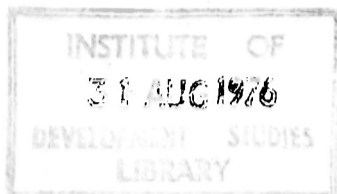


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IDS/WP 186
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STAFF TRAINING FOR MORE EFFICIENT EXTENSION
(Experimental one week training courses for
divisional, locational and sublocational
Extension Staff)

By

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Views expressed in this paper are those of the authors. They should not be interpreted as reflecting the views of the Institute for Development Studies or of the University of Nairobi.

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1) INTRODUCTORY INFORMATION

The courses took place at the FTC Kisii (13.-19.1. 1974) and at the FTC Homa Bay (28.7 - 2.8. 1974).

The courses were planned by the following institutions:

DAO Kisii
DAO Homa Bay
FTC Kisii
FTC Homa Bay
Nyanza Agr. Research Station
Institute of Adult Studies, Kikuyu
Institute for Development Studies, Nairobi

The basic objective of the course was to enable the extension staff to organise the extension of a new cash crop (Soya bean) in the districts of Kisii and South Nyanza.

The experimental components focus on three objectives:

- a) To produce motivation of the extension staff for carrying out a particular extension task;
 - b) To make the extension staff aware that the extension project is their own undertaking (identification with the Project);
 - c) To enable the extension staff to take over wider organisational responsibilities for the benefit of extension.
- a) Motivation: Motivation can be achieved only if a person clearly perceives the advantaged and disadvantages of a certain action, behaviour, reorganisation etc.. E.g. if an instructor becomes fully aware that he can improve his efficiency in extension by changing a certain extension method, he will most probably change it if he knows how to change it and that it does not involve disadvantages such as much extra work.
- b) Identification: Identification with a project can be achieved only if a person 1) understands the project and its larger context well, 2) feels that the project is good and 3) takes part in the planning (construction) or programming of implementation of the project (involvement, participation).

c) Wider Responsibilities: Once motivation and identification are achieved, it is very useful to widen the responsibilities of the Extension Staff. Extension activities should never be viewed as isolated activities. They are interlinked with many factors. By widening the extension responsibilities the instructor is likely to see these interrelations and to co-ordinate various factors influencing the success of extension.

2) THE COURSE PROGRAMME

We would like to discuss the experimental aspects of the course programme first.

2.1. The Programme to Achieve Motivation

Although the three objectives: motivation, identification and wider responsibility cannot be isolated from each other completely - motivation is a pre-condition for identification, and wider responsibilities can only be given reasonably if the person is motivated by the project and identifies himself with it - a number of course programmes can be directed towards the individual objectives.

We have stated that motivation can be achieved if a person perceives the advantages of a certain action, etc. clearly.

The cash crop extension project involves several aspects for the motivation:

- a) The advantages of the new cash crop (Soya Beans)
- b) The instructor's ability to instruct the farmers on the husbandry,
- c) The advantage of the group approach,
- d) The advantage of the "average" farmer approach,
- e) The advantage of an integrated extension approach,
- f) The instructor's ability to carry out this integrated extension approach.

a) The advantages of growing Soya Beans were discussed with the course participants very thoroughly. Since instructors are faced with farmers, they consider the advantages for farmers as being more important than the advantages for the national economy, nutritional situation in the country, etc. If the instructors do not fully agree that the innovation will be an advantage for the farmers, there is very little chance that they will do good extension work.

Crucial points of the advantages are the economics and marketing of the crop:

- Price
- Yield
- Capital input

Labour input

Husbandry techniques

Marketing guarantees.

It proved to be very helpful to compare the economics of Soya beans with other crops common in the area. In view of this, thorough course preparation was necessary (especially to get reliable figures for labour inputs of different crops). Prices can be taken from the newest price list of the Maize and Produce Board, yields from calculations of the MOA.

The advantages were systematically listed in an "Instructors' Handout" (see Appendix B), after the participants had fully agreed them.

b) The Instructor's Ability to Teach Farmers the husbandry of Soya beans was achieved first by lecturing and discussing all husbandry aspects. Secondly, the participants had to practice in the field all important husbandry steps, such as planting, harvesting, threshing, winnowing, grading and drying on racks.

The results of lecturing, discussing and practising again were systematically listed in Instructors' Handouts (see Appendix B 2. and B 3.)

c) The Advantages of the group - the "average" farmer - and the integrated extension approach were based on the findings of numerous researchers working in the field of extension research at the Institute for Development Studies, University of Nairobi.¹⁾

The understanding of the advantages could be achieved rather easily.

Almost everybody realized quickly that working with groups must be much more efficient than working with individuals. The problem was how to establish groups.

The discussion about whether it is more efficient to start innovations basically with the most progressive farmers or basically with less progressive ("average") farmers was controversial only in the beginning. Although it was generally agreed that it is easier for instructors to start with the most progressive, they usually also agreed - without being influenced by the course leaders - that the diffusion from these best farmers to the others is a very serious problem.

The best farmers are individualistically minded and average farmers rarely identify their own situation with the one of the best.

For them, what the most progressive farmers adopt is often irrelevant..

1. See Discussion Paper No. 173 and 200 of I.D.S.

Numerous examples of the instructors' practical work emphasised this.

As an illustration, we would like to mention one example: The most progressive farmer in a location was the first one to adopt Grade Cows (20 head). He managed to supply the milk to various schools in the area at 80 cent per pint, because he had the milk supply monopoly. He, of course, would never be interested in other farmers adopting grade cows. And, in fact, although he had adopted these cows successfully years ago, nobody in the area had followed suit. How farmers' groups can be constituted was discussed in detail (see the Extension Outline in the Appendix).

By integrated extension we mean that various activities have to be combined for extension.

Extension cannot be carried out efficiently by isolated activities such as demonstrations only or training only, etc. Training, demonstrations, recruitment of groups, appointing group leaders, involving chiefs and assistant chiefs, co-ordination, seed distribution and marketing provisions, agreement from superior extension staff - all these aspects, once co-ordinated towards a particular extension task, clearly reveal a much improved efficiency. Most JAAs had never given this a thought, assuming that it was not their responsibility. Everybody agreed that the co-ordination could even be initiated by JAAs. And everybody agreed that such integrated approaches would be much better than isolated extension activities.

f) The Instructor's Ability to Carry Out This Integrated Extension Approach can generally be achieved by working out a practicable action programme (see Extension Outline, Appendix 4). During the first course (Kisii) such programmes were elaborated on the basis of the general experience of the course participants. Afterwards, in these areas, integrated extension programmes were started very successfully, provided the instructors on a local level gave their backing.

During the second course (Homa Bay) the experiences of the already/successfully operating senior extension staff were exploited. These staff members explained to their junior colleagues how they should proceed to initiate the co-ordination of the various extension aspects. Finally, the course participants were advised to approach the farmers as adult learners. It was tried to make clear on which communication factors the response of farmers depends. Points - as the fact that adults learn more by doing and discussing than by merely being lectured or that farmers do possess a lot of experience which the instructor can respect and make use of - were raised.

2.2. The Programme to Achieve Identification

Most motivational factors pave the way for identification with the project. A motivated person understands the project in its larger context, he perceives his own role in it better and he feels that the project is good. One factor, however, will promote identification most. This factor is participation in planning.

Courses which specifically prepare instructors for extension projects are best suited if details of the project are worked out at the same time. We found that details of an extension project can be worked out during such a course very successfully. This not only improves the full understanding of the project and the identification with it, but it is also useful for project plan itself, since a number of very useful experiences and suggestions made by the extension staff participants can be utilized.

The participants co-operated in the establishment of the extension outline and in all handouts, particularly:

- a) How the extension should be prepared (involvement of chiefs, assistant chiefs, barazas, recruiting farmers, forming groups, etc.)
- b) What instructors should tell the farmers about the advantages of growing Soya beans
- c) What instructors should tell the farmers about the husbandry methods
- d) What instructors should demonstrate to the farmers.

The participants furthermore worked out the project programmes for the areas they came from. These programmes were elaborated at the end of the course by teams (instructors from the same areas). Team leaders of the individual teams were the most experienced instructors. (The project programmes are in the Appendix N^oC). With this course programme, most participants had the feeling that the projects are not only the affair of the bureaucracy, but also to a large extent their own.

2.3. The Programme to Prepare for Wider Responsibility

Once knowledge of the wider context of the project, motivation and identification are obtained, the allocation of wider responsibilities is only a minor problem. The wider responsibilities - initiative for co-ordinating contacts with superior staff and administration, using barazas, forming groups of farmers and

appointing group leaders as well as looking after inputs and marketing - are not considered as an additional burden, but are likely to be desired by the instructors. The value of taking up wider responsibilities for more efficient extension is clearly perceived by the course participants.

An indication that many instructors were ready to accept wider responsibilities was that many of the course participants started to appoint officers (towards the end of the course) to arrange seed supply, meetings with chiefs and dates for barazas - without being asked to by any of the course leaders.

3) COURSE CURRICULUM AND COURSE ORGANISATION

The course (as an illustration we take the second one at Homa Bay) was organised jointly by the DAOs of Kisii and South Nyanza and both the FTCs. 20 MOA Extension Staff members from Kisii and 20 from South Nyanza attended the course.

The development of the curriculum was carried out by the Institute of Adult Studies, Kikuyu, both FTCs, the Nyanza Agricultural Research Station and the Institute for Development Studies, Nairobi. Exchange of opinion was arranged with the MOA's Training Section. The final course organisation was drafted in a joint meeting of both DAOs, both FTCs and JDS.

The course time-table is shown on the following page.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8.00 - 10.30	Registration (Duty Master) 9.30 Opening (D.A.O. and Principal)	Husbandry of Soya beans (Lecture and Discussion; Agr. Research Station, I.D.S., MOA-Field Staff, FTC Teachers Kisii and Homa Bay)	Practical Exercises in the field (Agr. Research, LAA Kanyankago, I.D.S., FTC) Seed bed preparation Soil conservation planting, Harvesting Drying on Racks	Preparing extension outlines for instructors (Workshop, I.D.S. MOA-Field staff) (a) Organizing extension	Programming the extension project for the second phase (teams): West Kitutu (Kisii), South Mugirango (Kisii), Migori/Macaldes (S.N.), Sakwa South (S.N.) Kamagambo, Gem, Oyugis, Kindu (S.W.)
10.30 - 11.00		T E A B R E A K			
11.00 - 12.45	Advantages of growing Soya Beans (Panel discussion; IDS with competent course participants)	Panel Discussion about problems in Soya Bean cultivation (Panel discussion as above)	Continued Threshing Winnowing, Grading	continued (b) Advantages of growing Soya Beans (c) Husbandry	Continued Discussion of each project by all course participants
12.45 - 2.00		L U N C H B R E A K and Soya bean home economics (food) experiments			
2.00 - 4.00	Efficient extension and the components of the Soya Bean Project (Lecture with discussion; I.D.S.)	2.00 - 3.00 continued 3.00 - 4.00 How adult farmers learn (FTC Homa Bay)	O P E N	continued (Husbandry)	Closing (Principal, District Commissioner)
		T E A B R E A K			
4.30 - 5.30	Experiences of the completed first phase of the Soya bean project (Report from LAA Wanjare, from S.H. LAA Kamnyankago)	Use of fertilizers (Lecture and discussion; KFA, I.D.S.)	O P E N	continued (d) Demonstrations	

3.2. Some Structural Aspects of the Curriculum

The Course is based on two structural components. Considering the aspect of learning the curriculum aims to inform the participants first and to let them digest the information by discussions (Monday, Tuesday), Then a first reinforcement of what they learnt is introduced by practical work in the field (Wednesday), a second reinforcement by preparing jointly important project components (Thursday) and a third one by programming the actual extension projects for the respective areas (Friday). Another structural aspect has been discussed earlier: the promotion of motivation, identification and readiness to accept wider responsibility.

4. SOME EVALUATIVE POINTS OF THE COURSE

Although a comprehensive evaluation is not yet possible, some aspects - especially after the first course at Kisii - can already be evaluated.

Originally, it was intended to start a pilot extension project in one location of Kisii district (Wanjare). Later on some MOA - Extension Staff members from South Nyanza (Kanyamkago) were invited to the instructors' training, but due to lack of seeds the project was supposed to start in Wanjare location only.

4.1. Wanjare Project

In all six areas of Wanjare, the project was implemented according to the programmes developed during the course. In each area, one group of farmers was recruited according to the proposed pattern. Each group consisted of 12 farmers. All 72 farmers - without exception - planted Soya beans and most of them have harvested by now. Marketing is arranged and the extension staff have reported that already they have registered about 600 farmers who would like to adopt growing Soya beans in the location, and they said that there were many more interested.

It must be mentioned that due to the combined extension research experiment the research input in Wanjare was rather high. Researchers had given assistance in spotting and overcoming certain problems.

4.2. Kanyamkago Project.

Only weeks after the course it was possible to secure 11 additional bag of Soya beans which was delivered to Kanyamkago. The Extension Staff there followed very strictly the developed extension pattern. They constituted two groups of farmers. There was not a single crop failure and all farmers have harvested by now. The extension staff

have reported that they have registered about 700 new farmers who would like to adopt the crop. They also reported that in the neighbouring areas many more farmers would like to adopt it as well.

In this project, there was very little research assistance, and it worked excellently.

4.3. Control Project.

In Kisii, a control unit (in South Mugirango) was selected, where it was planned to introduce Soya beans with the conventional extension methods. The locational instructor was asked to recruit 12 farmers - if possible in one sublocation - for growing Soya beans. The instructors were briefed on the technical aspects of growing Soya beans and they were supplied with hand-outs for each farmer.

The first interesting aspect for evaluation was that the locational instructor stated that 12 farmers cannot be supervised by only one instructor. He involved 3 sublocations and allocated 3 instructors for supervision of the 12 farmers. Even by doing so, the instructors had difficulties in supervising them properly. The researchers taken around by the locational instructor in their landrover had to spend about 5 hours driving, just to see six plots to check germination. Instructors, however, have no means of transport at all. Therefore, nobody can be blamed if some of the farmers make mistakes, such as ploughing down the slope (in one case, the crop that had just germinated was nearly completely destroyed by soil erosion, others were severely damaged), too wide spacing, and more than 50% started weeding too late, so that the crop suffered heavily. It took nearly six weeks longer than in the other projects until all the 12 selected farmers had planted.

5) FURTHER CONCLUSIONS

Practically everybody involved in the Soya beans extension project agreed that the striking advantage of the new extension approaches centers around the cluster method (area based groups of average farmers).

Another advantage, however, seems to be obvious as well: The extension approacher (the strategies, methods and their implementation) generally seems to be a very decisive factor for improving the extension efficiency - not only the often discussed personal characteristics of the extensionists.

Short courses - strictly project oriented - seem to be an adequate instrument for improving both motivation and capability of extension staff for more efficient extension.

Appendix A

Soya Bean Extension Project
(Kisii, South Nyanza, Kilgoris)

Extension Outline for Extension Staff

(Developed during the Instructors Course - 29 July to 2nd August 1974 - at the FTC Homa Bay by Agricultural Extension staff from Kisii, South Nyanza and Kilgoris, FTC staff from Kisii and South Nyanza, Agricultural Research staff from the Nyanza Agricultural Research station and extension-Researchers from the I.D.S. - University of Nairobi).

How extension should be prepared on the sublocational level:

(I) Inform the chief of the location about your planned extension activities.

It might be useful to inform about in the Locational Baraza (Chief Baraza).

(II) Involve the Assistant Chief and ask him to call a sublocational Baraza.

In this Baraza you must explain to the farmers the basic points of:

- (a) The advantages to grow soya beans,
- (b) the husbandry to grow soya beans,
- (c) how the extension will be organized.

After having explained this sufficiently the selection of the farmers can take place.

Follow the steps shown:

1. Let the farmers themselves select an area where they want to start with the project.
2. Then let the farmers themselves select the group of participants (do not interfere but control that the group forms a real cluster - all participants living closely together; no exception should be allowed).
3. Then let the selected participants chose their group chairman and secretary. (Explain that only farmers living permanently among the group members should be eligible. Honourable persons like business men, pastors, teachers proved to be no feasible leaders since they are too often away from the group).

Lastly you have to fix and announce the date and place of the first meeting with the group of farmers (get agreement from group leaders).

(III) First Meeting with the Group

(a) Let the group leaders organise the meeting (respect the chairman as the true group representative).

(b) This first meeting you should consider as a training course for adult persons.

Do not give instructions only!

Let the farmers discuss your points!

Listen carefully to the farmers questions!

NEVER treat them like students.

(c) The farmers want to discuss with you the following points:

1. Details about the advantages of growing soya beans,
2. Details about the Husbandry methods,
3. How you are going to assist them in carrying out soya bean cultivation.

(d) Fix the next steps (plot preparation)

(IV) Supervision of Plot Preparation

(a) Control the plot preparation of each member of the group. Control the plot size.

(b) Advise the farmers how they can improve the soil fertility by using available means.

(c) Advise about and control strictly the soil conservation.

If you have carried out all those preparations carefully, your further Extension work will be very easy.

(V) Demonstrations.

You should demonstrate the following points (for details see the demonstration handout).

1. Seed bed preparation;
how to improve the soil fertility by locally available means;
how to prevent soil erosion.
2. Planting
3. Weeding
4. Harvesting
5. Drying if there is too much rainfall
6. Threshing, winnowing, grading.

(VI) Storing and Marketing

You must supervise the storing of the crop and you have to inform about marketing and to control whether the marketing goes on all right.

The following papers are your special handouts for

1. Instructing about the advantages of growing soya beans,
2. Instructing about the Husbandry methods and
3. Demonstrating.

Special Instructors Handout No.1

ADVANTAGES OF GROWING SOYA BEANS

1. There is an excellent market both within the country and overseas (it is being used for food and oil).
Marketing is done by Maize and Produce Board.
If grown widely, it will attract factories to move closely to growers.
2. The price is high compared to other beans. In 1974/75 Shs. 115/80 for 90 kg. bag and commission to agent Shs. 4/60. If a farmer takes his bag to Maize and Produce Board he gets this commission himself plus 9 cents per mile per bag for transport.
3. Yields are good: 4 - 6 bags per acre on average fertile soils but higher on more fertile soils. It can be grown without fertilizer.
4. Inputs of labour and capital are similar or less than for other beans. For $\frac{1}{2}$ acre, seeds cost Shs. 10/- to Shs. 15/-. Seeds could be obtained from previous crop (unlike Hybrid maize).
5. It takes short time to mature: 3 to 4 months. Two crops in one year are easily possible.
6. Soya bean is more drought resistant and has less pest and disease than most other bean varieties.
7. It is suited for rotation of crops because it uses less plant food from the soil and adds Nitrogen into the soil. It improves soil fertility by its deep root system also.
8. As food they have more nutrients compared with other crops. Protein 40% oil is about 20%. It is excellent food for human (and live-stock) but special preparation are required before use.

Special Instructors Handout No. 2

Husbandry Methods of Growing Soya Beans

1. Preparation of Soil

- (a) Prepare soil to a fine tilth (for good germination). Dig in the weeds but remove couch grass roots completely from the shamba. Remove stones and stumps and cut bushes.
- (b) Soil Fertility is a crucial factor for the yields. Many soils are nearly exhausted or at least are deteriorating in fertility. Farmers can improve the soil fertility without spending cash if you advise them properly to use:
 - (i) Dung
 - (ii) Boma Manure
 - (iii) Compost (look at your course notes!)
 - (iv) Green Manure
 - (v) Crop rotation of heavy feeders with leguminous crops.
 - (vi) Deep ploughing (removal of "plough pan")
 - (vii) Fertilizers (if there are no better means locally available and if economically profitable).
- (c) Farmers loose a lot by soil erosion. Once soil erosion has occurred it is extremely difficult to cure the damage. Soil erosion can be prevented if you explain the farmers how. You know about the following measures:
 - (i) Ploughing cross the slope
 - (ii) Planting cross the slope
 - (iii) Making drains and little walls (by stones or branches)
 - (iv) Strip cropping if the slope is steep.
 - (v) Terasses if the slope is extremely steep.

Of course the improvement of soil fertility and soil conservation should not be restricted to Soya Bean growers only. It is a necessity for every farm and every crop.

2. Planting.

- (a) Your seeds should not be older than 12 months. After 12 months the viability is low. That means a bad germination. (If there are only seeds available which are a bit older than 1 year you may get still a somehow satisfying germination if you put 2 beans - instead of one - every 3 inches).

- (b) The variety "Belgium Congo" is the highest yielding; its maturing time is about 4 months.
- (c) Plant late in the long rains (after maize is planted) and early in the short rains.
- (d) Plant only when the soil contains sufficient moisture.
DANGER: DRY PLANTING SPOILS GERMINATION!
- (e) Plant in furrows 2-3 inches deep. Put loose soil on top and do not press the soil.
- (f) Plant in pure stand. Do not interplant soya beans. Soya beans do not grow well in shady places.

Seed Variety	Spacing between rows	Spacing within rows	Seed amount for the $\frac{1}{2}$ acre
Belgium Congo	1 $\frac{1}{2}$ ft.	3 inches	8 kg.
Hill	1 ft.	3 inches	12 kg.

The spacing between rows is shorter with the variety Hill, because Hill grows considerably smaller than Belgium Congo and its root system is smaller as well.

3. Weeding

- (a) After all weed seeds have germinated (about 3 weeks after planting) Weeding must be done.
Leave the uprooted weeds between the rows - it improves soil fertility and prevents soil erosion. (only couch grass should be removed from the shamba completely).
- (b) Make a second weeding later if necessary.

4. Protection of the soya beans growth

- (a) Right after germination birds can do damage if they come in large numbers (especially doves). (Put skycrows or watchman).
- (b) Rabbits and antelopes like growing Soya Beans. (Dogs can chase them away).
- (c) Moles can do also some damage (poison: "Rodent", "Pangabloc").

5. Harvesting

- (a) When the pods are brown and the leaves have fallen the plants should be uprooted.

DANGER: IF THE PLANTS OVERMATURE THE PODS WILL BURST AND THE SEEDS GET LOST.

Remove the soil a bit from the roots. It will ease the grading later.

- (b) The uprooted plants must be dried by putting them in the sun. If there is rain continuously there is danger of rotting. To avoid rotting the plants have to be put on drying racks. Never stock the uprooted plants for more than 3 days on a heap if they are wet.

6. Threshing, Winnowing, Grading

- (a) Thresh like other beans (put it in a bag and beat it with sticks).
- (b) Winnow with wind.
- (c) Remove all soil and other particles as well as spoiled beans. The quality depends largely on grading. (Badly graded yield may be not accepted for marketing).
- (d) If the beans are still too soft, they have to be dried further. (Beans are dry if you cannot press your nails in.)
- (e) Mix the thresh with dung and put it back into the shamba. This will improve soil fertility.

7. Storing.

Store save from rats and mice, in a dry and airy place (never in closed plastic bags!).

Special Instructors Handout No.3

Demonstrations

What to be demonstrated	What to be used for demonstration (Apparatus)
1. Soya bean seeds	seed sample
2. Soya bean plant	whole soya bean plant with roots and pods
3. $\frac{1}{2}$ acre area	Pace e.g. an area 35 steps by 70 steps or use a tape measure ($\frac{1}{2}$ acre will always be 2420 Sq. yards)
4. Land preparation Digging or ploughing and removal of clods explain what is plough "pan"	Panga; Jembe; plough
5. Planting	String marked 3 inch intervals. Sticks $1\frac{1}{2}$ ft long and 1 ft. long another stick marked 2 inches and 3 inches for depth of furrows pegs; seed; jembe and people to assist.
6. Weeding	Small hoe or jembe
7. Harvesting	Whole plant with brown pods and dropped leaves. Another plant with shuttered pods (overmatured)
8. Drying on racks	Sample of racks
9. Threshing	sticks empty sacks or mats or hardened ground
10. Grading and winnowing	winnowing trays; impure seeds and dirt
11. Proper drying	well dried and less dried seeds.
12. Increasing soil fertility by ordinary means	animal dung, plant remains suitable for putting in cattle boma; green plants suitable for green manure; compost
13. Advise about proper crop rotation	Plants with long and short roots system, Leguminous plant with nodules fertile soil through leaf fall

Appendix C

Soya Bean Projects for Short Rain Season 1974

(developed by MOA - Extension staff, FTC staff and IDS - University of Nairobi at the Soya Bean Instructors Course at FTC Homa Bay on 29th 7 - 2nd 8/74)

For the various Soya Bean growing areas the respective representatives have proposed the following Project Programmes:

DISTRICT KISII

(1) West Kitutu - Location

It was proposed to start with one group of farmers in each of the 7 sublocations. It also was recommended to allocate one plot of the variety Belgium Congo to each group. Seed demand:

9 bags variety Hill

56 kg. " B. Congo

The Team leader was asked to organise the seed supply with the DAO - office.

(2) South Mugirango -- Location

In South Mugirango there are 5 sublocations. Bogitenga was selected as control unit during the last Soya Bean growing season already. It was suggested to keep it as control unit and allow the purchasing of seeds by individual farmers. But marketing in this place first has to be arranged (DAO to be contacted).

In the remaining 4 sublocations it was proposed to establish groups of growers - 18 farmers each (or minimum 12 if seeds are not enough).

Seed demand: 5 plots B. Congo: 48 kg.

4 groups Hill: 9 bags (Min. 6).

(3) Wanjare - Location

Wanjare is the centre of last season's Soya Bean growing. Six groups comprising 72 farmers were established. For this season about 600 farmers are registered already by the Extension staff for growing S.B. But it seems that seeds will be available for about 400 farmers only.

It is suggested that the Extension staff carries out its programme under their own full responsibility. They were prepared for that during the first instructor course in Kisii.

The Extension Programme for West Kitutu

Programme Point	Administrative unit and place	Time	how and what to be arranged
(i) Securing seeds	for West Kitutu with DAO's Office	immediately	contact AAO and/or DAO (responsible: Chr. Nyakundi, TA)
(ii) Involvement of Chief and Assist. Chiefs	West Kitutu	5th Aug. 13th Aug.	Full information of the Programme by Chr. Nyakundi, TA
(iii) Sublocational Baraza	All 7 sublocations of West Kitutu	13th - 14th August	Arranged with Assist. Chiefs, (a) Introduction of S.B. to farmers by explaining the basic points of: Advantages (of S.B.) Husbandry, Assistance by Extension Staff (b) Selection of Area Group Group leaders
(iv) First meeting with group of farmers	in all 7 sublocations	18th - 25th August	Detailed Instructions and Discussion about Advantages (of S.B.) Husbandry; Fixing date for 1st Demonstration (See special handout)
(v) Supervision of Land Preparation	in all 7 groups	after first meeting	Special emphasis of improving soil fertility by local means and soil conservation
(vi) Planting Demonstration	in all 7 Groups	after short rains have started	(see special handout)

If the group size is 12 farmers, in W. Kitutu 84 farmers (each cultivating $\frac{1}{2}$ acre) are going to start growing soya beans.

The Extension Programme for South Mugirango

Programme point	Administrative unit and place	Time	how and what to be arranged
(i) Securing seeds	DAO's Office	immediately	Responsible: Joseph Sanduki, TA.
(ii) Involvement of Chief and Ass. Chiefs	Chiefs Centre S. Mugirango	5th August	Full information and arranging Barazas (J. Sanduki)
(iii) Sublocational Barazas	all 4 selected Sublocations of S. Mugirango + Control Sublocation	12th Aug. (simultaneously)	Introduction (advantages, Husbandry, Assistance) Selection (of area, group, group leaders). Selection not for control sublocation.
(iv) Locational staff meeting	Chiefs Centre	16th Aug.	Discussion of Project Matters and planning of next steps
(v) First meeting with group of farmers	all 4 selected sublocations	around 20th Aug.	(See special handout)
(vi) Land Preparation	all Sublocations	after first meeting with groups	(See special handout)
(vii) Demonstration: Planting	"	after short rains have started	(See special handout)

If the group size is 18 farmers, in S. Mugirango one expects 72 new growers plus about 60 growers in the control unit. That makes a total of about 132 Soya Bean growers (each $\frac{1}{2}$ acre).

DISTRICT SOUTH NYANZA

South Nyanza faces the problem of having trained personnel for very many areas but lacking seeds very much. Therefore a general extension strategy was suggested:

- (i) First preference for seed supply should get the areas around the places where Soya Bean growing was introduced last season. (Especially Kanyamkago and Sakwa South).
- (ii) But in other areas (which have trained staff now) Soya Bean Growing should be started on a very small scale as proposed in the following.
 - (a) In each Sublocation - having a trained Instructor (Course Participant) a seed bulking project should be carried out.
 - (b) In the same way as in the other projects groups of farmers should be selected. Each group member should receive about one kg. of seeds (Hill variety).
 - (c) The only difference to the other projects will be that these groups of farmers produce their own seeds first for the next season (out of that one kg. they will produce sufficient seeds for $\frac{1}{2}$ acre).

(A) Kanyamkago, Suna East/West and Macalder

The Soya Bean growing was started in Kanyamkago last season already with two groups of about 22 farmers.

For this season new groups have been formed in Kanyamkago comprising about 690 farmers.

The project was programmed and timed in detail before the course already.

For the areas in Suna East/West and Macalder similar proceeding for extension were proposed (although in these areas it may be adequate to start with seed bulking).

The proposed programme was drafted under the team leadership of Festo Orinda (Kanyamkago).

Appendix C

The Extension Programme for Kanyamkago.

Suna East /West and Macalder

Programme point	Administrative unit and place	Time	how and what to be arranged
(i) Securing Seeds	Kanyamkago Macalder Suna E + W (in the resp. Location)	immediately	for full extension in Kanyamkago: for bulking (each farmer 1kg. only) in Macalder + Suna E+W)
(ii) Staff Meeting	Kanyamkago Macalder Suna E + W (in the resp. Location)	5th August.	Project Planning and Implementation
(iii) Report to AAO	AAO's Office	8th August.	Discussion of further proceedings.
(iv) Chiefs Information + chiefs Baraza	all resp. Locations	9th August.	Project Discussion
(v) Assist. Chiefs information + Subloc. Barazas	" all selected Sub-locations	9th August. 12th - 15th August.	Introduction to farmers and selection of groups (see special handouts)

(B) Sakwa South - Location

In Sakwa South the Mariwa Development Association has started to grow Soya Beans with a number of trained farmers last season. And they have formed 6 groups of growers for this season. The M.D.A. as well as the MOA - Extension Staff agreed upon to cooperate closely in the further Soya Bean expansion.

The Extension Staff is supposed to supervise and coordinate the groups whereas the formerly trained farmers function as secretaries (or leaders) of the groups.

The seeds are available from the former 12 growers.

The Extension Programme for Sakwa South

Programme point	Administrative unit and place	Time	how and what to be arranged
(i) Meeting with Mariwa Development Committee and Extension Staff	Sakwa South (Mariwa)	5th and 12th	Preparation during Chiefs Baraza in Manyatta, Meeting in Mariwa.
(ii) Assisting and controlling of plot selection and preparation	in all 6 groups with MDA	after meeting with MDA	arrange through the group leaders; combine it with soil conservation and improvement of soil fertility instructions
(iii) First meeting with the groups of farmers	in each cluster	about one week before planting	(a) arrange it with the group leaders (b) Discuss: advantages Husbandry your Assistance (see special hand-out) (c) fix day and place for planting demonstration
(iv) Planting Demonstration	in each cluster	after short rains have started	(a) according to special hand-out. (b) involve the trained farmers
(v) Follow up of planting	all farmers of all clusters	immediately when planting starts	be with the farmers during planting

C. Kamagambo, Gem, Oyugis & Kindu

In these areas the projects most probably can start only on a seed bulking basis. With one or two bags 10 resp. 20 sublocations could be covered. It was suggested to arrange for 1-2 bags (that means 90 to 180 farmers) with the AAO Migori (eventually through the DAO).

Appendix C

The Extension Programme for Kamagambo;
Gem; Oyugis -- and Kindu - Areas

Programme point	Administrative unit and place	Time	how and what to be arranged
(i) Securing seeds for bulking	Kamagambo, Gem, Oyugis, Kindu	5th August	meet AAOs
(ii) Staff meeting and meeting with Chiefs	" at Chiefs Camp	8th August	Explanation of the project
Barazas	Gem/Oyugis	12th August	Introduction of the Project to the location
1st. Chiefs Barazas	Kamagambo/Oyugis, Gem, Kindu	16th August 18th " 20th "	(See special handout)
Land preparation	Oyugis Gem Kamagambo Kindu	20th August 20th " 1st week of Sept. 21st - 31st August	Selection of Shamba, measuring, soil fertility soil conservation (see special handout)

It is suggested to start only in places where Extension Staff is available who were trained for this project.

NAROK DISTRICT

The AAO Kilgoris has made a very interesting Project Proposal. In one Sublocation - Angata Baragoi - which is a Kipsigis immigration village, about 4 thousand acres are under Maize cultivation during the long rains. During the short rains the farmers do not know what they could plant. Since Soya Bean cultivation would be an excellent rotation crop for maize (supplies Nitrogen and the deep root system improves the soil fertility as well) he wants to introduce Soya Bean cultivation in Angata Baragoi. He has sent one Instructor for training to the Soya Bean Course at Homa Bay.

The DAO Kisii is ready to arrange some seeds for him.