

A comparison of dryland maize, grain sorghum and sunflower in the central highlands of Queensland

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Since 1984 Central Highlands grain-growers have been evaluating maize as a dryland summer crop alternative to grain sorghum and sunflower. Reasons for this interest included decreasing prices for sorghum and sunflower and active promotion of maize by seed companies. While the area planted to maize prior to 1984 was small, approximately 18,000 hectares were planted in 1984 and 8,500 hectares were planted in 1985.

Methods

Performance of maize was compared with sorghum and sunflower in 16 different trials throughout the Central Highlands in 1984, 1985 and 1986. Maize was compared with sorghum and sunflower in seven trials each, and two trials compared all three crops. Three maize hybrids (Colonel, XL81 and Sergeant) were common to all trials.

Results

Mean yield and gross margin for the three maize hybrids was compared with that for recommended sorghum and sunflower hybrids at each site. Table 1 shows the comparisons for each year.

Table 1. Maize, sorghum and sunflower yield and gross margin comparisons - Central Highlands 1984-86

	1984		1985		1986		Mean	
Crop Comparison	Yield (kg/ha)	Gross Margin (\$/ha)	Yield (kg/ha)	Gross Margin (\$/ha)	Yield (kg/ha)	Gross Margin (\$/ha)	Yield (kg/ha)	Gross Margin (\$/ha)
Maize	2286	220	1939	131	1290	16	1915	142
Sorghum	3242	256	2485	212	1919	84	2717	194
Maize	2072	192	2042	139	780	-30	1907	150
Sunflower	1224	295	1105	209	806	73	1135	241

Mean yield and gross margin for maize was lower than for sorghum in each year. Similarly, mean gross margin for maize was lower than for sunflower in each year.

Maize was only more profitable than sorghum or sunflower in two comparisons with each crop. Yield levels for maize were at least 2,900 kg/ha in each case, suggesting that maize could only compare favourably in high-yielding conditions. This finding was supported by commercial experiences in 1984.

Maize gross margins tended to vary more than either sorghum or sunflower, according to different seasonal conditions. In trials where maize was compared with sorghum, maize gross margins ranged from \$520/ha to -\$72/ha and sorghum gross margins ranged from \$351/ha to \$45/ha. Compared to sunflower, maize gross margins ranged from \$464/ha to -\$30/ha, and sunflower gross margins ranged from \$443/ha to \$73/ha.

The quick-maturing hybrid Colonel was significantly higher-yielding than the slower-maturing hybrids in 7 out of 16 trials and significantly lower yielding in only two out of 16 trials. This suggested that quick-maturing maize hybrids were preferable for dryland planting in the Central Highlands, although performance of Colonel was still inferior to the recommended sorghum and sunflower hybrids.

Usually, lower insect pest control costs are required for maize compared with the alternative crops, and maize is less susceptible to weather damage prior to harvest. post-harvest weed control costs are also usually lower for maize than for sorghum. However, maize requires a higher level of crop management, and a harvester with a corn-front for efficient harvesting. Sorghum and sunflower are likely to be more reliable and profitable crops in the Central Highlands except in highly favourable seasonal conditions.