

Maize cultivars for the eighties

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The characteristics of a newly-released maize hybrid GH5006 bred at the NSW Department of Agriculture's Research and Advisory Station, Grafton, reflect some of the objectives of the breeding programme, which aims to produce improved varieties for the foreseeable future. These breeding objectives include: high-yielding ability for grain and/or silage; resistance to diseases and pests; resistance to lodging; wide adaptation (in terms of length of growing season, high and low temperatures, and moisture stress); efficient utilization of available soil nutrients; adaptation to minimum-tillage seedbed preparation; grain quality, specific to demands of end-users, e.g. high-lysine grain for pig and poultry feeders; white endosperm, waxy (amylopectin) starch, and high-amylose starch for various processors; high grits recovery for dry millers; adaptation to dense plant populations.

GH5006 is a single-cross hybrid capable of high grain yields. Its mean yield in 29 replicated trials over five seasons was 7.5 tonnes per ha; only one trial was irrigated. It is highly resistant to turcica leaf blight (*Drechalera turcica*), maize dwarf mosaic (sugar cane mosaic virus - Jg strain), and maize sterile stunt virus. It is also resistant to maydis leaf blight (*D. maydis* - race T). Although a full-season hybrid under coastal conditions, it produces significantly shorter plants than other hybrids of similar maturity. This, together with a reasonably strong stalk, allows the plants to stand well through to harvest. The medium-large, yellow-dent grain of GH5006 is suitable for flaking grits manufacture, as well as for stock-feed. The robust, leafy plants are well-suited to silage making, while the high grain-yielding capacity of this hybrid ensures a high quality silage.

Steady progress continues to be made in the Grafton maize breeding programme, of which hybrid GH5006 is the most recent product. This progress is illustrated in the data presented in table 1. These data represent mean results obtained in trials conducted over the last two seasons at Grafton. They show the standing ability and yields obtained from hybrids released from the breeding programme over the last decade, together with the best experimental hybrid being considered for future release.

Table 1. Mean performance of hybrids released from Grafton Agricultural Research and Advisory Station during the period 1972-1981, and the best experimental hybrid, grown in trials at Grafton, 1980 and 1981.

| Hybrid | Year of Release | Grain Yield (t ha ⁻¹) | Plant standing at harvest (%) |
|------------------|-----------------|--------------------------------------|-------------------------------------|
| GH390 | 1972 | 7.12 | 89.0 |
| GH5004 | 1977 | 9.05 | 99.1 |
| GH5006 | 1981 | 9.95 | 99.1 |
| Best exp. hybrid | - | 10.51 | 98.5 |