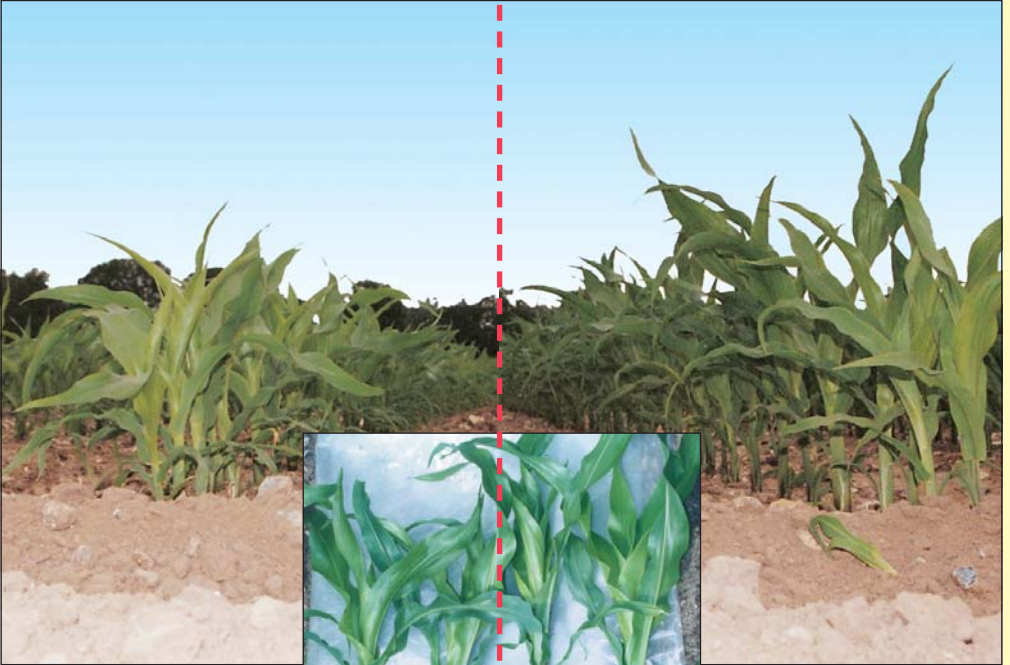


TECHNICAL DESCRIPTION

Opticoat™

ZM



UN-TREATED

TREATED

Why do I need my maize Opticoat™ ZM treated?

A new concept in maize seed dressing developed specifically for the UK, **Opticoat™ ZM** contains the micro-nutrients zinc and manganese. **Opticoat™ ZM** is a seed coating available to the plant when it needs it, foliar sprays are applied after the stress and damage have occurred when there is enough leaf area to take up sufficient nutrients. Critical to the development of the young maize plant, uptake and assimilation of these micro-nutrients via the root system will be reduced as soil conditions become wetter and colder. These growing conditions can have dramatic negative effects on maize establishment and early crop growth.

Why Zinc and Manganese?

Both micro-nutrients are critical to the maize plant's development, particularly in the early stages. **Zinc** is involved in many key plant processes including protein and carbohydrate synthesis in the leaves and activation of **DNA** sequences for cell multiplication. High concentrations of Phosphate in the root zone can induce **Zinc** deficiency by reducing solubility, reduce root growth and affect the root mycorrhizae, both of which are important, for acquisition of **Zinc** deficiency can result in impaired growth, particularly in the shoot apices.

In plants, some molecules can substitute for others to maintain plant metabolism. **Manganese** cannot be replaced in certain key plant processes. In higher plants, there is an absolute requirement for **Manganese** in chloroplasts as well as the role in enzyme activation, particularly assimilation of energy compounds, photosynthesis and nitrogen assimilation. **Manganese** involvement in enzyme activity is particularly important in the early development of maize, particularly under cooler temperatures, where normal growth ceases but metabolic activity continues producing free radicals. These free radicals, or hydroxides, build up causing damage to the plant and if not denatured become toxic to the plant. The enzymes involved in denaturing these hydroxides are **Manganese** containing and so the extra **Manganese** provided by **Opticoat™ ZM** places the plant in a better state of health to take advantage of warmer temperatures when they arrive.

What are the main effects of sowing Opticoat™ ZM treated seed?

Opticoat™ ZM offers **YOU**, the maize grower, the following major benefits to your maize crop:

- Better Establishment - particularly in poor seasons.
- Improved root structure for better moisture & nutrient uptake (l/h plants).
- Improved uptake and utilisation of placed nitrogen and phosphate fertiliser.
- Faster early growth for enhanced crop development.
- Freedom from early deficiency of manganese and zinc.
- Improved tolerance to stress and sub-optimal growing conditions.
- Improved cob formation and grain development for higher starch yields.

These effects combine to improve establishment and early vigour, thereby giving the young maize plant a better start. There may be longer term benefits with improved cob fertilisation, cob index and better quality forage but the level of these responses will be modified by the weather later in the season.