

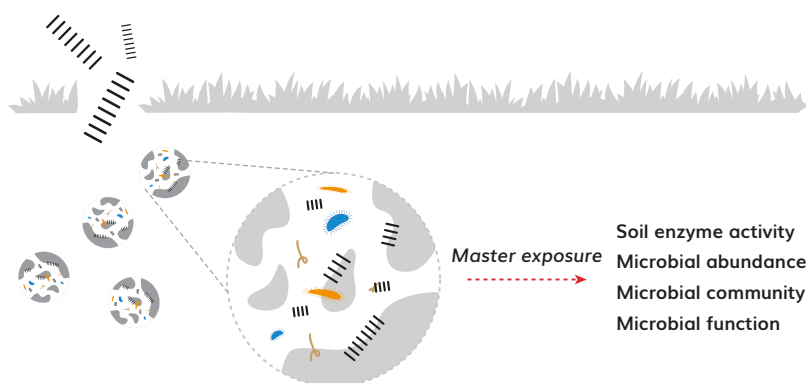


APPROVED FOR ORGANIC FARMING

## Introduction

A microbial plant biostimulator designed to increase soil biological activity especially in early spring and late fall. The product consists of 6 different microorganisms, of which 3 microorganisms can act under both anaerobic and aerobic conditions. The combination of microorganisms creates a perfect complex of microorganisms that revitalizes the soil after winter, accelerates the biological activity of the soil and creates ideal conditions for plant development. The composition of these 6 microorganisms has been developed having a goal to increase the concentration of nitrogen, phosphorus and potassium in the soil. The microbial plant biostimulator Master can alter soil viability and fertility.

Figure 1.



## Challenges

Soil tillage being far from optimal depletes the soil over years: the amount of organic matter decreases, the number of pathogenic microorganisms increases, the chemical properties of the soil become unbalanced. The farms then fall into a circle: a constant increase in the rates of plant protection products and fertilizers is needed. In order to ensure soil balance and ensure long-term fertility, it is necessary to increase the number of microorganisms in the soil.

## Solution

Master - microbial biostimulant for the potential of the soils.

### Registration information and certificates

Suitable for: cereals, rapeseed, corn, sunflower, sugar beet, vegetables, fruit trees, fruit bushes, berries.

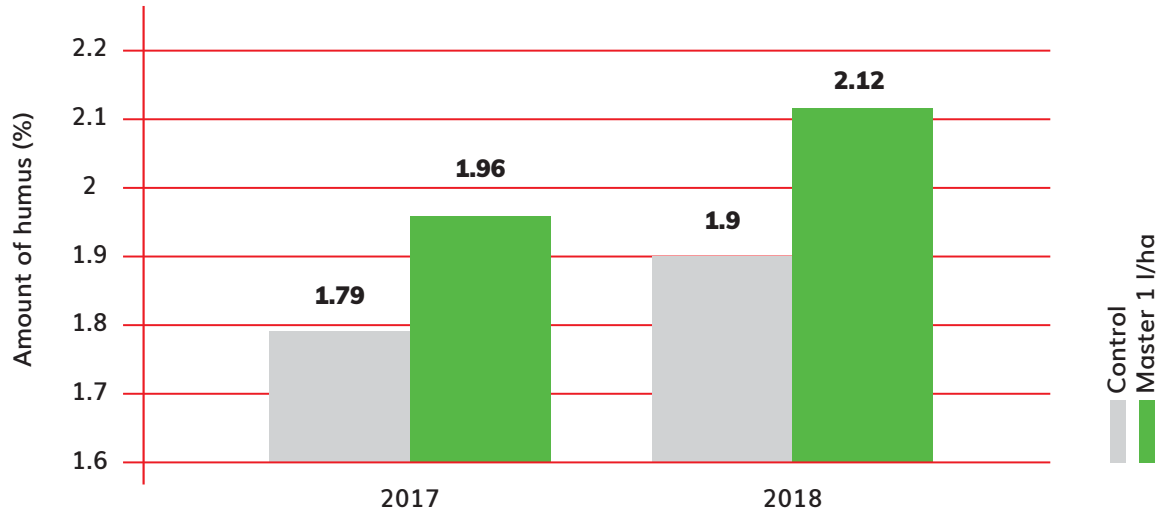
## Mode of action

The product contains a complex of bacteria that exudes biologically active substances, vitamins, enzymes, plant hormones that promote plant development and releases micro and macro elements that are especially needed by plants. Master improves the physical and chemical properties of the soil and the uptake of nutrients by plants. Its action begins immediately after contact with the soil or the plant and acts under favorable physiological conditions for up to 8 weeks.

## Benefits and Results

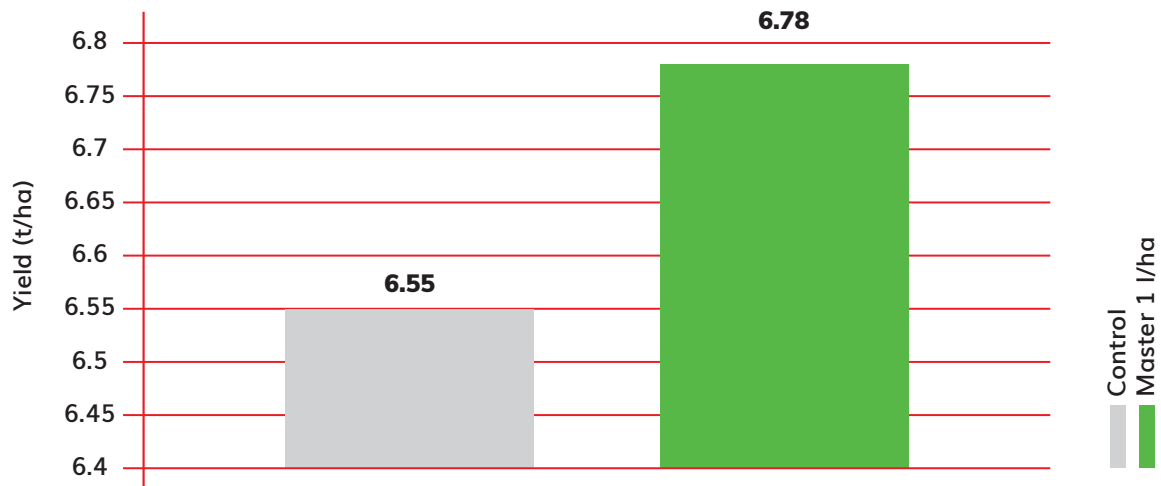
- Promotes soil biological and enzymatic activity;
- Increases the amount of phosphorus and potassium available to plants;
- Increases N reserves in soil;
- Promotes plant growth and accordingly, better resistance to stress;
- Improves soil structure.

Figure 2.



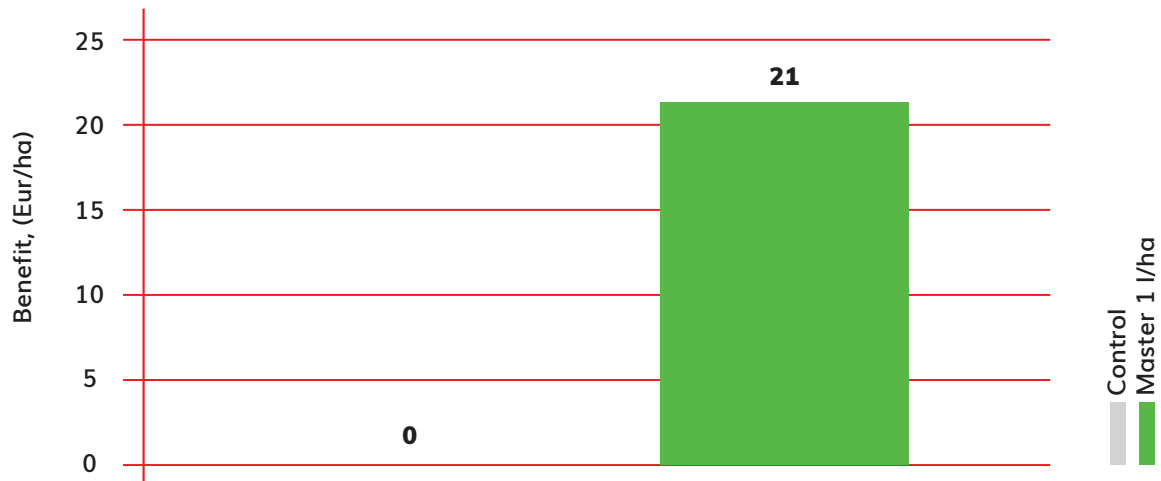
ASU Experiment Center W. Wheat, 2017-2018

Figure 3.



LAMMC Dotnuva Experiment Centre, W. Wheat 2019

Figure 4.



October, 2019, W. Wheat Market Price 160 Eur/t

## Application rate, technology

**Application rate:** cereals: 1-3 l/ha; rapeseed: 1-3 l/ha; corn, sunflower: 1-5 l/ha; sugarbeet: 1-3 l/ha; vegetables: 1-5 l/ha; fruit trees, fruit bushes: 1-4 l/ha; berries: 1-3 l/ha.

**Application time:** spray before sowing. In other cases, it is recommended to consult a sales representative.

**Application requirements:** the sprayer pressure must be 1-10 bar or 15-145 psi; nozzle size is at least 50 µm.

**Safety and storage:** product can be mixed with all kinds of fertilizers and pesticides unless the manufacturer of fertilizer or pesticide states otherwise. May contain natural sediments. Storage at high temperature above 30 °C must be avoided. Use Master as soon as possible after opening or store in the refrigerator (4 °C) once it is opened and use it within 72 h. Contamination of the product may occur at any time after opening and the manufacturer takes no responsibility for opened and unused product.

**Product is non-toxic and has no irritating compounds.** There is no risk to humans, animals and the environment. After contact with the skin or eyes, wash with running water. Microorganisms may have the potential to provoke sensitising reactions.

## Specifications

**Composition:** *Bacillus megaterium* MVY-001; *Bacillus megaterium* MVY-011; *Bacillus mojavensis* MVY-007; *Paenibacillus polymyxa* MVY-024; *Lactococcus lactis* MVY-017; *Saccharomyces cerevisiae* MVY-002, (in total,  $1.2 \times 10^{12}$  CFU/l). K-3978 mg/l; Na-3231 mg/l; S-1358 mg/l; Ca-369 mg/l; P-306 mg/l; Mg-124 mg/l.

**Packaging:** 20 l; 10 l; 5 l; 1 l.

- **Biological activity:** product for multiple use; free-living microorganism; ploughing/conventional farming;
- **Physical state:** liquid biological product;
- **Viability, shelf life:** 12 months. The manufacturer does not recommend storing the product above 30 °C.
- **Working conditions:** 5-42 °C soil temperature; 4 to 9.5 pH;
- **Chemical parameters:** dry matter 4.2%; pH 5.7; organic matter 68.1%;
- **Physical parameters: colour:** from dark yellow to light brown; dynamic viscosity 0.9 mPas; density 1.07 g/cm<sup>3</sup>.

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