food production and consumption patterns.[1]

The position of maize in the production and consumption of staple foods in Kenya

In the period covered in this thesis maize was Kenya's main staple food, providing for most of the population about 40 per cent of the calories they consumed. Other major staples were sorghum, millets, wheat, cassava several kinds of yams and potatoes, pulses, bananas, and sugarcane. The bulk of all staple food was produced and consumed on small African peasant farms averaging about 10 acres in size and supporting on average something like seven persons each.[2] For many of these small units sale of staple foods was a major source of cash.

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[1]Most of the statements made in the following paragraphs are still true in 1972. However, the introduction of hybrid maize on a large scale about 1966 changed many of the relationships described here enough to warrant use of the past tense to avoid inaccuracy.

[2]Colony and Protectorate of Kenya, Ministry of State for Constitutional Affairs and Economic Planning, Economics and Statistics Division, Kenya African Agricultural Sample Census, 1960/61 (Nairobi: Government Printer, 1962), Part I, pp. 26, 54. (Hereinafter referred to as Sample Census, 1960-61.)

Still only a relatively small proportion of total peasant production was sold outside the locality where it was produced. Kenya's large European commercial farmers grew most of the rest of the staple food supply, contributing most of the sugar and wheat, and about 10 per cent of the maize. Some maize was retained on the large farms to feed workers, but virtually all of the sugar and wheat, and about 75 per cent of the maize, found its way into the market. While Kenya regularly imported a portion of its requirements for sugar, frequently both imported wheat from abroad and exported it to neighboring countries, and either imported or exported maize almost every year, on balance the country was self-sufficient in staple foodstuffs between 1952 and 1966.[3] External trade in food staples played only a moderate role in the economy.

As about 60 per cent of the African food crop acreage was planted to mixtures a single figure cannot describe the importance of maize in African agriculture. In 1960-61 maize occupied almost 50 per cent of the acreage planted to pure stands of the different African-grown crops in the area surveyed, and it was planted together with one or more crops on 86 per cent of the acreage planted to mixtures of crops.[4] On European farms, in 1960-61, about 26 per cent of the acreage planted to staple foods was in maize, all of it in pure stands (Table 1).

Reasonably accurate estimates of the total production of staple foods, and of the proportion accounted for by maize, are more difficult

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[3] See below, pp. 138-40.

[4] Kenya, Sample Census, 1960-61, pp. 29-30. The year 1960-61 is the only year between 1952 and 1966 for which any attempt was made to get estimates of African acreages and production.

TABLE 1

Estimates of Total Acreages of the Main Staple Food Crops of Kenya[a]
1960-61 Season
(All figures are in thousands of acres)

Categories	Maize		Wheat	Other Temporary[b] Food Crops		All Temporary Food Crops		
	pure stands	mixed crops	pure stands	pure stands	mixed crops	pure stands	mixed crops	total acres
African Smallholders								
In sample census	664	1777	. .	689	2671	1353	2063	3409
Not in sample census[c]	. .	. .	. .	. .	. .	(355)	(545)	900
Large Commercial Holdings								
Commercial acreage	142	. .	248	154	. .	544	. .	544
Employee cultivation	. .	. .	. .	. .	. .	(24)	(36)	60
Totals								
Surveyed areas	806	1777	248	843	2671	1890	2063	3953
Overall[c]	. .	. .	. .	. .	. .	(2269)	(2644)	4913

Sources: Kenya, Sample Census, 1960-61, pp. 29-30; and Kenya, Ministry of Economic Planning and Development, Statistics Division, "Agricultural Census: Large Farm Areas, 1964," (Mimeographed).

TABLE 1--Continued

Notes:

[a]Figures include acreages in both crop cycles where relevant. For individual crops, acreages listed under "mixed crops" include all acres on which the crop was planted. Thus total acreage of crops planted in mixtures is smaller than aggregate acreage of individual crops planted in mixtures. On average, each acre of mixed crops contained 2.17 different crops.

[b]In African smallholder areas this category includes 2700 acres of wheat. The category omits non-food crops. In African areas 37,000 acres of pure stands and 12,000 acres of crops in mixtures, mainly cotton and pyrethrum, are excluded. In large farm areas 81,000 acres, primarily in mulch grass and pyrethrum, are omitted.

[c]I have broken down total acreages of temporary food crops into pure stands and mixtures in this category, but there is no basis for doing the same for individual crops.

to get. Table 2 summarizes the statistics available on production for 1960-61. The production estimates in this table have been described as high, but probably the proportions in which different crops were produced are more accurately indicated than the absolute levels.[5] If this is so then maize accounted for about 52 per cent of total staple food production in the African areas sampled in 1960-61. Maize accounted for about 36 per cent of total staple food production of large farms in 1960-61. In other words, these figures indicate that maize accounted for a little less than 50 per cent of total staple food production.

No countrywide studies were conducted on staple food consumption in Kenya before 1966. The following brief remarks are based on fragment-

[5][J. R. Peberdy], "Maize," (Memorandum for the Agricultural Development Plan Meeting held in the Ministry of Agriculture and Animal Husbandry on the 6th, 7th and 8th September, 1966, mimeographed). Peberdy estimated total African maize production to be nearer 10,600,000 bags than the 14,000,000 bags generally used as an official figure on the authority of the 1960-61 sample census. However, his estimates were not based on statistical surveys but on personal knowledge and the reports of agricultural officers in the field.

TABLE 2

Crop Production Estimates
1960-61
(All figures are in thousands of bags of maize or equivalent)

Crop	African Agricultural Areas			Large Farms	Totals
	in sample census	not in sample census	Totals		
Field Crops					
Maize	12224	n/a	n/a	856	n/a
Wheat	. .	n/a	n/a	1114	n/a
Millets	1990	n/a	n/a	. .	n/a
Sorghum	2180	n/a	n/a	. .	n/a
Pulses	2805	n/a	n/a	. .	n/a
Others	3175	n/a	n/a	415	n/a
Totals	22374	5910	28284	2385	30669
Bananas	n/a	n/a	747	. .	747
All Food	n/a	n/a	29031	2385	31416

Sources: Kenya, Sample Census, 1960-61, Part I, pp. 29, 49-53; Kenya, "Agricultural Census of Large Farm Areas, 1964," Tables 4, and 6-8; and Kenya, Department of Agriculture, Annual Report, 1962, Vol I. (Nairobi: Government Printer, 1963), p. 19.

Notes:

Hiromitsu Kaneda and Bruce F. Johnston, "Urban Food Expenditure Patterns in Tropical Africa," Food Research Institute Studies, II, No. 3, 1961, p. 275 (Hereinafter referred to as "Urban Food.") give the following estimated caloric counts for African foodstuffs, in calories per pound: maize, 1615; rice, 1619; beans, 1520; sugar, 1755; manioc, 494; yams, 408; plantains, 340; sweet potatoes, 440.

In making the calculations in Table 2 it was assumed that equal weights of maize and other grains represent equal numbers of calories, bags of pulses represent about 10 per cent fewer calories and bags of sugar about 10 per cent more calories than bags of grain. Where yields (in tons) were available root crops were converted to grain units by dividing their weight by four. Where yields of root crops were not available the acreages planted to them were, as a first approximation, assumed to produce the same yields in calories as acres planted to grain.

ary evidence from various sources. One study of African consumption patterns claims that cereals, roots, tubers, and plantains (bananas) account for 60 to 85 per cent of total caloric intake in tropical Africa, in urban as well as rural areas. If sugar and pulses are included, the proportion of calories derived from the main staple foods--excluding animal products, vegetables, and fruits--must be no less than 80 to 95 per cent. Another study of poor countries all over the world concludes that about 90 per cent of calories is provided by the main staple foods. The remainder comes from animal products, fruits and vegetables.[7] Only where incomes are considerably higher, or in areas where livestock is particularly important, do animal products begin to be substantially more important. Vegetables and fruits are said to provide nowhere more than a negligible proportion of total calories.

Kenya's population may be divided into African smallholders, Africans working in large farm and plantation regions, African urban dwellers, nomadic pastoralists, and non-Africans. On the basis of various sources it may be estimated that grains, root crops, pulses, bananas and sugarcane make up about 90 per cent of the diet of African smallholders and Africans living in large farm areas, and only 10 per cent of the diet of nomadic pastoralists. The diet of African urban dwellers consists to about 80 per cent of these staples and that of non-Africans to about 60 per cent (Table 3). The same estimates suggest an average caloric intake per day in Kenya of between 2200 and 2600, or

[6]Kaneda and Johnston, "Urban Food," p. 238.

[7]"Food Supply of the World," Encyclopaedia Britannica, 1968, IX, p. 563.

TABLE 3

Staple Food Calories as a Per Cent of Total Consumption by Population Group

Population Group	Population[a] (thousands)	Staple Calories[b] in Diet (percentage)
African Smallholders	6319	90
African Urban Dwellers	442	80
Non-Africans	270	60
Nomadic Pastoralists	802	10
Africans in Large Farm Areas	799	90
Totals	8632	81[c]

[a]W. T. W. Morgan and Manfred N. Shaffer, Population of Kenya, Density and Distribution (Nairobi, Oxford University Press, 1966).

[b]The percentage figure for African smallholders, and that for nomadic pastoralists, receive some support from the relative holdings of the two groups in livestock, as well as from the study cited in Note 7, p. 9. African smallholders possess about a tenth of the stock units per person possessed by nomadic pastoralists (see Table A17, p. 213). The figures for nomadic pastoralists, African urban dwellers, and non-Africans may be too low, but those for African smallholders and Africans in large farm areas certainly are not much too low, and may be too high.

[c]Average, weighted by population in each consuming group.

between 2.48 and 2.98 bags of maize or its equivalent per year.[8] This gives a total annual consumption between 21,400,000 and 25,400,000 bags of maize or the equivalent in other foods, of which about 81 per cent or between 17,400,000 and 20,600,000 bags would be staples included in the list above. These estimates are, of course, for actual consumption of calories, and include no waste.

The very large difference between the staple food production and consumption estimates is probably in part the result of production over-estimates in the 1960-61 census of African farming areas. How-

[8]Ibid.

ever, a substantial difference should exist between the two estimates in any case. The production estimate is a maximum one. The yield figures on which it was based were made from sample harvests of fields of standing crops before the main harvest began and they refer to biological yields. To get figures for net usable production (or barn yield) one would have to take account of losses during the period of harvest, the reduction in caloric content of all maize and other produce eaten green or only partially ripe, and incomplete harvesting of cassava. Losses in storage and transport, seed retained for the next crop, food fed to livestock, and losses in processing would all reduce the amount of usable food actually reaching the consumer. Once the food reached the consumer there would be further losses in food preparation, and some waste food. The difference between the production and consumption estimates is a little more than a third. It is unlikely that there were such big losses in Kenya.[9] Some of the losses in 1960-61 were made up by net staple food imports of about 1.3 million bags.[10] It seems reasonable to suppose that Kenya farms produced at least 20,000,000 bags of maize or the equivalent in other staples in 1960-61, but not as many as 30,000,000 bags, regardless of the actual size of the losses from harvest to table. A reasonable estimate for 1960-61 is about 25 million bags.

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[9] Marvin P. Miracle, Maize in Tropical Africa (Madison: The University of Wisconsin Press, 1966), p. 241. Miracle assumes 5 per cent storage losses and 2.5 per cent seed retention for the drier areas of Africa (outside the rain forest.) The use of staple foods as feedstuffs for livestock is negligible in Kenya. Processing losses for maize and wheat are generally small. Other losses cannot even be guessed at. On the basis of these figures total losses of 10 per cent may be assumed.

[10] See below, Table 27, p. 139.

Whatever the figure for total consumption, estimates of the proportion of total consumption which consists of maize agree in placing it at about 40 per cent, in terms of calories. This is not unreasonable, given that the proportion of maize in production of staple foods was under 50 per cent and the proportion of staples in the diet of the country was about 80 per cent. The results of a small nutrition survey in rural areas of Kenya, and some estimates of the importance of maize in urban diets in Nairobi derived from a survey of monthly income and expenditure of low income workers are given below (Table 4). In both of these surveys, inadequate as they were, maize consumption, in terms of calories, was estimated to be about 40 per cent of total calories. Urban and rural populations differed not in their maize consumption but in their consumption of other staples. The urban workers consumed much larger quantities of "modern" foods such as potatoes, rice, and bread, while the rural families consumed mainly "traditional" foods such as cassava, millets, and sorghum. In fact, it appears that almost all of Kenya's production of wheat and rice was consumed either by African workers in the modern sector or by non-Africans. Using evidence from the 1950's, Miracle suggested that Kenya belonged to a group of African countries where maize provided half or more of the calories provided by starchy staples (excluding pulses). As Miracle arbitrarily assumes that starchy staples provide about 70 per cent of the calories in African diets, he therefore places consumption of calories in maize at no less than 35 per cent of

TABLE 4

Percentage of Calories in the Diet of Africans Provided by Main Staple Foods

Items in Diet	Urban[a] Percentage	Rural[b] Percentage	Nomadic[c] Pastoral Percentage
Cereals/roots (maize)	65 (40)	60 (40)	. .
Pulses	5	15	. .
Animal Products	10	10	90
Unspecified	10	15	10

[a]Kenya, Ministry of Economic Planning and Development, Statistics Division, Statistical Abstract, 1965 (Nairobi: Government Printer, 1965), Table 136, "Average Monthly Income and Expenditure of Africans in Nairobi, 1957-58," p. 108. Estimates were made by dividing the amount spent on each product by an estimate of its price in Nairobi in 1957-58 and assuming that cereals, sugar, and pulses all had about the same number of calories per pound. For the procedure for root crops see Footnotes to Table 2.

[b]These figures are from an incomplete nutrition survey by the World Health Organization. The figures were provided by the person making the survey, Ms. Gibbs, in an interview at the offices of the World Health Organization in Nairobi, December 9, 1966. Only eight sub-locations were included in the survey, but these were scattered over Central Province, Machakos, Kitui, and Central Nyanza. Times of year varied from January 1965 through March 1966.

[c]J.R. Peberdy, "Rangelands," in W.T.W. Morgan, East Africa: Its Peoples and Resources (Nairobi: Oxford University Press, 1969), pp. 165-171.

total calories.[11] Finally, in answers to questions put to Africans in the course of interviews in 1966, Africans invariably guessed that maize provided between a third and a half of the bulk food consumption of Africans in rural areas of Kenya.

Kenya's main regions

Kenya may be divided into five major geographical regions, as shown on Map 1. Three of these form the Kenya Highlands and shall be discussed as a unit. A fourth is the agricultural region lying along the Coast of Kenya. The fifth is the rest of the country, consisting of grazing lands, dry bush, and desert land.

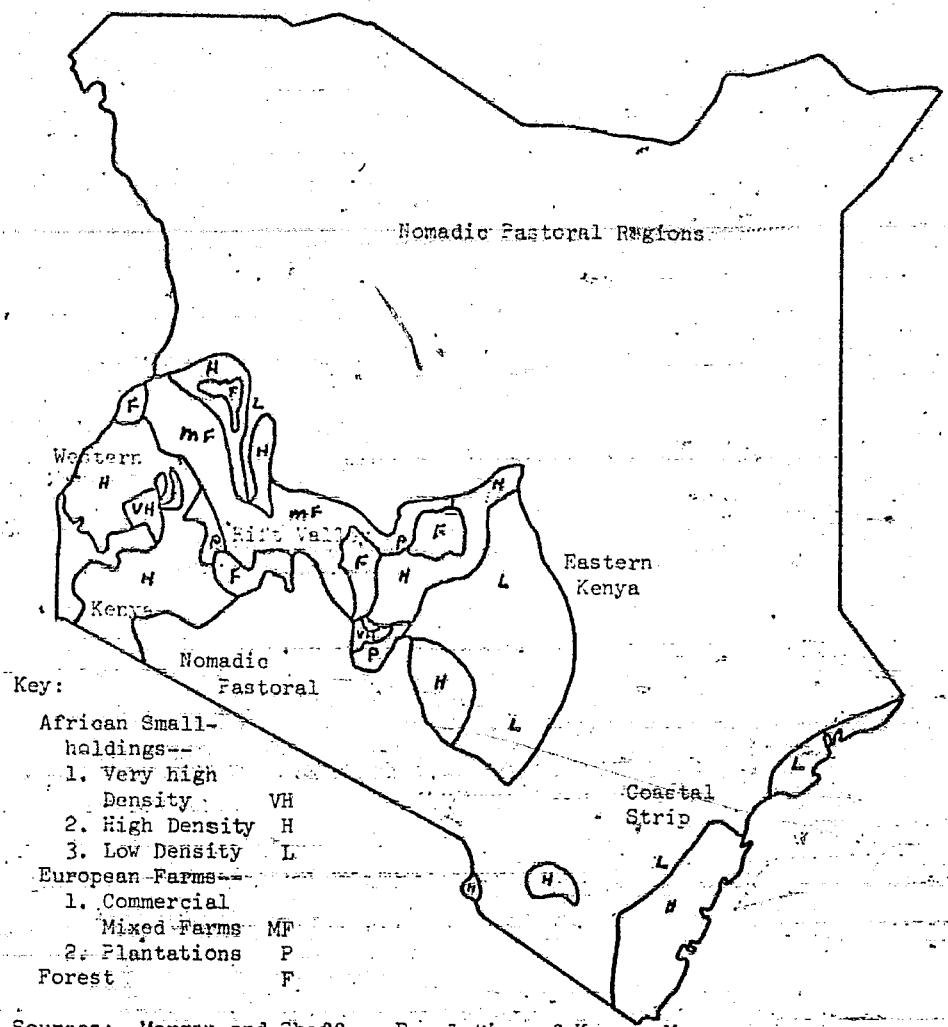
The Kenya Highlands contains about 19.5 per cent of Kenya's land area and 79 per cent of her African population (Table 5). It consists of an agricultural region of large commercial farms and plantations sandwiched between two regions of African smallholdings. The western region of African smallholdings (Western Kenya) is the most populous and most suited for staple food production. Among African areas it has always been the major supplier of food surpluses to the rest of the country, and maize was the major cash crop until about 1964 (when coffee supplanted it for the first time in value).[12] Western Kenya was almost entirely rural, with a largely self-contained local economy in which localities were linked by a reasonably adequate road network and

[11] Maize in Tropical Africa, p. 112. The figure of 70 per cent is probably not unreasonable in Kenya, where pulses account for not much less than 10 per cent of staple food production.

[12] Kenya, Department of Agriculture, Annual Report, Vol I, Report of the Director of Agriculture, various years (Nairobi: Government Printer, various years).

MAP 1

Kenya's Main Regions



Key:

African Small-holdings--
1. Very high Density VH
2. High Density H
3. Low Density L

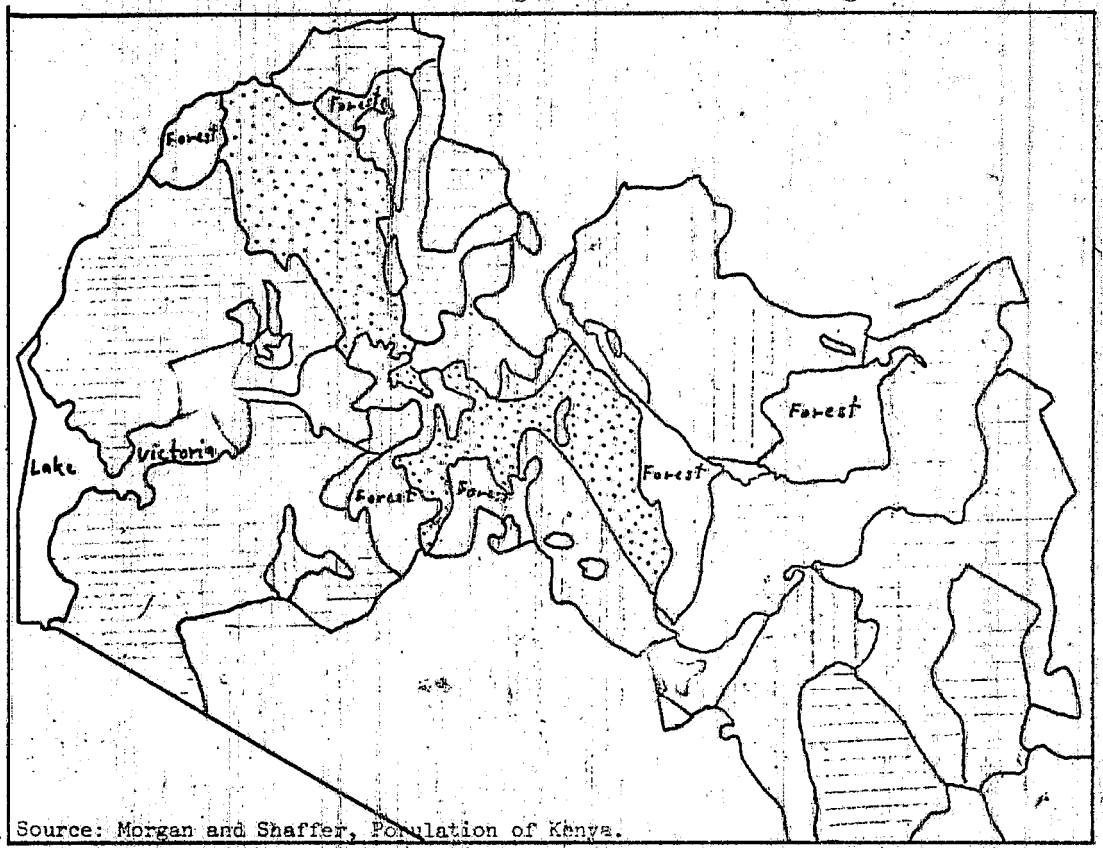
European Farms--
1. Commercial Mixed Farms MF
2. Plantations P

Forest F

Sources: Morgan and Shaffer, Population of Kenya, Map , p.

MAP 2

Agriculture in the Kenya Highlands



Key:

African Smallholdings

1. Very High Density
2. High Density
3. Low Density

Large European Farms

1. Commercial Mixed Farms
2. Plantations
3. Commercial Ranches

Source: Morgan and Shaffer, Population of Kenya.

TABLE 5

Area and Population of Kenya's main Regions

Region	Total land area[a]	Total Population			Urban		Forest and Park		Rural[b]	
		Total	Non-African	African	Land area	African population	Land area	African population	Land area	African population
	sq. mi.	thousands	thousands	thousands	sq. mi.	thousands	sq. mi.	thousands	sq. mi.	thousands
Kenya Highlands	55,026	7130.1	183.3	6946.8	131	309.9	10,137	78.0	44,758	6558.9
Western Kenya	9,090	2989.0	18.0	2971.0	15	21.0	496	2.3	8,579	6558.9
Rift Valley African	6,910	350.0	0.3	349.7	. .	. .	533	. .	6,377	349.7
Eastern Kenya	23,985	2545.0	10.0	2535.0	16	25.5	6,747	25.0	17,222	2484.5
Large Holdings	15,041	1246.1	155.0	1091.1	100	263.4	2,361	50.7	12,580	777.0
Coast	13,971	677.4	77.7	599.7	86	118.3	3,646	0.1	10,239	481.3
African	13,540	632.2	77.7	554.5	86	118.3	3,646	0.1	9,808	436.1
Large Holdings	431	45.2[c]	. .	45.2[c]	. .	. .	. .	. .	431	45.2[c]
Nomadic Pastoral	150,802	826.2	10.3	815.9	10	13.6	1,046	. .	149,746	802.3
Total	219,789	8633.6	270.3	8363.3	277	441.8	14,829	78.1	204,743	7843.4

Source: Morgan and Shaffer, Population of Kenya, pp. 18-22.

Notes: [a]The land area given here is that within the administrative districts placed in each category. In the Kenya Highlands are Central Province (less 344 square miles and 5,000 persons belonging to Mukogodo Division of Nanyuki District), Nairobi Extra Provincial District, Nyanza Province, Rift Valley Province, Machakos District, and Kitui District. The Coast consists of Kilifi, Kwale, and Taita Districts of Coast Province. The Nomadic Pastoral areas include all of Kenya not occupied by the Highlands.

[b]This category includes both arable and range land. [c]My estimate.

by long-established trading relations.[13]

Western Kenya contained two major sub-regions. The larger one consisted of Kenya's share of the Lake Victoria Basin, which has been primarily agricultural for a very long time.[14] The smaller sub-region, Kericho/Nandi, was populated less densely by two tribes that took up agriculture for the first time in the 20th century. Though now fully settled on the land, they still retain more cattle than their neighbors.

The Eastern Region of African smallholders, (henceforth referred to as Eastern Kenya) was very different from Western Kenya. It was much more likely to be short of food than Western Kenya. Though wide areas could harvest two crops a year neither was very likely to be good, and most of the region was overpopulated. There are three quite different sub-regions. The most populous and important, Central Province, contained a densely settled African peasant population far on the way to full integration with the modern sector. A substantial number of small and prosperous commercial farmers existed alongside a mass of small peasant farmers and a large contingent of landless (or nearly landless) rural workers. The peasants were in the process of becoming either modern farmers or landless workers. The nearby plantations and urban areas

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[13] Separated from Western Kenya by a wide strip of large commercial mixed farms is a smaller region of agriculturalists and semi-pastoralists on the western rim of the Great Rift Valley. This relatively isolated region has poor internal transportation, no internal urban market, and relatively little cash crop development. The region appears to be self-sufficient most of the time, but there is little information on which to base a judgment. Its marketings of maize and other staples seem to be included in the statistics for the large farm sector.

[14] This sub-region was roughly coterminous with the boundaries of Nyanza Province before 1964, and of Nyanza and Western Provinces together after 1964. "Central Province" refers here to the African districts of Kiambu, Nyeri, and Fort Hall.

provided both a market for the produce of Central Province and work for many of its people. In staple foodstuffs the region had a very precarious self-sufficiency most of the time. Ecologically quite similar to Central Province are the upper portions of Embu and Meru Districts (henceforth referred to as Embu/Meru). They were less densely populated and farther from markets than Central Province, so that their evolution in the direction of a modern wage economy was not as rapid. In this Embu/Meru resembled Western Kenya. Embu/Meru had both a stable surplus of staple foods and a substantial non-food cash crop production capable of considerable expansion. The third major sub-region of Eastern Kenya is Machakos/Kitui, consisting of the agricultural portions of those two districts and parts of the lower zones of Embu and Meru. Machakos/Kitui was a land of feast or famine with much wider fluctuations in staple food supplies from year to year than other major agricultural regions, resulting in either large surpluses or large demands for staple food imports.

Kenya's large commercial holdings in the White Highlands or "Scheduled Areas"[15] consisted of plantations of tea, coffee, sugar, or sisal; cattle or sheep ranches; and large mixed farms which ran cattle and grew wheat, maize, barley, oats, pyrethrum, and wattle. Excluding ranches, the average holding was about 1000 acres in 1962. The plantations and ranches were major net purchasers of staple foods from the

[15] The terms may be used interchangeably for the area reserved for European settlement in Kenya's highlands. "White Highlands" is the popular name, while "Scheduled Areas" is the technical term. Before 1962 the "Scheduled Areas" were reserved for Europeans. Their status was changed at that time to allow African ownership. Since then much of the land has been acquired by African individuals or syndicates, or by the Government, which has divided more than a million acres into small plots for settlement from the African farming areas.

other agricultural areas, and are important to this study only in that capacity. The large mixed farms provided virtually all of Kenya's wheat and about half of the officially marketed maize. However, neither wheat nor maize was the most important income earner of mixed farms. After the early 1950's, when the Government made a concerted effort to encourage diversification in the grain growing areas, the production of animal products grew in importance so that by the early 1960's it was more important than cereals.[16]

Within or adjoining the large commercial holding areas are most of the main urban centers of the Kenya Highlands. Nairobi is by far the most important of these. In fact, Nairobi and the plantations and ranches around it contained about 45 per cent of the total population classified as urban plantation or ranch, and more than 7 per cent of the total population of the country in 1962.[17]

The fourth major region of Kenya consists of agricultural areas on the Coast and two smaller areas of cultivation within the coastal region. The region contained 4.6 per cent of Kenya's land area and about 6 per cent of the African population. The Coastal Strip has poor, thin soils. Only a small strip of land directly along the coast receives sufficient rainfall for intensive farming. While the rural areas were generally self-sufficient the region contained a large urban population that could not be adequately supplied from its own hinterland. The two "population islands" of Taita and Taveta are self-sufficient enclaves

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[16]Kenya, "Agricultural Census of Large Farm Areas, 1964."

[17]See Table 7 below, p. 24.

far from markets -- quite similar in climate, language, and customs to Eastern Kenya only much smaller. Outside of these three agricultural areas the whole Coastal region is arid and virtually empty.

The nomadic pastoral areas of Kenya, and large European ranches, occupy 69 per cent of Kenya's total area but contain only 10 per cent of her population. This region produces almost no agricultural staples, but the nomadic pastoralists are largely self-sufficient from the rearing of animals. Only in certain areas, most notable Turkana, have the pastoralists so overgrazed their land that they suffer severely from drought even in moderately dry years. More and more often, the overgrazed areas require famine relief from the Government, since in a poor year they have nothing to sell for cash to buy food.

Regional surpluses and deficits of staple foodstuffs

While it is not possible to specify the absolute relationship of staple food supplies to population in each of Kenya's main regions, the regions may be ranked according to their position on a scale of relative surpluses or deficits of staple foods.[18] At the top of the scale are the three consistent agricultural staple surplus areas: Western Kenya, Embu/Meru and the European large mixed farming regions. The main agricultural staple deficit areas include all urban centers,

[18] A surplus region produces enough food every year to be a net supplier to other regions. A deficit region must import from other regions every year. A region is self-sufficient if it normally produced just about the food it consumes, though it may have to import, or may export, food in some years.

European plantations and ranches, the nomadic pastoral areas, and three over-populated African rural areas.[19] All other African agricultural areas may be termed broadly self-sufficient in agricultural staples, though some areas tend to deficits, others to surpluses, and a few to wide fluctuations from deficit to surplus. With respect to animal products the main surplus areas are the European mixed farms and ranches, and the nomadic pastoral areas. A few African agricultural areas have surpluses of animal products, but most are net importers, though low incomes hold down demand. The main deficit areas for animal products, as for other food staples, are the urban and plantation areas.

Table 6 gives rough figures for the relative populations of the surplus, deficit, and self-sufficient regions of Kenya. The relatively large region of rural self-sufficiency is important because of the variability it introduces into the demand and supply of staple foodstuffs. The deficit regions provide from year to year a rather stable market demand for staple foods. There are six main deficit regions which may be identified by the name of their main urban area; i.e. Nairobi, Mombasa, Kericho, Kisumu, Nakuru, and Nyeri.[20] Table 7 shows the relative sizes of these regions. Map 3 is a stylized picture of the spatial arrangement of deficit, surplus, and self-sufficient regions, showing the population weights of each.

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[19]Three divisions of Kiambu District; Vihiga Division of Kakamega (North Nyanza) District, and Winam Division of Central Nyanza; and portions of Machakos District.

[20]Other local centers of staple food demand are scattered through the producing areas -- towns like Kitale, Eldoret, Kakamega, Kisii, Homa Bay, Machakos, and Kitui, as well as plantations in Coast Province, schools, sawmills, and ranches.

TABLE 6

Population by Type of Crop Production Zone
1962 Census

Region	African Population of Surplus Food-producing Areas		African Population of Rural Self-sufficient Areas		Population of Food Deficit Areas[a]		Percentage of Total Population in Kenya
	thousands	per cent in region	thousands	per cent in region	thousands	per cent in region	
Western Kenya	2610[b]	87.3	. .	. .	379	12.7	34.6
Nyanzas	2233	85.5	. .	. .	378	14.5	30.2
Kericho/Nandi	377	99.7	. .	. .	1	0.3	4.4
Rift Valley African	. .	. .	350	100.0	. .	. .	4.1
Eastern Kenya	705	27.7	1607	63.1	233	9.2	29.5
Central Province	. .		750	77.6	216	22.4	11.2
Embu/Meru	705	92.4	49	6.4	9	1.2	8.8
Machakos/Kitui	. .	. .	808[c]	99.0	8	1.0	9.5
Coast[d]	. .	. .	459	67.8	218	32.2	7.8
Nomadic Pastoral	. .	. .	657	79.5	169	20.5	9.6
Large Commercial Holdings	466	37.4	. .	. .	780	62.6	14.4
Total Kenya	3781	43.8	3073	35.6	1779	20.6	100.0

Source: Morgan and Shaffer, Population of Kenya.

TABLE 6--Continued

Notes:

[a]This figure includes African and non-African urban, plantation, and ranch population and the population of three rural deficit areas--the thickly settled portions of Kiambu District, the area around Kisumu in Central and North Nyanza, and the nomadic pastoral area of Turkana.

[b]Parts of Western Kenya are merely self-sufficient, but the region as a whole is a substantial surplus area even in the worst years.

[c]Parts of Machakos District regularly need imports of food but are capable of a surplus in a good year, even of a large surplus.

[d]Includes Mombasa and the plantations in Coast Province.

TABLE 7

The Population of Kenya's Deficit Areas
1962 Census

Deficit Area	African Urban and Non-African Population		Plantation and Ranch African Population		African Smallholder Population		African Nomadic Pastoral Population		Total Population of Deficit Areas	
	thousands	per cent	thousands	per cent	thousands	per cent	thousands	per cent	thousands	per cent
Nairobi	289	43.4	178	26.7	199	29.9	. .	. .	666	37.0
Kisumu	23	6.2	. .	. .	348	93.8	. .	. .	371	20.6
Mombasa	180	100.0	. .	. .	. .	. .	. .	. .	180	10.0
Kericho	8	7.1	105	92.1	. .	. .	. .	. .	113	6.3
Nakuru/Gilgil	49	76.6	15	23.4	. .	. .	. .	. .	64	3.6
Nyeri/Nanyuki	24	43.6	31	56.4	. .	. .	. .	. .	55	3.0
All Others	139	39.4	45[a]	12.7	. .	. .	169[b]	47.9	353	19.6
Total Kenya	712	39.5	374	20.8	547	30.3	169	9.4	1802	100.0

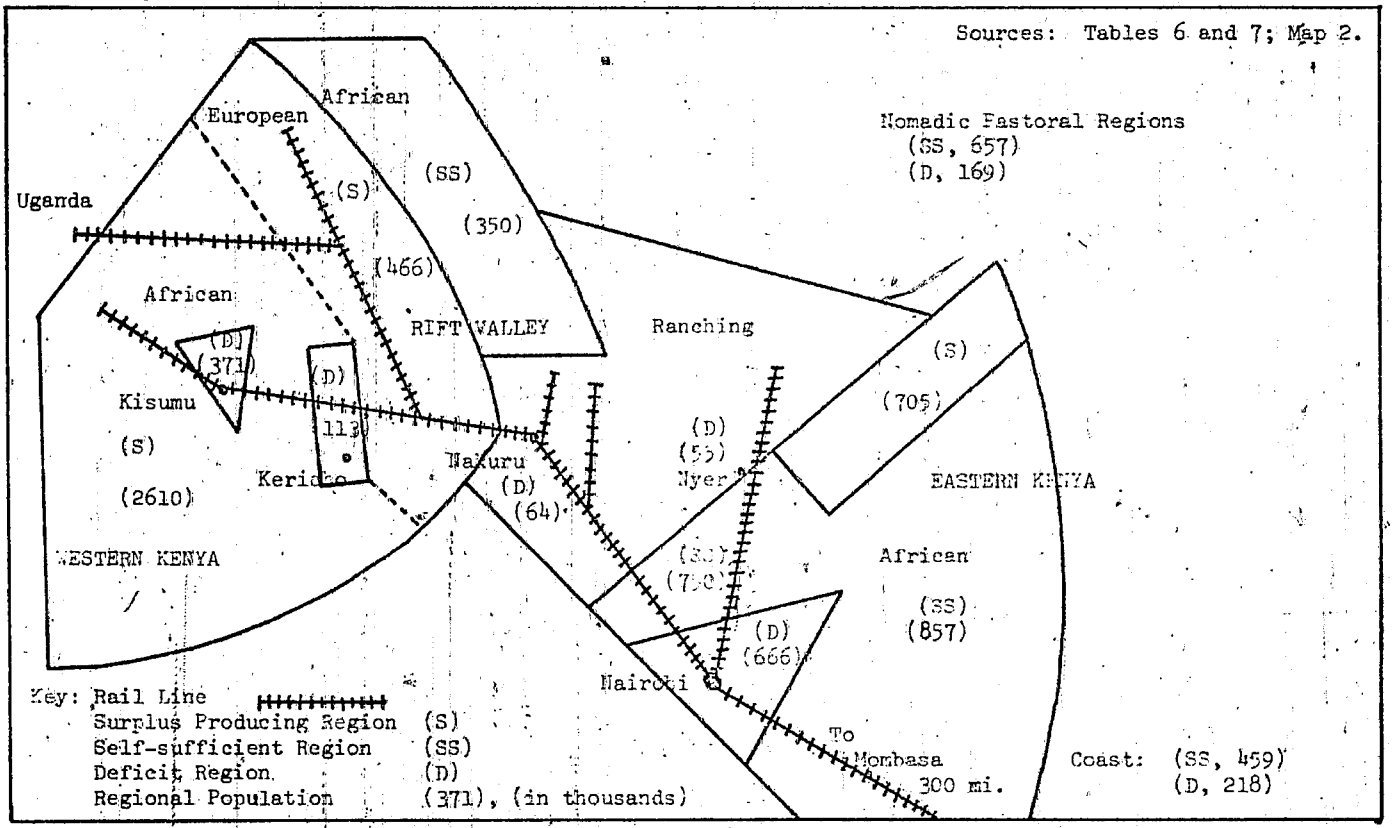
Source: Morgan and Shaffer, Population of Kenya.

[a]Estimated plantation population of Coast Province.

[b]Nomadic pastoral population of Turkana District.

MAP 3

Location and Population of Kenya's Main Surplus, Self-sufficient, and Deficit Regions



CHAPTER III

MAIZE MARKETING
1942--1966

The purpose of this chapter is to describe the development of maize marketing policy and the organization of maize marketing in Kenya from 1942 to 1966 -- i.e. from the beginning of government control of maize marketing to the year in which the acreage of hybrid maize grown in Kenya reached a level high enough to affect the nationwide demand and supply situation. However, some background information on maize in the 1920's and 1930's is provided because the roots of many aspects of controlled marketing are to be found in that period.

It may be useful to point to several elements of continuity in Kenya's maize marketing policy which appear at the latest in the 1930's and carry through the entire subsequent period covered by the narrative. Most important, the Kenya Government found itself arbiter, where maize marketing policy was concerned, in the affairs of three distinct interest groups: European producers, African producers, and consuming interests including millers, large employers, and in later years the African workers. The Government never fully identified itself with any one of these groups. Indeed maize marketing policy is one arena in which one can see the limits of the power of the European farmers to work their will with the Government. Second, the Government itself had two overriding aims in maize marketing policy: to make sure there was enough food in Kenya for the population, and to

avoid direct subsidies to producers or consumers of maize from the Treasury. A third important continuity is the predilection of Kenya officials to set uniform prices -- to see a price that is the same for the whole country and for the whole year as somehow desirable or fair. The policy-makers took account of different grades of maize, differences in handling costs between bulk and retail collection or sale, and differences in other costs; but a mere difference in location or in the time of year did not seem to them to constitute a generally valid reason for paying or charging different prices.[1]

Maize Marketing Prior to Government Controls

Before 1900 maize was not widely used as a main food staple. Nevertheless it was grown by Africans in most parts of Kenya, more widely at the Coast and Eastern Kenya than in Western Kenya. The early growth of maize production, in both European and African farming regions, and particularly in Western Kenya, most probably traces to a growing demand for an easily storable and transportable source of food grains for Africans working in the European sector, and to the introduction of new strains of maize by the Europeans. It became very early the standard ration staple throughout the modern sector. Introduced in this way into the diets of large numbers of African workers, maize gradually supplanted millets, sorghums, cassava, and other traditional crops as the major staple food in rural areas. By 1914, maize had even become an African cash crop and was being exported in

[1] In 1959 the Government introduced transport differentials into the price structure. See below, p. 78.

substantial quantities by European farmers.[2]

The growth of maize production and export in the 1920's

After the First World War maize grew rapidly in importance as an export of European farmers. In 1922 the Government began giving special encouragement to the export of maize through rail transport subsidies and the construction of a conditioning plant at Mombasa.[3] Together with favorable world market maize prices these steps were sufficient to encourage European farmers to expand maize acreages rapidly. The year 1930 saw a level of production never since reached by European farmers and exports surpassed only in the year 1967 (Table 8). By the late 1920's maize was Kenya's third most important export crop, after coffee and sisal. Maize and maizemeal averaged 12.5 per cent of Kenya's domestic exports by value between 1928 and 1933, with a high point of 18 per cent in 1931.[4] European growers supplied, in addition to most of the exported maize, more than half of the increasing quantities of maize marketed internally outside the area where it was produced. In 1920-22 European farms provided about 130,000 bags of

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[2]The information in this paragraph is a summary of material from Miracle, Maize in Tropical Africa, pp. 98-100; Masao Yoshida, "The Historical Background to Maize Marketing in Kenya and its Implications for Future Marketing Reorganization," Economic Development Research Project Paper No. 91, (Kampala: Makerere University, East African Institute for Social Research, 28 January, 1966, Mimeographed); and M.F. Hill, Permanent Way (Nairobi: Kenya and Uganda Railways and Harbors Administration, [1950]).

[3]Report of the Economic Development Committee, including Minority Report and Notes of Dissent, G.R. Sandford, O.B.E., Chairman (Nairobi: Government Printer, 1935), p. 58. (Hereinafter known as Report of the Economic Development Committee.)

[4]Ibid., pp. 32-33.

TABLE 8

Production, Marketing, and Export of Maize in Kenya
1919-1920 to 1941-42

Crop Year[a]	European Acreage	Total European Production	African Marketings	Calendar Year	Maize Grain Exports
	thousands of acres[b]	thousands of bags[b]	thousands of bags[c]		thousands of bags[b]
1919-20	32	317		1920	188
20-21	31	165		21	29
21-22	57	339		22	217
22-23	75	518		23	490
23-24	108	837		24	652
24-25	130	893		25	683
25-26	156	927		26	520
26-27	178	1315		27	1001
27-28	177	1089		28	500
28-29	205	1099		29	434
29-30	234	1859		30	1245
30-31	201	1650	300-400	31	1042
31-32	161	763	" "	32	289
32-33	164	1140	" "	33	635
33-34	113	747	" "	34	246
34-35	no census	n/a	" "	35	671
35-36	118	1012	337	36	813
36-37	no census	n/a	440	37	408
37-38	113	968	698	38	660
38-39	no census	n/a	726	39	568
39-40	94	618	732	40	(204)[d]
40-41	no census	n/a	711	41	284[e]
41-42	63[f]	n/a	716	42	156

[a]Before 1925 crop years ended on 30th June. Between 1925 and 1930 they ended on 31st July. From 1930 to 1940 they ended on 28th February.

[b]Figures for 1919-20 through 1939-40 and for calendar years 1920-40 are taken from Yoshida, "Background th Maize Marketing," p. 6; figures for 1940-41 and 1941-42 from sources as given in the notes e and f below.

[c]Figures for 1930-31 through 1934-35 are based on a comment in Report of the Economic Development Committee, pp. 200-01; figures for 1935-36 through 1939-40 are from Yoshida, p. 5; figures for 1940-41 and 1941-42 are from Knowles, "Agricultural Marketing in Kenya," p. 27.

[d]Report of the Maize Commission of Inquiry, Chanan Singh, Chairman (Nairobi: Government Printer, 1966) gives no exports of maize grain for this year.

[e]Ibid., p. 194. [f]Miracle, Maize in Tropical Africa, p. 140.

maize per year, on average, to the internal market. In 1928-31 the European farmers provided an average of 625,000 bags of maize per year to the internal market, an increase of almost 500 per cent.[5]

African production and rural consumption of maize certainly increased during the 1920's. Agricultural reports of the period speak of the successful introduction of new seeds, plows, and methods of cultivation into African areas, and observers report that maize was becoming the main staple food of many groups of cultivators.[6] It is not certain that African marketings of maize to the modern sector increased much. One source estimates African maize marketings in the range of 300,000 to 400,000 bags per year in the early 1930's, placing total domestic market sales in the early 1930's at about 900,000 to 1,000,000 bags per year.[7] If African sales expanded much from 1920 to 1930, then total domestic market sales must have been substantially less than 500,000 bags in 1920. This is possible, in light of the rapid expansion of employment and production in Kenya's modern sector during the 1920's. It does suggest, however, that the share of European maize in the internal market grew during the 1920's.

The maize industry and government policy in the great depression

The severe crisis that descended upon the modern agricultural sector of Kenya with the onset of the depression is generally agreed to

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[5] Ibid, p. 200.

[6] Yoshida, "Background to Maize Marketing", p. 1; and Miracle, Maize in Tropical Africa, pp. 140-41; and Table A3, p. 196.

[7] Report of the Economic Development Committee, pp. 200-201.

have been the result of three factors: the very high ratios of debt to equity in the capital structure of European farming incurred during the rapid expansion in the last half of the 1920's; the large fall in the prices of Kenya's primary exports, which was much greater than the fall in the prices of imported goods; and the stickiness of rail transport and ocean freight costs, which are said to have actually risen slightly between 1929 and 1935.[8] London maize prices fell by about 50 per cent between 1928 and 1933. As a consequence the price to the grower of exported maize (Freight on Rail) at the nearest rail station declined by more than 70 per cent.[9]

The Government did little to help maize producers. To cushion the fall in maize export prices the Government was persuaded in 1930 and 1931 to extend loans to individual farmers and to make an interest free loan to cereals producers as a group, to maintain a minimum maize producer price and for rebates on transport costs. This loan was to be repaid as soon as world market prices rose above a specified level.[10]

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[8] Report of the Economic Development Committee, p. 48,

> "Costs of transport have not decreased with the fall of prices. They have, on the contrary, shown a tendency to increase during the past six years."

and p. 202,

> "With the fall in world prices and general depression the Railway Administration, owing to its reduction in traffic, has in in order to balance its budget increased the export railage and port charges on maize from sh. 16/20 to sh. 18/75 per ton, while the shipping companies have increased their freight from sh. 17/50 to sh. 19/25. These added costs of marketing have aggravated the difficulties of the producer and reduced his net return."

[9] Ibid.

[10] Ibid., pp. 10-11; and Yoshida, "Background to Maize Marketing," pp. 2-3.

The worsening financial position of the Government in the following years prevented any further loans to the Maize industry.

The Kenya Farmers' Association (KFA), the marketing cooperative for European farmers, tried to keep its members' prices up by selling maize at high prices on the local market in order to cover losses on exports.[11] This policy had only limited success. The wide differential between the KFA's local producer and consumer prices encouraged small traders to purchase maize from Africans at a price higher than the KFA was paying, while undercutting the KFA consumer price in local markets. After 1930 the KFA's share of the African marketed crop, and of local sales, fell. Only because European producers curtailed maize acreages sharply after 1930, and because African marketings through small traders were insufficient to supply the local market alone, was the KFA able to provide even minimal support for its members' prices.[12]

Government policy turned increasingly away from the interests of European maize producers as the Depression continued. In 1934 the Government appointed a committee to examine ways to improve the Colony's badly deteriorated balance of trade. In August of the same year a

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[11]The KFA purchased the entire European crop and some of the African crop. It exported about 90 per cent of Kenya's maize exports. Its manner of supporting the producer price was to divide its total proceeds from export and local sales by the total number of bags of maize sold, subtract its own expenses, and pay the farmer the remainder.

[12]African marketings appear not to have declined with the decline in the producer price after 1929. Yoshida and others suggest that this was the result of improved seed, low overheads of African growers, and the relative advantage of maize over some other cash crops even at low maize prices. The decline in African employment opportunities after 1930 may also have induced Africans to continue cash crop production despite the price decline.

Conference of the Advisers on Native Affairs, in Mwanza, Tanganyika, was convened to discuss ways to increase African sales for export. One result of these discussions was a proposal to organize maize markets (and other produce markets) in the African Reserves of Kenya on a model already in use in Tanganyika. Markets for the purchase of exportable African crops were to be set up, separate from the existing local retail markets, in which buyers would be licensed to purchase for cash all African produce that could reach the grade required for export. This was expected to reduce transport and bulking costs, protect African sellers from unscrupulous traders taking advantage of their need for cash, and raise the quality of African produce sales.[13] The proposal became law as the Marketing of Native Produce Ordinance, 1935.

The KFA tried in two ways to use the new marketing system. It attempted to become the main purchaser from the new licensed produce buyers by paying good prices for the African maize, and it tried actively to interest the Government in establishing a government maize marketing monopoly with the KFA as sole agent. Both of these attempts failed. The KFA was no more able than it had been before the new African marketing rules went into effect to capture the bulk of the African maize marketed given its high consumer price. While in 1936 a draft Maize Control Bill was circulated, it encountered strong

[13] Yoshida, "Background to Maize Marketing," p. 1; Knowles, "Agricultural Marketing in Kenya," pp. 12-13; Report of the Economic Development Committee, pp. 125ff. The new regulations were not intended to supplant the local produce markets already in existence, in which Africans traded their surpluses with one another. They were intended to provide an outlet for African produce that could come up to export quality standards.

opposition from consuming and trading interests and was never brought to a vote.[14]

The last half of the 1930's saw a major expansion of African sales of maize on the market, whether as a result of firmer prices to Africans under the new marketing system or because the opportunity costs of African producers had shifted in favor of maize growing. There was a continuation of the decline in the maize acreage of European growers,[15] as they came to realize that the Government was unwilling, and the KFA unable, to set the maize producer price high enough to cover their high cost of production. Thus, when the Second World War began in 1939 Kenya's European maize growers faced a dismal prospect that was at first not relieved by the War.[16]

The Beginnings of Maize Control

At the beginning of the Second World War Kenya had experienced a decade of low maize prices and European acreage had fallen to less than half of the 1929 peak. As a result of the Italian campaign in Ethiopia large farm production was further reduced in 1940 and 1941.

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[14] Knowles, "Agricultural Marketing in Kenya," pp. 9, 78-80; and Kenya, Report of the Board Under the Chairmanship of Sir William Ibbotson on the Marketing of Maize and other Produce, Sir William Ibbotson, chairman (Nairobi, Government Printer, 1952), pp. 3-4 (Hereinafter to be known as Report on The Marketing of Maize).

[15] See Table 8 above, p. 29.

[16] M.F. Hill, Permanent Way, p. 533, quoted in Knowles, "Agricultural Marketing in Kenya," p. 9.

> "None knew whether the major export crops would be required by the Allies or whether it would be practicable to export them in any quantity. The policy of His Majesty's Government was set against inflation, and the prospects of farming, with costs of production tending to rise, uncertain marketing and low controlled prices, was dismal."

However, in the middle of 1941, with the end of the Ethiopian crisis and the worsening of the general British position in the Middle East, it suddenly became both necessary and possible to stress increased food production in East Africa. A drive to increase production was initiated.[17] The Government guaranteed a minimum maize price of shs 7.30[18] per bag to European growers on the 1942 planted crop. African growers were promised higher prices than those they had obtained in recent years. A Government Agency, the Maize and Produce Control, was created to handle maize and other crops under the new price guarantees.[19] About the same time Kenya, Uganda, Tanganyika, Zanzibar, Seychelles, and the East African Railways and Harbors Organization agreed to form the East African Cereals Pool. The new Kenya Maize and Produce Control became operating Agent of the Pool for all participating colonies. The Pool received any maize which local marketing organizations in the participating colonies determined to be surplus to their needs, distributed maize when needed to participating countries short of maize, and exported the remainder. It accepted other staple foodstuffs only when maize was in short supply

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[17] Yoshida, "Background to Maize Marketing," pp. 2-4; Report on The Marketing of Maize, p. 4; Kenya, Ministry of Agriculture, Animal Husbandry and Water Resources, The Maize Industry, Sessional Paper No. 6 of 1957-58, (Nairobi: Government Printer, 1958), pp. 1-2; and Report of the Maize Commission of Inquiry, p. 3.

[18] This price did not include the cost of a bag (see Table A11, below). In the early years of maize control prices were quoted with cost of bag included. By 1950 the practice was to quote prices without bag. In this section I quote all prices without bag, to facilitate price comparisons over time. The price actually paid appears to have been shs 7.80 in 1942-43, but growers were guaranteed only shs 7.30.

[19] Defense (Control of Maize) Regulations, 1942, and Increased Production of Crops Ordinance, 1942.

and arranged imports of staple foods as necessary in bad years. The Pool tried to maintain a minimum reserve of 250,000 bags of maize or other cereals at the end of each business year, i.e., July 31st.[20]

The main features of Maize and Produce Control were developed rapidly during the War, setting a pattern that, except for modest changes including the abolition of the East African Cereals Pool in 1952, was retained until at least 1966. From the beginning, maize was the main crop it handled; indeed the organization was often called Maize Control -- and will be so named here. The following description refers to those features directly concerning maize.[21]

The organization of maize control

Maize Control was given a legal monopoly of the purchase and sale of all maize entering the market in Kenya with the one exception of exchanges among African smallholders living in any given locality. It was directly responsible to the Member for Agriculture and Natural Resources.[22] Its function was to purchase, store, and distribute Kenya's marketed maize crop, turning over any surplus to the East African

[20] For a more detailed account of the Pool's operations see Report on The Marketing of Maize, pp. 30-34; and Kenya, The Maize Industry, pp. 16-17.

[21] Most details in the following section are from Report on The Marketing of Maize, pp. 5-11, the earliest complete account I have found of Maize Control. Some features described here were introduced after 1942, but all were present, so far as I have been able to find out, by 1944. All other accounts of the early years of Maize Control agree on all substantive points with that found in Report on The Marketing of Maize.

[22] The Colony was ruled by a Governor and a Council whose members were responsible for particular Departments which were the forerunners of the later Ministries.

Cereals Pool for export, and importing through the Pool when a local shortage threatened. To carry out these functions the Maize Controller was given broad powers to appoint agents, require the registration of millers, and prohibit or direct the movement of maize about Kenya. The Government financed the operation of Maize Control by guaranteeing an overdraft from government funds, on which Control paid interest at 3 3/4 per cent.[23]

The Government set legal prices for maize at each point where maize changed hands. The main price, which became the basis for deriving all other prices, was the guaranteed bulk producer price[24] announced once each year by the Member for Agriculture and Natural Resources in January -- i.e., before the main planting season. This price was payable at harvest to all European farmers delivering maize to an agent of Control in lots of three tons or more. Harvest in the European farming areas began about November and continued into January and February.

The KFA was the agent for Maize Control in the purchase of the European maize crop. It continued, under Government auspices, many of the same procedures it had developed for handling members' crops in the 1930's. Indeed, its procedures seem to have remained much the same up to 1966. Under the Increased Production of Crops Ordinance, 1942, each farmer who complied with certain standards of good husbandry and storage was entitled to: (a) a loan from government funds to cover the costs of planting, cultivation, and harvest; (b) a guaranteed

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[23] Report on the Marketing of Maize, p. 19.x

[24] Before 1952 there seems to have been no set procedure for determining the guaranteed price.

price at harvest; and (c) the guarantee of a minimum financial return per acre in case of crop failure. Upon harvest, the crop became Government property. The farmer had to hold it safely until delivery to the KFA, but was entitled to a payment of 80 per cent of the value of the delivered crop plus a storage allowance, until Maize Control called for its delivery. After inspection and delivery the Maize Control paid the KFA for the farmer's maize and the KFA repaid the Government for loans and advances to the farmer and credited his account with the surplus if any.[25]

The purchase of African smallholder maize took place quite differently, and at different prices.[26] Nyanza Province, by far the most important surplus producing region, had the most highly developed marketing organization, as described below. Buying took place through sub-agents of Maize Control who were in effect the traders licensed under the Marketing of Native Produce Ordinance of 1935 by District Commissioners. There were two levels of such sub-agents. African primary traders bought directly from African producers in small quantities in local markets, and delivered to the second level of sub-agents who were generally Asians in the main trading centers. These secondary traders delivered to Maize Control at railside stores in amounts of 10

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[25] Report on the Marketing of Maize, p. 6; Kenya, The Maize Industry, pp. 2-3.

[26] L.G. Troup, Report: Inquiry into the 1951 Maize and Wheat Prices and to Ascertain the Basis for the Calculation Annually of a Fair Price to the Producer for Maize, Wheat, Oats and Barley, and Other Farm Products the Prices of Which are Controlled by the Government (Nairobi: Government Printer, 1952), pp. 24-25 (Hereinafter to be known as Inquiry into Maize Prices.); Report on the Marketing of Maize, pp. 35-40; Kenya, The Maize Industry, p. 3; Yoshida, "Background to Maize Marketing," p. 2.

tons or more.[27] The number of primary and secondary traders was limited so that each trader would have an "adequate" turnover in his market or trading center. In effect, the sub-agents were granted small monopsonies or oligopsonies in their markets in return for obeying the regulations laid down by Maize Control.[28]

The price guaranteed the small African producer in his local market was lower than the guaranteed bulk price paid European growers at the rail line. Table 9 itemizes the deductions from the bulk price to arrive at the African local producer price in the crop year 1951-52, the earliest year for which I have located such a breakdown.

The Grade Differential recognized the fact that only about 70 per cent of the deliveries of maize in Nyanza province were of Grade I and Grade II maize eligible for the full guaranteed price. Rather than try to grade each individual farmer's maize at the local market, the Maize Control deducted from all maize marketed in Nyanza through sub-agents 30 per cent of the official differential between maize of Grade I or Grade II and maize of Grades III or IV. The Control Overheads represented an estimate of the extra cost incurred in handling and storing African smallholder maize plus the cost of providing African Marketing

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[27] As a concession, the secondary traders were allowed to deliver three separate truckloads of 35 bags each to make up the ten tons.

TABLE 9

The Nyanza Province Maize Price Structure to Small Growers
1951 Planting[a]
(all prices per 200 lb bag of maize)

Elements in the Price Structure	North and Central Nyanza	South Nyanza and Kericho
Guaranteed Producer Price, F.O.R. Maize Control Store, w/o bag, Grade II	shs 30.30	shs 30.30
Grade Differential	shs .60	shs .60
Control Overheads	.73	.73
Allowance to Traders		
Second Trader	.55	.55
First Trader	.75	.75
District Transport Pool	1.40	2.80
Total Trading Differential	4.03	5.43
Betterment Fund Contribution[b]	3.45	3.10
Price to Grower in Local Market	shs 22.82	shs 21.77

Source: Report on the Marketing of Maize, p. 38.

[a] The Guaranteed price of shs 30.30 was subsequently raised to shs 35.00. I do not know whether the difference was ever paid out directly to Africans or was accumulated in the District Betterment Funds. See Troup, Inquiry into Maize Prices, p. 8.

[b] "Producers who are in possession of a Certificate of Good Farming may deliver maize direct to the Control Store in not less than 3-ton lots and if their maize is of Grades I or II quality they will be paid sh 30.30 less ... (the District Transport Pool the Control Overheads, and half of the Betterment Fund Contribution)... plus actual cost of transport from their nearest Market to Control Store at 7 cents a bag mile. If their maize is of Grades III or IV quality, they will receive Sh. 2 less."

Officers.[29] The Allowances to traders were their payment for bulking, sorting, and storing maize prior to delivery to Maize Control, plus an element of profit. The District Transport Pool Charge was paid into a Transport Pool Fund out of which each trader delivering maize to the Control was paid an amount for transport equal to shs 0.07 per bag per mile from his market to the Control Store.[30] In this way the price paid the grower was the same regardless of where he lived in his district. This practice began soon after the establishment of Maize Control to increase production in areas far from rail lines, and to take pressure off the land directly along the rail line.[31] Primarily because of this Transport Pool Charge the local African guaranteed producer price was somewhat lower in large districts and in those districts far from rail lines.

The African District Betterment Fund Contributions originally served two purposes. They were intended to limit the inflationary impact of the price increases on African growers at a time when consumer goods could not be provided to the African Reserves. More important, in the eyes of Agricultural Officers at least, the Betterment Fund Contributions would reduce the tendency of Africans to concentrate on producing maize alone as a cash crop. Agricultural Officers were very concerned about the effects of overcropping and

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[29] Report on the Marketing of Maize, p. 23.

[30] It was difficult for traders to obtain more transport reimbursement than they were entitled to because their maize was inspected in their own market and again at the Control store.

[31] Report on the Marketing of Maize, p. 8; Kenya, The Maize Industry, p. 3.

increased cash production of maize on soil fertility. The proceeds of the Betterment Funds were earmarked for projects to enhance soil fertility and improve husbandry in the African districts.[32] The size of the Betterment Fund Contribution for each district was decided by the Member for Agriculture and Natural Resources with the advice of an Advisory Marketing Committee for Nyanza Province, with the Provincial Commissioner as Chairman. The decisions of this Committee reflected the policy of changing the African grower's maize price relative to the prices of other crops, such as legumes, that were more nutritious and less harmful to the soil.[33] By 1946 the contributions were very substantial, amounting to as much as 25 per cent of the producer price. In 1951-52 they were still 15 per cent of the actual payout to the grower, because the grower's price had increased greatly from the wartime level.[34]

In other African smallholder regions the same general system of marketing was in effect, except that only in Meru was there a transport pool fund. In the other districts, which did not deliver much maize to Control, the prices in outlying markets were allowed to fall below those at the Control Store by shs 0.07 per bag per mile. Maize produced by forest workers was marketed through the Conservator of Forests, who delivered any surplus to his own needs at lumber mills and forest camps to Maize Control.

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[32] Knowles, "Agricultural Marketing in Kenya," pp. 22,81.

[33] Report on the Marketing of Maize, p. 36.

[34] Knowles, "Agricultural Marketing in Kenya," p. 28. He gives no figures for the size of the Betterment Fund Contributions prior to 1946.

In the African "Reserves", as in the large farm areas, the guaranteed producer price was announced before the time of planting. When maize was harvested and dried, Maize Control issued orders for the markets in African areas to be opened. This took place sometime in October in the main producing areas of Nyanza Province, and as late as April in Meru District. Maize to be eligible for delivery had to have a moisture content of not more than 13.5 per cent.

Maize Control was not expected to maximize profits, but was expected to make a small profit in every year on internal sales.[35] Basing its figures on average turnover, and allowing for a small margin of profit to cover fluctuations in costs associated with turnover fluctuations, Maize Control calculated average storage, transport, handling, and administrative charges per bag.[36] It added these to the guaranteed producer bulk price together with the cost of a new bag, to arrive at a bulk sale price to millers and wholesalers. In this way the bulk sale price of Control maize was the same at all of its sale points in Kenya, and the same throughout any given year.[37] The moderate annual profits of Maize Control on internal turnover were used to build bulk storage facilities, primarily in the producing areas.

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[35] Report on the Marketing of Maize, p. 10. The Report added that the Government was worried that a loss would upset the finances of the Colony.

[36] The uniformity of transport and storage charges seems the curious aspect of this method of arriving at a bulk sale price. Marketing boards in South Africa and Rhodesia use similar procedures.

[37] Maize Control also set the gristing charges of millers. On p. 3 of The Maize Industry the authors imply that retail prices were also controlled in the early years of Maize Control. The retail price of "posho" (coarse, unsifted maizemeal) was controlled by 1957 (p. 21) at the latest.

From its beginnings the price policies of Maize Control created problems of trader evasion.[38] The KFA had failed to solve these problems in the 1930's because it had no legal means of enforcing in African areas its attempt to monopolize the internal maize trade. The problem faced by Maize Control was even more severe despite its legal powers. The very large differential introduced between local producer and consumer prices by the combined effects of the Betterment Fund Contributions, the transport pool method of assessing local transport costs, and the single nationwide rail transport charge became a strong incentive for evasion of Control. This was especially true for trade between the rural surplus areas and nearby urban areas of the same province at or near the time of harvest. There was much less incentive for traders to compete with Maize Control for long-distance delivery of maize between regions, or on storage of maize over long periods of time. Unfortunately, the latter trade was also more expensive for Maize Control.

While it was relatively easy to compel the large European farmers and the large urban millers to deal only with Maize Control, it was very difficult to compel local African traders and farmers to do so. Maize Control never even attempted to enforce its legal monopoly over all maize traded in Kenya. In addition to maize consumed on farms where it was produced, the regulations exempted inter-farm sales within a district for the consumption of the buyer and any sales from outlying areas of Kenya where little maize is produced. All

[38]Evasion of Control was mentioned as a cause of the food shortage of 1942-43. See below, p. 47, note 41.

other maize was supposed to pass through the Control sub-agents to Control. To bolster the prohibition on non-official sales, controls on the movement of maize were used to provide a convenient legal pretext for hindering illegal trade while not hindering farmers in their normal permissible activities. The gist of these regulations may be summarized as a general prohibition on the movement of maize or maize products without a permit issued or authorized by Maize Control, with the exception of small amounts of maize or maize moved by its owner to his nearest market.[39]

These regulations made the illegal bulk shipment of maize rather difficult, particularly large regular commercial movements from surplus to deficit areas. The movements regulations may be credited with retarding the development of private bulk trading networks in the African "Reserves."

Maize Control in the war and early postwar period: 1942-1952.

The maize market's first period under control extended from 1942 to 1952. It may be divided into three sub-periods; the War; the immediate postwar period to 1950; and a short transitional period of

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[39] Report on the Marketing of Maize, p. 35. The earliest complete set of movements regulations I have found refers to the year 1959. This is The Maize Marketing (Movement of Maize and Maize Products) Order, L.N. 353/1959 and L.N. 267/1960, which is bound with the Maize Marketing Ordinance, 1959. These regulations allow the movement of maize without permit anywhere by its owner in amounts of up to 60 pounds; within one district from farm to market or from one farm to another owned by the same farmer in any amount; and in amounts of 1000 pounds or less, if accompanied by the owner and intended for his own consumption or that of his family.

re-examination from 1950 to 1952. During the whole period the world market price of maize rose steadily and in some years sharply. Internal producer and consumer prices were not allowed to rise quite as fast as the world market price; nevertheless, internal maize production and marketing by both Africans and Europeans rose considerably, leading to substantial maize exports.

Two major concerns dominated the thinking of policy-makers about maize marketing during the period: inflationary pressures caused by War and high postwar prices of Kenya produce; and soil deterioration and erosion in Kenya's major agricultural regions. During the War a third concern, the need for immediate and substantial increases in food production, tended to override the other two.

The initial price guarantee of shs 7.30 per bag to European farmers, together with Government help in bringing more acreage under cultivation, caused Europeans to plant 30 per cent more acreage to maize in 1942 than in 1941. A similar program in wheat also encouraged wheat acreages to rise.[40] Unfortunately, locust invasions and drought reduced maize deliveries from African smallholders in the first year of Control to less than half of the average of the preceding four years, and held the increase in European deliveries to only 16 per cent. Increased numbers of troops in Kenya and the effects of drought on the poorer rural areas raised market purchases of maize. East Africa as a whole experienced a severe food shortage and had to import 1.7 million bags of cereals -- mostly wheat from Australia. In Kenya this shortage and the

[40] No figure for wheat acreage in 1941 is available. However, production of wheat jumped by two thirds between the two years, even though 1942-43 was not a good year for wheat.

urgency of the need for an exportable surplus of food led the Government to appoint a Food Shortage Commission of Inquiry. In its Report this Commission blamed the shortage of maize on several factors: an increase in the consumption of maize, detected too late, caused by the presence of armed forces and increased employment of Africans in the modern sector; an increase in the use of maize as stockfeed; insufficient deliveries to the Maize Control because of the profits that could be made by illegal sales; and finally, the low prices of the 1941-42 season.[41] The Report concluded that the shortage had been inevitable; the drought only made it worse. For the short term it concurred in the efforts of the Government to increase maize and other staple food production. For the long term, however, it established three principles of maize policy that remained unchanged until at least 1966: first, European-grown maize was necessary to assure an adequate supply from internal sources; second, Kenya should not encourage maize production for export because she could not expect to do so profitably in normal times and because excessive maize monoculture was ruining Kenya's soils; and third, the Government ought in normal times to set, before planting, a guaranteed basic minimum price for maize that would be fair to both producing and consuming interests.[42]

The recommendations of the Food Shortage Commission marked the

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[41]Yoshida, "Background to Maize Marketing," p. 4. Illegal sales outside official marketing channels may have been a cause of the shortage in Kenya if they were across the borders into Uganda and Tanzania, or if they represented sales to groups of people outside the modern sector who would otherwise not have received as much food as they did in that year.

[42]Kenya, The Maize Industry, p. 2.

end of the long term policy of encouraging maize production for export. During the rest of the War, however, the Government continued to promote increased acreages of maize and other staple crops. The promotion was strongest, and the results greatest, in the European farming regions (Table 10). The bulk maize producer price doubled,

TABLE 10

Maize and Wheat Acreages and Prices
1941-42 to 1952-53

Crop Year	European Large Farm					African Smallholdings
	Wheat		Maize			Maize
	Acres Planted[a]	Guaranteed Prices[a]	Acres Planted[b]	Guaranteed Prices[c]	Actual Prices[c]	Local Price in Bungoma Market, Nyanza[d]
	thousand acres	shs per bag	thousand acres	shs per bag	shs per bag	shs/bag
1941-42	n/a	n/a	63[e]	. .	5.14[e]	n/a
42-43	122	25.00	82	7.30	7.80	n/a
43-44	140	27.50	108	10.80	10.80	n/a
44-45	160	27.50	120	11.40	11.40[f]	n/a
45-46	178	27.50	125	11.40	11.40[f]	8.40
46-47	195	27.85	110	g	g	9.45
47-48	193	27.85	108	g	20.00	11.55
48-49	199	32.75	121	20.00	20.00	11.55
49-50	225	37.25	133	23.40	23.40	12.25
50-51	264	39.80	145	25.00	28.80[h]	12.25
51-52	299	45.40	142	30.30	35.00[h]	22.82
52-53	284	52.06	141	38.25	38.25	29.75

TABLE 10--Continued

Notes:

[a]Troup, Inquiry into Maize Prices, p. 16. Other sources of acres planted to wheat conflict with Troup's figures for 1946-47 through 1951-52, but the discrepancies are not large. Troup has the only available figures for the guaranteed wheat price. He does not say whether or not they include the price of a bag, subsidies for mechanization, or acreage allowances.

[b]Kenya, The Maize Industry, p. 15. All other sources agree.

[c]Sources do not all agree on maize prices, but may usually be reconciled with one another. Main sources used are: Troup, Inquiry into Maize Prices, pp. 2-3, 16; and Kenya, The Maize Industry, pp. 2-6, 15. See Table A11, below p. 204, for further information on prices.

[d]Yoshida, Maize in Tropical Africa, p. 12. Fragmentary information for other sources agrees with Yoshida.

[e]Miracle, Maize in Tropical Africa, p. 142. The KFA paid shs 6.34 including the price of a bag. To make the price comparable with those of the following years shs 1.20 (the price of a bag in 1942) has been subtracted from the KFA price for 1941-42.

[f]Growers appear to have received a subsidy, in addition to the price quoted here, of about shs 2.85 per bag. See Appendix Table A11 below, p. 204.

[g]It proved impossible to reconcile the sources in determining these prices. Probably producers received between shs 15 and shs 16 on the 1946-47 crop, and were promised shs 17.50 initially for the 1947-48 crop. See Table A11 below, p. 204.

[h]In February 1951 the Government increased the 1950-51 maize price by shs 3.80. Again in 1952, the Government increased the 1951-52 maize price by shs 4.70. See Kenya, The Maize Industry, pp. 5-6.

and so did maize acreages between 1941-42 and 1945-46. Maize deliveries rose by only 75 per cent, however, because of increased use of maize on the farms where it was produced. Wheat prices appear to have risen less than maize prices, while the acreage response was about the

same and the response of production considerably greater than for maize.[43] In all, the European marketed surplus of maize and wheat rose from less than 600,000 bags in 1941-42 to over 1,300,000 bags by 1945-46.

The African marketed maize surplus only increased from an average of 720,000 bags per year in the period 1938-1941, to an average of 800,000 bags in 1944-1946. Sales of other crops were only a small proportion of sales of maize. Four considerations may help to explain the much lower apparent response of Africans to the drive for increased production of food. In the first place, there was a substantial difference in the price incentives given individual African and European growers. Though the proportional increases in the official prices of African and European maize were probably very similar,[44] there were subsidies to Europeans in addition, and a tax (the Betterment Fund Contribution)[45] on African maize. Secondly, African growers, partly

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[43]Without knowledge of the wheat price for 1941-42 one cannot say how much the wheat price actually increased. The considerably greater production response of wheat seems to be associated with good wheat yields and relatively poor maize yields, during the War years.

[44]See Table 10 above, p. 48. It is difficult to make comparisons between African and European maize price changes. Before 1942 the average price received by an African selling in a local market in small quantities must have been considerably below that paid by the KFA to European growers, especially if the African grower lived far from a rail line. However, Africans selling in large quantities near rail lines must have received prices roughly comparable to those received by Europeans. After 1942 the transport pool and the fixed charges for traders and for the costs of the marketing organization opened up a wider differential between European and African prices near rail lines, while probably narrowing the differential far from rail lines.

[45]See Table 9, above, p. 40. It is hard to say how important the Betterment Fund Contribution was at first. Knowles, "Agricultural Marketing in Kenya," p. 28, says it was only incidental to the marketing system before 1946, but that in 1946 it was 25 per cent of the African grower price.

TABLE 11

Maize and Wheat Production--Maize Deliveries and Sales
1941-1952
(all figures are in thousands of bags per year)

Control Year	European Production[a]		Maize Deliveries to Maize Control		Internal Sales of Maize Control[c]
	Wheat	Maize	European[b]	African[b]	
1941-42	n/a	n/a	311	716	n/a
42-43	401	624	361	338	n/a
43-44	713	730	601	662	n/a
44-45	593	839	546	815	1560
45-46	841	821	562	785	1497
46-47	818	789	512	1132	1002
47-48	697	719	395	668	1018
48-49	1041	945	639	1015	1068
49-50	1208	1035	760	1627	1446
50-51	1422	1121	751	985	1674
51-52	1254	1109	812	1084	911
52-53	1269	928	728	745	1478

[a]Kenya, Department of Agriculture, Annual Reports, 1945-53; Troup, Inquiry into Maize Prices, p. 16.

[b]Kenya, Department of Agriculture, Annual Reports, 1945-53; Knowles, "Agricultural Marketing in Kenya," p. 27.

[c]Kenya, The Maize Industry, p. 15.

because of the Betterment Fund Contribution, had strong incentives not to sell through Maize Control, maize going only short distances or stored for only short periods.[46] One would expect Africans living near rail lines to have engaged more extensively in illegal trade than those living far from rail lines, both because of the greater ease of transportation and the effects of the transport pool on African price structures. This illegal trade may account in part for the slow growth

[46]See above, p. 44.

in officially recorded African maize sales between 1941 and 1946. Thirdly, Africans in 1941 had been expanding their production of maize for many years, while the European farmers had reduced theirs steadily in the half decade preceding 1942. There was a good deal of potential for rapid expansion on the European farms. Fourthly, if the Agricultural Officers were correct in their fears of serious deterioration of the soil in the more thickly settled African "Reserves," then African yields per acre were probably falling in many areas enough to affect the overall demand for maize from the poorer regions.

In the years immediately following the War fears of land deterioration and of inflation became the main determinants of the direction of maize marketing policy.[47] In 1945 the Department of Agriculture, freed from the necessity of encouraging cereals production for the War, began stressing its great concern for the deteriorating condition of African Reserves under the pressure of maize cash cropping and increasing population. It was also stressed that the virgin land of early settler times had been robbed of fertility for a quick profit in maize production. On both African and European farms the time had come to practice ecologically sound agriculture. From 1945 on the Department put all of the resources it could into a crash program to save the soil in the African Reserves and lent its support to all programs for reducing the dependence of European farmers on cereals, especially maize. In the African Reserves the large size of the District Betterment Fund Contribu-

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[47] The information contained in the following paragraphs of this section is largely a summary of the discussion of the immediate postwar situation found in Knowles, "Agricultural Marketing in Kenya"; Kenya, The Maize Industry, pp. 3-6; Troup, Inquiry into Maize Prices, pp. 2-3; and Kenya, Department of Agriculture, Annual Reports, 1945-1950.

tions after 1946 attest to the strength of the interest in reducing incentives to produce maize.

Between 1945 and 1950 the average export price received for Kenya maize, F.O.B. Mombasa, rose 139 per cent. Handling and transport costs from up-country producers' stations (representing between 20 and 22 per cent of the F.O.B. price), rose only 116 per cent. After subtraction of these handling and transport costs the rise in export proceeds, F.O.R. at up-country producers' stations was 146 per cent.[48] Other prices also rose rapidly. Given the strong ecological reason for not encouraging increased production of maize, and the relatively large weight of maize in the African workers' cost of living, holding down increases in the guaranteed maize grower price (and of course in the consumer price which was tied to it[49]) was a natural step for the Government to take. The guaranteed bulk maize producer price was allowed to rise by only 105 per cent between the 1945-46 season and the 1949-50 season.[50] In the same period the African smallholder price in Nyanza rose by no less than 46 per cent, and perhaps by more than 100 per cent.[51]

Between 1945-46 and 1949-50 the acreage of European maize hardly rose, while the acreage of wheat rose by 26 per cent. This is a puzzling result since relative prices of wheat and maize changed in

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[48] See Table 22 below, p. 112.

[49] See above, p. 43.

[50] See Table 10 above, p. 48.

[51] I have no accurate figure on the Betterment Fund Contribution for 1945-46, nor do I know whether the 1945-46 grower price is quoted before or after subtraction of the Betterment Fund Contribution. If it is quoted after the deduction, as are later prices in the same series, then the price rise was about 46 per cent. If a Betterment Fund Contribution must be subtracted, then the actual price rise could have been as great as 100 per cent.

favor of maize.[52] One explanation might be that wheat is a less labor-intensive crop[53] so that the sharp rise in the wages of labor might have raised maize costs of production more rapidly. In addition much of the new land opened up after the War was less adapted to maize than to wheat. Finally, average yields of wheat rose more than average yields of maize between the first and second half of the 1940's,[54] a fact which may underlie the complaints of Agricultural Officers that European maize lands were being rapidly exhausted by monoculture.

The moderate rise in European maize sales and the sharp rise in African sales left Kenya with substantial surplus maize for export on which the East African Cereals Pool made considerable profits, which were distributed to the participants in due course.

Maize Control, like other wartime marketing controls, was maintained in the immediate postwar period partly because it was deemed necessary to combat inflation.[55] However, after 1945 there was growing pressure to convert Maize Control to a form more suitable for peace time or to abolish it altogether. By 1950 the large maize growers and the KFA were very unhappy with Maize Control. The growers objected to being deprived of potential export earnings by limits on the producer price;[56] the KFA had not envisioned, when lobbying for Maize

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[52] See Table 31 below, p. 151.

[53] Troup, Inquiry into Maize Prices, pp. 19, 29.

[54] See Table 28 below, p. 143.

[55] The Defense Regulations (Government Notice No. 993 of 1944 and subsequent amendments) and the Increased Production of Crops Ordinance, 1942, still governed the operation of Maize Control.

[56] Troup, Inquiry into Maize Prices, pp. 2-3, 22.

Control in the 1930's that it would be excluded from buying the African maize crop and from controlling prices. There was also, to judge from reactions to it, much criticism of the efficiency of Maize Control as a government agency. The three questions that were argued out between 1950 and 1952, then, were: 1) whether maize control was to continue at all; 2) if continued, what form should it take; and 3) what should be the maize price paid to farmers?

In 1950 the Government appointed a committee "to make recommendations on the development of agricultural marketing." Acting on one of its recommendations, the Government appointed a Board to take over the functions of Maize Control. When this Board met in October, 1951, it decided not to try to run Maize Control and constituted itself a Committee, under the Chairmanship of Sir William Ibbotson, to "work . . . out the structure which the future marketing organization should assume."[58] Ibbotson's Committee concluded that control of maize marketing should continue but should be in the hands of a statutory marketing board. Furthermore, this Board should operate through agents, and to this end Provincial marketing boards should be set up to handle African produce. While Ibbotson's Committee was at work, European producers persuaded the Government to appoint a Special Commissioner, Mr. L.G. Troup, to determine a "type of permanent machinery for price ascertainment in future years which would ensure the removal of this function from the sphere of political and other extraneous influences."[59] Mr. Troup's main task was to determine a basis for calculation of

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[57] Kenya, The Maize Industry, p. 4.

[58] Ibid.

[59] Resolution passed by European maize growers in the Trans Nzoia, November 1950; quoted in Kenya, The Maize Industry, p. 5.

the maize and wheat prices to European farmers that would "have due regard to the need to ensure the maintenance of soil fertility, balanced and stable agricultural industry and . . . a reasonable profit to an efficient producer."[60] Basing his calculations on the cost estimates of experienced farmers and the accounts of two large farms, Troup developed a provisional estimate of the costs in 1951 of European maize production per acre, which included three main categories of costs: 1) direct expenditures on field production, including management; 2) interest on land and capital employed; and 3) a profit margin. The third category was his way to allow for risks he felt farmers had to take in Kenya. He estimated that the first two cost categories would come to shs 238.80 per acre which, at an estimated average yield of eight bags per acre, would give a production cost of shs 29.85 per bag with no allowance for risk. He suggested that shs 5.00 should be added to that figure for a profit margin to cover risk.[61]

While these Commissions were deliberating over a more permanent solution to the cereals marketing problem the Government capitulated to pressures from producers by releasing to growers funds collected by the East African Cereals Pool, raising the actual prices paid above the originally guaranteed levels of 1950 and 1951.[62]

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[60] Kenya, The Maize Industry, p. 6.

[61] Troup, Inquiry into Maize Prices, pp. 6-7, 19-23. Troup stressed that his figures were based on no statistically significant sample of actual farm costs and made a strong recommendation that Kenya organize a statistical service, similar to those in operation in the UK and South Africa, that would be able to produce accurate cost estimates each year for maize and other crops.

[62] See Table 10 above, p. 48, and Kenya, The Maize Industry, pp. 5-6.

agreed to use the new Troup Formula in determining the price to be announced for the 1952 planted crop. This yielded a guaranteed price of shs 38.25, F.O.R. producers' stations, without bag. In all, large producers received a 60 per cent increase in the maize price between the 1949-50 season and the 1952-53 season. Inflation, however, was rapid during that period.[63] Maize acreage of large farmers increased only 13 per cent from 1949-50 to 1952-53. Again, wheat acreages rose more while wheat prices rose less than those for maize. African local maize prices rose by about 140 per cent during the same period, while average African deliveries to Maize Control declined slightly.

Summary: Maize marketing policy in 1952

In the three decades before 1952 the Kenya maize industry had faced three different situations on the world maize market. In the 1920's prices were good and relatively stable. The Government encouraged exports of maize. During the 1930's prices were very poor and relatively stable, causing European farmers to curtail maize production sharply. European farmers were given little help by the Government; in fact, more help was given to African farmers. Attempts of the KFA to monopolize the internal market in order to recoup their losses on exports were not very successful because of the competition of Asian traders purchasing the African surplus. After 1941 the War and the postwar and Korean commodity price booms created inflation in Kenya. The Government, acting to protect consuming interests (largely the employers of

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[63] Kenneth Ingham, A History of East Africa, (3rd ed.; London: Longmans, 1962), p. 385.

labor in cities and plantations),[64] slowed the rise of the maize price. Throughout the entire period African maize sales on the market had expanded, despite relatively small increases in the price. African sales had also been observed to be less stable than European sales, especially in the period since 1942, when good statistics on deliveries to Maize Control had become available.[65] African marketings were considered essentially uncontrollable, and dangerously variable. European acreages were considered controllable, through guarantee of a price before the time of planting each year, giving the Government control over the average level of European deliveries over a period of years if not over the deliveries of any particular year.

From these experiences and observations had emerged the view expressed first in the Report of the Food Shortage Commission of 1943 and reiterated by Ibbotson in 1952, that in a time of low world market prices the internal producer price should be supported at a relatively stable level adequate to produce an average export surplus no larger than necessary to protect against frequent and excessive imports. As Ibbotson said: "Agriculture is not an industry which can suddenly be built up overnight, should the need arise, when it has been allowed to run down as a consequence of prices which have made it impossible for

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[64] Maize was chosen for price limitation because of its significance in creating soil depletion and erosion problems, and because it was the most important single item in the wage-earners' budget.

[65] From 1942 to 1952 African sales fluctuated by about 41 per cent on average from year to year, while European sales fluctuated by only 20.5 per cent. These figures were obtained by averaging the percentage changes in sales from one year to the next, using the first year as the denominator and the absolute change in sales as the numerator. The figures would be somewhat smaller had a trend value of sales been used as the denominator in each year's calculation.

producers to continue in production."[66] This view was much in the minds of policy-makers in 1952 because they feared that the next move of the world market price would be downward, in the post-war depression that was still widely expected to occur. Policy-makers clearly did not envision an early return to the relatively "good" and stable prices of the mid and late 1920's; but should such a situation occur, or should the African surplus grow larger and more stable so that little or no European maize production would be required for security of domestic consumption, policy-makers were prepared to agree that the Government should cease regulating maize marketing and turn over that job to producer cooperatives.

The decision in 1952 to continue maize control was based, then, on the belief that either continued inflation or the return of low prices would characterize the immediate future. If there were continued inflation the Government would continue to commit itself to an internal consumer price level below the export price -- and to providing enough maize to meet internal demands at that level. This clearly called for control by the Government of all exports of maize, in order to prevent farmers from creating an internal shortage by exporting their entire crop.[67] The only other solution, a subsidized consumer price, was not acceptable to the Government. They preferred to control the sale of maize, collect any export profits in a fund on behalf of producers, and use the proceeds either for general developments benefiting farmers or

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[66] Report on the Marketing of Maize, p. 14.

[67] Mere control of exports did not necessarily imply a monopoly of internal maize trade. However, the uniformities of the price structure did make such a monopoly necessary, though maize policy-makers did not say so clearly.

in support of the price if and when it was low.

If on the other hand prices were low there would continue to be a need to control the marketing of maize as the price was likely to fall to levels requiring support. In that case some exports would be inevitable, though they should be held to a minimum. Unless these exports were subsidized it would be necessary to collect from the differential between internal producer and consumer prices enough funds to cover them. The funds available from the export gains of the 1940's were not sufficient to support the producer price in any prolonged period of low prices. The experience of the 1930's had shown the Government that it would be impossible to collect funds from internal sales, to cover losses on exports, unless most of the internal trade in maize passed through Maize Control. The exact method and timing of a tax to pay for export losses was not discussed in the documents of 1952, for as yet Maize Control had not experienced losses. Similarly, import losses, while mentioned as a possibility, had not yet been experienced.[68]

Maize Control from 1952 to 1966

The most important results of the discussions on the future of maize marketing between 1950 and 1952 were decisions to transform Maize Control into a statutory marketing board on lines suggested by Ibbotson, and to adopt Troup's formula in the determination of the guaranteed bulk producer price of maize. These decisions were, however, quickly overtaken by events. The year 1952 marked a sharp change in the conditions facing Maize Control. The East African Cereals Pool was dis-

[68] Wheat was imported in 1942-43. The literature mentions no loss, probably because domestic wheat prices were in any case above world market prices.

banded, leaving Maize Control directly in charge of Kenya's maize exports and imports. Both Uganda and Tanganyika began experiments with free markets in grain. The Korean War commodity price boom peaked out and world maize prices began to fall along with the prices of other commodities. Maize Control was to have been transformed into a statutory marketing board in 1953, but the Mau Mau Rebellion in Central Province held up the planned reorganization until 1959.

By far the most significant of the changes in the conditions facing Maize Control was the combination of a high fixed internal price with a fall in the export price. The Kenya export maize price declined from a high of over shs 60 per bag in 1951-52 to about shs 33 or 34 by 1957-58, fluctuating thereafter about the lower price level until at least 1970. The guaranteed bulk producer price rose from shs 35 in 1951-52 to a high of shs 40 in 1957-58 (Table 12), and fell thereafter first to shs 35.50 and then in 1963-64 to shs 32.50.[69] No profits could be made on export of Kenya maize during the entire period. However, because of high and increasing transport and handling charges on imported maize Kenya was not able to import at a profit either, given the Government's policy of selling internally at a fixed differential above the guaranteed bulk producer price,[70] even during a shortage. The most significant changes in maize marketing policy that occurred from 1952 to 1966 were attempts to cope with export losses without subsidizing the maize industry or inducing a need to

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[69] See Table 20 below, p. 88.

[70] See p. 43. In some years it would have been profitable to import maize into Mombasa, given the level of the internal producer price set by Maize Control.

TABLE 12

Maize and Wheat Acreages and Prices
1952-1959

Crop Season[a]	European Large Farms					African Smallholdings
	Wheat		Maize			Maize
	Acres Planted	Actual Price	Acres Planted	Guaranteed Price	Actual Price	Local Price In Bungoma Market, Nyanza[b]
	in thousands	shs/bag	in thousands	shs/bag	shs/bag	shs/bag
1951-52	299	45.33	142	30.30	35.00	22.82
52-53	284	52.00	141	38.25	38.25	29.75
53-54	289	52.66	165	38.72	38.72	30.17
54-55	291	52.00	174	38.15	35.15	27.70
55-56	345	51.00	158	38.15	35.15	26.85
56-57	291	52.66	167	39.98	37.98	30.33
57-58	252	51.68	178	39.98	34.98	27.33
58-59	247	52.33	148	37.00	27.00	22.00

Sources: Kenya, The Maize Industry: Kenya, Statistical Abstract, 1965.
Notes:

[a]The crop is planted in March and most of it is harvested between January and March of the following year.

[b]Bungoma market is in Bungoma District of Western Province (formerly part of Elgon Nyanza District of Nyanza Province).

import maize, and simultaneously to reduce pressures for illegal trade in maize and to maintain reasonably stable prices to producers and consumers. From the start these goals were in conflict, and this conflict was made more severe than it need have been by the uniformity that administrators seemed to see the need of placing on the internal maize price structure.

TABLE 13

Maize and Wheat Production, Maize Deliveries and Sales
1952-59
(all figures are in thousands of bags per year)

Crop Season[a]	European Production		Maize Deliveries to Maize Control			Internal sales of Maize Control
	Maize	Wheat	European	African	Total	
1951-52	1109	1254	812	1084	1896	911
52-53	928	1269	728	745	1473	1478
53-54	1103	1380	742	1380	2122	1578
54-55	1587	1485	1005	1299	2304	1525
55-56	1245	1354	1081	650	1732	1509
56-57	1268	1401	895	638	1534	1419
57-58	1350	1144	979	780	1759	1054
58-59	1166	1077	894	939	1832	1080

Sources: See Appendix Tables A1, A2, A4, and Table 26 below, p. 137.

[a]The crop is planted in March and most of it is harvested between January and March of the following year.

The Troup formula and the Maize Export Cess

European maize growers, caught in a rapid inflation, did not respond immediately in 1952-53 to the adoption of the Troup formula price of shs-38.25 per bag. However, the inflation had abated by 1953, and growers found the new price level attractive. In the 1953-54 and 1954-55 seasons maize acreages rose 23 per cent.[71] Deliveries of African

[71]Some of the new acreage may have represented increased production of plantations for their own use, because of the high price. See Kenya, The Maize Industry, p. 10. This would help to explain the increase in the difference between maize production and marketings from European farms.

maize continued at a high average level of 1,125,000 bags per year from 1951-52 to 1954-55. Except for the poor year 1953, there were substantial surpluses for export. The first export loss was made in 1953-53 and paid for out of the profits of the East African Cereals Pool which had been handed to Kenya after it was disbanded in 1952. In 1953-54 Kenya had to import 367,000 bags of maize (Table 14). These imports caused the Government to make a decision to increase its dependence on a buffer stock. The carryover stock held by Maize Control and the Pool on July 31st seems not to have exceeded 550,000 bags in any year from 1943-44 to 1952-53 and averaged less than that;[72] the carryover stock on July 31st in the years 1954 through 1957 averaged over 900,000 bags, with a minimum of 730,000 bags.

The year 1955 seems to mark a turning point in both European and African maize marketing. The change is clearest for African deliveries to Maize Control. African sales had been on a rising trend, with wide fluctuations from year to year, since at least the early 1920's. The African deliveries for the two crop years 1953-54 and 1954-55 represented the peak of this trend.[73] Thereafter, up to at least

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[72] From 1943-44 to 1951-52 Maize Control held some stocks in its own name and some in the name of the East African Cereals Pool. Up to 1950-51 only those listed in the name of the Cereals Pool are available (see Table A8 below, p. 201) and these include stocks of all grains and not maize alone. However, from records of the Cereals Pool and from statistics for internal purchases and sales of maize by Maize Control a rough record of the stocks held by Maize Control in the years before 1951-52 may be calculated, working backward from the stocks on hand on July 31, 1951.

[73] The upward trend of African deliveries had begun to level off as early as 1946-47, and the highest single year's deliveries were in 1949-50. But 1953-54 and 1954-55 were together the highest deliveries ever recorded for any two-year period.

TABLE 14

Sources and Uses of Maize Passing Through Maize Control
1952 - 1965
(all figures are in thousands of bags)

	1951-52	52-53	53-54	54-55	55-56
Opening Stocks[a]	132.1[b]	547.1[c]	300.8	1183.0	872.2
Internal Purchases	1895.8	1473.1	2122.3	2304.1	1731.6
Imports	. .	60.1	367.5	45.7	. .
Total Stocks	2027.9	2080.3	2790.6	3532.9	2603.8
Internal Sales	911.0[d]	1477.9	1577.7	1525.2	1509.1
Losses	26.3	31.4	22.4	29.7	23.0
Stockfeed	(n/a)	7.0[e]	4.0[e]	4.0[e]	2.0[e]
Exports	543.5	263.3	3.4	1101.7	140.2
Total Disposals	1480.8	1779.6	1607.5	2660.6	1679.4
Ending Stocks	547.1[b]	300.8	1183.0	872.2	929.4

	1956-57	57-58	58-59	59-60	60-61
Opening Stocks[a]	929.4	730.8	563.3	302.2	446.2
Internal Purchases	1534.0	1759.1	1832.5	1659.1	1586.1
Imports	. .	. .	. .	. .	202.2
Total Stocks	2463.5	2489.9	2395.8	1961.3	2234.5
Internal Sales	1418.8	1053.7	1079.9	1328.4	2002.6
Losses	16.7	13.1	8.8	7.3	5.7
Stockfeed	37.8	66.4	1004.9	77.7	124.8
Exports	259.3	793.4	. .	101.6	2.5
Total Disposals	1732.6	1926.6	2093.6	1515.0	2135.6
Ending Stocks	730.8	563.3	302.2	446.2	98.2

TABLE 14--Continued

	1961-62	62-63	63-64	64-65
Opening Stocks[a]	98.2	915.8	1021.8	268.1
Internal Purchases	1642.8	2233.0	1073.0	1170.4
Imports	723.5	. .	. .	404.9
Total Stocks	2464.5	3148.8	2094.8	1843.4
Internal Sales	1352.1	917.9	1087.7	1781.7
Losses	15.0	10.0	17.2	2.6
Stockfeed	80.7	123.4	99.5	23.9
Exports	101.2	1075.6	622.3	11.5
Total Disposals	1549.0	2126.9	1826.7	1819.7
Ending Stocks	915.8	1021.8	268.1	23.6

Sources: Maize and Produce Control, Accounts, 1951-52 to 1958-59; Maize Marketing Board, Annual Report, 1960-1965; Kenya, The Maize Industry, p. 15.

Notes:

[a]Control year begins on August 1.

[b]Includes 104,600 bags of maize meal in mills.

[c]Includes 85,400 bags of maize meal in mills.

[d]Includes any sales for stockfeed for this year only.

[e]Figures from Kenya, The Maize Industry, p. 15.

the year 1965-66, African deliveries were at a much lower level, with a much lower amplitude of fluctuations. The abrupt decline of 50 per cent in African deliveries from 1954-55 to 1955-56 was of course the result primarily of a poor season, but the continued lower level of deliveries is illustrated in the comparison of average deliveries in the eleven years before the break and the eight years after the break. Between 1944-45 and 1954-55 deliveries averaged 1,050,000 bags per year, between 1955-56 and 1962-63 about 800,000 bags.[74] The amplitude of year to year fluctuations in deliveries was about 40 per cent in the earlier period, but only about 20 per cent in the later period--comparable with the amplitude of fluctuation in deliveries of European farmers.

In the years 1953-54 through 1957-58 European maize acreages reached a postwar high. Wheat acreages reached their peak levels from 1951-52 through 1956-57. The period 1954-56 seems to mark a turning point for both. However, despite declines in acreages of both crops after the mid 1950's total production did not decline because of rising yields.

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[74] Deliveries in the later period would be even lower if the 1963-64 and 1964-65 seasons were included.

the same orders of magnitude throughout the period.[75] However, from 1953-54 to 1957-58 internal maize sales declined in every year, reversing a rise that had begun in 1951-52.

The result of the downward shift in African deliveries, the decline of internal maize sales, and the generally high level of deliveries from European farmers was a continued high level of the exported surplus through 1957-58. The very high level of deliveries to Maize Control for 1954-55 led to estimates of large losses on exports for that year. The losses would clearly have exhausted the profits inherited from the Cereals Pool. The Government refused to consider subsidizing producers. Talks with producers led to an agreement that the Troup formula would continue to be used to determine the producer price at least until the 1957-58 season, but that producers would be responsible for any losses incurred on exports. The passage of the Maize and Sorghum (imposition of Cess) Ordinance late in 1954 formulized this agreement by establishing a Maize Cess Fund into which farmers were to pay a portion of the guaranteed price of their crop whenever export losses required it. To decide on the size of the Cess to be applied in a given season Maize Control was to estimate the size of the total export loss as early as possible in a crop year--after

[75] See the more detailed study of the pattern of fluctuations below, pp. 136-139.

planting but before the beginning of the harvest. By dividing the total number of bags expected for delivery into the total expected export loss, Control was to arrive at an estimate of the loss per bag. From this figure, and from the current level of the Maize Cess Fund, Maize Control was to choose a cess that would leave the Fund solvent at the end of the year, taking into account the possibility of error in estimates of the current crop and the level of the world market price.[76] In subsequent years there was generally a credit balance in the Maize Cess Fund, and usually a substantial one, but the total balance never exceeded about half of the size of a large export loss in a single year (Table 15). The Cess Fund could not be called a "buffer fund" in any true sense. For the crop planted in 1954 the deduction from the guaranteed price was fixed at shs 3.00 per bag, for both African and European producers. The Government agreed that the new Maize Cess Fund should inherit £ 411,697 out of the undistributed balances accrued to the Kenya Government from the Cereals Pool.[77]

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[76] E.S.C., "The Maize and Sorghum (Imposition of Cess) Ordinance, 1954," East African Economics Review, 1955; Elspeth Huxley, No Easy Way (Nairobi, East African Standard, Ltd, no date), p. 179; Paul King, Letter to the Maize Commission of Inquiry, April 18, 1966 (Typewritten), p. 9; Anthony T. Brough, "Memorandum to the Maize Commission of Inquiry by A.T. Brough, Chief Statistician, Ministry of Economic Planning and Development," 1965 (Mimeographed), p. 19. The Treasury was against subsidies to marketing boards on the grounds that they are unpredictable in size, would have to come out of short-term borrowing or tax revenues, and might turn out to be permanent. Huxley points out that the Government in 1954 was desperately trying to pay for the expenses of the "Emergency" in Central Province.

[77] Kenya, The Maize Industry, p. 7. The agreement on the Maize Export Cess represented a considerable weakening of the victory producers appeared to have won in 1952.

TABLE 15

Maize Export Cess Fund Receipts and Expenditures 1954-65

Crop Year	Expenditures of Fund			Receipts of Fund and Carryover			Total Receipts and Carryover	Surplus[a]	
	Export Trading Losses	Other Expenditures	Total Expenditures	Carryover	Cess Proceeds	Other Receipts		Total	Per Bag on Average Crop[d]
	£	£	£	£	£	£	£	£	shs
1954-55	562,762[b]	12,098	574,860	411,697[c]	321,305	. .	733,002	158,002	2.10
55-56	106,044	5,750	111,794	158,002	261,979	5,306	425,427	313,633	4.20
56-57	236,597	12,601	249,198	313,633	160,270	47,675[e]	521,578	272,380	3.60
57-58[f]	1,066,000	. .	1,066,000	272,380	479,040	6,000	757,420	-308,580	-4.10
58-59[g]	(392,000)	. .	(392,000)	-309,000	820,000	. .	(511,000)	119,000	1.60
59-60	134,214	62,968[h]	197,182	118,956	441,280	7,671	567,907	370,725	5.00
60-61	59,405	1,074[i]	60,479	370,725	165,904	17,835	554,464	493,985	6.60
61-62	. .	50,412[i]	50,412	493,985	9,383	19,043	522,411	471,999	6.30
62-63	725,142	152,389[j]	877,531	471,999	909,224	11,364	1,392,587	515,056	6.90
63-64	614,070	58,972[k]	673,042	515,056	317,632	8,240	840,928	167,886	2.20
64-65	4,369	58,201[l]	62,570	167,886	5,049	2,643	175,578	113,008	1.50

Sources: Kenya, The Maize Industry, p. 20; Maize Marketing Board, Annual Report, 1960-65, Annexure 9.

TABLE 15--Continued

Notes:

[a]As of July 31st.

[b]£35,421 is a loss carried over from the 1952-53 season.

[c]Transferred from the profits of the East African Cereals Pool.

[d]Based on an average crop of 1,500,000, each £75,000 of surplus in the Fund represents shs 1.00 withheld from the price of a single year.

[e]£35,421 of this represents a payment from profits of the Maize Control against the 1952-53 export loss.

[f]Estimated in Kenya, The Maize Industry, from incomplete returns.

[g]My estimates based on the rate of cess in 1958-59, and the loss per bag on exports.

[h]"Amount required to increase the intermediate payment to scheduled areas producers by shs 2.00 per bag on 1959 planted crop delivered up to April, 1960." Maize Marketing Board Annual Report 1960, Annexure No. 9. The large farmers received shs 32.00 at railhead instead of shs 30.00 as they would have on the basis of their contribution to the export surplus.

[i]Used to increase the guaranteed price for Nyanza from shs 35.50 to shs 37.50 for this year.

[j]The bulk of this sum (£134,927) was used to reduce the cess due on the Nyanza crop from shs 6.00 to shs 1.00, out of surplus funds accumulated to the account of Nyanza producers.

[k]£31,927 of this was used to increase the Nyanza producer price by shs 3.00. It is not clear whether this was in addition to the price announced, or not.

[l]Funds returned to Nyanza, large farm, and forest producers. Just how they were returned is not made clear.

Surpluses in 1955-56, 1956-57, and 1957-58 were also exported at considerable loss to Maize Control, leading to the application of cesses averaging 10 per cent of the guaranteed bulk producer price. Because of these cesses the average price actually received by both European and African maize growers fell substantially below the 1953-54 price, despite a rise in the guaranteed bulk price.

It is apparent from the price and acreage figures for this period and later that European growers tended after the Maize Export Cess to use the actual price received in any given year as an indication of the price they would receive in the next year, apparently ignoring the guaranteed price offered by the Government. While maize acreages remained high, they fluctuated up or down according to the actual prices received on the old crop just before the time of planting of the new crop. Furthermore, changes in the maize price relative to the price of wheat seem to have caused regular shifts of acreage from one to the other after 1954.[78] Thus, the behavior of maize and wheat prices provide a reasonably good explanation of the decline, and the pattern, of fluctuation of maize and wheat acreages after 1954. This point will be discussed in detail in Chapter IV, pages 150-155.

Several things that happened in 1954-and 1955 help to explain why the level of African deliveries to Maize Control, and the amplitude of their fluctuations from year to year, fell after 1954-55. The average price received by African growers between 1954-55 and 1957-58 was about 6 per cent below the high price received in 1952-53 and 1953-54, and

[78] It is possible that such shifts were taking place earlier as well, but masked by the inflation and the strong upsurge in wheat acreages.

increases in the general price level made the real price decline somewhat greater.[79] Second, the Maize Export Cess did increase the differential between the producer and consumer prices in the African "Reserves" and nearby urban centers. It is reasonable to ascribe to these increased incentives for illegal trade at least a part of the decrease in both African deliveries and African sales from 1954-55 through 1957-58.[80] Thirdly, after 1954 the border between Kenya and Uganda was not open for free trade in maize. Even though the East African Cereals Pool was dissolved in 1952 small scale trade across the border was permitted until 1954. This may help to explain part of the reduction in African deliveries as well as the reduction in the amplitude of their fluctuations, for prices on the two sides of the border did not always move together, as Table 16 shows. According to Miracle, the average volume of maize trade across the border was reduced from 200,000 bags of legally traded maize to about 100,000 bags of illegally traded maize.[81] A fourth factor in the situation may have been the introduction of the Nyanza Province Marketing Board in 1955. In keeping with the recommendations of the Ibbotson Report of 1952 the new provincial marketing board acted as main agent for Maize Control in

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[79] See Table 12 above, p. 65. See also below pp. 156-163, where evidence on the price elasticity of African maize deliveries to Control is examined.

[80] Kenya, The Maize Industry, p. 10.

[81] Miracle, Maize in Tropical Africa, pp. 135-36; Yoshida, "Background to Maize Marketing," Graph 2; Kenya, The Maize Industry, p. 8. In order for the statements to be correct one must assume that the recorded deliveries of Africans to Maize Control included deliveries from Uganda.

TABLE 16

A Comparison of Maize Prices and Deliveries in Nyanza Province with Uganda Maize Prices and Acreages, 1947-48 to 1955-56

Control Year	Bungoma Price[a]	Nyanza African Deliveries[b]	Calendar Year	Buganda Price[c]	Uganda Acreage[c]
	shs per bag	thousands of bags		shs per bag	thousands of acres
1947-48	11.55	350	1947	10	258
48-49	11.50	800	1948	8	296
49-50	12.25	1500	1949	10	315
50-51	12.25	940	1950	10	317
51-52	22.85	736	1951	14	268
52-53	29.75	560	1952	45	301
53-54	30.17	1200	1953	30	662
54-55	27.70	1045	1954	17	472
55-56	26.85	522	1955	30	379

[a] Table A13, p. 207.

[b] Table A5, p. 198.

[c] Miracle, Maize in Tropical Africa, p. 135.

Nyanza.[82] The change in organizational structure did not appear to have affected any substantive practice of Maize Control with respect to the marketing of maize. However, the new Board seems to have given better prices for other African produce than were given under the Maize Control system. Certainly the change in the size and fluctuations of deliveries of other staples in Nyanza with the change in organization of marketing would be explained by such a change in pricing policy. Before 1954-55 deliveries of other staples to Maize Control varied between 60,000 and 125,000 bags per year in Nyanza, compared with maize deliveries between 350,000 and 1,500,000 bags per year. Between 1955-56 and 1962-63, deliveries of other staples fluctuated between 85,000 and 250,000 bags per year, while maize deliveries varied between 425,000 and 680,000 bags per year. Chart 1 presents the figures in a way which also suggests that deliveries of maize and other staple foods move on the whole together.

All of these factors probably affected the level and fluctuation of maize deliveries. However, in the absence of a way to reduce or eliminate the effects of weather on total production, there is no sure way to show which had the strongest effect.[83]

The Maize Export Cess and Maize Control overhead charges to pay

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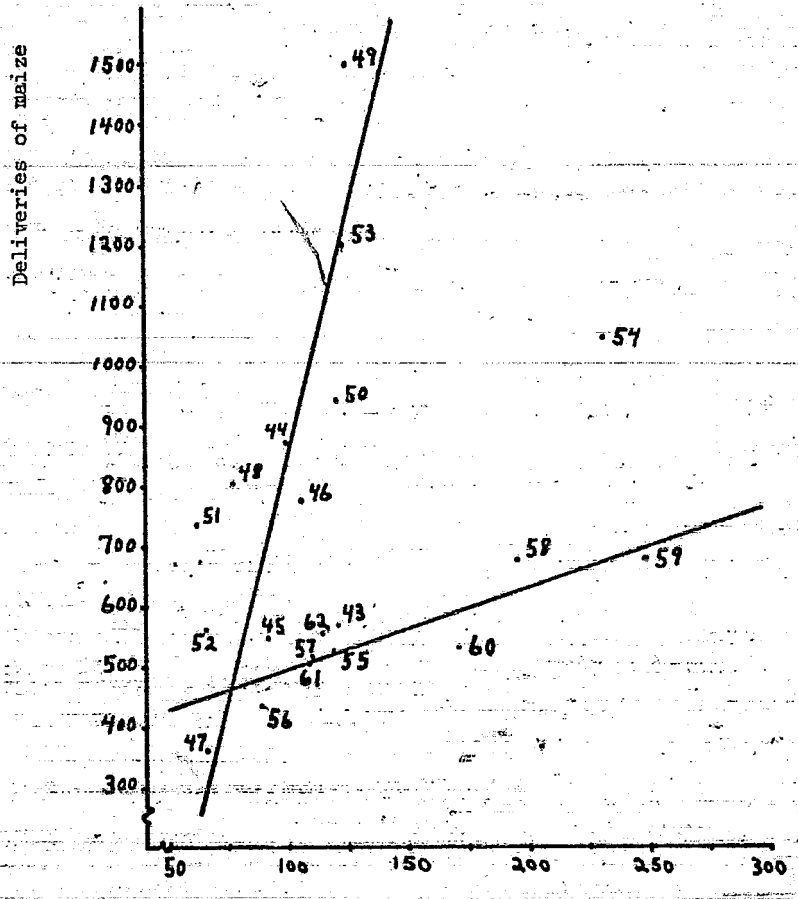
[82] *Report on the Marketing of Maize*, pp. 39-40.

[83] Other changes that took place in the mid-1950's in maize marketing were probably of little importance in the overall picture. These included a change in the bulk delivery regulations allowing traders to deliver in three ton loads; increasing use of Betterment Funds for general revenue, and their eventual conversion into County Council Cesses; and the end of the Certificates of Good Husbandry.

CHART 1

Deliveries of Maize and Other Staple Foodstuffs to Nyanza Province Marketing Board: 1943-1962
(All figures in thousands of bags per year)



Source: Nyanza Province Marketing Board, Annual Report, 1955-1963.

for storage costs on the increased "strategic" reserves added substantially to the differential between the official purchase and sale prices of maize. This increased both the incentive for illegal trade and the appeal of the charge that Maize Control was "inefficient." In 1955 the influential East Africa Royal Commission 1953-55 Report[84] recommended that marketing of staples, including maize, be decontrolled. In 1957, when the Mau Mau Emergency and the Government's agreement with producers to use the Troup formula in determining the maize price level were both coming to an end the Government re-examined the question of maize control and the maize price level. In mid-1958 the Government published its view of the current maize marketing problems and its proposed solutions. In this paper[85] the Government rejected a return to a free market in maize primarily on the grounds that instability of price would be unavoidable, and that this would engender greater instability of supply from European growers if it did not discourage them altogether from producing maize.[86] Given the chronic instability of deliveries from African growers, Kenya would undoubtedly have to import maize more often and in larger quantities; an undesirable condition in the market for a staple foodstuff. However, the Government report concluded that the maize producer price was being set by the Troup formula

[84] Great Britain, Office of the Secretary of State for the Colonies, East Africa Royal Commission 1953-55 Report (London: Her Majesty's Stationery Office, 1955). (Hereinafter to be known as East Africa Royal Commission Report.)

[85] Kenya, The Maize Industry, pp. 9-11.

[86] This is the same argument made in the Report on the Marketing of Maize, p. 14.

at too high a level, encouraging too large an export surplus and discouraging the use of maize internally as a stockfeed. While exonerating Maize Control from the charge of "inefficiency"[87] the Government also acknowledged that the differential between the producer and the consumer prices was too great, contributing to a bothersome problem with illegal trade especially in the main African producing regions. The Government announced that the Troup formula would be dropped as the basis for calculating the 1958-59 producer price and that in the future an attempt would be made to set a price that would produce a much smaller average surplus of internal supply over internal demand. The guaranteed bulk producer price for 1958 would be shs 37.00. In order to reduce the differential between buying and selling prices the Government announced that (1) the system of "equated railage" would be replaced with rail charges graduated by transport zone in order to reduce the price differential in the main producing areas and to correct inequities in the price structure;[88] (2) measures would be taken to reduce the costs

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[87] Ibid., p. 10, "The overhead cost of the Control itself...is considered to be relatively low and to indicate a high degree of efficiency in the administration and execution of the Control's functions. All the other costs...relate to the exercise of functions imposed on the Control by the Government as matters of policy. All these costs, with exception of holding a strategic reserve, are part of the ordinary processes of maize marketing and must be paid for." For a discussion of the "efficiency" of the Maize Control in economic terms see below, pp. 172ff.

[88] The argument was that charging the same transport charge on all maize sold by Maize Control, regardless of transport incurred, subsidized consumers far from producing areas at the expense of consumers in the producing areas themselves. This arguement was first brought up in the Report on the Marketing of Maize, pp. 20-21. Curiously, the argument was applied to none of the other uniformities of the price structure maintained by Maize Control.

of the official marketing system, the most important of which was to reduce in size the emergency reserve of maize maintained by Maize Control;[89] and (3) various commissions and margins allowed traders and millers would be examined for "fat." In addition to these changes the Government announced, for reasons that were not clearly stated, a major change in the manner of assessing the Maize Export Cess. Henceforth a regional maize delivery quota would be assigned to each producing region. The Export Cess would be assessed in each region according to the amount of over-delivery of maize from that region--in order "fairly" to distribute the burden of the Cess among the regions. The Cess for the 1958 planted crop was to be shs 10.00 for European and shs 8.00 for African maize, to cover losses on the very large expected exports of that year. Finally, the Government announced its intention of carrying out the reorganization of Maize Control suggested in 1952 by Ibbotson's committee.[90]

The decisions taken by the Government in 1958 recognized the power of market forces to disrupt attempts to set non-market prices, and they marked the end of a period of special favoritism to maize producers. In this, the basic intention of Government not to give encouragement to unprofitable maize exports reasserted itself.

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[89] The Emergency Reserve was 250,000 bags, in addition to the 500,000 bags that Control tried to hold on July 31st of each year to assure continuity of supply until the new crop began to come in.

[90] Report on the Marketing of Maize, p. 15.

The Maize Marketing Board, 1959-1966

On July 31st, 1959 the new Maize Marketing Board took over the functions of Maize Control, under the Maize Marketing Ordinance. As its main agents the Board retained the Nyanza Province Marketing Board for Western Kenya and the KFA for the European farms and the African farms of the Rift Valley. At the same time, a Central Province Marketing Board came into being to take over the task of buying African crops in that province, as agent for the Maize Board in collecting and disbursing maize, on its own when handling other crops.[91] This reorganization meant no radical change in management, since the same facilities and most of the same employees were available as before.

With the beginning of the new crop year the Board set about implementing the innovations in pricing and procedures instituted by The Maize Industry, and the new Maize Marketing Ordinance. It established the quota system of assigning the Maize Export Cess on the basis envisioned in the Sessional Paper.[92] Under this system, each of the major producing areas of Kenya was given a percentage of the

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[91] The establishment of the Central Province Marketing Board left Machakos, Kitui, Nandi, Elgeyo Marakwet, West Pokot, Baringo, Taita, Kilifi, and Kwale districts without regional marketing boards. None of those areas is an important supplier of maize. Nevertheless, during the early 1960's these areas were gradually brought into the official marketing system of regional boards.

[92] The quota system was not made mandatory by the Maize Marketing Ordinance, but rather the form of collection of the Maize Export Cess was left up to the discretion of the Minister in charge of the Board's affairs.

TABLE 17

The Maize Export Cess During The Period of Quotas: 1958-1962

Area	Per Cent of Quota	Year of Planting 1958	1959	1960	1961	1962
		shs per bag	shs per bag	shs per bag	shs per bag	shs per bag
European Large Farms	42.5	10.00	3.60	nil	nil	11.50
African Smallholdings						
Nyanza Province	44.0	8.00	5.10	5.50[a]	nil[b]	1.00
Central Province	8.00	8.00	4.80	2.35	nil	2.35
Rift Valley Province	2.5	8.00	3.70	nil	nil	2.00
Southern Province	0.75	8.00	nil	nil	2.95	8.80
Coast Province	0.25	8.00	7.85	nil	nil	nil
Forest Areas	2.0	8.00	6.05	0.95	nil	14.30

Sources: Maize Marketing Board Annual Report, 1960-63; Kenya, The Maize Industry.

[a]Subsequently reduced to shs 2.50 by allocation of excess funds from the Nyanza accumulated maize cess fund.

[b]Subsequently a shs 2.00 subsidy was added to the price out of the Nyanza Province Cess Fund.

average needs of the Board to supply each year. These needs were set at 1,000,000 bags per year. On the basis of average deliveries to Maize Control over the period 1948-1957,[93] these percentages were set as follows:[94]

	Bags Quota	Per Cent
European Farming Areas	425,000	42.5
Nyanza and Western Province	440,000	44.0
Central Province	80,000	8.0
Rift Valley African Areas	25,000	2.5
Southern Province	7,500	0.75
Coast Province	2,500	0.25
Forest Areas	20,000	2.0

Only deliveries from an area in excess of the quota were liable to the Maize Export Cess. When export losses were expected the expected loss was divided among the producing areas according to the proportion which deliveries from each in excess of its quota were expected to bear to total deliveries in excess of the total quota. The loss thus assigned to each producing area was then prorated over the total of all bags expected to be delivered in that area in the year the loss was made in order to arrive at the Maize Cess for that year in that area. Any difference between actual and expected results which led to one area paying too much or too little in a given year was adjusted in future years.[95]

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[93] Kenya, The Maize Industry, p. 12

[94] Maize Marketing Board, Annual Report, 1960, p. 3.

[95] The quota system of assigning the Maize Cess led to rather larger credit balances in the total Maize Cess Fund than had been held earlier, simply because each regional fund was supposed to have a credit balance. See Table 15, above p. 70.

As a first step in reducing the differential in producing areas between the buying and selling price of the Board, a system of zoned transport charges was introduced (Table 18). The Board assessed the same transport charge on all maize delivered to a miller or other purchaser within each of eight transport zones, with low transport charges in the two producing zones of Western Kenya and the Central Rift Valley, intermediate transport charges in the main consuming areas of Central and Eastern Provinces, and the highest transport charges along the rail line to Mombasa and at the Coast.[96]

Economizing measures managed to reduce the Board's overheads by about shs 2.33 per bag in two years. Much of this saving was made possible by a reduction in the normal interseasonal carryover of maize. The Maize Control had held an average of 750,000 bags in storage on July 31st in the years 1956, 1957, and 1958. The Board held an average of 375,000 bags on the same date in the years 1959 and 1960.[97] Storage space freed by this measure was rented out. If the Board was correct in estimating its annual storage costs at shs 5.60 per bag,[98] if the reduction of 375,000 bags in interseasonal carryover may be taken as an

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[96] King, "Letter", p. 6. "The basic idea behind the zoned railage system is to provide to consumers maize from the cheapest source of supply. Up to 1959 the prices of maize and maizemeal were uniform throughout the country with an average railage element of shs 3.70 per bag. As will be appreciated the shs 3.70 added to the consumer price in producing areas, increased considerably the "differential" between the producer and consumer prices and provided a bigger incentive for producers to market their crops illegally."

[97] See Table 14 above, p. 65.

[98] Report of the Maize Commission of Inquiry, p. 113.

TABLE 18

Transport Zones and Transport Charges, 1964-65

Zone[a]	Transport Charge shs/bag	Region covered
A	0.50	Western Kenya, including Nandi and Kericho African areas; and Meru.
B	0.50	Rift Valley Rail Station in European farming areas west of Nakuru.
C	1.45	Rift Valley Rail Stations from Nakuru to Kijabe, including Thompson's Falls.
D	1.90	Central Province except for the region around Nairobi.
E	3.45	The Nairobi Region
F	3.90	From Ulu to Kibwezi on the Nairobi-Mombasa rail line; and the Magadi spur line.
G	4.60	From Kikambulyu to Voi on the Nairobi-Mombasa rail line.
H	5.45	From Ndara to Mombasa on the Nairobi-Mombasa rail line; and the Voi-Taveta connection with Tanzania.

Source: Maize Marketing Board, Annual Report, 1965, Annexure 13.

[a]In 1959-60 the transport zones were a little different from those shown in the table, but from 1960 to 1966 the zones remained the same, as did the transport charges in each zone.

indication of the true reduction in average stored stocks over the year, and if the Board is assumed to have a throughput of 1,600,000 bags per year, then this measure saved the Board about shs 1.30 per bag on its entire turnover.[99] In addition to savings on overhead, a little more than sh 1.00 per bag was chopped from the margin allowed millers and traders and from the cost of a gunny bag. In all, net of the Maize Export Cess and County Council Maize Cesses, between July 1958 and July 1961 the differentials between retail producer and retail consumer prices in the main surplus producing areas of Western Kenya, Rift Valley, and Meru declined between shs 5.62 and shs 7.32.[100] Even the differential at Mombasa declined by about shs 1.50, despite the increase in transport charges to the Coast. Table 19 shows the total effects of the reduction in the differential, taking cesses into account, for three specific African producing regions in Kenya: the main surplus region of Elgon Nyanza District (now Bungoma and Busia Districts); the African producing areas of Kiambu, near Nairobi; and the Coast Province. The differential applies to whole maize moved from a producing area to the nearest consuming market, within the same transport zone. In Elgon Nyanza the differential declined by 33 per cent, in Kiambu by 23 per cent, and in Mombasa by 30 per cent of the differential in 1957-58. At the same time the guaranteed producer price declined to shs 35.50 in 1959 and remained there for several years.

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[99] (shs 5.60 X 375,000 bags)/1,600,000 bags = shs 1.31 per bag.

[100] The variation is accounted for by changes in the transport pool charges from district to district. These were not, however, results of economies aimed at reducing the differential, but simply adjustments to maintain the various district transport pool funds at desirable levels.

TABLE 19

The Reduction in the Differential Between Producer and Consumer Prices of Maize in Three Main African Producing and Consuming Areas

Price Categories	1957-58			1960-61		
	Elgon Nyanza shs/bag	Kiambu shs/bag	Mombasa shs/bag	Elgon Nyanza shs/bag	Kiambu shs/bag	Mombasa shs/bag
Consumer Price[a]	58.00	58.00	58.00	46.00	49.00	51.00
Less:						
Trader Margin[b]	3.90	3.90	3.90	3.70	3.75	3.80
Railage	3.70	3.70	3.70	0.50	3.45	5.40
Gunny Bags	2.69	2.69	2.69	2.30	2.30	2.30
Overhead	6.33	6.33	6.33	4.00	4.00	4.00
Guaranteed Rail-head Price	39.98	39.98	39.98	35.50	35.50	35.50
Less:						
Export Cess	5.00	5.00	5.00	2.50	2.35	. .
County Council Cess	2.00	. .	. .	2.00	. .	. .
Transport Pool Charge	1.30	. .[d]	. .[d]	1.20	1.40	. .[d]
Trader Margin	1.60	1.60	1.60	1.40	1.40	1.40
Other Charges[e]	1.50	2.20	2.20	1.10	1.95	1.95
Local African Producer Price[f]	28.58	31.18	31.18	27.30	28.40	32.15
Margin Between Producer and Consumer Price	28.02	26.82	26.82	18.70	20.60	18.85

Sources: Kenya, The Maize Industry, pp. 21-26; Maize Marketing Board, Annual Report, 1961, Annexures 11-13.

Notes:

[a] Whole maize "weighed out and packed by trader."

[b] Trader margin on whole maize, for 1957-58, estimated from trader margin on posho.

[c] Cess announced to be shs. 5.50 per bag but reduced by shs 3.00 by an allocation from the accumulated Nyanza Maize Export Cess Fund.

[d] No transport pool.

[e] Charges for local storage and shrinkage, marketing services performed for European growers and others delivering in bulk, and grade differential.

[f] Sold in small lots to sub-agent of the Board.

Thus, taking the decline in the differential and the decline in the price level together, the consumer price declined by shs 12.00 (20.7 per cent of 1957-58 price) in Elgon Nyanza, shs 9.00 (15.5 per cent) in Kiambu, and shs 7.00 (12 per cent) in Mombasa.

The various changes in the maize price level and the internal differential between producer and consumer prices were intended to encourage a reduction in maize production for sale and an increase in the proportion of African sales passing through the Maize Board. European acreages did decline by 19 per cent from 1957-58 to 1960-61. However, good weather and a rising trend of yields[101] kept European deliveries at very close to the level before 1957-58. The good weather from 1957-58 to 1959-60 makes it hard to assess the effects of the price changes on African marketings and consumer purchases. African marketings rose substantially above the levels of the mid 1950's, but consumer purchases fell far below the normal levels of those years. The 1958-59 exports were greater than those of 1957-58, and the surplus of 1959-60 was still quite substantial at about 300,000 bags. In mid 1960 the Board was holding in storage just under its target carryover stock of 500,000 bags, and felt quite safe in doing so. Then, in 1960-61 and 1961-62, disaster comparable only to the shortage of 1942 struck the maize market. The 1960-61 season was poor, especially in Eastern Kenya and the rangelands. Though deliveries were only somewhat below the level of the year before, sales of maize rose to record heights during the year. It is possible that the high level

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[101] The maize breeding program had begun to have some effect on yields with its "synthetic" maize varieties. Farmers were also using increasing amounts of chemical fertilizers.

TABLE 20

Maize and Wheat Acreages and Prices
1957-58 to 1965-66

Crop Season[a]	Large Commercial Farms					African Smallholdings
	Wheat		Maize			Maize
	Acres Planted	Actual Price	Acres Planted	Guaranteed Price	Actual Price	Local Price in Bungoma Market Nyanza
	thousand	shs/bag	thousand	shs/bag	shs/bag	shs/bag
1957-58	252	51.70	178	39.98	34.98	27.33
58-59	247	52.33	148	37.00	27.00	22.00
59-60	254	48.62	135	35.60	32.00	24.30
60-61	248	46.62	142	35.50	35.50	24.30
61-62	226	46.93	158	35.50	35.50	31.40
62-63	244	46.93	159	35.50	24.00	28.60
63-64	278	47.92	112	32.50	27.00	21.05
64-65	282	n/a	75	31.50	32.50	26.55
65-66	n/a	n/a	n/a	n/a	n/a	27.85

Sources: Kenya, The Maize Industry; Kenya, Statistical Abstract, 1965 Maize Marketing Board, Annual Report, 1960, 1965.

[a]The crop is planted in March and most of it is harvested between January and March of the following year.

of deliveries from African areas, and the extraordinary level of consumer sales, may be explained in part by the reduction in the size of the differential between producer and consumer prices. In any case, by July 31st, 1961 carryover stocks were less than 100,000 bags, and the Board had already begun to import maize. When the harvest of 1960-61 was delayed by disastrous floods the Board had to continue imports long beyond the normal beginning of the harvest. The Govern-

TABLE 21

Maize and Wheat Production--Maize Deliveries and Sales
1958-66
(all figures are in thousands of bags per year)

Crop Season	Large Farm Production		Deliveries to Maize Board			Sales
	Maize	Wheat	European	African	Total	to Domestic Consumers
1957-58	1350	1144	979	780	1759	1054
58-59	1160	1077	894	939	1832	1080
59-60	1070	1419	779	880	1659	1328
60-61	1010	1119	880	706	1586	2003
61-62	1245	930	869	774	1643	1352
62-63	1340	1207	1150	1083	2233	918
63-64	a	1359	a	a	1073	1088
64-65	a	1326	a	a	1170	1782
65-66	a	1633[b]	a	a	1470[b]	c
66-67	a	1720[b]	a	a	2600[b]	c

Sources: Tables 26, A1, A2, and A4 below, pp. 137, 194, 195, and 197.

[a]After 1962-63 production and deliveries of large and small farms were no longer given separately in official statistics.

[b]These are estimates from Kenya, Statistical Abstract, 1966 and 1967.

[c]There are no reports available from the Maize and Produce Board, and no other sources give total sales to domestic consumers.

ment had also imported and distributed in famine relief a great quantity of American yellow maize. In the end the Board and Government together imported far too much maize. In order to recoup the losses on imported maize the Board applied a special charge of shs 4.15 per bag on the consumer maize price beginning in October 1961, just after the main crisis had passed.[102]

[102]Maize Marketing Board, Annual Reports, 1960-62.

The main immediate lesson the Board took from the shortage of 1960-61 was the need for a larger reserve stock of maize.

> In the light of past experience the Board decided that the method of determing the level of stock carry-over from one season to the next should be based on 4 months average consumption plus emergency reserves of 70,000 bags and 30,000 bags 'positional' stock to obviate uneconomical movements. This on present day figures gives a total stock carry-over of 600,000 bags . . . . an increase of 200,000 bags on the previously declared level of stock carry-over.[103]

When it could finally be harvested the maize crop of 1961-62 was a good one, and the crop of 1962-63 was phenomenal. The weather was good and two years without maize export cesses had encouraged European producers to increase their acreages.[104] Yet the special charge on the consumer price remained in effect until December 1963, during the entire two year period when the Board was being deluged with surplus maize.

Naturally, the very large surplus of 1962-63, on top of the already large carry-over stock from over-importation and the surplus production of 1961-62, led the Government to place a very heavy Export Cess of shs 11.50 per bag on European growers for 1962-63. The Cess was lower on the African growers of Nyanza, because of previous over-collections. This cess only underscored the fact that the Maize Export Cess was a serious destabilizing element in the Maize price structure.

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[103] Ibid, 1961, p. 4.

[104] Just as the poor season in Eastern Kenya in 1960-61 had led to unusually large purchases of maize from the Board, so did the very good season in 1962-63 lead to very slow sales by the Board and a gigantic surplus from Eastern Kenya.

This may be seen from a comparison of the behavior of the maize price actually received by farmers in three periods since 1942. From 1942 to 1952 large farmers had experienced rapidly rising prices and from 1952 to 1957 the actual payout to farmers had fluctuated mildly about a high level. Not only had the average maize price fallen from 1957 to 1963, but fluctuations had grown much more violent in that period.

By 1961, maize policy-makers had become increasingly concerned with the problem of instability in maize prices, deliveries and sales from one season to the next. This concern was only increased by two important coming events: the impending independence of Kenya and the impending introduction of hybrid maize. While neither had much direct effect on maize policy before 1963, the discussions in anticipation of their occurrence took place against the vicissitudes of maize marketing in the early 1960's and were influenced by them.

In 1960 it became no longer possible for anyone in Kenya to ignore the impending independence of the country under an African majority. All government organizations were caught up, after that time, in preparations for Independence -- Africanizing staff, placing more emphasis on African activities, seeking to protect entrenched positions, discussing changes in organizational form and purpose, and reacting to the various changes of economic organization already being undertaken. The Maize Marketing Board added African members, launched a public relations campaign in African areas, and entered into active debate with its friends and opponents on the relative merits of free markets and controlled markets, and on the possibilities for its eventual conversion into a cooperative form. The euphemism for the changes required of the Board by Independence seems to have been "flexibility." In late 1959

the Board declared that:

> The Board has been conscious of the fact that the new Maize Marketing Board was not intended as a continuation of the former Maize Control . . . and to this end a more flexible system of organized maize marketing has been encouraged so far as has been consistent with the provisions of the Ordinance.[105]

Just over a year later, in the middle of the shortage of 1960-61, and following an announcement by the Minister for Agriculture and Animal Husbandry "that he, in conjunction with Statutory Boards, would examine ways and means of introducing more flexible systems for the organized marketing of agricultural products," the Board appointed a Working Party from among its own members to

> ascertain if it is possible, while maintaining reasonable stability in the maize industry of Kenya, to provide a more flexible system of organized marketing and whilst so doing to consider whether in fact any organized system is necessary.[106]

Perhaps not very surprisingly, the Working Party concluded in its Report that most people thought maize marketing should continue much as it was, the notable exception being trading interest groups who favored a free market.[107] They had, the Report pointed out, always done so; it

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[105] Maize Marketing Board, Annual Report, 1960, p. 9.

[106] "Report of the Working Party of the Maize Marketing Board," Chairman, A. A. Haller, 1962 , (Mimeographed), p. 1.

[107] Economists also favored a free market, but their opinions were given little weight in the determination of maize marketing policy. See Great Britain, East Africa Royal Commission Report, Chapter 7; Marvin P. Miracle, "An Economic Appraisal of Kenya's Maize Control," East African Economics Review, December 1959; B. G. Massell, J. Heyer, and H. Karani, "Maize Policy in Kenya," Discussion Paper No. 20, Institute for Development Studies, University College, Nairobi, December 1965 (Mimeographed).

was nothing new. With respect to public relations the Report declared:--

> there is need for an even more intensive campaign to be instituted in an endeavour to familiarize all sections of the public with the basic principles of, and the benefits to be derived from organized maize marketing, coupled with the importance it plays in the overall economy of the country. Such a campaign . . . will have to be introduced gradually throughout the African areas of the Colony.[108]

The authors went on to say that, despite the general acceptance of the Board by the public, maize marketing in its present form should be looked on as a transitional form pending development of:--

> responsible and stable co-operative societies and co-operative unions. The Board's active participation in this matter would serve to bind it more closely to the general wishes of the African people. . . .[109]

In the meantime, said the Working Party, the Board could reduce the apparent differentials between buying and selling prices by discontinuing the collection of the County Council Maize Cess, publishing the producer price with the cost of a gunny bag included in it, and ending price control at the retail selling end. Though none of the Report's suggestions was adopted, it does give insight into the general climate of opinion within which the Board was moving in the early 1960's.

Two specific problems faced the Board in the next few years. A major change was taking place in the Large Scale farming region with the beginning of the resettlement of Africans on a million acres of European owned land, beginning in 1962. It was necessary for the Board to gain some insight into the effect this might have on the purchases

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[108] "Report of the Working Party", pp. 16-17.

[109] Ibid, p. 17.

and sales of maize on the market. Secondly, and even more important in the long term, was the introduction of hybrid maize. Concerted government research on improved varieties of maize began in Kenya about 1955. Very soon the experimental stations were producing improved "synthetic" varieties.[110] The first hybrids--long maturing varieties for use in the high-altitude areas of the Central Rift Valley and Western Kenya--would be ready for limited commercial use in 1963. In uncertainty as to the magnitude and timing of the effects of land resettlement and hybrid maize, in 1962 the Government appointed Mr. V.G. Matthews to advise the Government on this point as well as on other possible effects of Independence on the maize industry. He was invited to study the advisability of retaining the present marketing system, and to discuss export policy, price policy (including the now controversial system of quotas used in assessing the Maize Export Cess), and the advisability of extending price concessions to livestock growers.

Matthews reported[111] that the effects of land resettlement on the national maize supply and demand would not be large, because the reduction in marketed production from the resettled areas and the increase in the number of Africans growing their own subsistence on the settlement schemes would tend to cancel one another out. Hybrid maize would

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[110] A "synthetic" variety is bred by selection and crossing of the best local strains. It breeds true for several generations and raises the general quality of the maize around it. In many parts of Kenya the continual introduction of improved "synthetic" seed year after year had a considerable effect on the overall quality of the maize grown, spilling over from those who bought the seed to those who lived nearby.

[111] V. G. Matthews, "Report on the Kenya Maize Industry", April 1963, (Mimeographed), paras. 35-41.

have revolutionary effects on both European and African maize yields, he thought, but the effect on Europeans would be very quick, while it might take many years before Africans responded in anything like the same degree. Africans should be broken in on the cultivation of synthetic varieties, then introduced to hybrids. Basing his recommendation on the supposition that Africans would not be discouraged from growing their present surplus at lower prices, even before the introduction of hybrids, and on his opinion that marginal European maize farmers were largely responsible for keeping the internal price high--incidentally ruining land on which they should not have grown maize in the first place--Matthews thought the introduction of hybrid seed in quantity should be accompanied by a phased reduction of the guaranteed price from the 1962-63 level of shs 35.50 to about shs 24.00 in 1968. This would drive out marginal European maize farmers, who should be helped by the Government to find more suitable uses for their land. It would also greatly reduce the problem of export losses by bringing the domestic price closer to the export level, and by holding down surpluses during the period of transition to hybrid cultivation. Matthews foresaw the day when Kenya might again be able to export maize profitably. Until that time he favored retention of the Maize Marketing Board in its present form because he felt that only such a system could guarantee provision of maize throughout the country at a constant wholesale price at all times of year, a situation he felt was necessary for economic stability.

Should Kenya be able at some time in the future to export maize profitably, Matthews favored transformation of the present system of controls into a producer co-operative without monopoly powers. He

stressed that in any future increase in the export price beyond a level at which the Government began to consider the consumer price too high, the Government should not re-introduce maize marketing controls to keep down producer prices, but rather should subsidize consumers from general revenues if it so desired.

With respect to present price policy, Matthews favored dropping the quota system of assigning export losses on the grounds that it resulted in price differentials between districts that encouraged illegal trade, and that it opened maize price policy to the charge of being racially discriminatory. He saw no evidence that the differential between producer and consumer prices was excessive, and suggested that the Board should break it up into its component parts, making clear which represented costs of the Board and which costs of the farmer or of retail traders. He reenforced strongly the Board's suggestion that the County Council Maize Cess should be abolished, as soon as some tax could be found to take its place.

The significance of Matthew's report is the degree to which it seems to reflect the ruling opinions of the day on the problem of maize marketing among European farmers, government policy-makers, and the management of the Maize Board. He seems to have tried to write a report that represented a compromise among these groups. In any case, his recommendation to drop the quota system, and his suggested maize price for the 1963-64 season, were adopted before his report was published.[112]

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[112] The report is dated May, 1963. The new producer price was published in February, and at that time the intention to drop the quota system was announced.

On December 12, 1963 Kenya became an independent nation. This event had only a small immediate impact on maize marketing. The provincial marketing boards that served as agents to the Maize Board were reorganized: the Nyanza Provinces Marketing Board and the Central Province Marketing Board were merged in early 1964 to form the Kenya Agricultural Produce Marketing Board. The new KAPMB began to extend its marketing services to parts of the country, such as Machakos and Kitui Districts and the Coast, where marketing of the African crop had hitherto been handled by traders dealing directly with the Maize Board.

From mid 1963 to mid 1964 many European farmers left Kenya, but there was an orderly[113] transfer of their land into the hands of Africans, through purchase by Government or by individual Africans and groups of Africans. Considerable maize acreage passed out of the hands of large farmers, so that from the 1963-64 season on the figures for large farm maize acreage and production are no longer comparable with figures for earlier years. The 1963-64 crop season was also the first in which hybrid maize was made available on a commercial basis to large farmers, though there was not yet enough seed for all large farms.

The main development of 1964 in maize marketing was the beginning of a new shortage. Because of the extraordinarily good crop and the low level of internal sales throughout the 1963-64 crop season Kenya began 1963-64 with enough maize on hand to weather a rather severe

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[113] The market in land was orderly because the Government stood ready to purchase with British aid at quite reasonable prices the land of any European settler who wished to leave the country. The actual settlement of Africans on the newly purchased farms was often chaotic.

shortage. However, deliveries from the 1963-64 crop were poor, and exports from the 1962-63 crop reduced the Board's surplus. By the spring of 1964 the first signs of a shortage were recognized in rising sales of maize to drought-prone areas. The possibility of a need to import became apparent in May, just as the last of the exports was leaving Mombasa.[114] The Board's sales rose rapidly thereafter. Despite purchase of over 200,000 bags from Tanganyika between August and October stocks in November were nearly exhausted. Tanganyika and Uganda were also by this time experiencing a shortage. The new crop began to be delivered at that time in sufficient quantities to maintain supplies temporarily, but the Board neglected to seek foreign sources of supply soon enough and had to institute rationing in February 1965.[115]

1965 was a year of turmoil in the maize industry not only because of the shortage but also as a result of further changes in the organization of maize marketing. On the anniversary of Independence in December 1964 a reorganization of the Cabinet brought the Maize Marketing Board under the portfolio of the newly created Minister for Cooperatives and Marketing. At the same time for political reasons the marketing of all African crops in Western Kenya was taken from the KAPMB and placed in the hands of the newly created West Kenya Marketing

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[114] It is only fair to say that some of the exported maize had had to be declared unfit for human consumption, having been put in storage too wet in the unusually good year of 1962-63. Still better management and storage facilities would have anticipated this problem.

[115] Report of the Maize Commission of Inquiry, pp. 52-55.

Board (WKMB).[116] The decision was made to Africanize the post of Chairman of the Maize Marketing Board, and this was carried out in mid 1965.

With the drought of 1964-65, particularly after the introduction of rationing in February, 1965, maize marketing policy became once more a national issue of some importance. As the year 1965 progressed there were increasing complaints of mismanagement in the decision to import maize and of corruption in the distribution of existing supplies, implicating among others the new Minister for Cooperatives and Marketing and the new head of the West Kenya Marketing Board. The Maize Marketing Board was subjected to all of the perennial allegations of inefficiency and complaints of black markets. Disturbed by the spread of protest against the whole maize distribution network and by the charges of corruption in high places, the President in the fall of 1965 appointed a Maize Commission of Inquiry to investigate charges of inefficiency and corruption in the shortage, but also charged with the task of examining the whole system of marketing and making recommendations for its improvement.[117] The Commission began to gather memoranda and to hear evidence amid great publicity in the latter part of 1965. Then, at the end of 1965, before the Commission had had time to come to any conclusions, the President reorganized his Cabinet once more, dissolving the Ministry of Cooperatives and Marketing and returning the Maize Marketing Board to the portfolio of the Minister for Agriculture and Animal Husbandry. At the beginning of 1966 the West Kenya Marketing

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[116] On the first anniversary of Independence, Kenya became a unitary Republic instead of a Federal Republic. Despite this move toward more centralization the Government returned to a more decentralized structure of maize marketing.

[117] Report of the Maize Commission of Inquiry, p. i.

Board was also dissolved and the marketing of African maize in Western Kenya returned to the KAPMB.[118]

About the time the new Maize Commission of Inquiry began its hearings the food situation was returning to normal, with a good 1965-66 harvest in prospect in the main maize-growing regions. By the time the Maize Commission published its Report, in June 1966, the shortage had been over for some time, and Kenya was struggling with a substantial surplus of maize aggravated by over-importation in the last months of the shortage.[119] This maize crowded the stores just as the bumper crop had to be delivered, creating severe problems for farmers. In the first part of 1966, while the Maize Commission was still deliberating, the Government ordered additional storage capacity to be built.

Most of the publicity, and a major part of the hearings of the Maize Commission pertained to the investigation of charges of corruption in the distribution of maize during the shortage itself. However, the Report of the Commission covered a wide range of issues concerning the operation and organization of the Maize Board. It is these issues, rather than the more sensational issue of corruption, that are of interest in a study of maize marketing policy changes.[120]

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[118] The Manager of the West Kenya Marketing Board was indicted, tried, and convicted of embezzlement in the first part of 1966. When the KAPMB took over the West Kenya Marketing Board's affairs it was found that the organization was virtually bankrupt, the accounts falsified or non-existent.

[119] Estimated to have been about 500,000 bags too high. See interviews with J. R. Peberdy and others, Dec. 1966.

[120] Formal charges of corruption were not made by the Maize Commission. The Commissioners went only so far as to say that "people took unfair advantage of their positions as businessmen or politicians. In some cases, abuse of public office was involved." See Report of the Maize Commission of Inquiry, p. 166.

The Maize Commission identified poor weather as the major cause of the shortage of 1964-65. As contributing causes, the Maize Commission considered the unwise exports in 1963, the low prices to producers and increases in costs of production in the period from 1959 to 1964 (which were assumed to have had little effect on African production but probably a major effect on European production), illegal exports to Uganda during the shortage, and the increase in demand for maize with changing tastes and population growth to have been important but not decisive.[121] The need to ration maize in 1965 was declared to be essentially the fault of the Ministry of Cooperatives and Marketing and the Maize Marketing Board management, who were too slow to realize the extent of the coming shortage and too indecisive in ordering imports from overseas.[122] There was, said the authors of the Report, no way to avoid the droughts that swept over Kenya periodically, at intervals of about five years. However, much could be done to improve the way these droughts were handled. Better statistics on the state of food production and consumption would allow earlier identification of the onset and of the end of a drought; a clearer procedure for importing and distributing maize when that step was called for would avoid the need to ration internal food supplies and excessive importations at the end of a shortage. The main thing was to recognize the constant threat of shortage and to make standing arrangements for dealing with it.[123] This called for

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[121] Report of the Maize Commission of Inquiry, pp. 42-52.

[122] Ibid., pp. 52-79.

[123] Ibid., p. 88.

reorganization of grain marketing. The Commissioners favored establishing a single Board to handle all staple food crops including wheat. It should be staffed by experienced professionals who should be as independent of political influences as possible, and free to use agents or not as they chose.[124] It should continue to be responsible to a single Minister, the Minister for Agriculture and Animal Husbandry, but should have closer liaison than in the past with the Treasury and the Ministry of Economic Planning and Development. A Cabinet Committee on Food should be appointed to oversee the entire operation.

The Commissioners were asked to judge the desirability of continuing government controls on maize marketing, and to suggest improvements in the present system's methods. They put aside as premature any suggestion that maize marketing be decontrolled, rejecting in particular the notion that the Board should become a buffer stock purchasing and selling in a free market at lower and upper support prices. They believed that the only support prices at which the Board could break even were the export and import prices, because of the high costs of storage and the fact that in a free market traders would sell to the Board only in good years and purchase from the Board only in poor years.[125] They thought the free market export and import prices would be quite far apart because of high transport costs between Kenya and the rest of the

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[124]The Commissioners took notice of the desires of the KFA and the newly created Kenya National Trading Corporation to take over the marketing of maize. Like several commissions before them they said that eventually perhaps maize marketing should be in the hands of cooperatives. They suggested that perhaps the Kenya National Trading Corporation might well be considered as the agent of Maize and Produce Control for exports and imports.

[125]Report of the Maize Commission of Inquiry, pp. 22-23.

world. Internal price fluctuations would be wide and frequent because of the low price elasticity of demand for maize within any given season, and the tendency for maize supplies to vary substantially from year to year with changes in the weather.

This emphasis on the dangers of short-term price fluctuations in a free market was recent. Between the early 1920's and 1952 it is doubtful if Kenya's internal maize producer price would have risen above the floor provided by the world market price except in years of very poor harvests such as 1943, had there been a completely free market in maize for the entire period. Even in the 1930's, when some support was provided for the local price, export surpluses remained substantial. It is doubtful that they would have disappeared entirely, had there been no price support.[126] In such a situation longer-term movements of the world market price appeared to be a more important problem than short-term fluctuations in local price levels between the export and import prices. As late as 1952, arguments against a free maize market referred to the need to support producer prices in periods of low world market prices such as the 1930's, while holding down consumer price increases in periods such as the late 1940's when prices were too high and rising. However, by 1966 fourteen years of experience with relatively stable world market prices at a level below that which policy-makers were willing to see established for producers had made clear the potential for internal fluctuations between the world market

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[126] This statement must, however, remain conjectural in the absence of an accurate measure of the actual price support attained by Government subsidies in the early 1930's and by the KFA attempts to monopolize the domestic market thereafter. See above, pp. 32-34.

export and import price levels, even when the world market price itself was stable.[127]

The Commissioners said that producers and consumers needed protection from such wide short-term fluctuations in the maize price because of the importance of maize in the consumer price index, the danger that traders and millers would take advantage of producers and consumers in periods of low and high prices (implying substantial monopoly power in the hands of millers and traders), and the belief that producers paid more attention to the stability of prices than to income stability in deciding how much maize to grow.[128] Hence it was necessary to try to limit price fluctuations. However, so long as this meant keeping the producer price above the export price level and the consumer price below the import price level, the Board would lose money on exports and imports. Trying to keep the differential between producer and consumer prices small would increase these losses, though it would discourage black markets. Clearly, as the Development Plan, 1966-70 said,[129] Government policy should be to avoid both exports and imports as much as possible by setting the level of the producer price to give Kenya no more than a small surplus in any year. Still, it was impossible to avoid losses on exports and imports by use of a buffer stock because of the high costs

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[127] The potential for such fluctuation had been recognized earlier. However, Kenya so seldom had had a need to import maize that the threat of occasional large increases in the internal maize price was not stressed. However, in 1966, imports had occurred twice in five years and three times in 14 years. The amounts imported had increased each time. See Report of the Maize Commission of Inquiry, p. 112.

[128] Ibid, p. 23.

[129] Republic of Kenya, Development Plan, 1966-70 (Nairobi: Government Printer, 1966), pp. 168-70.

of holding surpluses in storage until they were needed.[130] The Maize Commission found that the problem of simultaneously holding down losses and stabilizing maize prices had been badly handled by policy-makers. Aside from misjudgments in the handling of surpluses, which could be corrected by better information and liaison with other branches of Government, there needed to be a new way of handling the Maize Export Cess, a new look at the optimum storage policy, and further reductions in the items making up the differential between producer and consumer price.

The modified strategy of stabilization contained the following items: 1) the Government should set a long-term producer price level designed to elicit from producers a little more than the amount of maize needed in a normal year for internal consumption; 2) this price level should be varied only as new information on supply and demand trends called for adjustments (e.g. as hybrids became more widely used); 3) the price to the producer should be guaranteed and announced as long before planting season as possible; 4) the consumer price should be as low as consistent with avoiding subsidies to the Board; 5) the Maize Export Cess should become a part of the differential between the producer and consumer price announced at the time of planting, and should be varied little from year to year; 6) as soon as possible the Maize Cess Fund should be built up to about £1 million so that it might thereafter serve as a buffer fund; 7) there should be greater reliance than in the early 1960's on a buffer stock, which should contain a reserve beyond the maize considered necessary to carry the Board each year from August.

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[130] Report of the Maize Commission of Inquiry, p. 22.

to November of at least 500,000 bags. This buffer stock was not expected to save the Board money, as compared with greater reliance on exports and imports, because of the high cost of storage and the long average period of four or five years between one shortage and the next; but it would save on foreign exchange and give the Board greater flexibility in dealing with potential shortages as they arose.[131] The Commission thought the cost of the extra storage should be covered out of an increase in the differential between producer and consumer prices. The fact that the buffer stock was held would, of course, reduce the size of the Maize Export Cess required to cover export losses, because less maize would be exported. It was tobe hoped that it would be possible to collect a Buffer Fund and pay for an increased Buffer Stock without increasing consumer prices, as hybrid maize made it possible to lower producer prices.

[131] Report of the Maize Commission of Inquiry, pp. 112-13. The carryover normally held on July 31st each year included 500,000 bags that were considered necessary to protect against shortage when there was no crop coming in between August and November, 30,000 bags to keep the distribution of maize smooth, and 70,000 as a buffer stock. The Board estimated costs of storage at shs 5.60 per bag per year, and the Maize Commission estimated the loss on imports, at then-current prices, at shs 16 per bag. A buffer stock that was sold every three years would be just profitable to hold. In assessing this figure one must remember that the Commission is thinking in terms of a fixed maize producer price and a fixed differential between producer and consumer prices just sufficient to cover normal costs on yearly turnover.

CHAPTER IV

ANALYSIS OF MAIZE MARKETING CONTROL

The justification for maize marketing control in the period from 1952 to 1966 runs in terms of two main goals: (1) adequate supplies of food, and (2) stable prices for both producers and consumers.[1] There can be no real quarrel with the first goal, beyond the general remark that policy-makers tended too often to see the problem of food supply in terms of the maize supply alone and that they excluded the possibility of regular imports. Nor is there much to be said against stabilizing maize prices within reasonable bounds, if they would tend without government action to be very unstable. A good deal of criticism may, however be in order with respect to the degree, kind, and methods of maize price stabilization under Maize Control and the Maize Marketing Board, i.e. with the effectiveness with which the policies accomplished their aims. In the first place, it is not obvious that in Kenya maize prices in a free market would fluctuate so widely as to call for Government intervention at all. Did Kenya really need any controls to limit maize price fluctuations from 1952 to 1966? One must first gain a notion of how wide fluctuations might have been in a free market in Kenya during

[1] Agricultural price stabilization may refer to smoothing out fluctuations in internal price levels over several years, or to limiting spatial and intra-seasonal price differentials arising from market imperfections such as poor internal transport, storage, and communications or from destabilizing speculation. The first sort of stabilization is referred to in this section.

that period and what price levels would have been in a free market. This information may then be compared with actual price behavior and the behavior of deliveries to and sales by Maize Control, to obtain an idea of the degree and kind of departure of actual price and trade patterns from hypothetical free market price patterns.

The Magnitude of Maize Price Fluctuations in a Free Market

A major premise in the argument made in 1966 favoring continued controls over maize marketing was the notion that there was a wide gap between the price Kenya farmers could expect to receive for maize exports and the price Kenya consumers would have to pay for imported maize. It was argued that, because this gap was so much wider than internal marketing costs, the producer and consumer prices could fluctuate within a wide range from year to year. Indeed, they would do so inevitably because of three circumstances: (1) the low price elasticity of the demand for maize in the market period (between harvests), (2) the substantial variability of maize supply from one season to the next; and (3) the level of the current and prospective world market price relative to current and prospective internal costs of maize production. It was argued that Kenya would export maize in good years and import maize in poor years in a free market, and that prices would tend to fluctuate far too often all the way from export to import levels and back. This gap was considered intolerably wide, because of very high transport costs which made the export point much lower than the import point. Aside from the harm done to consuming interests, such fluctuations were expected to reduce and destabilize the production of all commercial

farmers in Kenya. Most of these were considered to be in the European sector. In general African producers were thought to respond little if any to price incentives, because most of them were thought to plant maize almost exclusively for their own consumption, marketing only a relatively minor and unstable surplus.[2] Only the large volume of total African production made the African surplus important to the food supply of the modern sector. However, it was thought that European commercial producers would respond to changes in maize prices by changing acreages planted, so that stabilization of the producer price would encourage them to stabilize acreages from season to season. It was feared also that wide price fluctuations would drive commercial producers from the market, removing the only element of domestic supply that could be relied on. Thus producer price fluctuations were expected to have the unfortunate consequence of increasing the number of years in which Kenya had to import maize and the amounts of imported maize in any one year. To these expected advantages of price stability was added the hope that in the long run even African smallholders would respond to stable prices and controlled marketing of their staple food by development of specialization (in maize or some other crop) and better farming practices. Many of these assertions involve questions of fact, for which evidence can be found.

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[2]Kenya, The Maize Industry, pp. 2, 9; Matthews, "Report on the Kenya Maize Industry," p. 36; Report of the Maize Commission of Inquiry, p. 158; and elsewhere.

The gap between export and import price levels in Kenya, 1950-1966.

In a free market, when maize is being exported from Kenya, a grower delivering maize in bulk to a rail line will receive an F.O.R. price approximating the F.O.B. export price at Mombasa minus costs of transport and handling incurred by traders between the grower's station and the port. Similarly, in a poor year, when Kenya must import maize, the internal bulk price in the main consuming centers must rise high enough to cover the C.I.F. import price plus costs of transport and handling between Mombasa and the consumer. Given a world maize price level, the internal supply and demand situation will determine whether Kenya exports, imports, or remains self-sufficient for the year.

The difference between the F.O.R. bulk export price at up-country stations and the bulk consumer price at Nairobi or elsewhere up-country will consist of the following items:

1. transport cost--up-country to Mombasa;
2. internal wholesale marketing costs--including costs of handling, conditioning, storage, grading, interest, and trading overheads for exported maize;
3. the cost of a gunny bag for exported maize;
4. port handling charges on exported maize;
5. the differential, at Mombasa, between the F.O.B. export price and the C.I.F. import price on the world market;
6. port handling charges on imported maize;
7. the cost of a gunny bag for imported maize;
8. internal wholesale marketing costs for imported maize;
9. transport costs -- Mombasa to up-country consuming centers.

These items do not, of course, constitute a differential. At any one time maize will be exported or imported or neither, but not both simultaneously, through Mombasa. Nor can the producer or the consumer price on internal markets differ by the whole difference between the export and import prices. There are internal trading and transport costs between the bulk price to the producer and the bulk consumer price.

If figures may be found for each cost item just enumerated one may determine the limits between which either the producer or consumer price would have to remain in each major internal market area. The following exercise is an attempt to develop such estimates for each year in the period of 1949-50 through 1963-64, for three points in Kenya: the main producing region around the town of Kitale in Trans Nzoia District (the largest European producing region), the city of Nairobi, and the port of Mombasa.

In 1965 maize freight rates on the Kenya/Uganda Railway varied within Kenya on bulk shipments between shs 0.02 per bag per mile up to 50 miles and under shs 0.01 per bag per mile for distances exceeding 450 miles. The standard rate from Nairobi to Mombasa (310 miles) in 1965 was shs 40.32 per ton, or shs 3.60 per bag or 0.012 per bag per mile. From Nakuru to Mombasa (400 miles), the standard charge was shs 50.40 per ton, or shs 4.50 per bag. From Mombasa to Kitale (about 500 miles) the rate was about shs 5.20 per bag.[3] The rates have been increased several times over the years, e.g. by 13 per cent in 1957.[4]

[3] See Table A.14 below, p. 209; and Arthur Hazlewood, Rail and Road in East Africa (Oxford: Blackwell, 1966), p. 87.

[4] Kenya, The Maize Industry, p. 21; and Table 22 p. 112. From 1935-45 the rail tarriff on exported maize appears to have been roughly constant. See Report of the Economic Development Committee, p. 63.

TABLE 22

Schedule of Overseas Export Charges and Producer Prices at Export Stations
1942-43 to 1964-65

Year	Quantity Exported	Average Price F.O.B. Mombasa[a]	Average Costs F.O.B. to F.O.R.					Average Price F.O.R. Producers Station[a]	Guaranteed Price F.O.R. Producers Station[a]
			Railage and Transport	Port Expenses	Administrative Expenses	Cost of Gunny Bag	Total		
	bags	Shs.	Shs.	Shs.	Shs.	Shs.	Shs.	Shs.	Shs.
1944/45	374,390	17.57	1.21	.89	.77	1.60	4.47	13.10	11.40
1945/46	6,052	17.40	1.26	.78	.25	1.60	3.89	13.51	11.40
1946/47	256,818	31.27	2.38	.90	1.16	1.60	6.04	25.23	15.15
1947/48	340,223	35.29	3.00	.55	1.55	2.40	7.50	27.79	20.00
1948/49	11,012	30.36	3.87	.65	1.08	2.75	8.35	22.01	20.00
1949/50	. .	. .	. .	. .	. .	. .	. .	. .	. .
1950/51	344,912	41.61	2.60	1.03	1.58	3.20	8.41	33.20	24.80
1951/52	813,138	61.90	4.50	1.00	2.45	5.00	12.95	48.95	30.30
1952/53	242,343	48.20	5.04	.82	3.71	4.00	13.57	34.63	38.25
1953/54	. .	. .	. .	. .	. .	. .	. .	. .	. .
1954/55	1,096,137	40.09	5.01	1.96	2.71	2.20	11.88	28.21	38.15
1955/56	140,168	36.98	4.63	2.39	5.29	2.20	14.51	22.47	38.15
1956/57	257,242	37.57	5.44	2.46	4.86	2.50	15.26	22.31	39.98
1957/58	787,253	32.79	5.95	2.21	4.34	2.50	15.00	17.79	39.98
1958/59	921,702	38.09	6.03	2.24	3.69	2.30	14.26	23.83	37.00
1959/60	100,450	35.69	6.23	2.27	4.24	2.30	15.04	20.65	35.60
1960/61	. .	. .	. .	. .	. .	. .	. .	. .	. .
1961/62	100,843	31.27	5.39	2.83	3.91	3.00	15.13	16.14	35.50
1962/63	957,786	30.72	5.27	3.15	3.91	2.65	14.98	15.74	35.50
1963/64	574,544	32.08	5.18	4.37	4.04	2.65	16.24	15.84	32.50

Source: Report of the Maize Commission of Inquiry, Appendix K, p. 197.

TABLE 22--Continued

Notes:

[a]Without the cost of bag. These prices were not paid to growers but received for exported maize by Board.

[b]Source quoted gives the guaranteed price with bag. I have deducted the price of a bag to make the figures comparable to those for the average F.O.R. price.

The Maize Marketing Board, and before it Maize Control, maintained from 1944-45 to 1963-64 separate accounts of the costs attributable to exported maize.[5] From these may be obtained reasonable estimates of the costs of new bags and port handling charges, and some idea of the possible magnitude of wholesale marketing costs for exported maize. Port handling charges rose sharply over the years, being by 1963-64 five to eight times what they had been from 1944-45 to 1952-53.[6] It seems reasonable enough to use the actual figures from Table 22 in estimating the free market port handling charges for each year since the differences from year to year probably bear some relationship to conditions at the port. The cost of a new gunny bag has remained through the years within the same general range of shs 1.60 to shs 3.00, except for the years 1951-52 and 1952-53. Again it seems reasonable to accept the

[5]See Table 22, p. 112. The series covers all but three years--1949-50, 1953-54, and 1960-61--in which no maize was exported from Kenya.

[6]The sharp increases in port handling costs from 1961 onward are largely to be accounted for by increasing labor costs attendant on higher wages to dock workers, as well as congestion at Kilindini Harbor in Mombasa. See also Esra Bennathan and A. A. Walters, The Economics of Ocean Freight Rates (Praeger: New York, Washington, London, 1969), pp. 6-7. The increases in port handling charges encouraged discussion on the advisability of moving eventually to bulk handling at the port and on the railway.

gunny bag prices given by the Board.[7] However, since gunny bags have a second-hand market in which a bag that has been used once has a value about half that of a new bag, and since gunny bags are not generally exported with the maize, the cost of a gunny bag for exported maize should be set at not more than half the cost of a new bag.

The cost items labelled "Administrative Expenses" increased substantially from 1944 to 1954-55 and then stabilized. From 1951-52 to 1958-59, in the period before the change to the Maize Marketing Board, administrative expenses per bag varied inversely with the amount of export as one can see from Chart 2. Thereafter no relationship between the two is apparent. Average exports, in those years in which exports occurred, were about 550,000 bags per year, and average "Administration Expenses" varied about an average level of shs 4.00 to shs 4.50 per bag.

These "Administration Expenses" should be compared with the similar item, "Administrative Overheads" in the Maize Marketing Board's internal price structure. These "Adminstrative Overheads" ran about shs 4.00 from 1959 to 1965, and somewhat higher in the period 1954 to 1958 (because of greater long-term storage charges on Maize Control's small buffer stock). About shs 0.85 was budgeted for the administration of the control organization. The remaining shs 3.15 consisted of the actual average per-bag costs of the Board and its agents for handling, conditioning, storage, and interest charges of bulk trade in maize. In effect, the wholesale marketing function,

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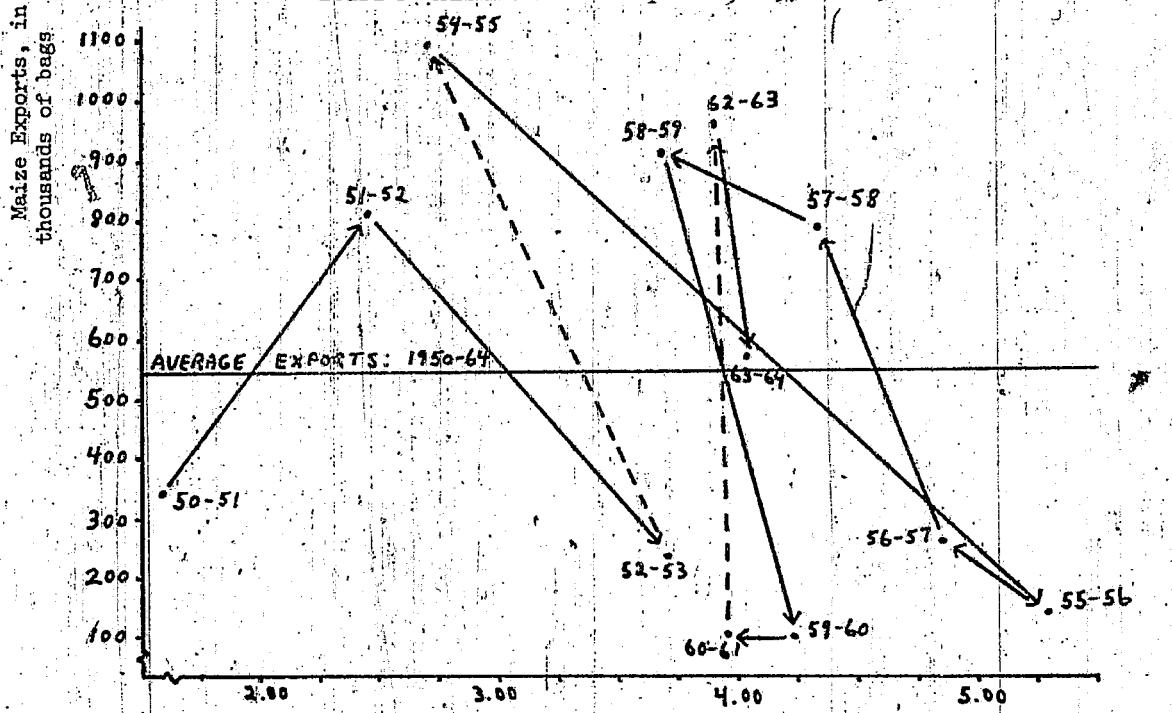
[7] In Kenya all maize is bagged for marketing and transport. The Board insists that its use of new bags is economical because of savings on handling and storage.

CHART 2

The Relationship of Maize Exports to the Maize Marketing Board's "Administrative Expenses," 1950 to 1964[a]



Source: Report of the Maize Commission of Inquiry, p. 197.

[a]In 1953-54 and 1961-62 there were no exports.

exclusive of transport charges and the cost of a bag, was performed by the Board and its agents for between seven and ten per cent of the guaranteed bulk producer price.[8]

If the Board's actual administrative overheads of about shs 0.85 are subtracted from the "Administration Expenses" of exported maize and the "Administrative Overheads" of internally traded maize, this leaves the Maize Board's costs of wholesale maize marketing, excluding transport and gunny bag, at just over shs 3.00 per bag and reasonably stable from 1954 to 1964.[9] Commissions asked to examine the costs of maize marketing repeatedly asserted that Maize Control and the Board were efficient organizations and that their costs of wholesale marketing were as low as one could expect. If these assessments are accepted then one may use the figure of shs 3.00 per bag as a reasonable estimate of the average wholesale marketing costs on a free market, bearing in mind that at some times of year and for some regions of the country the costs would be higher or lower than this average.[10] There is no reason to assume that the wholesale costs associated with exported maize would differ much from those associated with maize purchased and sold intern-

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[8]The guaranteed bulk producer price varied from shs 32.50 to shs 40.00, without bag, between 1954 and 1964.

[9]It seems reasonable to exclude the costs of the larger buffer stock held from 1950 to 1958, since that was a part of price stabilization. It seems unlikely that a substantial buffer stock would have been held by private traders.

[10]In particular, storage costs would differ from one time of year to another substantially. The Board estimated that maize storage for a year would cost shs 5.60 per bag. Very little maize was stored for so long, apart from the buffer stock.

ally apart from transport and port handling charges.

The export price level to Kenya, F.O.B. Mombasa, will consist of the landed price at a foreign port minus ocean transport costs. Similarly the import price level for Kenya, C.I.F. Mombasa, will consist of the export price at a foreign port plus ocean transport costs. If ocean transport costs are the same on shipments out of Mombasa as on shipments into Mombasa, then ocean transport costs in either direction will give an estimate of the spread between the Kenya export and import price levels at Mombasa at any given time. If ocean transport costs differ substantially depending on the source of imports and the destination of exports, then it is necessary, for calculation of the spread between the Kenya export and import price levels at Mombasa, to know the prices at Kenya's cheapest sources and the landed prices of Kenya's best partners for export.

Most of Kenya's maize is exported and imported on charter ships. Most shipments in the 1960's seem to have been shipped in bulk and not bagged. Kenya generally has had surpluses large enough to ship at least 5,000 to 10,000 tons of grain at a time, and imports in the 1961-62 and 1965-66 periods were generally in lots of 10,000 tons or more. The problem, then, is to discover the range of charter ocean freight rates on grain shipped in amounts of 5,000 to 10,000 tons for shipments from Mombasa, and 10,000 tons or more for shipments to Mombasa. There are no tables for determining these rates, and rate level fluctuations over time are often sudden and violent. Furthermore, shipments from Mombasa

do not occur simultaneously with shipments to Mombasa.[11]

There is one source of ocean freight rates from which a reasonable idea of the level of rates to and from Mombasa, for a wide range of ports, may be gained. Hundreds of individual rates are published yearly in the Chartering Annual.[12] A search of this source, combined with information from an executive of a ship's brokerage concern in Washington and from the US Department of Agriculture, indicate that the minimum rate on maize shipped to or from Kenya would not normally have fallen below shs 4.00 or shs 5.00 per bag, and would frequently have been much higher than this figure, during the period 1957-1966.[13]

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[11] When, as in 1953-54, 1961-62, and 1965, imports and exports occurred during the same twelve-month period, some estimate of the size of the spread between export and import prices is possible from the export and import prices themselves. This method of estimation yielded a spread of shs 4.00 or shs 5.00 per bag in 1953, one of shs 6.00 or shs 7.00 in 1961-62, and about shs 16.00 in 1965. See Table A 15 p. 210. Such estimates, however, are subject to error even if ocean freight rates are roughly comparable on shipments in and out, because there is usually a period of a half year or more between the exports and imports--plenty of time for freight rates to change substantially, to say nothing of the world market maize price level.

[12] Published by Maritime Research, Inc., New York. It took an extended search by telephone to uncover this source. The publishers do not provide information on subscribers and do not allow examination of their own file of back issues. The Library of Congress has a copy of the 1954 issue; Harvard Business School has issues from 1957 to 1971. Brokerage houses receiving the publication do not keep back issues. I have been assured by experts in the field that this periodical is the only available compendium of statistics on actual charter rates to and from individual ports.

[13] My figure of shs 4 or shs 5 per bag is considered by one broker who has spent more than ten years in the business to be a reasonable lower limit on the Mombasa freight rate to Europe. He says the normal lower limit on rates on the lowest single route (New York - Rotterdam) is $4.00 per ton, or shs 2.85 per bag. These lower limits, he says, have declined in recent years somewhat because of better ships and port handling facilities. He agrees that it is dangerous to take F.O.B. to C.I.F. differentials as estimates of the size of freight rates, and says that freight rates rise and fall quickly and by large amounts with changes in the supply and demand for charter ships.

No figures exist for the internal transport and marketing costs of imported maize. The provisional assumption shall be made that internal transport rates on maize from Mombasa to up-country stations are the same as rates from up-country to Mombasa, while the cost of a gunny bag is the same on imports as on exports.

Table 23 summarizes the estimates of the items in the spread between the minimum F.O.R. bulk producer price and the maximum consumer price for three locations in Kenya: Nairobi, Kitale, and Mombasa. The implications of the figures in that table for the limits placed by the world market price on Kenya's internal bulk maize prices are developed in Charts 3 and 4.[14] Chart 3 provides an historical view. The top group of three lines represents estimates of the free market prices Kenya would have experienced had she needed to import maize to feed both Mombasa and Nairobi in each year. It is assumed that Kitale would have had a surplus which would have provided for some of the needs of the Nairobi market but not for the Mombasa market. The top line represents the Nairobi consumer price, the second line the Mombasa consumer price (less than the Nairobi price by the cost of transport from Mombasa to Nairobi) and the bottom one of the three is the Kitale producer price. The producer prices in the neighborhood of Nairobi and Mombasa would have been somewhat higher and somewhat lower, respectively, than the Kitale producer price. Kitale's producers might have received still higher prices only on the assumption that they were able to supply

[14]The price levels are obtained by adding to and subtracting from the export price actually experienced by Kenya, F.O.B. Mombasa, in each year the transport and other costs relevant to the calculation of the producer or consumer price in each of the three locations. See Table A 16, p. 211, for details.

TABLE 23

Estimated Values of Individual Cost Components in the Difference Between Minimum Bulk Producer Prices and Maximum Bulk Consumer Prices of Maize in Kenya--1949-50 to 1963-64
(All figures are in E.A. Shs. per 200 lb. bag)

Year[a]	Ocean Transport Cost[b]	Port Handling Charges[c]	Internal Rail Transport[d]			Cost of Bag	Trading Overheads[e]
			Nairobi Mombasa	Kitale Mombasa	Kitale Nairobi		
49-50	4.00	0.80	1.95	2.75	1.60	1.37	1.00
50-51	4.00	1.03	1.95	2.75	1.60	1.60	1.00
51-52	4.00	1.00	3.20	4.60	2.65	2.50	2.00
52-53	4.00	0.82	3.20	4.60	2.65	2.00	2.00
53-54	4.00	2.00	3.20	4.60	2.65	1.75	2.00
54-55	4.00	1.96	3.20	4.60	2.65	1.10	2.00
55-56	4.00	2.39	3.20	4.60	2.65	1.10	3.00
56-57	4.00	2.46	3.20	4.60	2.65	1.25	3.00
57-58	4.00	2.21	3.60	5.20	3.00	1.25	3.00
58-59	4.00	2.24	3.60	5.20	3.00	1.15	3.00
59-60	5.00	2.27	3.60	5.20	3.00	1.15	3.00
60-61	5.00	2.25	3.60	5.20	3.00	1.50	3.00
61-62	5.00	2.83	3.60	5.20	3.00	1.50	3.00
62-63	5.00	3.15	3.60	5.20	3.00	1.32	3.00
63-64	5.00	4.37	3.60	5.20	3.00	1.32	3.00

[a]The Maize Marketing Board's fiscal year, from August 1 to July 31.

[b]These figures are lower limits of the differential one might expect to observe between the lowest F.O.B. export prices and the highest C.I.F. import prices Kenya could expect to receive or pay in any given year, because there are alternative sources of supply and markets for Kenya maize with different freight charges. See above, pp. 117-118.

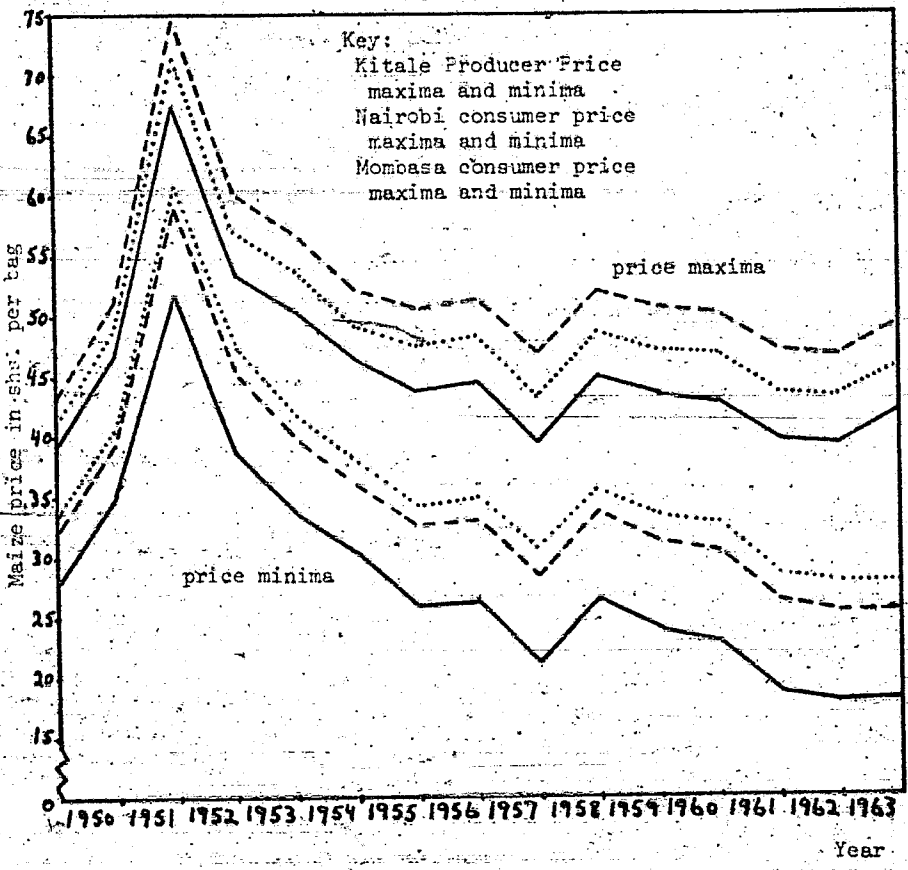
[c]Report of the Maize Commission of Inquiry, p. 197. This table is reproduced on p. 112, with minor alterations.

[d]See Table A 14, p. 209, showing maize freight rates for 1965. Arthur Hazlewood, Rail and Road in East Africa, p. 87, gives approximately the same rate schedule for 1960. According to Kenya, The Maize Industry, p. 21, rail rates were increased by 13 per cent in 1957. The figures for railage and transport in Table 22 suggest that transport rates were increased by about two thirds in 1951. Using these sources and standard rail rates from Nairobi and Kitale to Mombasa and from Kitale to Nairobi in 1965, the figures for internal rail transport charges are derived. The figures for 1957-58 to 1963-64 are divided by 1.13 to arrive at the figures for 1951-52 through 1956-57, and the latter are divided by 1.66 to arrive at the rates for 1949-50 and 1950-51. All rates have been rounded to the nearest five cent.

[e]See Table 22 above and discussion in text, p. 116.

CHART 3

Limits of the Free Market Internal Bulk Maize Price Between 1949 and 1964



Sources: Tables 22 and 23 above.

Uganda with maize rather than Nairobi, or that they had no surplus and had to import also. The latter, however, had never occurred up to 1966.

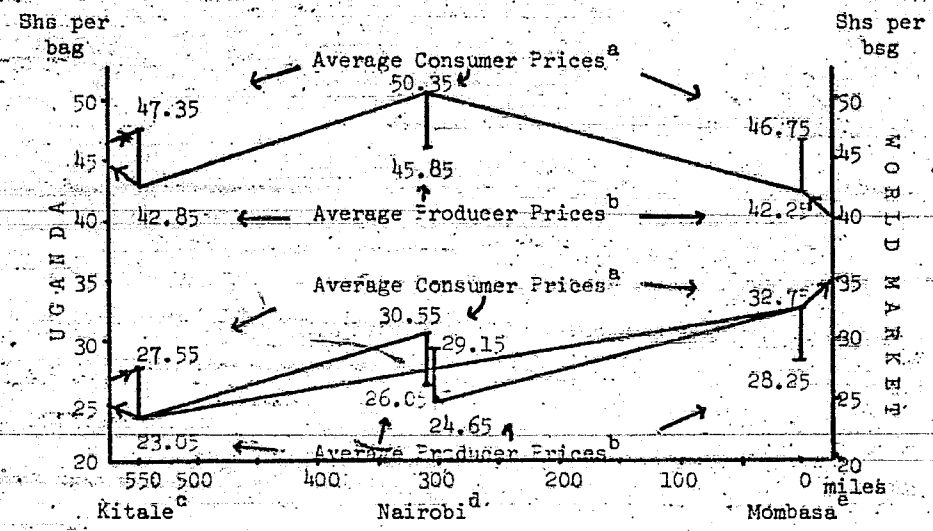
The lower three lines represent the Kitale producer price and the Nairobi and Mombasa consumer prices on the assumption that Kenya exported maize through Mombasa in each year, and that Kitale supplied Nairobi as well as Mombasa with maize to cover their local deficits. The top line is the Mombasa consumer price -- less than the F.O.B. export price by only the port handling charges. Second is the Nairobi consumer price, less than the Mombasa consumer price by the difference between the transport charges from Kitale to Mombasa and those from Kitale to Nairobi. Had the area around Nairobi had a surplus, as it sometimes does, the Nairobi consumer price would have been several shillings lower than it is shown here. There has seldom if ever been a surplus of maize from the Coast as a whole.

Notice how much closer together the upper and lower limits of the consumer price at Mombasa are than at Nairobi, because of the transport costs between the two locations. However, on the assumption that maize flows always from Kitale to Nairobi, the upper and lower price limits in Kitale and Nairobi are the same. Chart 4 illustrates the relationships in space among the three prices for one year. The year chosen for illustration is 1960-61, when the export price was about average for the period after 1954.

It is worth noticing also that the spread between the export and import price levels became substantially larger over time as the costs of transport and marketing increased. For example, the spread between the upper and lower levels of the Nairobi consumer price increased be-

CHART 4

Geographical Dimensions of the Maximum and Minimum Free Market Bulk Maize Price in 1961



Sources: Table 23 above, p. 120; and Table A16 below, p. 211.

[a]Consumer prices are shown with bag delivered in bulk at a major consuming center. They are average consumer prices for the year, including an average charge for storage.

[b]Producer prices are shown without bag delivered by a fermer in bulk at rail line collection points.

[c]Kitale is assumed always to have a surplus for sale to Nairobi. Thus, the Kitale price lies below the Nairobi price by the cost of transport between the two unless Nairobi also has a surplus.

[d]In some years the area around Nairobi may produce a surplus. In this case the price at Nairobi may fall below the price sufficient to start a flow of maize from Kitale, but not below the export price.

[e]The area around Mombasa seldom if ever has a surplus of maize sufficient for the needs of Mombasa.

[f]Uganda may sometimes have surplus maize to sell to and through Kenya, and sometimes may purchase from or through Kenya.

tween 1949-50 and 1963-64 from shs 11.07 to shs 23.77. At the same time the whole range of possible consumer price levels at Nairobi declined somewhat. The potential for fluctuations in the Nairobi consumer price (and all other maize prices in Kenya) increased substantially.

It is obvious, in fact, that the wide range of possible producer or consumer prices at any given location in Kenya, brought about by transport and port-handling costs, dwarfs the range of fluctuation in the level of the world market price facing Kenya after 1954 or so.[15] At Kitale, for example, the possible size of the yearly change in the producer price, from a surplus to a deficit year for Kenya or vice-versa, averaged shs 17.34[16] or between 40 and 60 per cent of the average producer price, depending on whether one uses the upper or lower limit for the producer price. In the same way the possible yearly change at Nairobi could have averaged between 35 and 50 per cent of the Nairobi consumer price. This should be compared with an actual average change in the export price facing Kenya of about 13 per cent of its average level (including the large changes from 1949 to 1952). Excluding these changes the yearly fluctuation was only about 8 per cent. To be fair, one must mention that even after the decline of the export price from its Korean War high to more normal levels its changes in level over several years were substantial. From 1954 to 1961, for

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[15] From 1930 to 1954 the opposite is the case. The long-term swings in the world market price level during that period, and sometimes the yearly changes as well, were gigantic.

[16] This figure is only slightly smaller than the average spread between lower and upper producer prices (shs 17.67) which seems to indicate that there was little trend during the period in the world market price level. The effect of changing world market prices is to increase the dispersion of the possible changes of producer prices about the average possible change.

TABLE 24

Yearly Variations Possible in the Maize Price
In a Free Internal Market
(All prices in shillings per 200 lb. bag)

Control Year	Kitale Producer Price				Nairobi Consumer Price			
	Minimum Price	Maximum Price	Maximum One Year Increase	Maximum One Year Reduction	Minimum Price	Maximum Price	Maximum One Year Increase	Maximum One Year Reduction
1949-50	28.08	39.15			32.05	43.12		
			18.91	- 3.92			19.14	- 3.69
50-51	35.23	46.99			39.43	51.19		
			32.22	(+4.81)			35.17	(+7.76)
51-52	51.80	67.45			58.95	74.60		
			1.77	-28.67			1.27	-29.17
52-53	38.78	53.57			45.43	60.22		
			11.77	-19.92			11.52	-20.17
53-54	33.65	50.55			40.05	56.95		
			12.86	-20.12			12.21	-20.77
54-55	30.43	46.51			36.18	52.26		
			13.49	-20.62			14.49	-20.12
55-56	25.89	43.92			32.64	50.67		
			18.69	-17.66			18.84	-17.51
56-57	26.26	44.58			33.16	51.48		
			13.34	-23.45			13.69	-23.10
57-58	21.13	39.60			28.38	46.85		
			23.80	-13.10			23.70	-13.20
58-59	26.50	44.93			33.65	52.08		
			17.06	-20.86			17.06	-20.86
59-60	24.07	43.56			31.22	50.71		
			18.78	-20.51			19.13	-20.16
60-61	23.05	42.85			30.55	50.35		
			16.65	-24.11			16.65	-24.11
61-62	18.74	39.70			26.24	47.20		
			20.63	-21.65			20.55	-21.83
62-63	18.05	39.47			25.37	46.79		
			23.90	-21.29			23.90	-21.29
63-64	18.18	41.95			25.50	49.27		
Average	28.00	45.65	17.34	17.93	34.60	52.25	17.59	17.73

Source: Table A16, p. 211.

example, it declined by about 33 per cent of its average for that period. After 1961 it recovered somewhat. However, there is a good deal of difference between the effects of relatively slow declines and rises in a price about a level or trend and those of very sharp yearly fluctuations about the same level or trend.

The behavior of free market prices in Kenya between 1952 and 1966

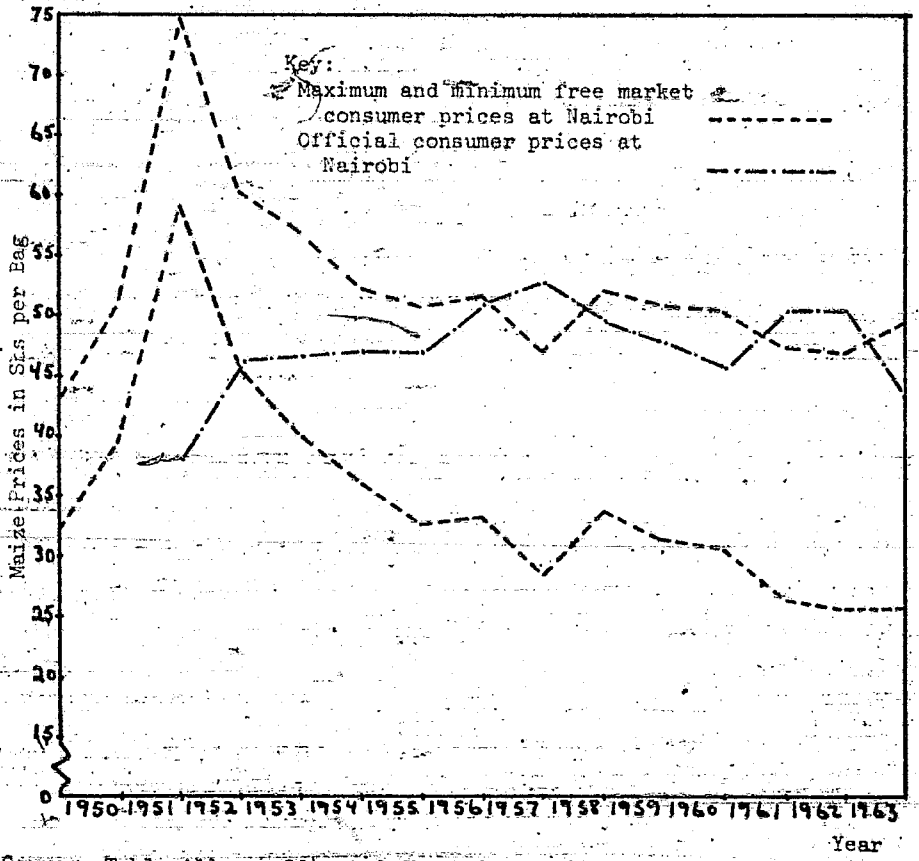
Whether Kenya producers and consumers would actually have experienced, on average, price fluctuations in a free market larger than those caused exclusively by changes in the world market price level alone depends primarily on the relationship of internal costs of production to the world market price, on the size of yearly fluctuations in maize and other staple food production, and on internal elasticities of supply and demand for maize. It seems clear that Kenya would not have exported maize in every year, i.e. one could have expected the internal price level to rise above the world market export price level in some poor years at least. Neither would there have been steady free market imports of maize in every year for the period under discussion. This leaves three possibilities: (1) Kenya was essentially a maize exporter with occasional periods without exports or even with imports; (2) Kenya was essentially a maize importer, with occasional periods of self-sufficiency or even exports; and (3) Kenya was essentially self-sufficient in most years, with exports in some years and imports in others. In either of the first two cases fluctuations in the maize price would have been, on average, larger in a free market than the world market price fluctuations, because of the occasional short departure of the local price from the level of the world market price.

The third case would have by far the largest potential for fluctuations, as the preceding section shows, but actual fluctuations could have been at almost any level, depending on the price elasticities of maize supply and demand and on the magnitude and distribution of changes in the maize crop.

A superficial judgment on the basis of data on Kenya's maize exports and imports from 1949 to 1965 would suggest that Kenya fit the first category, or at worst the third category. However, if one compares the export and import price levels one might have expected to find in Kenya in a free market with the actual prices maintained by the Maize Board, the conclusion would seem inescapable that Kenya was definitely not in the first category. Probably, the interior of Kenya, including Nairobi and Kitale and a majority of the population, was in the third, usually self-sufficient, category, while the Coast may well have been in the second or customary importer category. Consider Charts 5 and 6 showing, respectively, the limits of free market producer prices and actual official producer prices at Kitale, and the limits of free market consumer prices and actual official consumer prices at Nairobi. Chart 5 shows that at Nairobi the Board's official consumer price averaged quite close to the world market import price level after 1953, while Chart 6 shows that the Board's Kitale producer price was usually far above the world market export price level at Kitale. It seems reasonable to suppose that it was the high level of the prices maintained by the Board that caused Kenya to have such substantial surpluses so much of the time from 1953 to 1965. The downward tendency of the internal price level from 1954 to 1965 is consistent with the observed decline in the average export surplus from the mid- and late

CHART 5

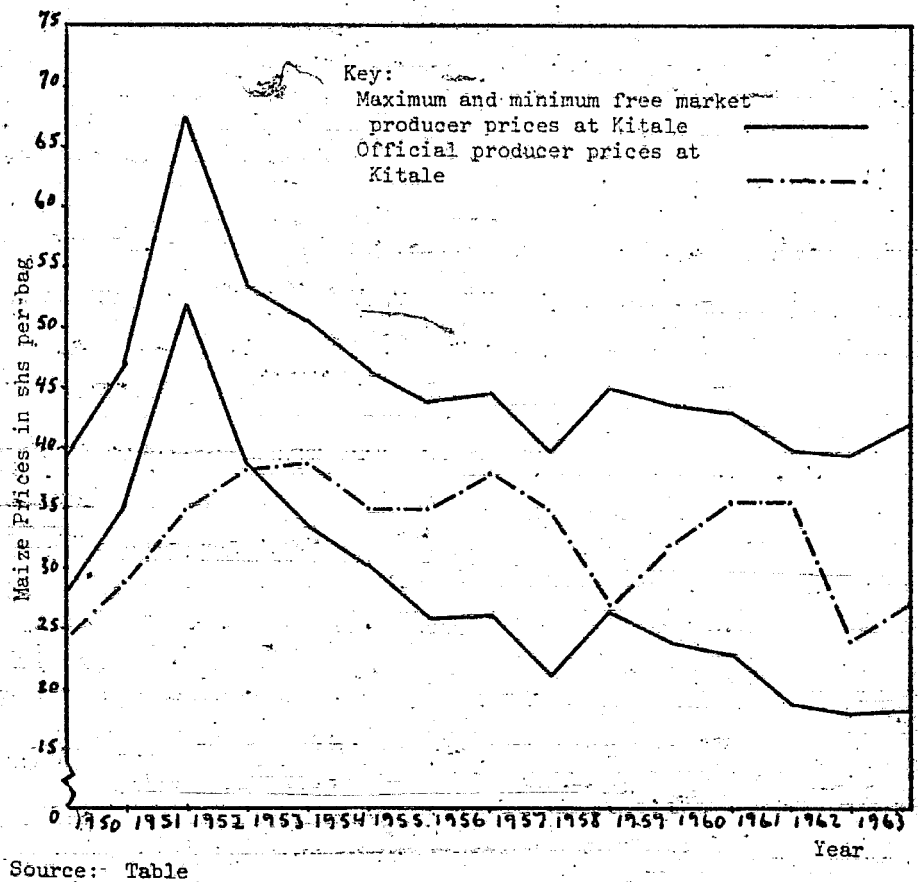
Consumer Prices at Nairobi
1949-50 to 1963-64



Source: Table A11, p. 204; and Chart 3, p. 121.

CHART 6

Producer Prices at Kitale
1949-50 to 1963-64



Source:- Table

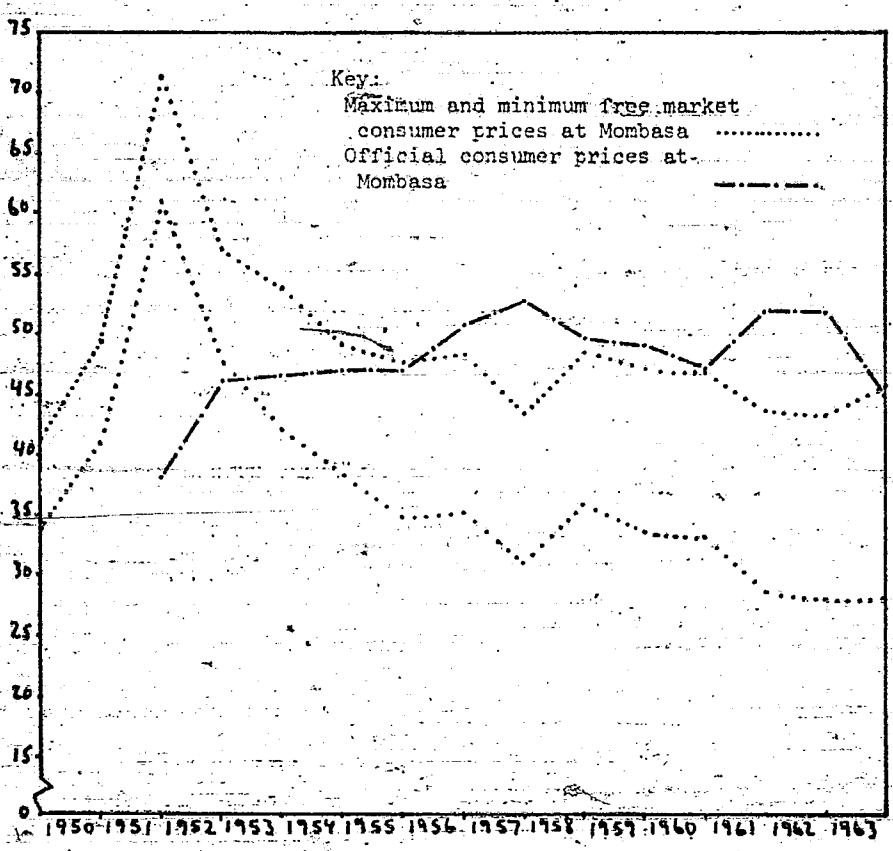
1950's to the first half of the 1960's. There is no doubt that had the Board maintained prices to producers closer to the world market export level the average surplus for export would have been smaller than it was. Both the number of years in which Kenya would have required imports and the size of the imports would have been larger.

The case of Mombasa is somewhat different. There the cost of imports was lower and the cost of maize from up-country higher than in Nairobi (Chart 7). The Coast seldom if ever has had a surplus of maize. It seems quite likely that, even if the up-country price level had been lower, the Coast would have found it cheaper to import maize from abroad than to buy it from the interior in many if not most years. This suggests that the Coast and the settled interior of Kenya, separated as they are by about 300 miles of bush and rangeland, would often have been two separate markets, the former connected with the world market and the latter with markets in Uganda and parts of Tanzania. At times maize would have been exported from the interior to the world market through Mombasa.

Such evidence of large farm maize costs of production as is available from the period under study, supports the notion that the producer price of maize would have to have averaged above the export price at up-country stations in order to encourage much maize growing from European farmers. Troup's 1951 estimate of the cost of maize per acre on a 1200 acre farm with 300 acres under maize and sufficient unused arable land to allow a "full ley rotation to be put into operation" was shs 220 to shs 240 per acre, or from shs 28 to 30 per bag at an average yield of 7.9 bags. He suggested that another shs 5 per bag should be

CHART 7

Consumer Prices at Mombasa
1949-50 to 1963-64



Source: Table A11, p. 204; and Chart 3, p. 121

added to cover the risk premium of farming in the Kenya Highlands.[17] On the basis of production data gathered between 1959 and 1962 J. D. MacArthur developed estimates of 1966 maize costs of production[18] (using 1966 input prices) for open-pollinated maize in Trans Nzoia and Uasin Gishu Districts, the two main large farm maize-growing areas (Table 25). Even allowing for a wide range of farming efficiency in the European farming regions, and eliminating the "margin for risk", on the grounds that it represents padding of the price in favor of producers, it is difficult to avoid the conclusion that large farmers would have chosen to produce too little maize had prices been low enough (shs 18 to shs 26) for exports to have been possible.

Net prices to African smallholders in Nyanza actually were close to the upper limit of that range during the period.[19] However, if transport from local markets to bulk delivery points plus trader commissions and some allowance for the increased expenses of inspecting and grading African maize are added to the African producer price, making it comparable to the European producer price, the African received on average about shs 30 per bag.[20]

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[17] Troup, Inquiry into Maize Prices, pp. 7-8, and 17-18.

[18] J. D. MacArthur, "Memorandum to the Maize Commission from J. D. MacArthur, Senior Economist/Statistician, Ministry of Economic Planning and Development," in Report of the Maize Commission of Inquiry, Appendix D, pp. 178-183. (Hereinafter referred to as "Memorandum.")

[19] In North Nyanza the African producer price in local markets, in small lots, averaged shs 26.70 during the period. See Table A13, p. 208.

[20] The difference between average European and African prices is primarily the County Council Maize Cess (the Betterment Fund Contribution in earlier years) collected from African growers. The European price during this period averaged shs 32.50.

TABLE 25

Estimated Large Farm Production Costs of Open-pollinated Maize
At Different Yield Levels--1966 Planting

Yield bags per acre	Production Costs shs/acre	Interest Costs shs/acre	Margin for Risk shs/acre	Total Cost shs/acre	Cost Per Bag shs/bag	Production Costs shs/acre	Interest Costs shs/acre	Margin for Risk shs/acre	Total Cost shs/acre	Cost Per Bag shs/bag
5	195	50	50	295	59.00	235	50	50	335	67.00
6	204	50	50	304	50.70	245	50	50	345	57.00
7	213	50	50	313	44.70	255	50	50	355	50.00
8	222	50	50	322	40.20	265	50	50	365	45.60
9	231	50	50	331	36.80	275	50	50	375	41.70
10	240	50	50	340	34.00	285	50	50	385	38.50
11	249	50	50	349	31.70	295	50	50	395	36.00
12	258	50	50	358	29.80	305	50	50	405	33.70
13	267	50	50	367	28.20	315	50	50	415	32.00
14	276	50	50	376	27.00	325	50	50	425	30.30
15	285	50	50	385	25.70	335	50	50	435	29.00

Source: MacArthur, "Memorandum", pp. 178-83.

While no good estimates of the costs of maize production in African areas exist, it is reasonable to assume that a reduction in the average African bulk producer price to the range of shs 18 to shs 26, would have reduced African marketed production.[21]

The upper level of the producer price at Kitale at which imports would have begun to be profitable in a free market was over shs 40 in some years. Such a high producer price could not have been maintained for any length of time because it would have led to excess supplies from domestic production, bringing about a fall in the price below the import level.

Observers of Kenya, particularly those living in Uganda, continue to suggest from time to time that Kenya could be supplied with maize from Uganda more cheaply than from her own large farmers. They argue that it is only the prohibitions on imports from Uganda that prevent a considerable increase in acreage and production for the Kenya market in Uganda.[22] Undoubtedly there was truth in this statement in the mid-1950's when the Kenya maize price was being held at a very high level. However, as we have seen, at this level Kenya

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[21] See below, pp. 154-61.

[22] Miracle, "Kenya's Maize Control," p. 119 and Maize in Tropical Africa, p. 136; Y. Kyesimira, "The Production and Marketing of Maize in Kenya," Economic Development Research Project Paper No. 65, 1965, East African Institute of Social Research, Makerere University, Kampala, Uganda, (Mimeographed); C. C. Wrigley, Crops and Wealth in Uganda, East African Studies No. 12 (East African Institute for Social Research: Kampala, 1955), p. 75; and Anne Martin, The Marketing of Cash Crops in Uganda, Overseas Research Publication No. 1, Department of Technical Cooperation (London: Her Majesty's Stationery Office, 1963), p. 5. Anne Martin takes the reasonable view that Uganda might be able to expand sales of maize to Kenya on average, but points out that Uganda is also sometimes short of maize.

herself produced a surplus almost all of the time. In a free market the price would have settled at a lower level without driving all large farmers out of maize growing. Secondly, it is hard to see how Ugandan farmers could provide maize to the Nairobi market cheaper than the farmers of Western Kenya and the Rift Valley, for the main maize growing regions of Uganda are considerably farther away. Thirdly, even if Uganda farmers had somewhat lower costs of production than Kenya farmers, so that on average there would be a tendency for maize production for sale to Kenya to expand in a free market, this would not ensure Kenya (or Uganda for that matter) against the need to import maize from abroad in a poor year. Quite clearly the interior of Kenya and Uganda form one natural market for maize, and free trade throughout the region would be desirable.[23] However, the region as a whole is probably only a little more likely to be self-sufficient than is Kenya alone, because the weather in Uganda is very similar to the weather in Kenya's main maize-growing regions.

Even if it is true that maize prices in the interior of Kenya would have tended to fluctuate in a free market in the range between the export and import price levels, this does not provide much information on the size of fluctuations to expect.[24] A major determinant of the

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[23] In fact, Kenya sometimes provided Uganda with maize. See Hiram Karani, "Kenya's Maize Muddle," East Africa Journal, II, 10, 1966, p. 7; and Report of the Maize Commission of Inquiry, p. 51.

[24] The belief that such fluctuations would be very wide is widespread in Kenya. See, for example, Kenya, The Maize Industry, p. 9; Report of the Maize Commission of Inquiry, p. 22 (Based on unpublished memoranda and evidence given before hearings of the Commission by, among others, T. J. Mboya, Minister for Economic Planning and Development; and A. T. Brough, Chief Statistician, Ministry of Economic Planning and Development).

size of free-market maize price fluctuations is the size of fluctuations in food supply with changes in weather. A direct measure of such fluctuations is impossible, because there are no statistics on fluctuations in African acreages and production. Nor would some index of average annual rainfall in the main agricultural areas of Kenya provide an adequate measure, since the relationship of rainfall to crop yield is very complex. In the section two methods of establishing the magnitude of fluctuations in total food supply are explored. The first concentrates on fluctuations in the difference between official marketed purchases and sales of maize, and in the balance of external trade in Kenya's main staple crops. The second examines fluctuations in yields of maize and wheat in the European large mixed farming regions.

Maize sales by Control to consumers are negatively correlated with deliveries, because the great bulk of producers consists also of consumers, so that a poor harvest turns some normally self-sufficient producers into buyers as it reduces the surpluses of others. Just the opposite tends to occur in good years. Thus, as Table 26 shows, the yearly change in the balance of deliveries and sales is much larger than the yearly change in either deliveries or sales taken separately. Since production of maize alone constitutes probably between 40 and 50 per cent of total production of all staple foods in Kenya,[25] and since alone of major staple food crops produced by African smallholders maize prices are officially set, one would expect fluctuations in the difference between official purchases and sales of maize by Control to in-

[25] See above, pp. 5-8.

TABLE 26

Fluctuations in Internal Deliveries to and Sales by Maize Control: August 1, 1944 to July 31, 1965
(All figures in thousands of 200 lb. bags)

Control Year	Deliveries to Maize Control from Internal Sources		Internal Sales by Maize Control for Human Consumption[a]		Balance of Deliveries less Internal Sales	
	Total	Yearly change	Total	Yearly change	Deliveries less purchases	Yearly change
1944-45	1279		1560		- 281	
45-46	1337	+ 58	1497	- 63	- 142	+ 139
46-47	1644	+ 307	1002	- 495	+ 642	+ 784
47-48	1063	- 581	1018	+ 6	+ 45	- 597
48-49	1654	+ 591	1068	+ 50	+ 586	+ 541
49-50	2387	+ 733	1446	+ 378	+ 941	+ 355
50-51	1736	- 651	1674	+ 228	+ 62	- 879
51-52	1896	+ 160	911	- 763	+ 985	+ 923
52-53	1473	- 423	1478	+ 567	- 5	- 990
53-54	2122	+ 649	1578	+ 100	+ 544	+ 549
54-55	2304	+ 182	1525	- 53	+ 779	+ 235
55-56	1732	- 572	1509	- 16	+ 223	- 556
56-57	1534	- 198	1419	- 90	+ 115	- 108
57-58	1759	+ 225	1054	- 365	+ 705	+ 590
58-59	1832	+ 73	1080	+ 26	+ 756	+ 51
59-60	1659	- 173	1328	+ 248	+ 331	- 425
60-61	1586	- 73	2003	+ 675	- 417	- 748
61-62	1643	+ 57	1352	- 651	+ 291	+ 708
62-63	2233	+ 590	918	- 434	+1315	+1024
63-64	1073	-1160	1088	+ 170	- 15	-1330
64-65	1170	+ 97	1782	+ 694	- 612	- 597
Average	1669	± 388[b]	1347	± 304[b]	± 466[b]	± 606[b]

Sources: Maize and Produce Control, Accounts, 1952 to 1957; Maize Marketing Board, Annual Report, 1960-65; Department of Agriculture, Annual Report, 1945-52; Kenya, The Maize Industry.

[a]Sales for stockfeed and to the Government for famine relief are omitted. Both are relatively minor, compared to sales for human consumption, and their inclusion would not alter the picture much. When the Government must distribute large amounts of famine relief food, as it did in the severe shortages of 1961 and 1964-65, it imports some of its needs independently of Maize Control. In those two years the sales of Maize Control understate the extent of the shortage because of this government famine relief activity.

[b]Found by summing the absolute values of all yearly changes and dividing by 20.

ternal consumers to be at least 40 or 50 per cent of the fluctuations in the difference between official purchases and sales of all staple foods. In fact because of shifts in relative prices, when there is (let us say) a reduction in overall food supply, producers with surpluses of food might be expected to conserve their maize while increasing proportionately their sales of other staples. Consumers and producers with food deficits might tend to purchase proportionately more maize than normal. Maize Control thus becomes a dumping ground for market surpluses and the supplier of market deficits in staple foods generally, which is of course its major function. For this reason, perhaps a more direct measure of the size of variations in staple food availabilities is given by the year-to-year changes in the national balance of trade in staple foods expressed in bags of maize or the equivalent and excluding animal products.[26] Given three assumptions, these fluctuations will provide a rough minimum estimate of the size of staple food production fluctuations. These are: that there is a low carryover from one year to the next; that demand elasticity for all staples is low; and that slaughter of cattle does not add significantly to food supplies in bad years.[27] As Table 27 shows, the yearly balance of exports and imports of staples, including trade with Tanganyika and Uganda, varied from an import balance of 2,544,000 bags to an export

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[26] Staple foods include maize, wheat, sugar, rice, pulses, and millet. Animal products are excluded because it is impossible to find an accurate measure of the value of animal products in terms of bags of maize.

[27] The short run price elasticity of demand for all foods is certainly not zero. People can restrict their intake of food in a bad year. It is known, also, that nomadic pastoralists and marginal agriculturalists do kill stock they cannot support in bad years.

TABLE 27

Kenya's Volume of Trade in Staple Crops
1955 to 1969
(All figures are in thousands of long tons unless otherwise indicated)

Staple Food Exports	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Maize	78	4	23	98	56	10	1	63	94	3	. .	. .	81	278	141
Wheat	20	11	25	27	34	44	43	31	29	53	58	32	51	53	25
Pulses	1	. .	. .	3	8	7	8	4	22	13	9	12	6	18	11
Others	1	1	1	2	2	3	6	9	11	8	3	2	2	1	4
Totals	100	16	49	130	100	64	57	106	155	76	71	57	139	350	180
Staple Food Imports															
Maize	. .	. .	. .	. .	. .	. .	100	26	. .	. .	82	143	. .	. .	. .
Wheat	. .	16	17	14	15	1	13	52	9	. .	6	25	5	. .	. .
Pulses	36	52	50	40	52	59	59	64	60	74	96	107	46	57	28
Others	5	5	10	5	12	10	9	12	13	15	16	12	8	9	5
Totals	41	73	77	59	79	70	181	152	81	90	198	288	59	66	34
Trade Balance															
(Tons)	+ 59	- 57	- 28	+ 70	+ 21	- 6	-124	- 46	+ 74	- 14	-127	-231	+ 80	+284	+146
(Bags)	+ 661	- 638	- 314	+ 784	+ 235	- 67	-1389	- 515	+ 829	- 157	-1422	-2587	+ 896	+3181	+1635
Yearly Change in Trade Balance (bags)		-1299	+ 324	+1098	- 549	- 302	-1322	+ 879	+1344	- 986	-1265	-1165	+3483	+2285	-1546

Sources: Kenya Statistical Abstract, 1965, 1970.

balance of 822,000 bags in the period 1955-1966. Year to year changes in the balance before 1966-67 did not exceed ±1,344,000 bags, or less than 7 per cent of annual production of staples, assuming the latter to be between 20 and 30 million bags a year.[28] The staple food balance seems to have moved in two or three year cycles, with a maximum amplitude from peak to trough of over 3,300,000 bags before 1966, or as much as 15 per cent of a conservative estimate of national production. There was an average excess of staple food imports over exports from 1955 to 1964 of about 50,000 bags per year. Over the whole period from 1955 to 1969 there was a staple food surplus of about the same average amount, as a result of the massive surpluses of the last three years of the period.

If one compares the amplitude and timing of fluctuations in the difference between maize deliveries to Control and sales by Control to domestic consumers, with the amplitude and timing of changes in the balance of exports and imports of staple foods (Chart 8), it appears that the two series follow the same general time pattern. The absolute fluctuations in exports and imports of staple foods average not much less then twice the size of fluctuations in deliveries and internal sales of maize.

Though some regions of Kenya may experience large fluctuations in staple food production as a result of fluctuations in rainfall levels and timing others have much more stable supplies. The diversity of climates and crops insures that the whole of Kenya has still more stability of total staple food production. In fact, food shortage seldom

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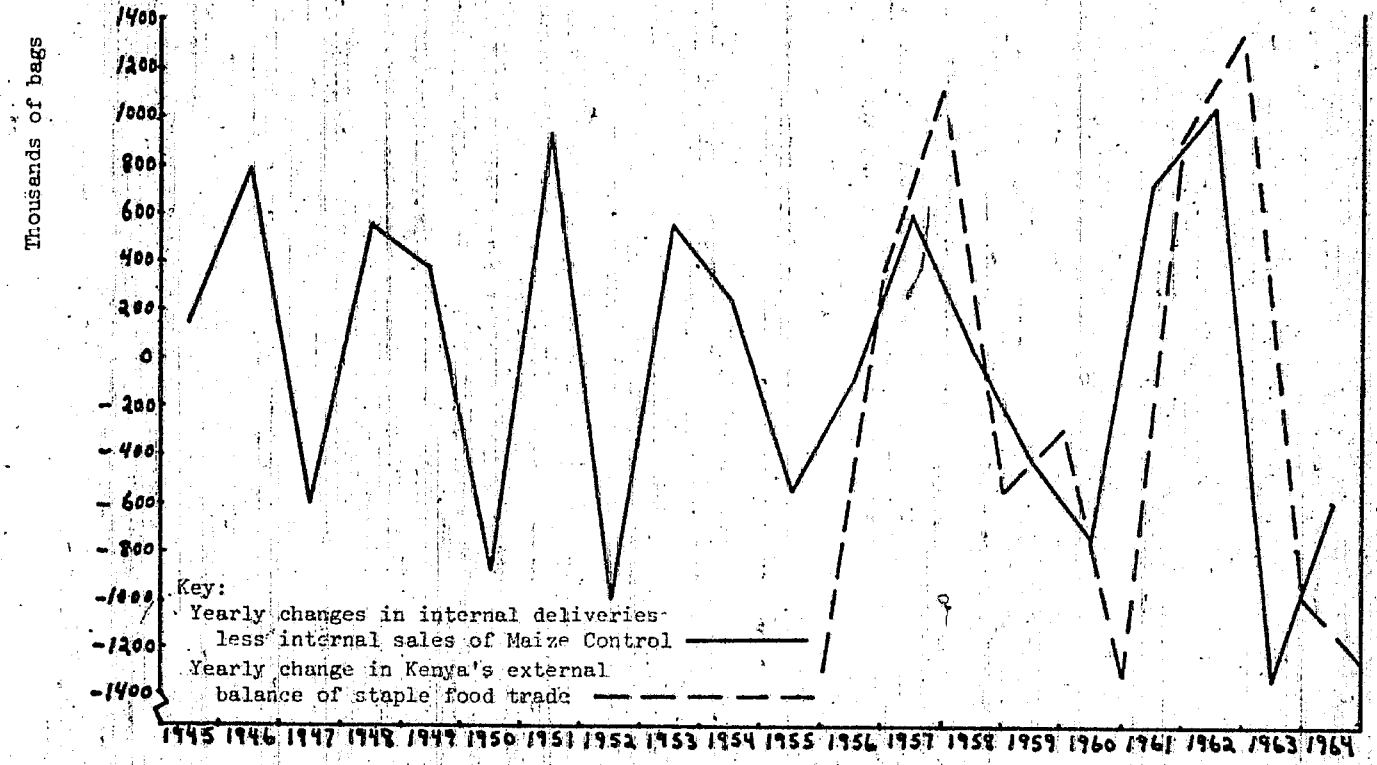
[28] See above, p. 11.

CHART 8

Comparison of Fluctuations in the Balance of Internal Maize Deliveries Less Sales of Maize Control with the Fluctuations in Kenya's Balance of Trade in All Staple Foods



Source: Tables 26 and 27 above, pp. 137 and 139.

hits the whole country at once. A special factor working for increased stability in food crop production is the fact that many crops require for best yields no more as well as no less than a certain rainfall level; i.e. too much rainfall at the harvest can be as damaging as too little during earlier periods of plant growth. Hence, a dry year may produce a bumper crop of maize in much of Nyanza and the upper portions of Central Province, Embu, and Meru, while producing a serious food shortage in Machakos and Kitui.

The yields of European maize seem to be a case in point. Changes from year to year in European maize yields between 1942 and 1962 averaged no more than about 8 per cent, with a pattern of very small changes averaging about 3.6 per cent of the previous year interrupted occasionally with larger changes of from 12 to 18 per cent. The largest yearly change was 36 per cent of the year before.[29] Glover has shown that this pattern could result from the fact that the sub-regions where European maize is grown are spread across the rainfall spectrum from an average of somewhat too much to somewhat too little rain.[30]

Wheat yields fluctuated considerably more than maize yields, averaging about 15 per cent per year, with a maximum fluctuation in the period 1942-1962 of over 50 per cent, and frequent fluctuations in excess of 20 per cent. If the yields of maize and wheat are each weighted by the average proportions which maize and wheat acreages bear to total acreage of maize and wheat combined (maize averaged 37 per

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[29]The amplitude of change is not much greater, on average, for two or three year periods.

[30]J. Glover, "The Relationship Between Total Seasonal Rainfall and Yield of Maize in the Kenya Highlands," Journal of Agricultural Science, XLIX,3, 1957, pp. 285-290.

TABLE 28

Large Farm Yields of Maize and Wheat: 1926-62
(All yield figures in bags per acre)

Crop Season	Maize		Maize		Wheat		Wheat	
	Yield		Absolute Yearly Change		Yield		Absolute Yearly Change	
1925-26	5.95				2.60			
			+1.44				-0.01	
26-27	7.39				2.59			
			-1.24				-0.27	
27-28	6.15				2.32			
			-0.79				+0.43	
28-29	5.36				2.75			
			+2.58				+1.89	
29-30	7.94				4.64			
			+0.27				-1.82	
30-31	8.21				2.82			
			-3.46				-0.81	
31-32	4.75				2.01			
			+2.19				+0.10	
32-33	6.94				2.11			
			-0.32				+2.05	
33-34	6.62				4.16			
			+1.28				-0.56	
34-35	7.90				3.60			
Average	6.72		±1.51		2.96		±0.88	
1942-43	7.60				3.29			
			-0.90				+1.81	
43-44	6.70				5.10			
			+0.30				-1.39	
44-45	7.00				3.71			
			-0.43				+1.01	
45-46	6.57				4.72	(b)		
			+0.59		4.19	4.18	-0.53	(b)
46-47	7.16				3.60	3.73	-0.59	-0.45
			-0.51			5.23		+1.50
47-48	6.65					5.37		+0.14
			+1.16			5.37		±0.00
48-49	7.81					4.27		-1.10
			-0.04					
49-50	7.77						+0.19	
			-0.03		4.46			
50-51	7.74						+0.14	
			+0.07		4.60			
51-52	7.81						+0.50	
			-1.21		5.10			
52-53	6.60						-1.17	
			+0.09		3.93			
53-54	6.69						+0.88	
			+2.42		4.81	(a)		
54-55	9.11						-0.03	(a)
			-1.22		4.78	4.54		
55-56	7.89						-0.20	-0.18
			-0.22		4.58	4.36		
56-57	7.67	(a)					+0.96	+1.23
			+0.25	(a)	5.54	5.59		
57-58	7.92	7.60					-0.48	-1.08
			+1.45	+0.26	5.06	4.51		
58-59	9.37	7.86					-0.97	-0.42
			-0.09	+0.09	4.09	4.09		
59-60	9.28	7.65					+0.86	
			-0.63	-0.86	4.95			
60-61	8.65	7.09						
			-0.03	+0.75	4.60	4.57	±0.72	±0.74
61-62	8.62	7.86						
			+0.55	+0.55				
62-63	9.17	8.41						
Average	7.77	7.50	±0.61	±0.59				

Sources: Maize and wheat yields for 1925-26 to 1934-35 are given in Knowles "Agricultural Marketing in Kenya," p. 47. Maize and wheat yields for 1942-43 to 1963-64 are from Kenya, Department of Agriculture, Annual Report, 1945-63.

TABLE 28--Continued

Notes:

[a]Figures in columns (a) are from Kenya, Agricultural Census of Large Farm Areas, 1960 and 1964.

[b]Figures in columns (b) are from Kenya, Department of Agriculture, Annual Report, and are for calendar years. The first figure in the row for 1946-47 refers to the calendar year 1946, and so on.

cent and wheat 63 per cent of the combined acreage of the two), and the adjusted yields are added, this provides a new series that indicates the effects of weather on the combined yield of maize and wheat. It turns out that this series has an average annual fluctuation of about 9 per cent, only a little more than that for maize. It has a high degree of consistency, in comparison with maize or wheat yields, with over half the yearly changes falling in the range from six to thirteen per cent. The largest yearly change is 28 per cent.

The meagre data available do not suggest large annual fluctuations in total food supply. In fact, they suggest that in the period under discussion annual fluctuations would probably have been under a maximum of 10 per cent. Two or three year periods could have shown somewhat larger fluctuations from peak to trough of food availability. These are not small fluctuations. Since it is likely that the price elasticity of total demand for all staple foods was low (though there is no way to say just how low it was), a 10 per cent change in staple food supply would quite possibly have been enough to move the prices of staple foods from a level at which it would have been possible to export maize to one where maize would have been imported. Certainly, also, all staple food prices would in such a case have moved together in a free market. To the extent to which the income elasticity of demand for maize is

lower than that of other staple foods a shortage of staple foods would have tended to raise the price of maize more than that of other staples, given the change in the maize supply. The income elasticity of demand for maize was probably lower in urban areas than that of other staple foods. Whether that was true in rural areas or in the rangelands is uncertain. In any case, the need to import maize, or the ability to export it would probably, in a free market, have been related more to the fluctuations in the total food supply than to the fluctuations in maize supply alone.

Even though fluctuations in supplies of maize and other staples could probably have fluctuated widely enough to drive the up-country maize price from export to import levels or vice-versa, it is doubtful whether such fluctuations would have occurred every year, or even as often as every two years. If the available data may be interpreted to mean that Kenya generally has one poor crop year and one very good one out of every four or five years, then the internal maize price could have been expected to fluctuate within reasonably narrow bounds at the export price, the import price, or in-between, with occasional sharp increases or decreases. The producer price could have fluctuated occasionally by a maximum of 40-60 per cent from one year to the next while the consumer price could have fluctuated by 33 to 50 per cent.

Results of Internal Maize Price Stabilization

Two results will be examined here: the degree of stabilization actually attained, in comparison to that which would probably have been reached by a free market; and the effects of changes in prices on European and African maize acreages and deliveries to the Board.

Degree of stabilization actually attained

Maize Control probably did not succeed in stabilizing either producer or consumer prices much. From 1952-53 to 1964-65 official consumer prices were much more stable than producer prices in percentage terms (Table 29). The official bulk consumer price at Nairobi fluctuated by only about 6 per cent per year on average, while actual producer prices to European and African farmers in the main producing areas west of the Rift Valley fluctuated by 12 and 13 per cent respectively.[31] However, had Kenya imported maize in a free market in every year during the 12 year period consumer prices would have fluctuated at Nairobi by about 6 per cent, while producer prices would have fluctuated by a somewhat greater percentage at Kitale (because they would have been lower). Had Kenya exported maize in every year in a free market producer prices at Kitale would have fluctuated by about 11 per cent while consumer prices at Nairobi would have fluctuated by somewhat less than that (because they would have been somewhat higher). Had there actually been a free market, and had the internal maize price tended to remain between the export and import points, fluctuations might have been greater than those recorded for actual producer and consumer prices, but there is no assurance of this result.

Consumers themselves did not complain about fluctuations in the official maize price. They complained because they thought it should be lower than it was. They saw Maize Control as an inefficient middleman because of the large differential they observed between the farm

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[31] These and the following percentages were calculated by summing and averaging the absolute values of the yearly percentage changes in prices, from 1952-53 to 1964-65, in Table 29.

TABLE 29

Fluctuations in Kenya Maize Prices
1947-48 to 1964-65

Control Year	Yearly Percentage Changes in Maize Price[a]					
	Large Farm Bulk Producer Prices		Actual Bungoma Local Market Price[c]	Kenya Export Price F.O.R. Kitale[d]	Bulk Consumer Price at Nairobi[b]	Kenya Import Price C.I.F. Nairobi[d]
	Guaranteed[b]	Actual[b]				
	per cent	per cent	per cent	per cent	per cent	per cent
1947-48	+14	± 0	± 0	n/a	n/a	n/a
1948-49	+17	+17	+ 7	n/a	n/a	n/a
1949-50	+ 7	+23	± 0	+25	n/a	+19
1950-51	+21	+21	+86	+47	n/a	+46
1951-52	+26	+ 9	+30	-25	+21	-19
1952-53	+ 1	+ 1	+ 1	-13	+ 1	- 5
1953-54	- 1	- 9	- 8	-10	+ 1	- 8
1954-55	0	0	- 4	-15	0	- 3
1955-56	+ 5	+ 8	+13	+ 1	+ 9	+ 2
1956-57	0	- 8	-10	-20	+ 4	- 9
1957-58	- 7	-23	-19	+25	- 7	+11
1958-59	- 4	+18	+10	- 9	- 4	- 3
1959-60	0	+11	0	- 4	+11	- 1
1960-61	0	0	+29	-18	0	- 6
1961-62	0	-32	- 9	- 4	-15	- 1
1962-63	- 8	+13	-26	0	0	+ 5
1963-64	- 3	+20	+26	n/a	n/a	n/a
1964-65						

[a]Percentage change in price = $100(P_t - P_{t-1}) \div P_t$, for all "t" from 1947-48 to 1964-65.

[b]See below, Table A11, p.204 .

[c]See below, Table A13, p.208 .

[d]Estimated from Kenya export prices, F.O.B. Mombasa, and costs of internal transport and handling, port handling, and ocean transport. See below, Table A16, pp. 211-12.

price and the retail purchase price. This differential was, of course, a result of Maize Control's uniform price structure rather than of inefficiency in the actual operations of Maize Control.

Producer price fluctuations did not stabilize producer incomes. Despite a degree of market responsiveness incorporated in the Maize Export Cess--it did tend to be smaller in years of poor harvests than in years of good harvests--the gross proceeds received by European farmers from maize fluctuated with or without the Maize Export Cess by an average of about 20 per cent per year (Table 30).[32]

This failure of official prices to stabilize maize incomes of commercial farmers, and disappointment with price guarantees, probably help to explain the frequent complaints of farmers against Maize Control, though these complaints seem to have been directed frequently at the level more than at the fluctuations of the official price. If one compares the maize price with the wheat price it is easy to see why farmers were generally more satisfied with the efforts of the Government to control wheat prices. The average fluctuation in the wheat price from 1952-53 to 1964-65 was about 2 per cent per year on average including the wheat cess.[33]

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[32] The reason for this result seems to be that the size of the Export Cess responded to total deliveries, whereas different parts of Kenya had different patterns of changes in deliveries.

[33] See Tables 12 and 20 above, pp. 62 and 88.

TABLE 30

Stabilization of European Maize Income by the Maize Cess 1952-53 to 1962-63

Crop Year[a]	European Deliveries[b]	Guaranteed Price[c]	Actual Price[c]	European Gross Income		European Net Incomes	
				Total	Change	Total	Change
	'000 bags	shs/ bag	shs/ bag	£'000	£'000	£'000	£'000
1952-53	638	38.25	38.25	1220		1220	
53-54	784	38.72	38.72	1518	+298	1518	+298
54-55	1202	38.15	35.15	2293	+775	2113	+595
55-56	887	38.15	35.15	1692	-601	1559	-564
56-57	867	39.98	37.98	1733	+ 41	1641	+ 87
57-58	1015	39.98	34.98	2029	+296	1775	+134
58-59	(862)	37.00	27.00	1595	-434	1164	-611
59-60	788	35.60	32.00	1403	-192	1261	+ 97
60-61	858	35.50	35.50	1523	+120	1523	+262
61-62	957	35.50	35.50	1699	+176	1699	+176
62-63	1108	35.50	24.00	1967	+268	1330	-369
Averages	906	37.48	34.02	1697	±320	1528	±319

[a]Because prices are paid on maize delivered from particular crops and not for maize delivered during a given time period, the relevant delivery figures are those by crop year.

[b]Table A4, p. 197. [c]Table A11, p. 204.

Supply responses of producers to price changes

Maize policy-makers contended that year-to-year changes in the maize price had a pronounced effect on the acreages, and through these, on the deliveries of large European farmers to Control, while not affecting the deliveries of African smallholders. Available data tend to support this distinction. However, the lack of acreage and yield statistics from African smallholdings, and other problems with the African data, leave the question of the degree of African responsiveness

to changes in the maize price still open.

When examining the responsiveness of large European farmers to changes in the maize price one cannot ignore the main substitute for maize on large farms--i.e. wheat. From 1943-44 to 1954-55 the acreage planted by large farmers to maize and wheat doubled from 248,000 acres to 503,000 acres. It had declined to about 390,000 acres by 1958-59 and fluctuated thereafter--up to 1963-64--in a very narrow range about that level. Wheat and maize acreages were clearly substitutes for large European farmers, as equation (1) shows. In this equation (A) refers to the acreage of maize divided by the acreage of wheat, (P1) to the guaranteed maize price divided by the guaranteed wheat price, and (P2) to the actual price of maize divided by the actual price of wheat after adjustments for the Maize and Wheat Cesses.[34] Because of difficulties with price data prior to 1947-48 the equation is based on data for the period 1947-48 through 1963-64 only (Table 31).

$$(1) \qquad A^{t}_{t-1} = \underset{(.0188)}{-.0045} + \underset{(.612)}{.513}\, P1^{t}_{t-1} + \underset{(.205)}{.766}\, P2^{t-1}_{t-2} \qquad \begin{matrix} R^2 = .55 \\ F(2,12) = 9.61 \\ D/W = 2.20 \end{matrix}$$

Clearly, the European farmers tended to switch acreage from maize to wheat or vice-versa in response to changes in the ratio of the actual maize prices to actual wheat prices on the previous crop. Equally clearly, the ratio of the guaranteed maize price to the guaranteed wheat price was not important in determining the maize and wheat acreage. Other regressions correlating the guaranteed and actual price ratios with acreage ratios, both with and without inclusion of a variable for time trends, directly and in the form of first differences all showed

[34] Acreages are in thousands of acres, and prices in shs per bag.

TABLE 31

Relative Acreages and Prices of Maize and Wheat
For the Large-Farm Sector
1948-49 to 1963-64

Crop Year	Ratio of Maize to Wheat Acreages (A)	Ratio of Guaranteed Maize to Wheat Prices (P1)	Ratio of Actual Maize to Wheat Prices (P2)
1948-49	.61	.61	.61
49-50	.59	.63	.63
50-51	.55	.63	.63
51-52	.47	.67	.67
52-53	.49	.74	.74
53-54	.57	.74	.74
54-55	.60	.73	.68
55-56	.46	.75	.68
56-57	.57	.76	.72
57-58	.70	.77	.68
58-59	.60	.70	.52
59-60	.53	.71	.66
60-61	.57	.71	.76
61-62	.70	.71	.76
62-63	.65	.71	.51
63-64	.40	.65	.56

Sources: Tables 10, 12, and 20 above, pp 48, 62, and 88.

the same general result. The time trend was not significant.

In Equation (2) the hypothesis that maize acreage of large farmers[35] was correlated with the ratio of maize to wheat prices receives further confirmation. The symbol (AM) stands for maize acreage (in thousands of acres) and (T) stands for the time trend variable.

$$(2) \quad AM_t = \underset{(32.82)}{-53.36} + \underset{(57.26)}{167.49}(P1)_t + \underset{(32.29)}{139.05}(P2)_{t-1} - \underset{(.48)}{.70}(T)$$

$$R^2 = .80, \quad F(3,11) = 20.22, \quad D/W = 1.97.$$

[35] See Table A1 below, p. 194.

This time the guaranteed maize/wheat price ratio seems to be a significant determinant of the acreage planted to maize, though the actual price ratio is still the more significant one. Since P1 and lagged values of P2 are correlated (R^2 = .54) it is not possible to say how great the separate influence of each price ratio would be. When each is correlated with maize acreage separately P1 explains 52 per cent of the variation in AM while P2 explains 68 per cent, and both relationships are significant. The relationship of ΔP2 and ΔAM remains significant while ΔP1 and ΔAM show no significant correlation (Chart 9).[36] The best single relationship to be found is between ΔAM and lagged values of ΔP2, with an R^2 of .70.

Through their effects on acreages planted the prices of maize and wheat paid in one season affect the deliveries (D) of maize in the following season. In order to obtain a single measure of this effect it is convenient to use as independent variable the estimated acreages (AM*) of maize calculated from equation (2) on the assumption that the only causes of acreage fluctuations are the prices of maize and wheat. One would also expect maize yields (Y) to have a pronounced effect on maize deliveries.[37] There might also be a time trend of deliveries (T). Equations (3) and (4) summarize the effects of estimated acreages and

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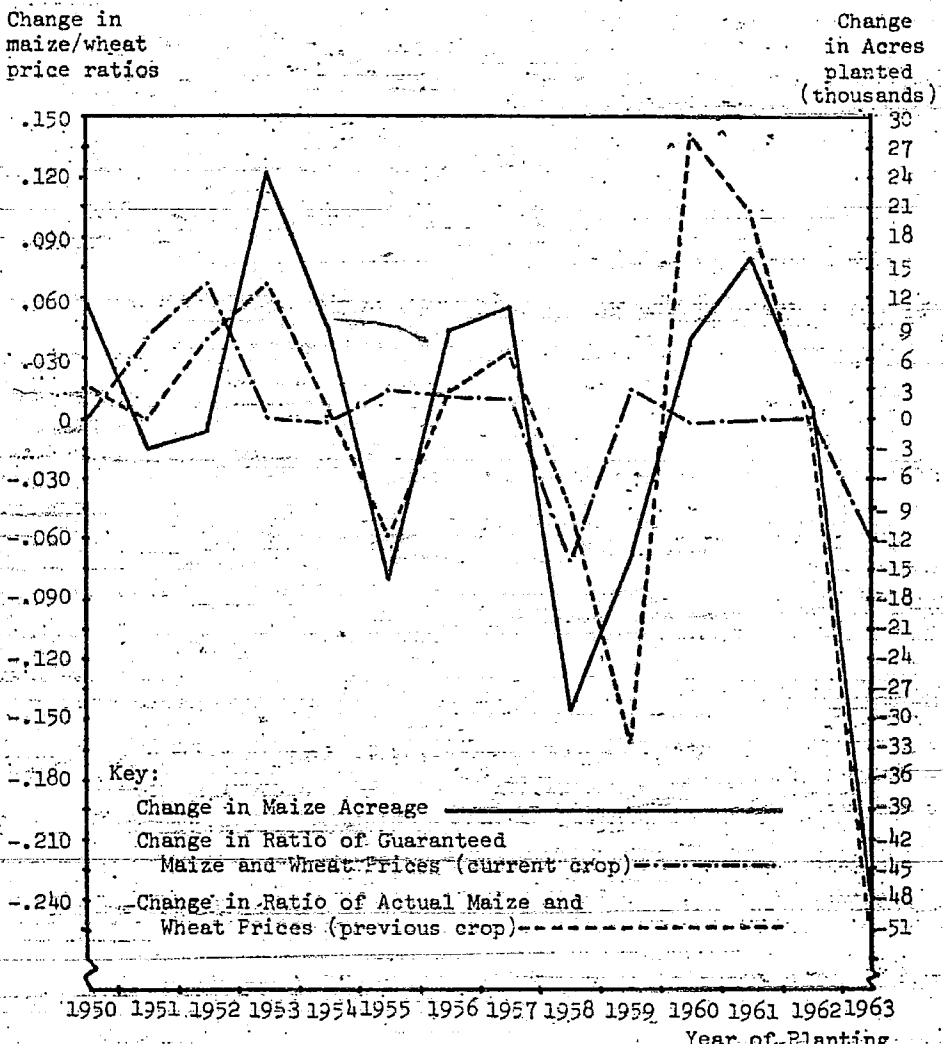
[36] A careful look at Chart 9 shows that the variability of ΔP1 was too low to have much effect on maize acreages before 1957. When ΔP1 did vary significantly, as it did four times after 1957, it seems to have affected acreages together with ΔP2.

[37] One other explanatory variable was tried: the differential between current producer and consumer prices of maize. The farming sector might be expected to retain more maize to feed workers and livestock the larger the differential between the price they could get and the price they had to pay. However, while the coefficient of that variable had the correct sign it was small and not significantly different from zero.

CHART 9

A Comparison of Changes in Large Farm Maize Acreages With Changes in the Price of Maize Relative to the Price of Wheat: 1951 through 1963 Plantings



Sources: Tables A1, A9, and A10 below.

yields on maize deliveries in the period 1949-50 through 1962-63 (Table 32).

(3) $D = -1400 + 5.88(AM^*) + 167.48(Y) + 10.70(T)$ $R^2 = .88$, $F(3,9) = 31.26$, $D/W = 2.67$
(263) (1.22) (23.67) (4.04)

(4) $\Delta D = 6.19 + 7.32\Delta AM^* + 169.17\Delta Y$ $R^2 = .80$, $F(2,10) = 25.57$, $D/W = 2.78$
(22.48) (1.96) (25.07)

All coefficients of explanatory variables are significantly different from zero at the 99 per cent confidence level except the time trend variable in equation (3), which is significant at the 95 per cent level. To judge from equations (3) and (4), taken in conjunction with equation (2), the elasticity of response of deliveries of maize to a change in the price of maize, ceteris paribus at the average levels of all variables during the period in question, would have been about 0.7 or 0.8.[38]

African deliveries to the Board

An attempt to correlate African deliveries to the Maize Board with prices paid African farmers, using deliveries from Nyanza Province and prices paid in the northern part of that province (Table 33), suggested that, for Nyanza during the period 1947-48 through 1962-63, deliveries were uncorrelated with prices.[39] This is to be expected for several reasons. Local consumption is the most important use of Afri-

[38] From equations (3) and (4) the elasticity of response of deliveries with respect to changes in acreage is between 1.1 and 1.3, while from equation (2) the elasticity of response of acreage with respect to changes in the maize price is about 0.6.

[39] The only significant variable was the time trend, which explained about 40 per cent of the variance in African deliveries.

TABLE 32

Large Farm Maize Deliveries, Estimated Acreages, and Yields
1949-50 to 1962-63

Crop Year	D	AM*	Y
1949-50	737	134.6	7.77
50-51	763	136.4	7.74
51-52	755	142.4	7.81
52-53	638	158.6	6.60
53-54	784	167.1	6.69
54-55	1202	166.1	9.11
55-56	887	159.6	7.89
56-57	867	162.6	7.67
57-58	1015	168.0	7.60
58-59	862	149.3	7.86
59-60	788	128.5	7.95
60-61	858	147.3	7.09
61-62	957	160.9	7.86
62-63	1108	159.5	8.41

Sources: Tables A1, A4, and acreage figures estimated from equation (2) p. 152.

TABLE 33

Data for Estimation of Possible Responsiveness of Small African Farmers to Official Prices in Nyanza

Control Year	Nyanza Province Deliveries to Maize Control[a]	Official Prices in Bungoma Markets[b]	Yields of Maize in Large Farm Areas[c]
	Thousand bags	Shs per bag	Bags per acre
1947-48	350	11.50	6.65
48-49	800	11.50	7.81
49-50	1500	12.25	7.77
50-51	940	12.25	7.74
51-52	736	22.82	7.81
52-53	560	29.75	6.60
53-54	1200	30.17	6.69
54-55	1045	27.70	9.11
55-56	522	26.85	7.89
56-57	426	30.33	7.67
57-58	507	27.33	7.60
58-59	671	22.00	7.87
59-60	681	24.30	7.95
60-61	527	24.30	7.09
61-62	502	31.40	7.86
62-63	546	28.60	8.41

[a] From Table A5 below, p. 198.

[b] From Table A13 below, p. 207. There are certain problems in reconstructing an accurate series of prices paid to Africans. Certificates of Good Husbandry were given to some African farmers during the 1950's, especially in Nyanza, entitling them to deliver in bulk to the Maize Control. They paid only half of the African District Betterment Fund Contribution and were responsible for their own transport. It is not known how much maize this group of farmers delivered.

[c] From Table A1, p 194. This variable is an attempt to take account of changes in weather on yields. The African Reserves of Western Kenya are adjacent to the large farms of Trans Nzoia and Uasin Gishu. However, it is doubtful that the yields of even this nearby area can capture with any accuracy the yield differentials experienced in the African areas of Nyanza Province.

can grown maize and there are several substitutes available. Much maize is sold on local and illegal markets. Thus, not only are official maize prices less important to Africans than to Europeans, but the prices of maize substitutes in consumption are at least potentially important in determining the proportion of maize sold off the farm. Yet there are no reliable statistical series for such prices, for acreages planted to maize and its substitutes, or for yields of the different crops. Furthermore, the smaller African farmers, a majority, almost certainly have practically no production response to changes in market prices, of maize or any other crops. Though they may sell maize on the market when they have a surplus, they aim primarily to produce their own subsistence, and choose their crops to this end. The maize trade with Uganda is another unknown factor in the market.[40]

Still, one would suppose that the price responsiveness of the larger African growers, who sell substantial quantities of maize each year and depend on maize for a large part of their cash incomes, would be very similar to that of European growers. It appears that Africans producing for sale and requiring hired labor for cultivation outside their families have marginal costs of expanding acreage that equal or exceed the marginal production costs per acre on large commercial farms.[41] Furthermore, in many African producing areas several crops

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[40] See above, pp. 134-35.

[41] Interviews conducted between August and November 1966 in the main African producing areas supported this hypothesis. They suggested that Africans use much less capital on their small farms than European farmers, but that the wages of hired labor used by Africans were not lower in 1966 than those on European farms. Africans also paid more for contract plowing than Europeans, and their costs of getting maize to market were probably somewhat higher. Interest rates on working capital were certainly not lower in African "Reserves."

are clearly more profitable than maize, if one is going to specialize in production for the market. These include pyrethrum, coffee, tea, vegetables, and cotton, depending on the area. In only a few parts of the African areas of Kenya does commercial maize production appear to have a clear advantage over alternative crops.[42] However, so long as maize production can be expanded using peasant methods and family labor the marginal costs are very low. Probably most expansion in the past took place under just those conditions.[43] However, there are few areas of Kenya in which there is still much scope for such expansion and where there are not better alternatives than maize. While it may have been true in the past that Kenya African farmers did not respond to decreases in the price of maize by curtailing production, it is probably no longer true in those areas where cash cropping of maize has been to a considerable extent commercialized. If the bulk of marketed supplies from Africans comes from areas where farmers employ hired labor and a good deal of machine cultivation, then these farmers should be price responsive. There is abundant evidence that the main maize surplus areas have reached this state, at least with respect to the larger African farmers who supply a disproportionately large share of the marketed

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[42] One of these is the northern portion of Western Province, and another is the southern portion of Nyanza Province. A third is in Meru District in Eastern Province. Hybrid maize may well considerably extend the area within which maize is a clearly profitable cash crop, but the relative advantages of other crops are so great in much of Kenya that even universal adoption of hybrid maize could not turn many areas to maize as a major cash crop, at prices of the early 1960's.

[43] Hla Myint, The Economics of Developing Countries (New York: Praeger, 1965), Ch. III, refers to the prevalence of such expansion, for export crop production, in both East and West Africa. The expansion of maize production as a cash crop is not different in kind from the sort of expansion Myint refers to.

Maize.[44] Western Kenya, especially Elgon-Nyanza District, and Meru District in Eastern Kenya have a fair proportion of such farmers who, because of their size (Table 34), undoubtedly provide a much larger proportion of total African Maize sales than their relatively small numbers would suggest. In such areas, deliveries to the Board constitute a substantial fraction of local production. In these areas data on regional deliveries to the Board, adjusted for changes in yield with the use of some proxy variable, and related to actual prices received by African farmers selling to the Board, should perhaps uncover some degree of price responsiveness.

It has been difficult to uncover any clear evidence of such price responsiveness, except the overall impression that the increase in prices from 1950 to 1953 might have been responsible for the high deliveries of 1953-54, and 1954-55 while the generally lower prices thereafter might have contributed to the lower level of deliveries.[45] The lack of evidence in favor of the hypothesis of African production responsiveness to prices does not necessarily mean that there was none. However it helps to explain the predisposition of maize policy-makers to accept the hypothesis that the level of the maize price would probably have no substantial effect on African maize deliveries.

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[44] See for example Karani, "Kenya's Maize Muddle"; and Troup, Inquiry into Maize Prices, pp 24-25.

[45] As late as 1966 one attempt was made to test the hypothesis, but it was so incomplete, and based on such limited information, that its lack of a result was a foregone conclusion. See J. D. MacArthur, "Memorandum to the Maize Commission" quoted in the Report of the Maize Commission of Inquiry; pp. 181-182.

TABLE 34

Selected Characteristics of the Size Distribution of Holdings in Those African Areas Sampled on a Holding Basis in the Sample Census of 1960-61

Characteristic	Region	Size Categories (in acres)					
		Under 2.5	2.5 4.99	5.0 7.49	7.5 9.99	10.00 14.99	15 and over
1. Percentage of Holdings[a] (per cent)	Central Province	32.4	32.4	18.4	7.6	5.9	3.3
	Nyanza Province	22.8	24.8	14.5	8.7	11.7	17.5
	Total Kenya	24.6	26.1	15.4	8.5	10.6	14.8
2. Percentage of Total Land Area in Holdings[b] (per cent)	Central Province	9.7	25.6	22.9	13.3	14.2	14.3
	Nyanza Province	3.5	9.6	9.5	8.1	15.0	54.3
	Total Kenya	4.1	11.5	11.2	8.7	15.0	49.5
3. Average Size of Holdings[c] (in acres)	Central Province	1.43	3.80	5.98	8.46	11.52	20.93
	Nyanza Province	1.42	3.64	6.14	8.73	11.99	29.14
	Total Kenya	1.42	3.70	6.10	8.66	11.90	28.11
4. Average number of Persons Supported by Holdings[d]	Central Province	6.23	7.37	10.20	11.78	15.87	13.98
	Nyanza Province	5.16	6.41	7.22	7.67	7.96	10.39
	Total Kenya	5.54	6.70	8.08	8.51	8.87	10.04
5. Proportion of Land Used to Grow Temporary Crops[e] (per cent)	Central Province	65.7	55.2	48.4	42.3	38.7	29.8
	Nyanza Province	64.7	56.7	49.0	44.2	37.4	28.8
	Total Kenya	65.0	55.8	47.9	42.5	35.7	26.9
6. Temporary Crop Acreage per Person[f] (acres)	Central Province	.15	.28	.28	.30	.28	.45
	Nyanza Province	.18	.32	.42	.50	.56	.81
	Total Kenya	.17	.31	.36	.43	.48	.75

Sources: Kenya, Sample Census, 1960-61.

[a]Table 15, p. 20. [b]Table 17, p. 21 [c]Table 16, p. 20; and Table 14, p. 19.
[d]Table 69, p. 55. [e]Table 23, p. 27. [f](Row 3 X Row 5)/Row 4.

The timing of supply responses over the crop year.

Because of differences in the timing of rainy seasons, and in average temperatures during the growing season, major producing areas differ somewhat from one another in their patterns of maize planting and harvest times. Kenya has two growing seasons each year (Chart 10): the long rains which come in February or March and the short rains which come in August in Western Kenya and in October and November in Eastern Kenya. Maize planted in the long rains begins to ripen in the lower (and thus drier and warmer) areas in June. With altitude the time of harvest advances, being as late as January in the highest areas where maize is grown. About two thirds of the total acreage of annual crops planted by Africans in any one year is planted in the "long rains." The entire European crop is planted at that time. Harvests from the short rains begin in late January and extend as late as May or June in the higher altitudes. The second rains are, in most areas, less certain than the main rains, and average yields tend to suffer. Many areas will plant only the relatively quick maturing vegetables in the "short rains." Thus, planting decisions made in February and March help to determine the amounts of maize coming onto the local market between June and January, while planting decisions made from August to November help to determine the amounts of maize coming onto local markets from January to June. Since most other food crops are planted at the same general time as maize, and come to harvest just before, with, or just after maize, the whole rhythm of decisions on food supply tends to be based

CHART 10

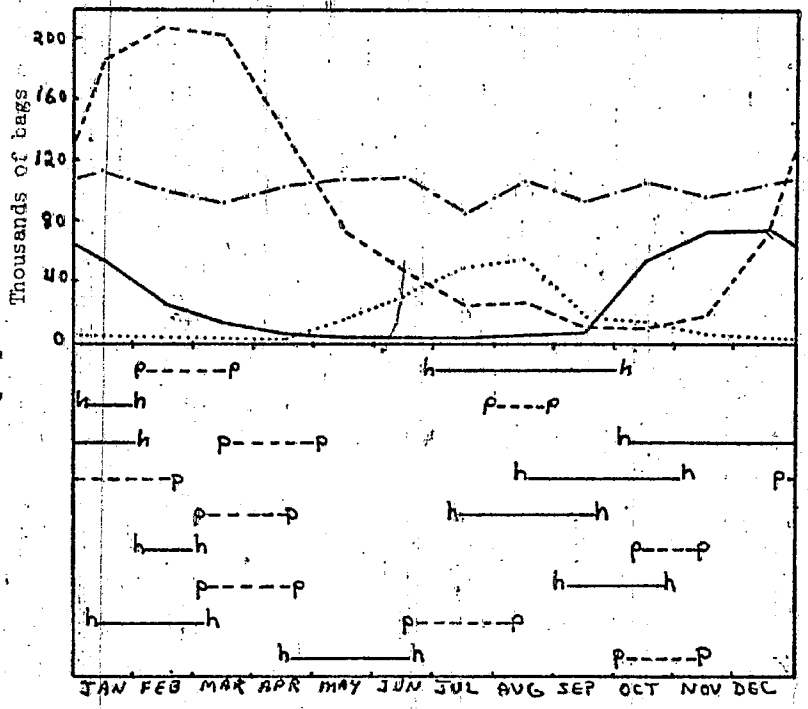
A Comparison of the Timing of Planting and Harvesting of Maize with Average Monthly Purchases and Sales Of Maize by the Maize Marketing Board: Purchases, Aug 1959 - July 1965; Sales, Aug 1961 - July 1965

Key: Average Monthly Purchases in—
Western Kenya ———
Rift Valley - - - - - -
Eastern Kenya .....
Average Monthly Sales —·—·—
Planting Periods P----P
Harvest Periods h——h

Abbreviations:
LR = Long Rains
SR = Short Rains

Producing Regions:[a]

Western Kenya and Rift Valley	The Nyanzas	LR[b] SR[b]
	Uasin Gishu Plateau	
	Upper Kisii/Kericho	
xEastern Kenya	All Lower Areas	LR
		SR
CCentral Province and Embu District	Middle Zone "Gathano" Zone	
Upper Meru District		



Sources: For Maize Board average purchases and sales see Tables A6 and A7, pp. 199-200. For the timing of planting and harvesting of maize the source was my interviews in the fall of 1966.

[a]The Coastal Region is not included. Maize there is harvested and planted during the same periods as maize in the lower portions of Eastern Kenya.

on these two seasons.[46]

The size and timing of seasonal harvests and deliveries differ substantially from one part of Kenya to another. European farms in the Rift Valley and the African farms of Western Kenya are almost always the major sources of the Board's supply. In Western Kenya's lower portions the main period of harvest stretches from June to October. A second harvest comes in January. Most of the people depend, however, on the long rains harvest, which seldom fails in every part of the region at the same time.[47] A poor short rains may bring shortage to portions of Western Kenya but sufficient food will be available from the long rains crop to tide the region over. In the upper portions of Western Kenya (Kericho and Nandi) and in the European and African portions of the Rift Valley, the harvest is delayed because of altitude, and occurs between October and January. Deliveries of maize to the Board begin in October from Western Kenya, after the maize has had a chance to dry, and somewhat later in the Rift Valley. Major deliveries of the two areas together continue until April in most years.[48]

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[46]Some crops, such as cassava, bananas, and yams, have long growing seasons and do not come to maturity with the other crops. Cassava, for example, takes about 18 months to mature, and may be held in the ground for several years before use in well-drained soil. See Miracle, Maize in Tropical Africa, p. 207.

[47]The region has a high rainfall overall. When rainfall is below average some areas will have better harvest than usual and some worse than usual. This will help to balance surplus against deficit areas. See above, pp. 140, 142.

[48]European farmers are sometimes asked to store their maize on the farm until after April, but the Board knows by April how much maize they will deliver.

In Eastern Kenya the main "long rains" crop also is harvested between June and October, but large areas do not depend mainly on that crop at all. In Machakos, Kitui, lower Embu, and especially in Meru the "short rains" are generally more certain than the "long rains." In the lower areas of Central Province the two seasons are about equal in certainty and neither is very good. In the upper areas of Central Province the "long rains" are clearly better.[49] Thus, in Eastern Kenya the "short rains" crop is almost as important in assuring the basic subsistence of the people as the "long rains" crop. A failure of the "short rains," especially if preceded or succeded by a weak "long rains" crop, usually causes wide-spread food shortage throughout the lower areas of the region.

Deliveries to the Board from Easter Kenya are much smaller than those from Western Kenya, and more variable.[50] They fall generally in the period from May through September, which is just the time deliveries from Western Kenya and Rift Valley are at a minimum. This timing is something of a puzzle. While one would expect deliveries from Meru to begin in May since the main harvest there begins in April or so, deliveries from the rest of Eastern Kenya fall before or during the

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[49]Above about 6,500 ft. in Central Province crops planted at the normal time, at the commencement of the "long rains", come to maturity just as the "short rains" are beginning. This hampers harvesting. Thus in this zone crops are generally planted in June, in the so-called "gathano" season. They come to fruition with the "short rains" crop, in January and February.

[50]Only Meru District is relatively certain to deliver a substantial maize crop, usually in May and June. The upper areas of Central Province deliver small amounts at erratic times through the whole year. Sometimes, in very wet years, Machakos and Kitui District deliver a very large amount of maize between June and September, but generally little or no maize comes from those districts. In fact they often must purchase maize.

main harvest period for the long rains crop. Their very great variability from season to season suggests an answer. In the first place, probably there is very little maize delivery from the upper (and very densely populated) regions of Central Province. Most of the maize probably comes from Embu, Machakos, and Kitui. It is unlikely that farmers would sell a surplus from one harvest unless they were sure the next harvest would be a success. But in Eastern Kenya it is the "long rains" harvest that is least likely to be successful. If the long rains harvest is successful, then farmers may have considerable surplus still in storage from the previous crop. They could sell this in preference to the new crop. Since they would know how good the long rains harvest was before they had actually harvested and dried it, they would be able to dispose of their old surplus as soon as the new harvest was in, or even somewhat before that time.

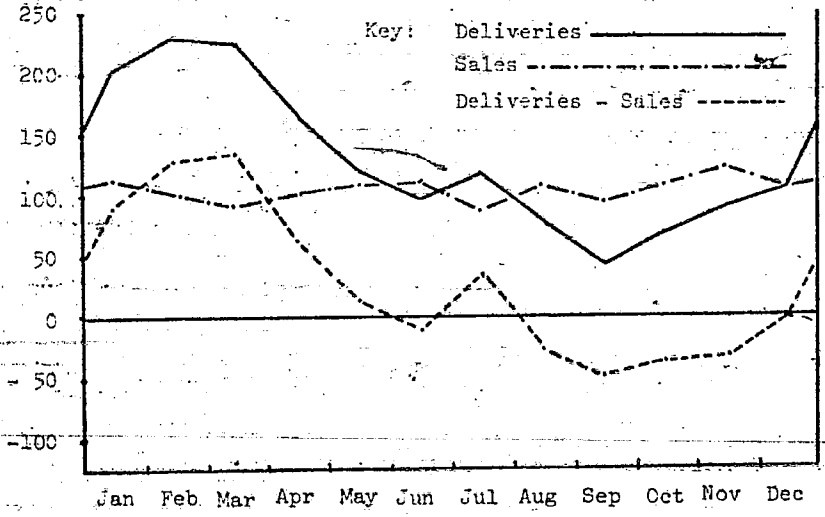
The Coast only occasionally provides the Board with any maize at all.

The main changes in maize sales by the Board are responses to changes in the supply of all staple foods in the rural areas, at least over shorter periods of two or three years. On average, as Chart 11A shows, Maize Board sales show only a weak tendency to seasonal changes.[51] There is a slight tendency for sales in the six months after

[51]The four year sample of months on which this chart is based does not constitute very firm evidence for any statement beyond the general lack of average variation from month to month. However, a closer look shows that sales tended to increase from July to January (by about 33 per cent), fell somewhat in February and March, rose again until June, and fell in July. This is the pattern one would expect given the main harvest times in African areas.

CHART 11

Maize Marketing Board Internal Deliveries
And Sales to Internal Consumers
August 1961 to July 1965
(All figures are in thousands of bags of maize per month)



Sources: Tables A6 and A7 below, pp. 199-200.

July to be lower than those in the six months before July, obviously because of the harvest of the long-rains crop. However, this tendency is far outweighed during the four year period for which data are available by longer term cyclical movements about which monthly sales fluctuate. From May 1961 to July 1965, monthly sales may be observed to vary by almost as much as monthly deliveries. The pattern of variability, however, is one of declining or rising trends lasting for many months at a time, about which sales fluctuate mildly. In time of shortage there are relatively sudden large increases in sales to very high monthly levels.

This behavior of sales is consistent with the fact that most purchasers of the Board's maize are urban and plantation workers, in normal times. African farmers would be expected to purchase little maize from the Board except in times of shortage, when small rural market prices rise to the level of the Board's consumer price. The slow declines and rises in sales, as the overall supply situation in the country improves or worsens, are evidence of extensive local storage of crops by farmers and local traders. One should not try to read too much into a single series of monthly sales data containing only 51 months--a single complete cycle from the end of one shortage to the end of the next shortage. However, the data on fluctuations in yearly sales of the Board going back into the 1940's,[52] the descriptions of the sudden onset of previous shortages, and the cyclical behavior of the balance of trade in staple foods[53] all suggest that the behavior of sales from 1961 to 1965 was typical.

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[52]See Table 26 above, p. 137.

[53]See above, pp. 140-42.

Putting together the limited information available on seasonal patterns of the Board's purchases and sales of maize, it becomes clear (Chart 12) that the Board's purchases generally either exceeded or equalled sales between November or December and March or April. Between April and August either deliveries or sales were larger, depending on the size of the stored stocks still held by European farmers and the size of the harvest in Eastern Kenya. From August to October or November, sales generally exceeded deliveries. The main period of deficit in a poor year extended from April to October or November. In a good year, if any deficit months occurred they were probably between August and October.

Issues of Efficiency and Equity

In this section three issues will be explored: the effects of uniform prices and movements controls on incentives to farmers and traders; whether the official producer price favored Africans or Europeans; and the effects of taxation through the marketing system on incentives and income distribution.

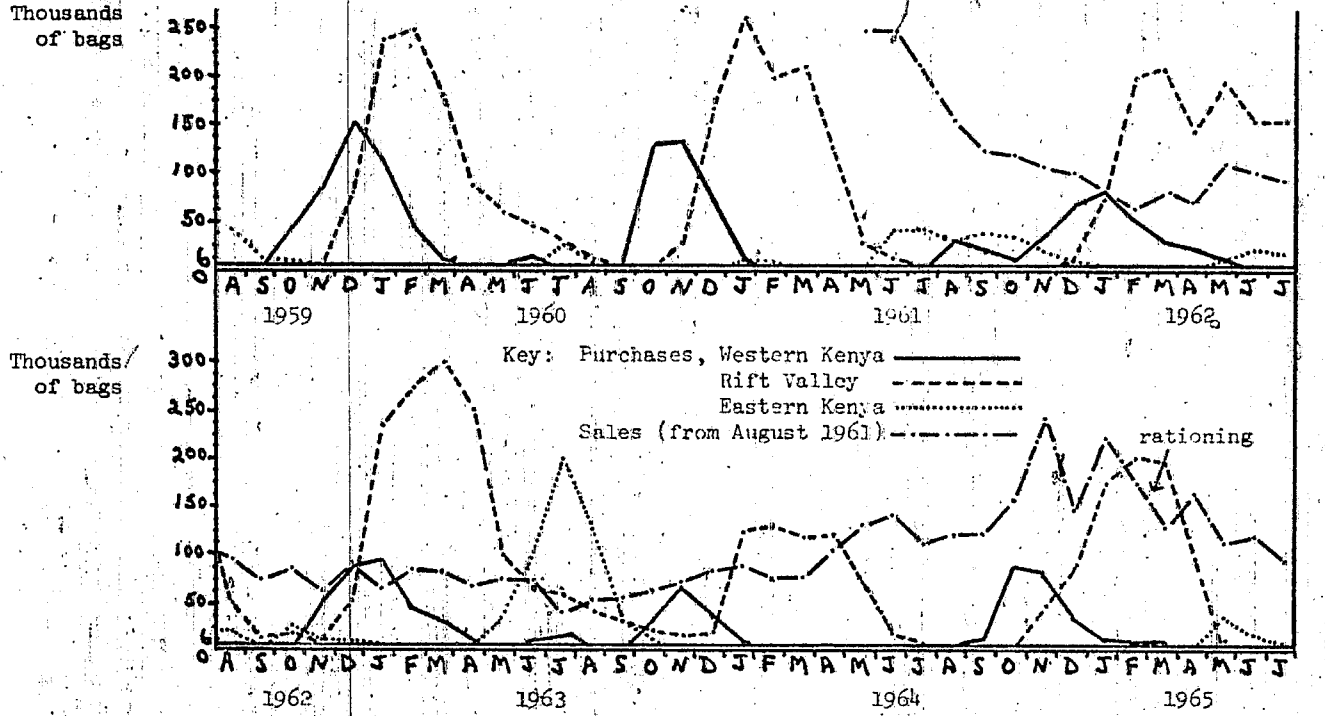
The effects of uniform prices and controls over movements

It was pointed out in chapter 3 that uniformity of the official maize price discouraged traders from selling to and buying from the Board the maize travelling only short distances and stored for only short times, since that sort of trade cost them less to undertake than the differential between the Board's purchase and sale prices.[54] From the very beginning of maize marketing controls in 1942 the Government

[54]See above, pp. 44-45.

CHART 12

Monthly Sales and Purchases by the Maize Board: Aug 1959 to July 1965



Sources: Tables A6 and A7, below, pp. 199-200.

had found it necessary to authorize Maize Control to place limitations on the movement of maize about the African "Reserves" in order to capture as much of the local trade as possible. The problem of capturing this illegal trade became particularly severe in the late 1950's with the imposition of the Maize Export Cess and the policy of maintaining a relatively large buffer stock.[55] Though subsequently reduced by the introduction of zoned railage, reduction of the buffer stock, and reduction of the County Council Maize Cess, it remained a problem of serious concern for policy-makers.

The policy-makers were primarily concerned with the difficulties illegal trade created for their attempts to keep the differential small between producer and consumer prices, while covering all of the costs of maize control from the proceeds of maize sales. They seem to have been only occasionally aware of the costs of trying to contain illegal trade, and of the degree to which illegal trade was a function of their price structure. Had Maize Control allowed its buying and selling prices to fluctuate over a single season, more or less in the pattern one would expect to see in a free market, and had they set price differentials from area to area that represented the costs of transport and the direction of movement between the areas, the levy necessary to pay for the losses of Maize Control on exports would have provided a mild incentive for illegal trade everywhere and at all times of year, to the extent that Maize Control was not more efficient than traders. Price uniformity, on the other hand, introduced a highly idiosyncratic set of differentials that caused intertemporal and inter-spatial trans-

[55] See above, pp. 68ff.

fers of income within a single season, setting up incentives for production of maize to move away from consuming centers and for consumption of maize to be greatest in those areas least able to produce it efficiently. It also tended to cause production to be concentrated in those times of year when there was already a sufficient supply, rather than encouraging production in places that could harvest when other areas had no crop. Quite clearly, the farmers of Nyanza were given an undue incentive to produce maize while those of Central Province were discouraged despite their proximity to the Nairobi market, and those of Meru were discouraged despite their ability to produce a crop harvested in the short season of the year (April-June). Farmers at the Coast received even greater discouragement, to the extent that the movements controls were enforced there. If movements regulations had been successfully enforced the uniformity of the bulk maize price throughout Kenya would have represented a systematic transfer of income from farmers near Nairobi and Mombasa, and farmers in Meru, to farmers in the main producing regions of Western Kenya and the Rift Valley. All of these distortions were inefficient, for they increased transport and storage costs on the entire marketed maize crop.

The effects, within each African producing district, of the Transport Pool Charge were analogous to those of the uniform bulk producer price. The Transport Pool Charge encouraged maize production for sale far from bulk delivery points at the expense of maize production for sale in the neighborhood of the bulk delivery points, in effect subsidizing farmers far from the delivery points at the expense of those living nearby. More total transport was paid than would have

been the case without a Transport Pool Charge. Production was encouraged for sale near the rail line more in small compact districts (with small Transport Pool charges) than in large spread-out districts.

For African producers another rigidity in the price structure was the existence of only two load sizes, bulk and retail. Farmers able to deliver in bulk received the full guaranteed price for the grade of maize they delivered. If not able to deliver in bulk, they had to deliver to a sub-agent at a much lower price. Farmers with substantial amounts of maize to deliver but not enough to make up a three ton bulk load were discriminated against. The discrimination was greater near buying centers of a main agent than it was elsewhere in a district, because the advantage of delivering in bulk declined with distance from the buying center.

Policy-makers justified uniform producer prices as both fair and politically expedient.[56] It was argued that producers should receive the same prices regardless of where in Kenya they lived. They would have a right to feel aggrieved if they did not, and indeed they did feel aggrieved. The transport pool charge was justified as necessary to push the production of maize away from the rail line in order to save the soil, but also in order to be fair to people who would otherwise not be able to develop cash crops. These arguments must be respected, especially if they are developed as arguments in favor of the long run efficacy of getting development started in the hinterlands of Kenya.

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[56]D. A. Grafton, "Evidence," Maize Commission of Inquiry, Record of Proceedings, January 14, 1966 (Mimeographed), pp. 28ff.; and the Hon. T. J. Mboya, M. P., "Memorandum to the Maize Commission of Inquiry" December 31, 1965 (Mimeographed), p. 10.

However, it would seem more efficient to provide direct aid to the hinterlands for that purpose rather than to use the maize price structure as a means of helping hinterlands develop, provided the aid comes from general tax revenues.

To create the effects discussed above the movements controls had to be effective in preventing trade from occurring outside the Board's official channels. Actually, much illegal trade occurred despite controls. However, even if movements controls were largely ineffective in actually preventing illegal trade in African areas, they could still cause considerable harm. They required considerable manpower and expense for their enforcement, while causing traders to use considerable manpower and expense to get around them. This was all labor diverted from productive activities. It is impossible to find figures on the costs of enforcement of the Maize Marketing Regulations. Giving out movements permits was the job of District Officers in some places, as well as an activity of the Board's agents and of wholesalers and millers. Policing the roads to prevent illegal movement was done by the police.[57] Whatever these administrative costs were, they should be considered a subsidy to maize control. The controls also institutionalize bribery

[57] There was no agreement among knowledgeable people on the size of illegal trade in maize, or on how much the Board had managed to reduce it with movements controls. Everyone agreed that illegal trade increases during periods of scarcity. The Maize Marketing Board estimates that the Board lost 100,000 more bags of maize than usual in 1964-65. See Maize Marketing Board, "Evidence"; Karani, "Kenya's Maize Muddle"; and many of my interview notes.

and corruption in the trading network.[58] There is also evidence of small-scale illegal trade. At the market of Karatina, a major market center between-Nyeri and Embu Districts about 100 miles from Nairobi, a sub-agent of the Maize Board gave the following account of small scale maize movements in Central Province.

> Many women carry small amounts of maize to Nairobi and other consuming centers by bus, taxi, and even with the police, who ignore the practice most of the time. However, such movements take place only when there are considerable price differentials between supply and demand centers. The price differentials necessary to start movements of maize in truckloads, were there no restrictions against it, would be much lower, because of the greatly reduced transport and selling costs.[59]

Table 35 gives this trader's estimates of the difference in costs required to get maize moving about Central Province in small loads.

Another but related aspect of the reduction in the efficiency of local markets is the probable increase in the size of interlocal and interseasonal price differentials that lower efficiency brings with it. If bulk trade is suppressed the localized producer markets grow thinner and more imperfect[60] and subject to greater influence from chance and manipulation. Certainly all of the evidence available on prices in local

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[58] The daily newspapers, the memoranda and record of preceedings containing the evidence placed before the Maize Commission of Inquiry, the Report of the Maize Commission of Inquiry itself (see pp. 120-57), and indeed most other sources of comment on the shortage of 1964-65 contain evidence to support this statement.

[59] Interview with Mr. Shah (known locally as Njao), Karatina, October 22, 1966.

[60] Edith H. Whethan, and Jean I. Currie, The Economics of African Countries. (Cambridge: Cambridge University Press, 1969), pp. 13ff.

markets in the main producing areas of Kenya points to narrow markets and wide interlocal and intra-seasonal differentials.

TABLE 35

Comparison of Transfer Costs in Central Province for Small Illegal Loads and for Bulk Legal Transport by Truck

From	To	Distance	Estimated Small Load Transfer Costs[a]	Estimated Minimum Truck Transport Cost[b]
		miles	shs/bag	shs/bag
Karatina	Sagana	16	5.00	1.50[c]
"	Embu	29	10.00	2.00[c]
"	Nairobi	100	20.00	4.00[c]
"	Nyeri	15	5.00	1.50[c]
"	Meru	120	20.00	2.00[d]

Source: Interview with Mr. Shah (Njao) Karatina, October 22, 1966.

[a]Total price differential considered sufficient to start small loads of maize moving over the distances involved. This would have to be sufficient to cover the extra transport, inconvenience and selling costs involved in the long distance transfer.

[b]Minimum contract price per bag for transport by five ton truck of about 55 bags of maize, from Karatina to the places mentioned. Traders would begin to think of selling in the more distant markets if the price differential were to rise above the costs of transport by more than a few cents per bag.

[c]No return load guaranteed.

[d]Return load guaranteed.

An examination of the assumption that the maize price consistently favored producers, and in particular large farmers, from 1942 to 1966

Critics have claimed that maize price policy not only was designed to subsidize growers, but was particularly intended to favor European growers, in the period from 1942 to 1966.[61] At first glance these allegations may appear to be true. Certainly the maize price level was high after 1954 with respect to the world market price level, and the level of exports appears to have been too high to justify that high price at least from 1954 to 1960 since exports resulted in substantial losses.[62] However, one cannot establish the truth of the allegation unless one knows the relative price elasticities of maize production and consumption over the longer run. If maize production is more elastic than maize consumption in the long run then the attempt to find a price level that would insure Kenya a small export surplus in most years (the stated policy of the Government) would tend over the years to cause the price level to be set more with respect to production costs than to the level of the consumer price. An inefficient solution to the problem of stablizing the price without subsidies would then tend to push up the level of the consumer price regardless of whether policy-makers said they were adjusting the producer or the consumer price level.

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[61] Miracle, "Kenya's Maize Control"; Yoshida, "Background to Maize Marketing"; G. W. Llewellyn, "Government Marketing Control--The Case of the Maize Industry in East Africa," East African Institute of Social Research, Economic Development Research Project, paper no. 144, August 16, 1968 (Mimeographed), and Y. Kyesimira, "The Production and Marketing of Maize in Kenya," East African Institute of Social Research, Economic Development Research Project, paper no. 65, 1965 (Mimeographed).

[62] See Charts 5 and 6 above, pp. 128 and 129.

There is really little evidence for the view that the Government specifically used maize price policy as a means of giving special favors to European maize growers, in preference to Africans. This is not to say that European farmers received no special consideration from the Government. They received cheap finance denied to African farmers, more extensive extension services, and more benefits from the transport system. Enjoying the advantages of a modern education and cultural homogeneity with the Kenya Civil Service, the European farmers were also able to take better advantage of any help they received from the Government. However, European maize farmers were unable to win significant special price concessions from the Government either over African producers or over consumers, despite repeated attempts to do so.

Three objective reasons for this failure stand out. In the first place, the interests of maize farmers were in direct conflict with the interests of owners of businesses employing African labor, whether on plantations or in trade and manufacturing, at least with respect to the maize price level. The Government and the East African High Commission (the East African Common Services Organization after 1960) also employed much African labor. A second reason was the general British colonial rule that all colonies should be largely self-supporting financially from their own revenues. Whenever direct support to the maize farmers threatened to cost the Government any substantial sum, the Government refused to extend the support. Third, the Government was required by colonial policy to protect the interests of Africans where they clashed directly

with those of Europeans.[63] Maize policy was one of those places. Because maize is only one of several crops European farmers can grow, but a major food staple of Africans, the claims of European farmers for special attention in maize policy had to rest on something other than political power alone.

These points are illustrated in the history of maize policy.[64] The behavior of the Kenya Government during the 1930's does not support the idea that large maize farmers were being given preferential treatment. Except for a rather small subsidy at the beginning of the 1930's to support the maize export price, the Government offered no real help in keeping up maize prices. It refused to consider the proposal of the KFA that a statutory board be established, with the KFA as its executive agent, to purchase all the maize marketed in Kenya and to set consumer prices internally to recover export losses for growers. It overrode the protests of both European farmers and Asian traders to establish in the Marketing of Native Produce Ordinance a system of marketing designed to give Africans more incentives to produce and sell maize for the international market. It did nothing until 1941 to stem the decline in the maize acreage of European farmers brought about by low prices.

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[63] Many colonial civil servants were actively hostile to European farmer interests personally, and warmly partial to African interests as they saw them. Civil servants tended to have an adversary relationship with local political power sources, since these interfered with the work of orderly bureaucratic government of the Colony. This extended itself to African political power as it began to develop, and the new African civil service after Independence also tended to develop this attitude to political power groups.

[64] See above, pp. 31-34; 54-60; and 77-79.

During the 1940's and early 1950's the Government did act to stimulate domestic maize production by raising domestic prices and establishing the Maize Control desired by the KFA in the 1930's. However, the KFA was not given the exclusive agency over all maize that it desired. Instead local marketing organizations were developed in the main African producing regions, serving according to their lights the African farmers of those regions. And when the world maize price became again high enough for profitable exports, the Government held down increases in the domestic producer price on the grounds that they would be inflationary. The very large deductions (The African District Betterment Funds) from the African growers' price during these years were clearly not a result of European farmer lobbying, but rather a response to the fear of decline in the fertility of African areas if too much maize were grown.[65] The power of the European farmers appeared in these years not so much in their ability to raise the maize price but rather in their ability to obtain loans to diversify out of maize production.[66]

Even the behavior of the Government between 1950 and 1957 may be construed as only a partial and grudging capitulation to the large European maize farming interests. When the funds collected by the East African Cereals Pool out of export earnings were distributed to growers a portion was used to support the domestic maize price, affecting both African and European growers equally. The rest was given back to

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[65]For a good expression of that fear see Kenya, Department of Agriculture, Annual Report, 1945-50. The Betterment Fund Contributions were of course discriminatory in effect even if not in intent.

[66]Ironically, the KFA was asking in the late 1940's for a return to a free market in maize, having failed to get what its members desired from organized marketing.

individual European farmers, but only indirectly through the African District Betterment Funds to African farmers. When these funds ran out in 1954, European and African farmers alike were required to pay a cess to cover export losses as part of the agreement by which the maize price was set high by the Troup Formula.

The clearest direct repudiation of the interests of European farmers was probably the decision in 1958 to base the maize price level no longer on the Troup Formula. Exports had proved too great to be reconciled with the notion of a Kenya merely self-sufficient in maize. The entire rationale for maintaining maize control was being threatened by the export losses. Against the strongly expressed wishes of the maize farmers, and apparently with some bitterness on both sides, the Government lowered the maize price. A careful examination of the finances of the quota system of collecting the maize cess, which was in operation from 1958 to 1962, shows no consistent bias in favor of European Producers[67]. It was widely believed at the time that African peasants would be unable for many years to adopt the hybrids successfully. In this connection, the message of the Matthews Report was that as hybrids were adopted, the poorer European farmers should be ruthlessly eliminated from maize growing through cuts in the guaranteed price and perhaps even through acreage limitations. Matthews did mention that they should be helped with loans to adapt, as they had been in the early 1950's.

One conclusion emerges from a study of the whole period: the Government insisted on strictly limited help to farmers from the public

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[67] See Table 17 above, p. 81.

Treasury. Farmers and consumers had to cover the losses of stabilization, if and when they occurred. Out of all the years between 1930 and 1966 the Government allowed the price to be set clearly too high in view of their own aim of self-sufficiency only in the brief period between the 1953 and the 1957 seasons.

The effects of taxation through the Maize Control on incentives and distribution of income

Between 1942 and 1965 Maize Control collected from producers in one way or another more than £7,000,000, or more than £300,000 per year in excess of its marketing costs plus the producer price. This was about 13 per cent of the average bulk producer price at railhead.[68] Since most of this was collected from the difference between the producer and the internal consumer price it represented a substantial increase in the size of that differential and to that extent encouraged illegal sales, and increased the administrative costs of movements controls. This effect was excerbated by two circumstances. First, African producers were taxed twice[69]--once in the collection of the Agricultural Betterment Funds (later the County Council Maize Cess) and then in the

[68] Collections of Maize Export Cess, £3.8 million; Betterment Fund Contributions, £2.0 million; profits of East African Cereals Pool £1.0 million; Consumer Cesses to cover losses on imports, £0.5 million. These are very rough figures, meant to indicate orders of magnitude. The profits of Maize Control and the Maize Marketing Board, which were used to build storage facilities and to defray some of the costs of imports, are not included. Average bulk producer price actually paid out to producers is estimated at shs 28 per bag, and average deliveries at 1,600,000 bags per year.

[69] This double taxation may not be used as evidence for discrimination against Africans. The County Council Maize Cess was one of the local levys on Africans that took the place of the local property taxes levied on European farmers.

collection of the Maize Export Cess, to which they contributed something like half of the total. Thus the group most likely to try to evade the movements controls had the greatest incentive to do so. Secondly, the effect of the Betterment Fund Contributions was uneven geographically, and the effect of the Maize Export Cess was uneven over the years (and from 1958 to 1962 geographically as well). These effects on producer incentives were quite different from those that would have occurred had producer and consumer prices been allowed to fluctuate together with a differential that would have just covered current costs of trade.

Not more than a relatively small proportion of the total taxes collected from producers between 1942 and 1965 were compulsory saving not paid back to producers.[70] Virtually all of the collections of the Maize Export Cess, a major share of the profits of the East African Cereals Pool, and all of the Consumer Cesses were merely transfers over short periods of time from one group of producers and consumers to another group of producers and consumers.[71]

In the early 1950's Maize Control returned to the producers of

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[70] Bauer and Paish say that a stabilization scheme accumulates "forced savings" from producers unless one specifies the time period over which funds collected are to equal disbursements. See P. T. Bauer and F. W. Paish, "The Reduction of Fluctuations in the Incomes of Primary Producers," EJ (December 1952), pp. 750-780, reprinted in P. T. Bauer and B. S. Yamey, Markets, Market Control, and Marketing Reform (London: Weidenfeld and Nicolson, 1968), p. 170.

[71] The two groups contained in each case many of the same people, but there was probably a good deal of transfer of income among persons. Where the time periods of tax payment and repayment are relatively close, and where there is little net transfer from one identifiable group of the population to another, e.g. from African producers to European producers, or from producers in Nyanza to producers in Central Province, then Bauer would say that no "forced saving" had occurred (See note 70).

Kenya all of the funds collected in the postwar boom from them.[72] From 1954 to 1959 the Maize Control recovered all losses on exports attributed to producer overproduction out of a maize cess on the producer price.[73] There are complete records of the Maize Marketing Board for the years 1959-60 through 1964-65. These show that all of the export and import losses incurred during that period were covered from one of three sources: the trading surplus of the Board on internal sales to consumers, the Maize Export Cess, or consumer cesses.

Though occasionally the Maize Control, and later the Maize Marketing Board, transferred small sums to the Government or to various organizations not connected directly with its major activities these sums are absolutely minor. During the period 1959-65, the total transfer of funds of this sort, so far as the books of the Board indicate such transfers, amounted to £27,000 in 1964, to the Kenya National Fund for Famine Relief and Maize Seed Research. The Board paid no income tax to the Government during that period, and was actively contesting the government contention that it owed income tax. It held £30,000 on its books as a contingent liability against the possibility that it would be called on to pay income tax.

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[72] Kenya, The Maize Industry, p. 4, p. 17. "...out of the profit of £1,019,495 on export sales of maize accruing to Kenya from the E.A. Cereals Pool when it was wound up, £411,697 was contributed to the establishment of the Maize Fund...and £607,798 was distributed to producers between 1951 and 1954."

Withdrawn early to pay producers	£43,131
Direct to producers (presumably to large farmers)	206,822
African District Betterment Funds	322,381
Forest Betterment Funds	19,686
Native Trust Fund	5,772
Maize Fund, 31 July, 1954.	411,697
Total Disbursements	£1,009,495

[73] See Table 15, p. 70.

Betterment Fund Contributions, which became later the African District Council Cesses and after Independence the County Council Cesses, were an exception. They made a very substantial tax contribution to local authorities in the African areas. Most of this went to Nyanza Province. Very rough estimates of the total collections from 1949-50 to 1964-65 give about £1,400,000 to Nyanza Province, Nandi and Elgeyo Marakwet Districts, and the Central Forest Areas; and about £270,000 to Eastern Kenya. In addition, Betterment Funds received about £340,000 from distributions of the East African Cereals Pool after 1952.[74] The total amount received between 1950 and 1965 added up to more than half of the total amount collected in Maize Export Cesses from all growers. While these amounts were not very large in relation to the total tax collections of Kenya they were very heavily concentrated on a relatively small group of African farmers, representing a reduction in the average price received for their maize of something like 8 or 10 per cent per bag over the whole period.[75] The Cess was larger in the years before 1954 than it was later, generally speaking, and therefore not only more important in the maize price but more important in district revenues of the main maize growing districts. Some of the

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[74] Kenya, The Maize Industry, p. 17; Maize and Produce Control, Accounts, 1951-52 to 1957-58; Kenya, Department of Agriculture, Annual Report, 1947, p. 32, and 1942, p. 37.

[75] Knowles, "Agricultural Marketing in Kenya", pp. 22-24 and 60-62. Knowles said that in 1954 the Betterment Fund Contribution amounted to an average of 12 per cent of the price of maize to an ordinary small producer, and about 5 per cent to an efficient producer. It could not be collected in many districts at all, for example Kiambu and Coast Province, because of the ease of evasion. The most important revenues were collected in North Nyanza, where it made up a very important source of local revenues: £185-305,000 per year between 1951 and 1954.

TABLE 36

Levels of the Betterment Fund Contributions, African District Council Cesses, and County Council Cesses 1951-52 to 1964-65

Year	Nyanza Province	Central Province	Nandi District	Southern Province	Coast Province	Forest Areas	Rift African areas
1951-52	average cess, all areas:[a] shs 3.55						
1952-53	" " " " 3.80						
1953-54	" " " " 3.64						
1954-55	" " " " 3.22						
1955-56	" " " " 3.84						
1959-60	2.00[b]	3.00[c]	2.00	3.45	2.00	2.20	3.50[d]
1960-61	2.00[b]	3.00[c]	2.00	. .	. .	2.20	2.13[d]
1961-62	2.00[e]	3.00[c]	2.00	1.70	. .	2.85	1.55[d]
1962-63	2.00[f]	3.00[c]	2.00	1.70	. .	1.60	2.15
1963-64	2.00[g]	3.00[c]	2.00	1.70	. .	2.10	2.15
1964-65[h]	2.00[i]	3.00	2.00	1.70	. .	2.55	2.15

Source: Maize and Produce Control, Accounts, 1951-52 to 1957-58.
Maize Marketing Board, Annual Report, 1960 to 1965.

[a]Calculated by dividing total "payments to local native councils on African grown maize" by total deliveries of maize in bags.

[b]Excluding Central Nyanza District.

[c]Excluding Kiambu District.

[d]Elgeyo Marakwet District only.

[e]Excluding Central Nyanza; Kericho District Cess shs 1.00.

[f]Central Nyanza Cess shs 3.00; Kericho District Cess shs 1.00.

[g]Central Nyanza Cess shs 3.00; Kericho District Cess shs 1.00. Bungoma/Busia District Cess shs 2.50.

[h]After March 1, 1965, all County Council Cesses became shs 1.00.

[i]Central Nyanza Cess shs 3.00.

contributions were returned to good farmers in Nyanza after 1951 through the granting of Certificates of good husbandry, which the farmer could

turn in for a refund of half of the Betterment Fund Contribution.[76]

For purposes of the thesis the Betterment Fund Contributions had their main effects on the relative incentives of African and European growers, and on the incentives for illegal trade in maize to avoid the regulations. Was the policy of withdrawing Betterment Fund Contributions from African producers justified on general grounds of equity and allocative efficiency? Bauer and others have questioned the practice of withdrawing funds from producers for use on capital projects of Government on several grounds. Do they benefit the particular group from which they are taken? Can the Government allocate them better than the producers could?[77] In addition, one must point out that the Betterment Fund Contributions were from the point of view of any individual African producer although not for all African producers, discriminatory vis-a vis all European producers who did not have to pay a similar tax. They reduced the incentives of individual Africans to grow maize. As a mitigating circumstance one may consider that the Betterment Funds appear actually to have been expended, at least before 1951, on agricultural improvements in the districts where they were collected.

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[76] Report on the Marketing of Maize, p. 38. Miracle, "Kenya's Maize Control, p. 124, is in error when he says that in some African areas both a Betterment Fund Contribution and an African District Council Maize Cess were collected. See Knowles, p. 23.

[77] Bauer and Paish, "The Reduction of Fluctuations in the Incomes of Primary Producers," p. 191; and Gerald K. Helleiner, Peasant Agriculture, Government, and Economic Growth in Nigeria (Homewood, Illinois: Irwin, 1966), pp. 179-84.

CHAPTER V

SUMMARY AND CONCLUSIONS

Kenya faces uncertainty in staple food availability and price fluctuations, brought about by the isolation of her main food producing and population centers from the world market and by internal fluctuations in staple food production. Within Kenya, trade in maize and other staple foods tends to move from three main food surplus producing regions containing 44 per cent of Kenya's population (i.e. the African Reserves in Western Kenya, Embu and Meru Districts in Eastern Kenya, and the large European farms in the Rift Valley) to six major urban and plantation deficit regions and to nomadic pastoral areas containing together about 20 per cent of the total population. The remaining 36 per cent lives in normally self-sufficient African smallholder and pastoral regions. Changes in the balance of surplus and deficit in these normally self-sufficient regions contribute importantly to the problem of staple food supply and price fluctuations.

Since 1942, as Chapter III shows, the Kenya Government has attempted to handle instability in staple food markets primarily through regulation by government monopolies of bulk trade in maize, wheat, and sometimes other staple foods. Maize is by far the most important of the regulated staples, providing about 40 per cent of the food supply. Kenya's maize market control organization and policy had their origins in the Great Depression, the crisis of World War II which put pressures on

food production, and the severe food shortage of 1942 which aggravated these pressures. Thereafter the policy and organization showed a high degree of continuity of aims and method. The main aims were to assure Kenya's self-sufficiency in maize, to stabilize prices, and to avoid subsidizing maize marketing from general tax revenues. Basically the organization served as a buffer stock purchasing Kenya's surplus maize in good years and distributing it in poor years. However, in balancing internal supply and demand, major reliance was put on the export of surpluses in good, and occasional imports in poor years, rather than on holding a large buffer stock. The Government's insistence on covering the costs of stabilization activities out of the revenues of the maize control organization on internal sales, and the adoption of a geographically and temporally uniform official price structure led to severe pressures to evade the official marketing system and constitute the main reason why Maize Control was established as a monopoly.

The historical record indicates that the first few years of government maize control actually led to profits on exports resulting from the Government's policy of containing inflation by holding down the internal maize price level. These profits were collected in a buffer fund. After 1952, however, the export profits turned to losses with the fall in the world market maize price and the adoption of a formula to determine the internal price level that led to persistent export surpluses. At first these losses were supported by the buffer fund but in 1954 a tax began to be assessed on producers to cover export losses. By 1957 the Government had decided that export surpluses and losses were too large and thereafter reduced the maize price level. Whether because of this reduced

price or because of increasing population pressure and the growing of more non-staple cash crops by African farmers, the next few years saw a reduction of the staple food export surplus. Twice from 1960 to 1965 Kenya was visited by severe food shortages in which much maize was imported. By 1966 the Government had decided that it would be prudent to rely more heavily on a buffer stock and less on exports and imports in stabilizing internal supplies. The Government continued to reject the notion of a free market on the grounds that the price fluctuations it caused would be too wide.

Whether one agrees with the Kenya Government that maize price fluctuations would have been "too" wide on a free market depends on how wide one thinks fluctuations ought to be and on how wide they would have been. Chapter IV begins with an examination of the latter question. While world market prices from 1952 to 1966 were relatively stable, the limits placed on internal maize prices by export and import prices do indeed indicate a potential for wide price fluctuations in a free market in that period. Evidence on the magnitude of fluctuations in maize and other staple food supplies suggest that at the world price levels and internal costs of production of the period internal maize prices would possibly, though not certainly, have varied by more than the world market price level, given moderately inelastic internal demand for maize in the short run. Actual price stabilization efforts left internal price levels slightly less stable than world market prices, for both producers and consumers. Producer prices fluctuated largely through the influence of the Maize Export Cess which, however, did not serve to stabilize producer incomes from maize even on a national level.

One element in the argument of maize policy-makers that the maize price should be stabilized was the effect a stable price was expected to have in stabilizing the acreages (and hence supplies) of maize from the large farm sector. It appears from the evidence that policy-makers were correct in their assumption that price stabilization would tend to stabilize large farm acreages. This could have a measurable effect on the stability of marketed supply. Policy-makers assumed that marketings of maize by African smallholders through official channels were unaffected by year-to-year changes in the maize price. Though there are numerous studies attesting to the price responsiveness of African producers generally, there is no objective evidence in the data on African maize prices and marketings in Kenya that would contradict the assumption of policy-makers.

While the basic notion that the maize price should have been stabilized in Kenya from 1952 to 1966 receives some support from the evidence on Kenya conditions, the manner in which Kenya tried to control maize marketing led to considerable economic inefficiency. The two aspects of the system most directly responsible for this result were the temporal and geographical uniformity of the official prices and the effects on incentives of the manner in which the Maize Export Cess and the County Council Cess were collected. Geographic production patterns were undoubtedly distorted by Kenya's maize price structure, while the control methods probably hindered the development of local trading networks and certainly furthered the institutionalization of corruption. On the other hand, the widespread belief that maize market control was used as an instrument to further the interests of producers over those of

consumers, and of European over African producers, receives relatively little support from the available evidence.

The control of maize marketing continued after 1966 in much the same form as before, but the introduction of hybrid maize changed the problem. Policy-makers saw that they faced an uncertain transition period while hybrids were being introduced onto Kenya's small farms. This process was well started by 1966-67 but no one could say how rapidly it would proceed. Prospects for the next few years included very large surpluses if hybrids were successfully introduced without a reduction in the acreage to maize. On the other hand, a poor crop year might lead to a new shortage even after the introduction of hybrids. The unfortunate experience of 1963-66, when the Government had reduced the maize price in anticipation of surpluses from hybrid introduction on large farms, made the policy-makers cautious about reducing the price too soon. But still, they were worried by the prospect of having to export very large surpluses at a loss. Both overproduction and a year of food shortage actually occurred between 1966 and 1972, the first in 1968 and the second in 1971. It is apparent from recent statistics and commentary[1] that Kenya had by 1969 adopted the policy of subsidizing maize exports in the hope that by encouraging African farmers to adopt the new hybrids production costs would eventually be lowered to a level at which export of much larger quantities would be feasible at a profit. This would, in the long run, solve Kenya's maize marketing problem, as it existed in the 1950's and 1960's, and would make possible the

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[1]Peter Robson, "Kenya, Economy," in Africa South of the Sahara 1971, (London: Europa Publications Ltd., 1971), p. 408 and p. 414; and Ian Livingston, "Agriculture in African Economic Development," Ibid, p. 30.

adoption of bulk handling and storage for the export market--further reducing transfer costs and increasing the profitability of maize as an export crop. It would also solve the problem of internal supply of staple foods.

STATISTICAL

APPENDIX

TABLE A1

Large Farm Maize Acreages, Production, and Yields
In Kenya for the Crop Years 1942-43 to 1965-66

Crop Year	Large Farm Acreage		Large Farm Production[a]		Large Farm Yield	
	Thousands of acres		Thousands of bags		bags per acre	
1942-43	81.6		624		7.6	
1943-44	107.7		730		6.76	
1944-45	119.7		839		7.0	
1945-46	124.9		821		6.57	
1946-47	110.2		789		7.17	
1947-48	108.1		719		6.65	
1948-49	120.9		945		7.81	
1949-50	133.2		1035		7.77	
1950-51	144.8		1121		7.74	
1951-52	141.9		1109		7.81	
1952-53	140.5		928		6.58	
1953-54	164.8		1103		6.68	
1954-55	174.0		1587		9.12	
1955-56	157.9		1245		7.88	
1956-57	166.5		1268		7.59	
1957-58	177.6	167[b]	1350	1350[b]	7.60	(7.92[b])
1958-59	148.3	124	1166	1166	7.86	9.37
1959-60	134.6	115	1070	1070	7.95	9.28
1960-61	142.4	118	1010	1010	7.09	8.65
1961-62	158.3	147	1245	1245	7.86	8.62
1962-63	159.3	146	1340	1340	8.41	9.17
1963-64	111.9					
1964-65	74.7					
1965-66	96.0					

Sources: Kenya, Department of Agriculture, Annual Report, 1945-64; Kenya, Agricultural Census of Large Farm Areas, 1960, 1964, and 1968; Troup, Inquiry into Maize Prices, p. 16; Kenya, The Maize Industry, p. 15; Kenya, Statistical Abstract, 1961, 1965.

[a]Net of maize grown by squatters on European farms.

[b]Figures in this column for acreage and yield, from Department of Agriculture, Annual Report, 1958-63, differ from those quoted in other sources, while figures for total production are identical in all sources.

TABLE A2

Large Farm Wheat Acreages, Production, and Yields in Kenya for the Crop Years, 1942-43 to 1968-69

Crop Year	Large Farm Acreage		Large Farm Production		Large Farm Yield	
	Thousands of acres		Thousands of bags		bags per acre	
1942-43	122		(401)		3.29	
43-44	140		(713)		5.10	
44-45	160		593		3.71	
45-46	178		841		4.72	
46-47	195	187[a]	818	782[a]	4.19	4.18[a]
47-48	193	189	697	705	3.60	3.73
48-49		199		1041		5.23
49-50		225		1208		5.37
50-51		264		1422		5.37
51-52	299	293		1254		4.27
52-53	284		1269		4.46	
53-54	289		1330		4.60	
54-55	291		1485		5.10	
55-56	345		1354		3.93	
56-57	291		1401		4.81	
57-58	252	(239)[b]	1144	(1143)[b]	4.54	4.78[b]
58-59	247	(235)	1077	(1107)	4.36	4.58
59-60	254	(256)	1419	(1419)	5.59	5.54
60-61	248	(221)	1119	(1114)	4.51	5.06
61-62	227	(227)	930	(930)	4.09	4.09
62-63	244		1207		4.95	
63-64	278		1359		4.89	
64-65	282		1326		4.70	
65-66	268		1633		6.09	
66-67	299		1720		5.75	
67-68	329					
68-69	346					

Sources: Kenya, Department of Agriculture, Annual Report, 1945-64; Kenya, Agricultural Census of Large Farm Areas, 1960, 1964, and 1968; Troup, Inquiry into Maize Prices, p. 16; Kenya, Statistical Abstract, 1961, 1965; Knowles, "Agricultural Marketing in Kenya," p. 47.

[a]These figures appear to be calendar year figures, from the manner in which they are reported in the Department of Agriculture, Annual Reports.

[b]Figures in this column for acreage and yield, from Department of Agriculture, Annual Report, 1958-63, differ from those quoted in other sources.

TABLE A3

Estimates of Total African-grown Maize
Acreages and Production

Date	Acreage	Production
	acres	bags
1920		750,000[a]
1920-21		944,000[b]
1930	310,000[c]	1,387,000[c]
1943	400,000[d]	
1944	460,000	
1945	577,000	
1946	630,000	
1947	717,000	
1948	780,000	
1949	803,000	
1950	775,000	
1951	940,000	
1952		6,000,000[e]
1957-58		13-14,000,000[f]
1960-61	2,890,000[g]	14,000,000[g]
1966	1,992,000[h]	10,569,000[h]

[a]Report of the Food Shortage Commission (Nairobi: Government Printer, 1943).

[b]Report of the Economic Development Commission, p. 59.

[c]Report of the Food Shortage Commission.

[d]Troup, Inquiry into Maize Prices, p. 16.

[e]Report on the Marketing of Maize, p. 6. The actual figure quoted was 7,000,000 bags from all sources in the Colony, but about 1,000,000 bags were produced in that year on European farms.

[f]Kenya, The Maize Industry, p. 9.

[g]Kenya, Sample Census, 1960-61; acreage figures are for both seasons.

[h]Peberdy, "Maize." Acreage figures are for a single season. The reason for the lower production figure is Peberdy's lower estimates of yields. Peberdy, in private conversation in 1966 said he though the yield figures of the Sample Census were inflated. He did not have any scientific evidence, he said, but only the reports of his field officers and his own experience.

TABLE A4

Deliveries of Maize to the Official Marketing Organization
(In thousands of 200 lb. bags per year)

1 Season	2 By Control Year[a]	3	4	5 By Crop[b]	6	7
	Total	African	European	Total	African	European
1940-41	1244	711	532	n/a		
41-42	1027	716	311	n/a	Not Available	
42-43	700	338	361	n/a		
43-44	1264	662	601	1241	641	600
44-45	1361	815	546	1511	983	528
45-46	1347	785	562	1207	655	552
46-47	1644	1132	512	1510	1002	508
47-48	1063	668	395	946	567	379
48-49	1654	1015	639	1741	1126	616
49-50	2387	1627	760	2427	1690	737
50-51	1736	985	751	1745	982	763
51-52	1896	1084	812	1847	1092	755
52-53	1473	745	728	1376	738	638
53-54	2122	1380	742	2267	1483	784
54-55	2304	1299	1005	2431	1229	1202
55-56	1732	650	1081	1578	691	887
56-57	1534	638	895	1588	721	867
57-58	1759	780	979	1850	835	1015
58-59	1832	939	894	n/a	n/a	(862)[c]
59-60	1659	880	779	1612	824	788
60-61	1586	706	880	1566	708	858
61-62	1643	774	869	1745	788	957
62-63	2233	1083	1150	2349	1223	1170
63-64	1073			816		
64-65	1170	Not Available		1150[e]	Not Available	
65-66	1470[d]					
66-67	2600[d]					

Sources: Columns 2, 3, and 4: Maize and Produce Control, Accounts, 1952-59; Kenya, Department of Agriculture, Annual Report, 1945-64; Knowles, "Agricultural Marketing in Kenya," p. 27; Kenya, Statistical Abstract, 1967. Columns 5, 6, and 7: Kenya, The Maize Industry; Maize Marketing Board, Annual Report, 1960-65.

[a]August 1, to July 31.

[b]Deliveries in this series are from crops planted during a given time period, whatever control year they are delivered in.

[c]This figure is interpolated from the figures around it in column 7, and from column 4. It is a minimum figure.

[d]Provisional in the original source.

[e]Not including deliveries of 1964 crop in 1965-66.

TABLE A5

Deliveries of African Maize
(In thousands of 200 lb. bags per year)

By Control Year[a]			By Calendar Year[b]		
Season	Total	Nyanza Province	Year	Total	Nyanza Province
1946-47	1132	774	1946	683	682
47-48	668	350	47	853	672
48-49	1015	800[c]	48	650	446
49-50	1627	1500	49	892	807[c]
50-51	985	940	50	1715	1567
51-52	1083	736	51	1087	959
52-53	745	560	52	925	736
53-54	1380	1200	53	584	570
54-55	1299	1045	54	1287	1201
55-56	649	522	55	1028	992
56-57	638	426	56	642	519
57-58	780	507	57	847	598
58-59	939	671	58	802	580
59-60	880	681	59	856	669
60-61	706	527	60	772	673
61-62	774	502	61	808	598
62-63	1083	546	62	788	588
63-64		218	63	1103	532
64-65		421	64	489	350

[a]August 1 to July 31. Sources are Kenya, Department of Agriculture, Annual Report, 1955-1964; Maize and Produce Control, Accounts, 1952-1959; Maize Marketing Board, Annual Report, 1960-1965; and Nyanza Province Marketing Board, Annual Report, 1955-56 to 1963.

[b]Department of Agriculture, Annual Report, 1945-1964, Table D, "Quantities and values of more important products marketed from the African areas."

[c]The only source for control year figures of deliveries from Nyanza Province in 1948-49 through 1953-54 is a chart in the 1959 Annual Report of the Nyanza Province Marketing Board. These so closely resemble the calendar year figures for 1949-54 that one is tempted to assume that some mistake was made either in the chart or in the Department of Agriculture, Annual Report for 1949-54.

TABLE A6

Monthly Deliveries to the Maize Marketing Board
August 1959 to July 1965
(All figures are in hundreds of bags per month)

(A) Deliveries in the Lake Victoria Basin, i.e. to the following depots: Kisumu, Homa Bay, Kendu Bay, Mohoru Bay, Yala, Butere, Myanga, and Bungoma.

Month	Control Year 1959 1960	1960 1961	1961 1962	1962 1963	1963 1964	1964 1965	Average Monthly Deliveries
Aug	0	2	303	1	44	36	64
Sep	11	96	201	0	2	130	73
Oct	428	1281	116	37	324	865	549
Nov	849	1312	371	492	664	799	748
Dec	1520	716	663	879	368	346	748
Jan	1109	162	802	928	100	117	535
Feb	433	61	526	453	3	74	258
Mar	125	13	281	285	2	108	135
Apr	20	0	224	108	0	21	62
May	69	1	90	38	5	2	34
Jun	127	1	22	108	7	1	44
Jul	2	1	19	160	10	18	35
Total	4698	3646	3618	3489	1529	2468	3285

(B) Deliveries to depots in Trans Nzoia, Uasin Gishu, Nakuru, Kericho Kericho, Nandi, and Kisii Districts, including: Kitale, Eldoret, Lugari, Broderick Falls, Hoey's Bridge, Kipkarren, Turbo, Kapsabet, Nakuru, Solai, Rongai, Elburgon, Sabatia, Lumbwa, Thompson's Falls, Kericho, Kisii Town, KFA Sotik.

Month	Control Year 1959 1960	1960 1961	1961 1962	1962 1963	1963 1964	1964 1965	Average Monthly Deliveries
Aug	30	109	21	478	401	50	281
Sep	40	58	33	145	322	34	108
Oct	18	54	48	188	213	75	99
Nov	58	281	9	112	171	475	185
Dec	801	1669	117	500	213	900	701
Jan	2390	2601	727	2327	1207	1731	1847
Feb	2476	2007	2006	2724	1281	2018	2071
Mar	1809	2106	2075	2980	1185	1945	2016
Apr	878	1272	1419	2488	1200	933	1367
May	603	277	1939	994	711	133	755
Jun	454	144	1527	659	187	13	488
Jul	264	72	1538	582	65	5	254
Total	9821	10650	11459	14177	7156	8312	10172

TABLE A6--Continued

(C) Deliveries to depots in Eastern Kenya, including: Meru, Nairobi, Sagana, Nyeri, Embu, Fort Hall, Nanyuki, Thika, Karatina, Machakos, Kitui, Konza, Kibwezi.

Month	Control Year 1959 1960	1960 1961	1961 1962	1962 1963	1963 1964	1964 1965	Average Monthly Deliveries
Aug	408	118	286	200	1271	17	549
Sep	126	10	387	31	359	81	166
Oct	118	3	344	260	133	17	135
Nov	61	4	200	120	21	1	68
Dec	29	0	91	99	1	0	37
Jan	60	136	66	60	5	0	54
Feb	71	86	43	36	1	0	40
Mar	18	9	58	44	0	0	22
Apr	29	0	40	51	3	30	25
May	24	20	122	337	27	367	149
Jun	35	406	209	946	38	188	303
Jul	265	402	189	1986	26	64	495
Total	1244	1194	2035	4170	1885	765	2043

Source: Maize Marketing Board, Annual Report, 1960-65.

TABLE A7

Monthly Sales by the Maize Marketing Board
August 1961 to July 1965
(All figures are in thousands of bags per month)

Month	Control Year 1961-62	1962-63	1963-64	1964-65	Average Monthly Sales
Aug	155	94	53	121	106
Sep	123	73	55	121	93
Oct	119	83	63	154	105
Nov	107	62	70	240	95
Dec	101	89	83	143	104
Jan	80	65	87	220	113
Feb	63	85	77	178	101
Mar	82	84	78	125	92
Apr	70	68	104	161	102
May	110	77	130	112	107
Jun	103	73	142	118	109
Jul	93	39	115	92	85
Total	1206	892	1057	1785	1212

Sources: Maize Marketing Board, Annual Report, 1962-65; and Maize Marketing Board, "Provisioning Schedules," 22nd July, 1963, to 2 December, 1965, found among the papers submitted in evidence to the Maize Commission of Inquiry in 1965.

TABLE A8

East African Cereals Pool: Summary of Receipts and Issues of Cereals
1942-43 to 1951-52
(All figures represent cereals in thousands of 200 lb. bags)

	1942-1943	1943-1944	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951	1951-1952
Opening Balances	. .	21.4	498.7	187.7	66.5	323.2	78.4	225.6	351.5	309.9
Receipts:										
Kenya, Maize	. .	. .	1121.1	356.7	856.2	503.6	813.0	1153.0	1057.0	1471.7
Kenya, Other Cereals	. .	1192.0	28.1	401.6	276.1	83.7	190.6	50.5	186.5	. .
Uganda and Tanganyika, All Cereals	. .	260.7	500.7	156.2	450.0	547.9	249.1	266.9	158.0	159.7
Imports	507.3	1154.6	. .	. .	67.9	. .	. .	19.8	. .	. .
Total Receipts	507.3	2628.8	2148.6	1102.2	1716.7	1458.4	1331.1	1715.7	1753.1	1941.3
Disposals:										
Issues of Cereals										
to Kenya--	205.7	1321.9	1030.7	454.8	367.6	535.9	313.5	379.0	758.6	863.8
to Other Participants[a]	280.1	808.2	555.8	562.0	567.1	227.3	579.2	974.4	155.4	126.6
Exported	. .	. .	374.4	18.9	458.8	616.8	212.8	10.9	529.2	950.9
Closing Balances	21.4	498.7	187.7	66.5	323.2	78.4	225.6	351.5	309.9	. .
Total Disposals	507.3	2628.8	2148.6	1102.2	1716.7	1458.4	1331.1	1715.7	1753.1	1941.3

Source: Kenya, The Maize Industry, p. 16.

[a]Including transit, shrinkage, and storage losses; and issues to Uganda, Tanganyika, Zanzibar, Seychelles, Military, and Railways.

TABLE A9

Kenya Domestic Exports of Maize: 1914-1965

Year	Volume	Value	Average Price F.O.B. Mombasa	Year	Volume	Value	Average Price F.O.B. Mombasa
	bags	£	shs. per bag		bags	£	shs. per bag
1914	18,163	6,880	7.53	1942	155,698	69,742	8.96
1915-18	. .	. .	. .	1943	46,893	28,655	12.22
1919	31,234	21,437	13.73	1944	24,106	15,178	12.59
1920	187,828	113,973	12.14	1945	603,253	458,294	15.19
1921	29,323	14,762	10.07	1946	195,017	155,796	15.98
1922	217,122	146,106	13.46	1947	685,889	617,730	18.01
1923	487,592	249,545	10.23	1948	152,405	176,780	23.20
1924	640,668	381,144	11.90	1949	35,364	46,467	26.28
1925	656,634	406,276	12.37	1950	345,568	720,235	41.68
1926	520,340	280,596	10.78	1951	227,624	666,850	58.59
1927	1,001,092	505,893	10.11	1952	764,668	2,385,264	62.40
1928	499,890	306,078	12.26	1953	120,424	306,017	50.82
1929	428,271	295,134	13.78	1954	514,266	1,013,192	39.40
1930	1,244,627	568,955	9.14	1955	864,098	1,665,442	38.55
1931	1,041,330	419,599	8.06	1956	47,435	89,403	37.70
1932	288,354	117,677	8.16	1957	253,219	466,062	36.81
1933	633,667	212,699	6.71	1958	1,095,721	1,867,061	34.08
1934	246,376	104,754	8.50	1959	608,328	1,092,144	35.91
1935	671,219	184,965	5.51	1960	103,055	178,418	34.62
1936	813,333	233,371	5.74	1961	2,019	3,553	35.20
1937	407,889	198,882	9.75	1962	663,242	1,011,967	30.52
1938	658,557	258,876	7.86	1963	963,379	1,573,953	32.68
1939	563,990	222,037	7.87	1964	9,868	16,616	33.68
1940	. .	. .	. .	1965	1,893	3,358	35.48
1941	283,941	133,118	9.38				

Source: Report of the Maize Commission of Inquiry, p. 194.

TABLE A10

Imports of Maize Into Kenya 1927-1965

Year	Volume	Value	Average Price F.O.B. Mombasa
	bags	£	shs. per bag
1927	1,016	650	12.80
1928	6,804	3,604	10.59
1929	11,583	9,604	16.58
1930	35	26	14.86
1931	23,213	8,992	7.75
1932	23,079	9,521	8.25
1933	4,795	1,162	4.84
1934	25,464	7,824	6.15
1935	11,065	2,182	3.94
1936	7,978	1,396	3.50
1937	11,823	4,820	8.15
1938	573	172	6.00
1939	16.034	5,395	6.72
1940	23,360	8,068	6.91
1941	2,288	707	9.61
1942	1,472	543	7.38
1943	99	79	15.96
1944	10,925	15,989	29.27
1945	228	239	20.96
1946	. .	. .	. .
1947	10,156	3,397	18.51
1948	7	12	34.28
1949	. .	. .	. .
1950	. .	. .	. .
1951	. .	. .	. .
1952	. .	. .	. .
1953	336,544	928,061	55.15
1954	870	2,420	55.63
1955	. .	. .	. .
1956	30	160	106.67
1957	606	1,118	36.96
1958	1,018	6,647	119.98
1959	644	3,585	111.34
1960	294	1,363	92.56
1961	1,125,884	2,303,734	40.92
1962	282,100	527,696	37.41
1963	. .	. .	. .
1964	2,910	11,690	80.34
1965	894,109	2,289,413	51.20

Source: Report of the Maize Commission of Inquiry, p. 193.

TABLE A11

Official Maize Prices: 1942-43 to 1967-68
(All prices in shillings per 200 lb. bag)

Control Year[a]	Producer Prices and Cesses[b]					Bulk Consumer Price at Nariobi[e]
	Large Farms[c]			African Smallholdings in Nyanza[d]		
	Guaranteed Bulk Price[f]	Subsidy or Cess[g]	Agents' Bulk Price[h]	Subsidy or Cess[g]	Agents' Bulk Price[h]	
1942-43	7.30	+ .50	7.80	n/a	n/a	n/a
43-44	10.80	. .	10.80	n/a	n/a	
44-45	11.40	(+2.85)[i]	(14.25)	. .	11.40	
45-46	11.40	(+2.85)[i]	(14.25)	. .	11.40	
46-47[j]	n/a	n/a	n/a	n/a	n/a	
47-48	17.50	+2.50	20.00	+2.50	20.00	
48-49	20.00	. .	20.00	. .	20.00	
49-50	21.00	+2.40[k]	23.40	. .[l]	21.00	
50-51	21.00	+7.80[l]	28.80	. .[m]	21.00	
51-52	30.30	+4.70[m]	35.00	. .	30.30	(38.00)
52-53	38.25	. .	38.25	. .	38.25	(46.00)
53-54	38.72	. .	38.72	. .	38.72	(46.50)
54-55	38.15	-3.00	35.15	-3.00	35.15	(46.90)
55-56	38.15	-3.00	35.15	-3.00	35.15	46.90
56-57	39.98	-2.00	37.98	-2.00	37.98	50.85
57-58	39.98	-5.00	34.98	-5.00	34.98	52.70
58-59	37.00	-10.00[n]	27.00	-8.00[n]	29.00	(49.50)
59-60	35.60	-3.60[n]	32.00	-5.10[n]	30.50	47.50
60-61	35.50	. .[n]	35.50	-5.50[n]	30.00	45.50
61-62	35.50	. .[n]	35.50	+2.00[n]	37.50	50.35
62-63	35.50	-11.50[n]	24.00	-1.00[n]	34.50	50.35
63-64	32.50	-5.50[o]	27.00	-5.50[o]	27.00	42.85
64-65	31.50	+1.00	32.50	+1.00	32.50	42.85
65-66	32.50	(+4.50)	(37.00)[p]	n/a	n/a	n/a
66-67	(37.00)	(-4.50)	32.50[q]	n/a	n/a	n/a
67-68	n/a	n/a	(28.00)	n/a	n/a	n/a

[a]August 1 to July 31

[b]Freight on Rail at agent's stores, net of the cost of a bag, for maize delivered in quantities of three tons or more.

[c]Before 1962 this category included only European and Asian farms exceeding 20 acres in the Scheduled Areas and the Coastal Strip. After 1962 farms in African ownership, of more than 20 acres, are included. The main sources for European producer prices are Troup, Inquiry into Maize Prices, pp. 2-3, p. 16 (1942-43 to 1951-52); Kenya, The Maize Industry, pp. 4-8, p. 15, (1942-43 to 1957-58); Kenya, Statistical Abstract, various years, (1955-56 to 1967-68); Maize Marketing Board,

TABLE A11--Continued

Annual Report, 1960-1965; Report of the Maize Commission of Inquiry, p. 197; Report on the Marketing of Maize, p. 4; Llewellyn, "The Maize Industry in East Africa," pp. 3-4 (1961-66); and Department of Agriculture, Annual Report, various years. The various sources are in essential agreement on producer prices, cesses, and subsidies from 1947-48 to 1964-65. See notes below for information on prices of individual years.

[d]The main sources are Maize Marketing Board, Annual Report, 1960-65; Kenya, The Maize Industry, p. 26; Report on the Marketing of Maize, p. 38; Yoshida, "Background to Maize Marketing" p. 12.

[e]Sale price of whole maize grain at Maize Marketing Board Store, including railage and a bag, in lots of ten tons or more. The main sources for consumer prices are Maize Marketing Board, Annual Report, 1960-65; Maize Control, "Accounts" 1952-59; and Kenya, The Maize Industry, p. 21. Prices are accurate from 1957 on and probably accurate from 1955 to 1957. Previous to 1955 prices are estimates based on the producer price; cost of bag, railage, and administration; and total receipts of Maize Control on internal sales divided by total sales.

[f]Announced about February 1 each year, to apply to deliveries after the harvest from the main large farm planting in March.

[g]Cesses were usually announced between July and November, before the harvest of the crop to which they applied.

[h]The actual price received by the farmer for all maize delivered from the planting to which it applied. Deliveries from earlier plantings, which overlapped with deliveries from the current planting, were paid for at the price of the previous year.

[i]In the 1944-45 and 1945-46 seasons European growers were paid a maize subsidy of shs 7.50 per acre. Growers were also to receive an extra shs 7.00 per bag for every bag delivered over and above 400,000 bags. Africans were to receive a similar bonus for maize delivered in excess of 800,000 bags, to be paid into District Betterment Funds.

[j]There is no agreement on the initial price guaranteed for 1946-47, nor on any subsidies paid. The price was raised to shs 16.50 during the year, but apparently few growers received that price. An average grower price of shs 15.00 to shs 16.00, excluding bag and including any subsidies would appear to be likely.

[k]A mechanization subsidy.

[l]A mechanization subsidy of shs 4.00 was given to European farmers. Both African and European farmers received an increase in the agent's bulk price of shs 3.80 (announced in February 1951) out of earnings of the EA Cereals Pool. In African areas the shs 3.80 was paid into District Betterment Funds.

TABLE A11--Continued

[m]This subsidy, announced in 1952, was paid out of EA Cereals Pool profits to individual European farmers and to African District Betterment Funds. The timing of the subsidy payment meant that European producers did not take it into account when making decisions on maize in that year.

[n]Differences in the size of the Maize Export Cess in African and European areas resulted from the quota system of assigning losses.

[o]There is some disagreement about the actual price paid in 1963-64. The Maize Marketing Board, Annual Report, and The Report of the Maize Commission of Inquiry, on p. 25, gives it as shs 27.00, along with most other sources. The Statistical Abstracts for 1964 and 1965 give it as shs 31.50.

[p]On December 4, 1965 the price for all maize harvested after January 1, 1966 was raised to shs 37.00 per bag.

[q]According to Llewellyn the actual price paid for maize in this year was shs 33.00. According to the 1967 Statistical Abstract the price was shs. 32.50.

TABLE A12

Official Bulk Wheat Prices[a]
1942-43 to 1963-64
(All prices are quoted in shillings per 200 lb. bag)

Crop Year	Guaranteed Wheat Price	Subsidy or Cess	Actual Wheat Price
1942-43	25.00	n/a	n/a
43-44	27.50	n/a	n/a
44-45	27.50	n/a	n/a
45-46	27.50	n/a	n/a
46-47	27.85	n/a	n/a
47-48	27.85	. .	27.85
48-49	32.75	. .	32.75
49-50	37.25	. .	37.25
50-51	39.80	. .	39.80
51-52	45.33	. .	45.33
52-53	52.00	. .	52.00
53-54	52.66	. .	52.66
54-55	52.00	. .	52.00
55-56	51.00	. .	51.00
56-57	52.66	. .	52.66
57-58	52.00	-0.32	51.68
58-59	53.00	-0.67	52.33
59-60	50.00	-1.38	48.62
60-61	50.00	-3.38	46.62
61-62	50.00	-3.07	46.93
62-63	50.00	-3.07	46.93
63-64	50.00	-2.08	47.92

[a]Troup, Inquiry into Maize Prices, p. 16; Kenya, Statistical Abstract, 1965.

TABLE A13

African Producer Prices: Nyanza Province
1945-46 to 1965-66
(All prices quoted in shillings per 200 lb. bag, not including cost of bag)

Control Year[a]	Agent's Bulk Price[b]	Bungoma Local Market Price[c]	South Nyanza Local Price	Calendar Year	Nyanza Average Price[d]
1945-46	11.40	8.40		1946	8.60
46-47	15.90	9.45		1947	9.40
47-48	20.00	11.55	10.85[e]	1948	11.32
48-49	20.00	11.55	10.85	1949	11.20
49-50	21.00	12.25		1950	12.15
50-51	21.00	12.25		1951	13.40
51-52	30.30	22.82	21.77[e]	1952	22.48
52-53	38.25	29.75		1953	29.29
53-54	38.72	30.17		1954	29.64
54-55	35.15	27.70		1955	28.22
55-56	35.15	26.85		1956	27.08
56-57	37.98	30.33		1957	28.15
57-58	34.98	27.33		1958	24.76
58-59	29.00	22.00		1959	23.92
59-60	30.50	24.30	22.35[f]	1960	23.68
60-61	30.00	24.30	22.30	1961	25.52
61-62	37.50	31.40	29.40	1962	29.22
62-63	34.50	28.60	26.80	1963	25.24
63-64	27.00	21.05	19.30	1964	24.35
64-65	32.50	26.55	24.15		
		27.55[g]	25.15[j]		
65-66	32.50[h]	27.85[h]			

[a] August 1 to July 31

[b] See Table A11.

[c] Bungoma, in the northern part of Western Province (formerly Elgon Nyanza District of Nyanza Province), is in the most highly commercialized region of African smallholder maize production. The local market price is the Agent's bulk price less the traders' commission; a charge for a portion of the Agent's expenses; a grade differential; and the Agricultural Betterment Fund (later County Council) Cess. Prices for 1945-46 through 1958-59 are from Yoshida, "Background to Maize Marketing," p. 12; prices for 1959-60 through 1964-65 are from Maize Marketing Board, Annual Report.

[d] Kenya, Department of Agriculture, Annual Report, Table D. The figures were calculated by dividing total payments to growers by total deliveries from Nyanza.

TABLE A13--Continued

[e]Kenya, Department of Agriculture, Annual Report, 1948, 1949, 1952.

[f]Maize Marketing Board, Annual Report, 1960-65.

[g]On March 1, 1965 a legal limit of shs 1.00 was placed on the size of the County Council Maize Cess.

[h]Yoshida, "Background to Maize Marketing," p. 12. During 1966 the producer price was raised by about shs 4.00. I have no unambiguous statement of the amount of the increase, or whether it differed for smallholders and large farmers.

TABLE A14

Maize Freight Rates on the Kenya/Uganda Railway
As of January 13, 1965

Distance	Scale 13			Scale 14		
	shs. per 100 lb	shs. per Ton	cents per ton mile	shs. per 100 lb	shs. per Ton	cents per ton mile
50	.50	11.20	22.4	.50	11.20	22.4
100	.95	21.28	21.3	.95	21.28	21.3
150	1.15	25.76	17.2	1.10	24.64	16.4
200	1.35	30.24	15.1	1.30	29.12	14.6
250	1.50	33.60	13.4	1.45	32.48	13.0
300	1.70	35.08	12.7	1.60	35.84	11.9
350	1.85	41.44	11.8	1.75	39.20	11.2
400	2.05	45.92	11.5	1.90	42.56	10.6
450	2.25	50.40	11.2	2.05	45.92	10.2
500	2.40	53.76	10.8	2.20	49.28	9.9
550	2.60	58.24	10.6	2.40	53.76	9.8
600	2.75	61.60	10.3	2.55	57.12	9.5
650	2.95	66.08	10.2	2.70	60.48	9.3
700	3.10	69.44	9.9	2.85	63.84	9.1
750	3.30	73.92	9.9	3.00	67.20	9.0
800	3.50	78.40	9.8	3.15	70.56	8.8
860	3.70	82.88	9.6	3.35	75.04	8.7
900	3.85	86.24	9.6	3.50	78.40	8.7
960	4.05	90.72	9.5	3.65	81.76	8.5
1000	4.20	94.08	9.4	3.80	85.12	8.5

Source: Letter from J.S. Boumphrey, Chief Communications Supervisor, East African Railways and Harbors to O.S. Knowles, Secretary, Maize Commission of Inquiry, 13 January, 1965.

Note: Under 25 tons in one wagon is shipped at scale 13, while over that amount is shipped at scale 14. The scale refers to the period after January 1, 1965.

TABLE A15

A Comparison of Export and Import Prices and Quantities 1952-53, 1960-62, and 1963-65

Year	Quantity Exported	F.O.B. Price	Quantity Imported	C.I.F. Price
1952[a]	765	62.40	. .	. .
1952-53[b]	242	48.20	n/a	n/a
1953[a]	120	50.82	337	55.15
1953-54[b]	. .	. .	n/a	n/a
1954[a]	514	39.40	1	55.63
1960[a]	103	34.62	. .	. .
1960-61[b]	. .	. .	n/a	n/a
1961[a]	2	35.20	1,126	40.92
1961-62[b]	101	31.27	. .	. .
1962[a]	663	30.52	282	37.41
1963[a]	963	32.68	. .	. .
1963-64[b]	575	32.08	n/a	n/a
1964[a]	10	33.68	3	80.34
1964-65[b]	. .	. .	n/a	n/a
1965[a]	2	35.48	894	51.20

[a]Report of the Maize Commission of Inquiry, pp. 193-94.

[b]Ibid., p. 197.

TABLE A16

Maximum and Minimum Free Market Maize Prices in Nairobi, Kitale, and Mombasa, Calculated From Estimates of Trading Differentials And Kenya Export Prices: 1949-50 to 1963-64
(All figures are in EA Shs per Bag)

(A) Export Prices and Differentials							
Control Year	Export Price F.O.B. Mombasa	Costs of Port Handling, Overheads and Gunny Bag	Rail Transport Charges		Minimum Bulk Producer Prices		
			Kitale Mombasa	Nairobi Mombasa	F.O.R. Kitale	F.O.R. Nairobi	F.O.R. Mombasa
1949-50	(34.00)	3.17	2.75	1.95	28.08	28.88	30.83
1950-51	41.61	3.63	2.75	1.95	35.23	36.03	37.98
1951-52	61.90	5.50	4.60	3.20	51.80	53.20	56.40
1952-53	48.20	4.82	4.60	3.20	38.78	40.18	43.38
1953-54	(44.00)	5.75	4.60	3.20	33.65	35.05	38.25
1954-55	40.09	5.06	4.60	3.20	30.43	31.83	35.03
1955-56	36.98	6.49	4.60	3.20	25.89	27.29	30.49
1956-57	37.57	6.71	4.60	3.20	26.26	27.66	30.86
1957-58	32.79	6.46	5.20	3.60	21.13	22.73	26.33
1958-59	38.09	6.39	5.20	3.60	26.50	28.10	31.70
1959-60	35.69	6.42	5.20	3.60	24.07	25.67	29.27
1960-61	(35.00)	6.75	5.20	3.60	23.05	24.65	28.25
1961-62	31.27	7.33	5.20	3.60	18.74	20.34	23.94
1962-63	30.72	7.47	5.20	3.60	18.05	19.65	23.25
1963-64	32.08	8.69	5.20	3.60	18.19	19.79	23.39

TABLE A16--Continued

(B) Import Prices and Differentials									
Control Year	Ocean Transport Differential	Import Price C.I.F. Mombasa	Costs of Port Handling, Overheads and Gunny Bag	Rail Transport Charges			Maximum Bulk Consumer Prices		
				Mombasa Kitale	Mombasa Nairobi	Kitale Nairobi	C.I.F. Kitale	C.I.F. Nairobi	C.I.F. Mombasa
1949-50	4.00	38.00	3.17	2.75	1.95	1.60	41.52	43.12	41.17
1950-51	4.00	45.61	3.63	2.75	1.95	1.60	49.59	51.19	49.24
1951-52	4.00	65.90	5.50	4.60	3.20	2.65	71.95	74.60	71.40
1952-53	4.00	52.20	4.82	4.60	3.20	2.65	57.57	60.22	57.02
1953-54	4.00	48.00	5.75	4.60	3.20	2.65	54.30	56.95	53.75
1954-55	4.00	44.00	5.06	4.60	3.20	2.65	49.61	52.26	49.06
1955-56	4.00	40.98	6.49	4.60	3.20	2.65	48.02	50.67	47.47
1956-57	4.00	41.57	6.71	4.60	3.20	2.65	48.83	51.48	48.28
1957-58	4.00	36.79	6.46	5.20	3.60	3.00	43.85	46.85	43.25
1958-59	4.00	42.09	6.39	5.20	3.60	3.00	49.08	52.08	48.48
1959-60	5.00	40.69	6.42	5.20	3.60	3.00	47.71	50.71	47.11
1960-61	5.00	40.00	6.75	5.20	3.60	3.00	47.35	50.35	46.75
1961-62	5.00	36.27	7.33	5.20	3.60	3.00	44.20	47.20	43.60
1962-63	5.00	35.72	7.47	5.20	3.60	3.00	43.79	46.79	43.19
1963-64	5.00	37.08	8.69	5.20	3.60	3.00	46.27	49.27	45.67

Sources: Report of the Maize Commission of Inquiry, p. 197; and text Table 23 above, p. 120.

TABLE A17

A Comparison of Human and Livestock Populations
In the African Areas of Kenya

Area	High Density Agricultural Areas[a]			Marginal Agricultural and Nomadic Pastoral Areas			Areas Not Covered[b]
	African Rural Population	Stock Units	Stock Units Per Person	African Rural Population	Stock Units	Stock Units Per Person	African Rural Population
	thousands	thousands		thousands	thousands		thousands
Western Kenya	2948	2055	.70	. .	. .	. .	. .
Nyanzas	2572	1421	.55	. .	. .	. .	. .
Kericho/Nandi	376	634	1.69	. .	. .	. .	. .
Rift Valley	n/a	n/a	n/a	113	215.7	1.91	237
Elgeyo Marakwet[c]	n/a	n/a	n/a	8	5.7	0.71	153
Baringo/West Pokot	n/a	n/a	n/a	105	210.0	2.00	84
Eastern Kenya	1155.4	571	.49	520	641.8	1.23	809
Central Province	926.8	444	.48	. .	. .	. .	. .
Embu/Meru	228.6[d]	127	.54	80	87.4	1.09	441
Machakos/Kitui	n/a	n/a	n/a	440	554.4	1.26	368
Coast	n/a	n/a	n/a	166	212.4	1.28	270
Rangeland	n/a	n/a	n/a	716[e]	4371	6.10	86
All African Areas	4103	2626	.64	1515	5441	3.59	1402

Sources: For high density African areas the source is the Kenya African Agricultural Sample Census, p. 57. For marginal agricultural areas and nomadic pastoral areas the source is J. R. Peberdy, "Rangeland," pp. 165, 171.

TABLE A17--Continued

Notes:

[a]Figures partly extrapolated from those in Sample Census.

[b]Most of the areas not covered are high density agricultural areas. It is not possible to get an accurate figure for the livestock from these areas. Perberdy gives no figures for the high density areas, the Sample Census gives no figures for the rangelands and marginal agricultural areas. Peberdy's figure of 9.4 million stock units in all is not dated. If that is a correct figure for 1962, then there were about 8.4 million stock units in the African areas, leaving about 337,000 stock units in the areas not covered. This is too few, by perhaps 50 percent.

[c]These are Peberdy's figures. It seems strange that only so small a proportion of the population is classified as marginal agriculturally, or semi-pastoral, and that the ratio of stock to people is so low.

[d]Embu, upper portion.

[e]From Peberdy. Morgan and Shaffer give the total population of the areas covered as 798,000. This includes the urban population and any agriculturalists or semi-pastoralists included within the areas covered. Peberdy's figures are the populations of the pastoral tribes themselves.

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