QUALITY AND YIELD OF SNAP BEAN LINES DEVELOPED FOR MULTIPLE DISEASE RESISTANCE

Wahome S.W., P.M. Kimani, J.W. Muthomi and R.D. Narla

Department of Plant Science and Crop Protection, University of Nairobi, P.O. Box 29053-00625 Nairobi, Kenya
Corresponding author: wahomewanjohi@live.com

Abstract (C2101)
Angular leaf spot, anthracnose and rust are a major constraint to snap bean (Phaseolus vulgaris) production and development of varieties with multiple disease resistance would assist farmers reduce reliance on fungicide and therefore, meet the stringent European export requirements. The objective of this study was to select snap bean populations and lines with high pod quality and yield. Forty five advanced bush snap bean lines and six climbing snap lines were evaluated at KARI-Thika and Mwea for two seasons. The materials included populations with resistance to rust, anthracnose, angular leaf spot and rust and susceptible popular varieties with good pod quality. The populations were advanced to F4, F5 and F6 and experiment laid out as split-plot, with fungicide treatments as main plots, and genotypes as sub-plots. Days to flowering and maturity, pod length and width, number of pods per plant, marketable pod yield, pod quality and seed yield were determined. There were significant differences (P≤0.05) among the genotypes in marketable pod yield, pod quality and seed yield. HAB 428 had the highest pod yield of 8528.2 kg ha\(^{-1}\) when the genotypes were grown without application of fungicides. A total of 674 single plants with desirable pod characteristics were selected. Snap bean line KSB 10 BR with multiple disease resistance had the highest extra fine pod yield of 2000 kg ha\(^{-1}\). All climbing lines had thicker pods compared to bush lines. Some of the advanced lines selected for multiple diseases resistance could not meet the yield and quality of bush commercial varieties. The study showed that some of the snap bean lines and populations evaluated could be useful in development of snap bean varieties with multiple disease resistance and high yields of acceptable quality.

Key words: Snap beans, multiple disease resistance, pod quality, pod yield