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MAIZE FOR FODDER OR GRAIN

By F. E. RYAN, Agrostologist

(Revised from Leaflet No. 745 by H. G. Elliott.)

MAIZE, being indigenous to the warmer parts of either Southern Mexico, Central America or Northern South America, thrives best under warm, moist conditions. It is susceptible to frosts and must be grown in regions which are free from them during the growing season. The plant is fairly drought-resistant, providing the ground is in good condition and well cultivated between the plants, until the tasselling period. Ample evidence has been obtained in this State to show that maize can be grown successfully for both green feed and grain in the south and west coastal on summer moist land and irrigation areas.

Maize can be grown on a variety of soils, but is best suited to a deep sandy loam containing ample organic matter.

For the production of grain the critical period is the tasselling stage, and warm weather with ample soil moisture at this time is essential for heavy grain crops. These conditions can be assured by irrigation or by growing the crop on "summer moist" land.

PREPARATION OF SEED BED

As maize is deep rooting, the soil should be ploughed to at least six inches, for preference with a mouldboard plough, which will bury all green material and trash which may occur on the surface. This ploughing should be done in the early spring so as to give the soil opportunities to mellow. The final preparation consists in obtaining a surface layer of some two inches of reasonably fine soil in which to plant the crop. It is necessary to compact the seed bed, and this is best done by double discing and harrowing and, if necessary, the use of a roller followed by a further harrowing.

TIME TO PLANT

Maize should be planted late enough to escape frost in the spring and early enough to miss the frosts in the autumn. October to December will be found the most suitable planting months.

VARIETIES

The white-seeded open pollinated variety, Hickory King, is most favoured for green feed in this State but in recent years a number of new hybrid varieties have become available. These varieties have been developed mainly for grain production and are capable of higher grain yields than Hickory King. Best varieties for this purpose in Western Australia are those with earlier maturity such as Dawn, Emblem and DS28.

Most hybrid varieties have not proved more productive of green fodder than Hickory King but some of the later-maturing varieties such as Standfast have been promising in recent trials. Under droughty conditions earlier-maturing hybrids have given good results.

SEED SELECTION

For future crops, farmers should select their own seed, not by picking likely-looking cobs from the crib at the time of shelling, which will give fair results if conscientiously carried out, but by selecting cobs in the field, by paying attention to the type of plants and types and number of cobs produced per plant. Healthy vigorous plants with cobs that have a pronounced drooping tendency is desired. If, when mature, the cob is pointing towards the ground there will be little or no damage from water gaining access to the grain, if rain falls prior to harvesting.
DO NOT SAVE SEED OF HYBRID MAIZE VARIETIES

Hybrid maize seed is specially grown by crossing selected parents. The seed of the first cross has the greatest hybrid vigor. Consequently fresh seed should be purchased for each sowing. Saving seed from stands of hybrid maize varieties is not recommended.

RATE OF SEEDING

Maize for grain is either planted in "drills" or "hills." In this State the former method is recommended. The seed is sown in drills about 3 ft. apart with about 12 in. between seeds if under good moist conditions. With drier conditions the rows should be 4 ft. apart with 16 in. between plants. Eight to 10 lb. of seed would be sufficient to sow an acre.

Heavier seeding rates are used when maize is grown for fodder and rates as high as 40 lb. of seed per acre are sometimes sown broadcast. Trials carried out in recent years suggest that 40 lb. per acre seeding rates may be excessive and good results have been obtained with 20 lb. per acre. Broadcast sowing or close drilling results in finer stems and this is a desirable character for fodder purposes.

DEPTH OF PLANTING

Two or three inches deep is considered the best depth to sow, but the seed can be sown to four or five inches deep if necessary to ensure being placed into moist soil.

FERTILISER

It is normally recommended to use at least 3 cwt. of potato manure per acre, the fertiliser being sown in drills, but not in direct contact with the seed if this can be avoided. The type of fertiliser used will vary with the soil on which maize is sown. An application of at least 1 cwt. per acre of sulphate of ammonia is suggested on very sandy soils and 1 cwt. per acre of muriate of potash on soils suspected of potash deficiency.

METHOD OF PLANTING

Single and double row maize machines for planting can be obtained. These machines are designed to sow the grain at regular intervals and are fitted with an attachment for applying the fertiliser. The machines open the furrows, drop the seed, cover, and press them into the soil in one operation. When planting under
irrigated conditions it is recommended to sow in rows 4 ft. apart and run an irrigation furrow in between each double row.

**AFTER-PLANTING CULTIVATION**

This is essential for control of weeds and to increase soil aeration. The cultivation should begin soon after seed sowing and continue, if necessary, until the plants reach five to six feet high. Single or two-row cultivators are recommended. The depth of cultivation should not exceed two to three inches or injury to the roots is likely to occur. Two to four cultivations should be sufficient during the growing season.

**GENERAL**

Some farmers practise the method of following on a potato field with maize and occasionally pumpkins. After the potatoes have been lifted, the ground is thoroughly cultivated and packed and the maize seed sown as explained in the foregoing information. If, however, pumpkin, or a leguminous crop is grown in association, the maize may be spaced at six to eight feet between rows and the other crop inter-rowed. Fertiliser is not usually applied, as it is considered that sufficient is available from the prior potato crop. It is recommended, however, that a small application of potato manure be applied at the time of planting.

**HARVESTING**

For grain, the most common practice is to allow the crop to stand in the field until the grain is quite ripe, a condition which is shown by the husks becoming dry and hanging down. The cobs are then gathered by hand and husked in the field or in a shed.

The grain in the husks should be quite dry before storing, otherwise it is likely to heat and mould. Until thoroughly dry, the cobs can be stored only in open sheds with free air circulation.

Husking and shelling can be carried out in the winter months and shelling is done best by using a maize shelling machine, which can be operated by hand or power. The grain is then graded, if necessary, and bagged for sale. It is sold by the bushel, which means 56 lb. weight. It has been estimated that about 75 lb. weight of "ears" will produce about one bushel of grain.

The "core" although of low feeding value can be ground and used as a meal.

The stalks and leaves ("stover") left after the "ears" have been removed, contain about one-third of the total food produced by the plant, and can be harvested, and chaffed or shredded for feeding to horses or cattle as a maintenance food during the winter.

The modern practice is to cut the crop after the grain has commenced to colour and dent, and tie the bundles, stook until the grain is dry and the stalks cured, which takes approximately five to six weeks. The cobs are then removed and the fodder stored away until required.

Maize is usually harvested for fodder as soon as grain in the cobs has reached the milky stage. If feeding is desired over a long period, planting can be "staggered" to allow for early and late cutting.

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