



A collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia

## Maize

### Scientific name(s)

*Zea mays*

### Strengths

- Can produce a moderate energy density silage
- Capable of high yield
- Wide range of maturity types are available

### Limitations

- Summer active
- Requires precision planting
- Must be precision chopped for silage production

### Plant description

**Plant:** erect, summer growing annual crop

**Stems:** solid, of variable height average about 2.4 m

**Leaves:** leaves grow alternately, and are long and narrow, can have up to 20-21 leaves per plant

**Seedhead:** Main stem terminates in a staminate (male) inflorescence or tassel. The pistillate (female) inflorescence, or ear, can have up to 1000 seeds borne on a hard core called a cob enclosed in modified leaves called husks, individual silk fibres protrude for the type of the ear, each attached to an individual ovary. Pollen from the tassel is carried by the wind and falls on the silk, where it germinates and grows through the silk until it reaches the ovary. Each fertilised ovary grows and develops into a kernel.

**Seeds:** As most commercial cultivars are hybrids, plant vigour is not transmitted to their off-spring, hence commercial seed, produced from crossed parent stock, is required for the next crop.

### Pasture type and use

Summer active annual crop can be grown for silage or harvested for grain

### Where it grows

#### Rainfall

High summer rainfall or irrigation

#### Soils

Deep, well drained loam soils are preferred, however with careful management and furrow irrigation can be successfully grown on heavier textured soils.

#### Temperature

Is a subtropical species that thrives on temperature between 25°C and 35°C.

Need soil temperature to exceed 12°C before sowing.

## Establishment

### Companion species

Maize is a forage crop and is not compatible with other grass species.

### Sowing/planting rates as single species

Sowing rate is dependent on seed size and desired population and should be adjusted according to cultivar. A plant population of between 40-90,000 per hectare is desirable. Lower populations are for dryland crops and a high population is recommended for irrigated crops. Sow with a precision seeder; generally sown in rows, 750-900 mm apart. Good weed control is essential.

### Sowing/planting rates in mixtures

Not applicable in commercial situations.

### Sowing time

When soil temperature >12°C; in general from October to December

### Inoculation

Not applicable.

### Fertiliser

A maize crop will use 25-45 kg/ha of phosphorus, 150-300 kg/ha nitrogen and 100-150 kg/ha of potassium. Application rates should be determined after consideration of soil type, paddock history and soil testing. All the phosphorus should be applied at sowing, together with a third to half of the nitrogen in a band, separated from the seed

## Management

### Maintenance fertiliser

-

### Grazing/cutting

Precision chop for silage (10-20 mm sections) at 30-35% DM. DM content can either be measured or estimated from the position of the milk line of the grain. When the milk line is about a third to half way down the kernel, the crop is ready for harvest

### Seed production

By seed company specialists.

### Ability to spread

Negligible.

### Weed potential

Negligible

### Major pests

Wireworms or cutworms at establishment, two-spotted mite, black beetle, armyworm.

### Major diseases

*Fusarium* and *Rhizoctonia* root rots, rust, turicum leaf blight

### Herbicide susceptibility

Web link: [Maize - Weeds and herbicides \(QDPI&F\)](#)

## Animal production

### Feeding value

Silage made from good crops, harvested at the correct stage of development and ensiled

properly can be 10-11 MJ/kg DM, but is generally low in protein (<8% crude protein).

### Palatability

If ensiled effectively, no issues with palatability or animal acceptance.

### Production potential

Yields in excess of 20 t DM/ha are achievable with good management

### Livestock disorders/toxicity

Some risk from mycotoxins and mycoestrogen, especially where crop and ensilage management is sub-optimal.

Web link: [Mycotoxin Info and Update \(Maize Association of Australia\)](#)

## Cultivars

Numerous cultivars are available with maturity types of 80-127 CRM (comparative relative maturity). Cultivar selection for silage should match the expected length of the growing season and consider tolerance to cold, lodging, diseases and herbicide.

| Comparative relative maturity | Cultivar              | Seed source/Information |
|-------------------------------|-----------------------|-------------------------|
| 80-95                         | Hybrix5               | Pacific Seeds           |
| 85                            | MY034                 | Stephen Pasture Seeds   |
| 90                            | Emperor TL            | HSR Seeds               |
| 93                            | 38F70                 | Pioneer                 |
| 96                            | 38T27                 | Pioneer                 |
| 97                            | DK 477                | Pacific Seeds           |
| 98                            | Julius                | HSR Seeds               |
| 99                            | 36H36                 | Pioneer                 |
| 100                           | Titus TL              | HSR Seeds               |
| 102                           | Maximus               | HSR Seeds               |
| 103                           | SR73                  | HSR Seeds               |
| 105                           | SR103                 | HSR Seeds               |
| 105                           | Hercules              | HSR Seeds               |
| 106                           | 35D28                 | Pioneer                 |
| 107                           | Roman                 | HSR Seeds               |
| 108                           | Hycorn 502IT (PAC338) | Stephen Pasture Seeds   |
| 108                           | 34N43                 | Pioneer                 |
| 109                           | 34B28IT               | Pioneer                 |
| 109                           | Hycorn 533            | Pacific Seeds           |
| 110                           | Colossus              | HSR Seeds               |
| 112                           | Olympiad              | HSR Seeds               |
| 112                           | Hannibal              | HSR Seeds               |
| 112                           | Cobber Flint          | Nuseed                  |
| 114                           | Victory               | Nuseed                  |
| 114                           | 33V15                 | Pioneer                 |

|     |              |               |
|-----|--------------|---------------|
| 115 | Hycorn 424   | Pacific Seeds |
| 118 | 31H50        | Pioneer       |
| 118 | Hycorn 675IT | Pacific Seeds |
| 118 | 3153         | Pioneer       |
| 118 | 31G66        | Pioneer       |
| 118 | XL80         | Pacific Seeds |
| 119 | Hycorn 345IT | Pacific Seeds |
| 123 | Hycorn 727   | Pacific Seeds |
| 126 | Hycorn 901   | Pacific Seeds |
| 127 | P2375        | Pioneer       |

Ⓟ Denotes that this variety is protected by Plant Breeder's Rights Australia

### Further information

Web links:

Maize Association of Australia

Maize production in Queensland (QDPI&F)

Flood irrigated maize in the south west of Western Australia (DAFWA)

Summer forage crop and grain choices for the NSW coast south of Coffs Harbour (NSWDPI)

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### Author and date

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