

Tillage from Grassland – Maize agronomy

Ploughing grassland to plant a tillage crop is being encouraged in 2022 by the Department of Agriculture Food and Marine with the introduction of the Tillage Incentive Scheme worth €400/ha for qualifying farmers. The incentive is to offset the increased costs in 2022 compared to 2021.

Before considering ploughing land farmers should ensure there is sufficient materials (seed, fert and agrochemicals) before planting the crop. Access to machinery, particularly a combine needs to be thought through very carefully in terms will it be available when needed and are the access points to the field sufficiently wide enough.

Soils and soil fertility

Maize prefers a pH 6.5 or greater. Crops will grow poorly in pH 6.3 or less. Consider planting oats at pH lower than this however planting oats from mid April will push its grain harvest into September. In low pH soils an application of 5.0 t/ha of ground limestone worked in will help pH in the year but will not be sufficient to grow maize where soil pH is very low. If there is only a grassland soil test available consult with your advisor for the correct lime advice.

A soil index 3 for P and K will deliver high yields but soils are likely to be lower. See the following recommendations for different soil P&K indexes

Soil index	P Kg/ha (units/ac)	K Kg/ha (units/ac)	Recommendation (bags/ac)
1	70(56)	250(200)	900 kg/ha (7.3 X 0 – 7 – 30)
2	50(40)	225(180)	700 kg/ha (5.7 X 0 – 7 – 30)
3	40(32)	190 (152)	600 kg/ha (4.9 X 0 – 7 – 30)
4	20 (16)*	120 (96)**	300 kg/ha (2.4 X 0 – 7 – 30)

* Must be incorporated prior to or during sowing, ** No Fertiliser K required when soil test K >250mg/.

Nitrogen recommendations are dependent on the treatment of the previous grass ley. See the table below for the most appropriate level of nitrogen for your field.

Index 1	Index 2	Index 3	Index 4
Any crop sown as the 5 th or subsequent tillage crop following permanent pasture	Any crop sown as the 3 rd or 4 th tillage crop following permanent pasture. If original permanent pasture was cut only, use index 1	Any crop sown as the 1 st or 2 nd tillage crop following permanent pasture (see also Index 4). If original permanent pasture was cut only, use index 2	Any crop sown as the 1 st or 2 nd tillage crop following very good permanent pasture which was grazed only
Total Nitrogen rate kg/ha – Maize			
180	140	110	75

The costs of fertilisers are extremely high and use of available organic manures on farm is highly recommended. The table below outlines the fertiliser requirements in an Index 2 for N, P & K.

	Rate per ha	N (kg/ha)	P (kg/ha)	K (kg/ha)
	Rate Required	140	50	225
Slurry (6%DM)*	33 m ³ (3,000 gal/ac)	33	17	116
0-7-30	350 kg	0	25	105
CAN	300 kg	81	0	0

*Available nutrients in the slurry. In all circumstances apply the fertiliser to the seedbed and cultivate in.

Seeding rate and seedbed

Ideally apply Glyphosate at 3.5L/ha (360 g/L product) the grass and plough 7-10 days later. Turn over the sod so that all grass is covered. Apply lime and fertiliser where necessary before cultivating in and before sowing.

Sowing can proceed when soil temperatures are above 8°C. Sow 100-110,000 seeds/ha. Sowing under plastic can proceed from early April onwards (especially in sheltered sites). Delay sowing of open crops until after mid-April. Prepare a fine, firm seedbed 10-12 cm (4-5 inches) deep similar to that for beet crops. Only roll after sowing under very dry soil conditions.

Variety selection is important. Where sowing in the open only use an early maturing variety (e.g. Ambition) and when sowing under plastic a medium or late can be used. However only plant a late maturing variety under plastic on a very good site (south facing and less than 100m above sea level). The costs of using plastic are over €280/ha and will give around an extra 3.0-3.2 t/DM per hectare compared to maize grown in the open.

Weed Control

Maize needs 30-50 days weed free after sowing to avoid a weed penalty (up to 50% yield loss in Teagasc trials).

- Sowing under plastic relies on pre emergence herbicides which are applied at sowing and is usually carried out by the planting contractor. Residual products work best on fine seedbeds with some moisture after spraying.
- Sowing in the open a post emergence application at the 2-8 leaf stage of the maize will suffice

Contact your local advisor or agronomist for the products and rates to use.

Through the season keep an eye on emerging weeds and also keep an eye for disease in coastal regions from early July. Other than that there is very little management of the crop until harvest.