MAATALOUS KONEMESSUT
Uutuustuote 2018
Kulta

ZM-GROW™

Recyclable-based foliar micronutrient for fertilizing cereals and grass

Using the unique technology developed by Tracegrow in Finland, manganese and zinc are extracted from used alkaline batteries and processed into premium-standard foliar fertilizer. Tracegrow's ZM-Grow™ fulfils all requirements of Finnish and EC legislation concerning fertilizers and is approved for use as an organic fertilizer under the EU regulation (EC N:o 889/2008). Not only is this micronutrient fertilizer provenly effective, it is also the world's most ecological zinc- and manganese-based fertilizer product, in which both of the key micronutrients are recycled. To ensure the purity and consistent quality of every product batch, Tracegrow applies a monitoring plan approved and overseen by the Finnish Food Safety Authority Evira, including quality control by a 100% external, independent, certified laboratory.

TRACEGROW
grow with us

ReNutrients
ReThink. ReNew

ZM-GROW™

Did you know?

A plant can take all necessary micronutrients through its roots, but this process can be disturbed if the ground is too cold, wet or dry. If the content of organic matter in the soil is high, the pH value is too high or too low, and the nutrient values are not balanced, the intake of micronutrients can be further disturbed. If the soil does not contain all micronutrients needed for the plant's growth, the use of a granular fertilizer that does not contain micronutrients is not sufficient – in such a case, foliar fertilizers or seed treatment with micronutrients are required.

Manganese deficiency is very common in Finland, where the soil's natural manganese content is relatively low. It can affect the yield of crops. The soil's manganese content is greatly affected by dryness and high pH values. As for zinc, its content in the soil is naturally lower in certain parts of Finland, and additional zinc fertilizing can be useful in such areas.

Oats

Oat is known to be the cereal that is the most vulnerable to manganese deficiency but less vulnerable to zinc deficiency. An experiment was carried out in Ruukki (in the Ostrobothnia region of Finland), in 2015, which was a rainy, relatively cold year. According to a fertility analysis, the test field has a poor content of manganese and a satisfactory content of zinc. During the month preceding the fertilizer spraying, the total rainfall was 100 mm, which meant that no major benefit could be expected from the manganese fertilizing.

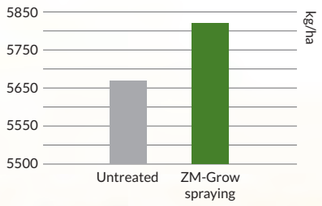
Wheat and barley

In 2017, tests were conducted on barley and wheat in Västankvarn (in southern Finland). According to a fertility analysis, the test section of the field had a poor content of both manganese and zinc. There was even rainfall during the growing season, but there was a dryer period just before the treatment. The spraying took place one month after sowing, at the beginning of stem elongation. The treatment had a major impact on crop yield, especially in barley, which is known to be more vulnerable to manganese deficiency than wheat.

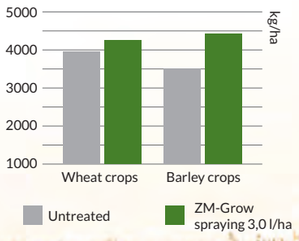
Seed treatment

The sowing seeds of cereals can be treated with ZM-Grow. This provides the plant with the manganese and zinc needed for initial development. In 2018, tests were conducted on barley and oats in Västankvarn (in southern Finland). According to a fertility analysis, the soil of the test section had a satisfactory manganese and zinc content and passable phosphorus content. Treatment with ZM-Grow increased crop yield, even though the manganese and zinc contents of the soil were both at a good level (values in green).

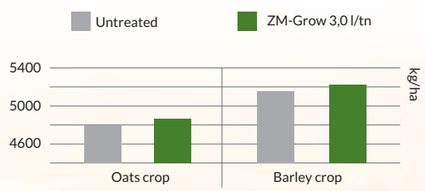
Oats, Ruukki 2015



Wheat and barley, Västankvarn 2017



Seed treatment, Västankvarn 2018



Grass

For grass, micronutrients are usually supplied in the form of manure and possibly also granular fertilizers. Zinc and manganese fertilizing in advance, in conjunction with the setting up of the grass field, is not worthwhile. Instead, foliar fertilizing for each new crop is the most cost-efficient way to increase the micronutrient content of the grass.

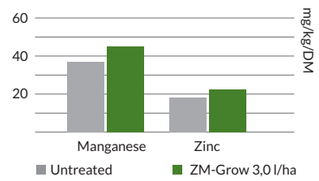
A test was conducted in Mustasaari (in the Ostrobothnia region of Finland), in which ZM-Grow was sprayed four weeks before the second harvest. The goal of the test was to examine the impact of spraying on timothy grass growing in a muddy clay soil with a high content of organic matter. The contents of both manganese and zinc increased by nearly 25%.

Another test was conducted in the same year in Maalahti (in the same region), this time on grass consisting of timothy, meadow fescue and rye-grass growing in humus soil. In this test, ZM-Grow was sprayed only one week before mowing. The contents of both manganese and zinc in the first crop increased by approximately 25%. The second crop had high contents of manganese. The first harvest had been fertilized with an NK fertilizer containing Mn and Zn, which can also affect the contents in the second crop.

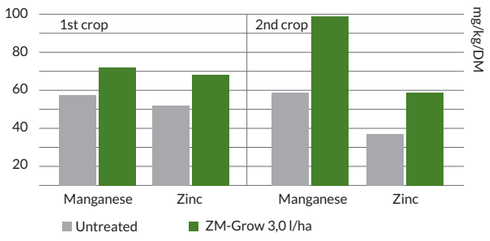
Corn

ZM-Grow was tested on corn grown for silage in Ylistaro (in the South Ostrobothnia region of Finland) in 2018. According to a fertility analysis, the test section of the field had a poor manganese content and passable zinc content. The test squares were sprayed with ZM-Grow twice in late July. Corn grown for silage needs a lot of zinc when its roots are developing at the beginning of the growing season. This is the time when growth spraying should take place.

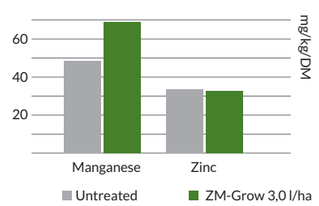
Manganese and zinc content in grass
Second crop, Mustasaari 2017



Manganese and zinc content in grass, Maalahti 2017



Manganese and zinc content in corn, Ylistaro 2018



ZM-GROW™

EC-FERTILIZER

Type designation	liquid compound micro-nutrientfertilizer	
Nutrients	Manganese (Mn)	4,9 % / 67,2 g/l
	Zinc (Zn)	5,3 % / 71,6 g/l
	Sulphur (S)	6,5 % / 88,5 g/l
Package size	Volume 10 litres, net weight 1.36 kg/l	

Directions for use Dose 2-3 l/ha, water 200 l/ha

Grass (pasture): 10-14 days before grazing. Repeat application every 10–14 days if necessary. NOTE: A minimum period of 10 days must be observed between product application and grazing.

Grass (silage/hay): As soon as growth begins in the spring. Repeat application every 10–14 days or for each new crop.

Cereals: 3 leaves to flag leaf stage. In cases of moderate or severe nutrient deficiency, repeat application after 7–14 days.

TANK MIX TABLE

ZM-GROW™

ZM-GROW™ +	+
	Avaunt 150 EC
	Decis Mega EW 50
	Cerone
	Medax Max
	Sonis
	Stabilan 750 SL
Hi-Phos	
Thio-S	
Thio-S + Hi-Phos	
	Ariane S
	Duplosan Super
	Buctril
	Nufarm MCPA
	Nufarm MCPA + Classic Premium SX
	Classic Premium SX
Hi-Phos	Classic Premium SX
	Twist + Classic Premium SX
	Starane 333 HL + Classic Premium SX
	Starane XL
Thio-S	Starane XL
Hi-Phos	Starane XL
	Matrigon 72 SG
	Lentagran WP
	Ascra Xpro
	Prosaro EC 250
	Comet Pro
	Don-Q
	Talius

No precipitate.
Small amount of soft precipitate.
Precipitate generated. Mix not recommended.

Tank mixing tests conducted using the highest allowed dosage, ZM-Grow 3.0 l/ha and water 200 l/ha. The figures in the table are approximate, as the quality of spraying water (temperature, hardness, pH value, humus content) affects the outcome. We recommend testing the compound in a smaller container before spraying. Observe the general instructions on filling order for tank mixing, as well as the operating instructions of the filler. For up-to-date tank mixing tables, see the website of Viljelijän Avena Berner.

DISTRIBUTOR

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