

## POULTRY LAYER / BELT MANURE

### Nutrient Availability 1st year (PER tonne) @ 30%DM

	Kg/t	1 <sup>st</sup> Year Availability	Total nutrients applied @ 10t/ha 1 <sup>st</sup> year	Value £/ha 1 <sup>st</sup> year
Nitrogen (N)	16	5.6 (20-50% available)	48kg/ha	£45.88
Phosphate (P)	12	7.2 (60% available)	72 kg/ha	£66.52
Potash (K)	8	7.2 (90% available)	72 kg/ha	£40.79
Sulphur (S03)	3.5	3.0	30 kg/ha	£8.10
Magnesium (Mg0)	2.0	2.0	20 kg/ha	£8.80

Source: RI3209 Organic Manures 09 (Revised June 2010 edition adjusted to 30% DM)

\*Assumes 30% Nitrogen Availability

Available Nutrients 1st yr £170.09

Available P / K 1<sup>st</sup> & 2<sup>nd</sup> yr £40.00

**TOTAL VALUE £ 210.09 /ha**

**Nutrient values at market prices 1/1/12**

Nitram 34.5% £325 t / TSP 46% £ 425 t / MOP 60% £340t

### ~General Description

Belt muck is a by-product of the poultry industry (enriched colonies) and available all year. The product is consistent in physical appearance with a dry matter of circa 30%. The product is very high in available Nitrogen and can be accurately spread up to 12m with a spinning disc manure spreader.

Traditional "deep pit" manure is available at certain times of year and is typically of a higher dry matter and of a semi-composted appearance. This manure has been allowed to accumulate for up to 12 months before removal. The moisture content is on average about 50% although this will depend upon diet and shed design etc.

Accurate application is essential to achieve the best results and we would advise the use of professional contractors who are experienced in spreading poultry manure.

### The Value of Poultry Manure as a Fertiliser

With fertiliser prices increasing again, farmers should be aware of the benefits of substituting poultry manure for bagged fertilisers. Poultry manure, properly handled, is the most valuable of all manures produced by livestock providing an excellent source of nutrients which can be incorporated into most fertiliser programmes. Farmers who use poultry manure value the readily available nitrogen, phosphate and potash for vigorous growth and the long term soil benefits from using organic manures.

Maize is an ideal crop for an application of poultry manure as it has a high demand for nutrients. To produce consistent high yields, maize plants need to grow very rapidly once they have germinated. They will do this if the soil moisture and structure are good, the temperature is warm and nutrition is adequate. Maize can easily produce 50t/ha in a period of four months. If all expenditure is taken in to consideration, it costs a similar amount to produce a 40t/ha maize crop as 10t/ha wheat. The same level of management and attention to detail should be applied to both, particularly as a maize crop only has half the time to achieve a similar dry matter yield.

To support rapid growth and crop development, maize requires adequate available nutrients and any shortage will restrict early growth and final yield. Although established crops have an extensive root system, root growth is slow in the early days of the crop, especially if the weather is cold. Poor root growth means decreased uptake of nutrients and this can be a vicious circle as poor uptake of Nitrogen and Phosphate can restrict further root growth. For this reason, experience and field trials have shown that maize, like many vegetable crops, can benefit from some Nitrogen and Phosphate in the rooting zone, even when the bulk of the soil is adequately applied with nutrients. The use of starter fertilisers such as Primary P, complement the use of organic manures when growing maize.

The key to the successful use of poultry manure is to match the nutritional requirements of the crop with the nutrients available from the manure. A typical spring application of 10.0t/ha Layer Manure (35% Dry Matter) will provide up to 100 kg/ha Nitrogen (assuming 50% N availability) 84 kg/ha Phosphate and 86 kg/ha Potash. The availability of the Nitrogen depends on a number of factors — rainfall after application, the time of year it is applied, and the depth of soil incorporation. Applications of all organic manures should not exceed 250kg/ha of total Nitrogen to ensure compliance the Code of Good Agricultural Practice and NVZ requirements. Poultry manure also provides Sulphur, Magnesium, Calcium and trace elements.

Nitrogen is the key nutrient for obtaining maximum yield and quality, but also the one most difficult to get the amount available to the crop just right to achieve optimum yields. The average maize crop yielding 40t/ha removes 160kg N/ha although peak uptake is 210 kg/ha. Phosphorous is required particularly by the growing tips of the plant, hence its importance for root growth. Any shortage, especially in the very early stages, reduces root growth and nutrient uptake and this can adversely affect the growth of the crop for the rest of the season. Typical Phosphate removal for an average maize crop is 55 kg/ha P. Potash is the nutrient required in the greatest amount by maize.

An average crop takes up around 360 kg/ha Potash by early August. The demand for Potash is particularly high during the period of rapid growth and the soil must be able to supply this demand for readily available soil potassium. Forage Maize crops also remove large amounts of Potash with a typical 40t/ha crop removing 175kg/ha Potash from the soil.

It is vital to the successful production of maize that the nutrient contribution from organic manures is taken in to account before determining the amount of bagged fertiliser to apply. Fertiliser influences not just the final yield but also nutritional content and growing costs. Fields should be sampled and analysed before planting to ensure an accurate fertiliser recommendation can be made by your agronomist. When applying any organic manures to a field, it is important that NVZ, Storage and spreading regulations are followed, preventing nutrient imbalances as well as surface water and groundwater contamination. Poultry manure can be sourced locally and is available to farmers throughout Southern England. The UK maize acreage continues to increase as more arable farmers grow the crop as a feedstock for AD plants. The agronomic benefits of using livestock manures are well proven and used correctly poultry manure will ensure consistent, high yields of maize and other crops.

James Short Agronomist Hutchinsons