Replenishing & Building Soil Potassium (K)

Potassium (K) has a major role in the efficient use of nitrogen (N) by the grass plant during the growing season. Grass silage crops have the largest demand for N & K during the growing season for example a typical 1st cut will require 100 to 125kg K/ha while grazing fields require 15 to 30kg K/ha. Maintaining good soil K levels in silage fields is essential to grow high yields of quality grass silage annually. Now is the ideal time to think about the grass silage crop for 2021 and apply additional K to build and replenish soil K levels.

In 2020 there has been multi cuts of grass silage taken to fill winter feed requirements. Each 1 ton dry matter/ha (~2 ton fresh grass /ac) removes 25kg K/ha (20 units/ac). For example 2 cuts of grass can remove in the region of 200 to 250kg K /ha (160 to 200 units K /ac) depending on grass yield (8 to 9t DM/ha or 16 to 18 t fresh grass/ac). Therefore to determine K removals calculate grass silage yields and aim return sufficient K to replenish soil K reserves each year.

Over the last number weeks grass growth rates have been extremely high due to the good grass growing conditions, a proportion of this grass has been taken out as high quality bale silage. It is important to apply K on these areas of the farm to replenish K removed in bale silage. For example 4 bales/ac of grass silage will remove approximately 6 units P & 40 units K/ac.

Potassium can be supplied all year round (no restriction like N & P) as fertiliser K (Muriate of Potash 50% K). Muriate of potash (MOP 50% K) can be applied at any time of the year and is an effective way to build soil K levels rapidly. Plus it simplifies the fertiliser programme reduces the risk/ issues with grass tetany in the spring time.

Where cattle slurry has been applied make adjustments for K based on slurry quality (DM%) see table 1 below.

Table 1:-The effect of slurry DM on the N, P & K Values of cattle slurry

DM %	N kg/m³ *(units/1,000 gals)*	P kg/m³ *(units/1,000 gals)*	K kg/m³ *(units/1,000 gals)*
2	0.4 *(4)*	0.21 *(2)*	1.4 *(13)*
4	0.7 *(6)*	0.35 *(3)*	2.3 *(21)*
6	1.0 *(9)*	0.5 *(5)*	3.5 *(32)*
7	1.1 *(10)*	0.6 *(6)*	4.0 (36)

Now is the ideal time to check soil test results and identify which fields (Index 1 or 2) that require additional K to build soil fertility to the agronomic optimum Index 3. Aim to apply recommended rates of K as shown in table 2 below over the coming weeks.

Table 2:- Recommended Build-Up Rates (kg/ha) of K & suggested fertiliser programme

Soil Index	K (kg/ha)	Suggested Fertiliser Programme
1	60	120kg/ha MOP 50% K
2	30	60kg/ha MOP 50% K

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