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Agronomic Performance and Farmer Perceptions Regarding Quality Protein Maize

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Abstract

Maize (*Zea mays* L.) is the most important staple food crop in southern Africa with human consumption averaging 91 kg per capita per year. Most smallholder farmers and weaning children depend on maize for much of the daily food requirements and it is the largest contributor of dietary proteins. However, normal endosperm maize, which is commonly grown in southern Africa and the world over is deficient in two most limiting amino acids for human growth and development viz., lysine and tryptophan. Despite the development of quality protein maize (QPM) with high tryptophan and lysine content, stunting and kwashiorkor remain high in southern Africa due to low adoption of QPM varieties. The objective of this study was to compare the agronomic performance and farmer preferences of new generation of QPM with non-QPM varieties under conservation agriculture on-farm conditions. Eight QPM and four non-QPM varieties were tested on on-farm trials in Zimbabwe during the 2014/15 and 2015/16 cropping seasons at five different locations. Significant differences ($p < 0.001$) were detected among the genotypes for the measured traits in the two seasons. Similarly, genotype plus genotype × environment (GGE) interactions were significant ($p < 0.05$) for both seasons in grain yield, hundred kernel weight, plant height, ear height, days to 50 % anthesis and silking, and plant vigour. Three QPM varieties, SC527, SC535 and SC643 recorded the highest and stable yields. Four QPM varieties, SC643, SC535, SC527 and MQ623, and a non-QPM variety: PAN413, were ranked high by farmers for overall ear characteristics. The high-yielding and stable QPM varieties are likely to be adopted by farmers in southern Africa and improve on their protein nutritional status.

Keywords: Farmer, quality protein maize, southern Africa

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