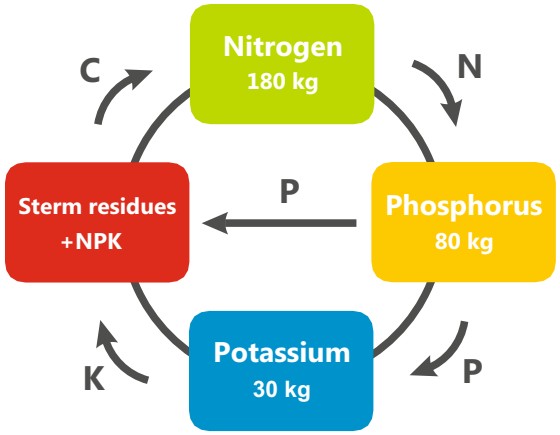
AZOTER® bacteria fertilizer

NPK cycle

In order to gain an optimal yield crop the nutrient requirement of soil has to be provided professionally. The agricultural plant will reach a high yield with the help of AZOTER® soil bacteria fertilizer. The usage is economical, its soil conditioning effect provides a perfect seedbed for spring and winter crops.

As plant grows it provides the right amount of nutrients evenly because the bacteria in AZOTER® fix the air nitrogen and enable the plants to draw it from the soil, help to take up phosphorus and potassium from it. They ensure the decomposition of stem-residues in the soil and they provide the plant with additional nutrients as more nitrogen, phosphorus and potassium will be utilizable. This microbiological cycle ensures an optimal handling of stubble and the right amount of N-P-K for crop.

NPK cycle with AZOTER® bacteria fertilizer



It is visible from the NPK cycle diagram that 10 litres of AZOTER® bacteria fertilizer per hectare apply 180 kg nitrogen to the root-system of the plant, 80 kg phosphorus from the non-accessible phosphorus compounds and mobilize 30 kg potassium. Additional nitrogen, phosphorus and potassium can be utilized by the decomposition of stem-residues, green and farmyard manure.

Due to this efficient NPK cycle the air and water content of soil improves, the soil gets loose and airy so it eases cultivation that results in significant fuel savings. The root of the plant enlarges by 25%, so it better endures the extremely wet and drought periods, an example would be the fast regeneration of the microbial life of soil after a flood situation. This environmentally friendly fertilizer improves the chemical condition of soil, promotes humus production and avoids harmful nitrogen loading in soil.

Advantages of AZOTER®

- rapid decomposition of stubble and plant residues
- carbon-nitrogen ratio in soil improves
- valuable NPK is deliverd to plants from stam residues
- high amount of organic matter develops
- mobilizes the micro and macro nutrients
- microbial activity is intensified in seedbed
- pH value of soil increases with 0,1 - 0,2 per year
- soil becomes loose and easy to cultivate
- structure, air and water supply of soil improves
- fertility of soil increases
- amount of fertilizers can be reduced or even omitted
- Sclerotinia and Fusarium free soil can be achieved
- the produced auxins and gibberellin stimulate the plant growth and development

Calculating nutrients

The applied nutrient rate needs to comply with the nutrients available in the soil. As you can see in table below, achieving 10 tons maize yield per hectare, the plant needs altogether 195 kg nitrogen, 105 kg phosphorus and 200 kg potassium agent to create roots and stems, irrespectively of the soil type and nutrient availability.

The table also shows the amount of surplus nitrogen, phosphorus and potassium agents released by the decomposition of the stem- and root system of the previous plant cultures, with the usage of AZOTER® soil bacteria fertilizer. For instance, if the green crop preceding the maize was sunflower, then an average crop of 3,5 tons sunflower stem residues – having worked into the soil – give 30 kg nitrogen, 15 kg phosphorus and 160 kg potassium for the maize. When we add up these amounts with the 180 kg nitrogen, 80 kg phosphorus and 30 kg potassium basically ensured by the usage of AZOTER®, it means altogether 210 kg nitrogen, 95 kg phosphorus and 190 kg potassium nutrients for the maize. So the usage of chemical fertilizers can be reduced.

Required nutrients of some plants and NPK content of their stem residues (kg/ha)

	Yield	Required nutrients			Stem residues		
	t/ha	N	P_2O_5	K_2O	**N**	**P_2O_5**	**K_2O**
Winter wheat	6	150	75	105	**40**	**20**	**80**
Maize	10	195	105	200	**55**	**30**	**155**
Sunflower	3,5	120	85	200	**30**	**15**	**160**
Rape	4	200	125	170	**60**	**40**	**110**

AZOTER® bacteria fertilizer

Application of AZOTER®

We recommend AZOTER® bacteria fertilizer for every plant. Its usage is advised on soils over 1% humus content and between 5.8 - 8.5 pH value. Before sowing or planting disperse 10 l/hectare AZOTER® – mixed in chlorine-free water with field dispersing machine, or with 1:1 dilution with AZOTERJET dispersing device that is assembled on the machine – evenly onto the soil and turn into the depth of sowing or planting. This way the strong sunshine can not destroy the microorganisms of the preparation. Our advice is to use it in the early and late hours of the day in windless, calm weather. It can be mixed and handled only with preparations without bactericide or fungicidal effect.

Spring crops

AZOTER® bacteria fertilizer is used for spring crops – such as maize, sugar beet, sunflower, spring cereals, pulses, potatoes, vegetables, grape and flowers – before sowing and planting or latest during sowing, when the temperature of the soil reaches 5°C. AZOTER® bacteria fertilizer ensures such an amount of nutrients to spring crops that extra dosing of other fertilizers is only required in high-intensity cultivation.

Stubble management

At stubble-stripping AZOTER® bacteria fertilizer is recommended to be dispersed onto the stubble – harrowed in, closing the soil – after the harvest as soon as possible. This facilitates the decomposition of plant residues, the quick multiplication of bacteria and provides a seedbed rich in nutrients to winter corns. The cellulose decomposing bacteria require abundant nitrogen, which is provided by the different nitrogen fixing bacteria in AZOTER®. As a result, the nitrogen supply of soil is not exploited during decomposition of stubble residues, but enriched, furthermore, the carbone-nitrogen ratio in soil increases. Additional nitrogen, phosphorus and potassium can be utilized by the decomposition of stubble residues; the amount of the extra NPK varies according to the previously harvested plant.

Winter crops

If you do not use AZOTER® fertilizer after harvest on stubble, then disperse it onto the soil and turn right into the depth of sowing latest in autumn before or during sowing. In the seedbed, treated with AZOTER®, winter crops dispose of proper amount of 30-50 kg fixed nitrogen, mobilized and water soluble phosphorus and potassium released from the decomposition of plant residues. After the winter period when temperatur is above 10°C, nitrogen fixing bacteria begin to multiply again, so top-dressing fertilizing can be reduced by 25%. From spring to harvest the bacteria fertilizer supplies 50-60 kg additional nitrogen to the plants. The release of phosphorus and potassium is unbroken all year long because the efficiency of stem-decomposing and phosphorus releasing bacteria is not influenced by the temperature of the soil.

Orchards & vineyards

In case of plantation of fruit trees and grape mix 20 ml AZOTER® in 10 l water. Immerse the roots of trees and shrubs into it and poor the AZOTER® mixture into the planting pit of fruit trees and grape. In case of yielding orchard apply the mixture to the stock of tree or grape via drip irrigation system. This way the agent washes in to the roots quickly. If drip irrigation system is not available, then disperse the AZOTER® among rows and wash in or harrow in. This operation is best to perform in the early or late periods of the day.

AZOTER® against diseases

The significance of the components of AZOTER® bacteria fertilizer also lies in the process as the bacteria metabolism produces varieties of vitamin B, nicotinic acid, pantothenic acid, biotin, auxins, gibberellin and other useful substances that strengthen plants' resistance against diseases. AZOTER® bacteria fertilizer is enhanced with hyperparasite fungus, which gives biological control against the fungal pathogens, namely against Fusarium, Sclerotinia, Alternaria and Penicillium fungus.

- **AZOTER-SC®**

AZOTER-SC® is a member of AZOTER® bacteria fertilizer product family, which provides a biological control against Sclerotinia fungus. AZOTER-SC® contains Coniothyrium minitans hyperparasite fungus, which eliminates Sclerotinia in the soil.

- **AZOTER-F®**

AZOTER-F® is another member of AZOTER® bacteria fertilizer product family, which provides a biological control against Fusarium fungus. AZOTER-F® contains Trichoderma aureoviride hyperparasite fungus, which eliminates Fusarium in the soil.

- **AZORHIZ®**

AZORHIZ® is also a member of AZOTER® bacteria fertilizer product family, which contains specific Rhizobium bacteria for legume plants. These plant specific Rhizobium bacteria live in a rhizobial symbiosis with the plant, giving an extra nitrogen supply to their root-nodules.

Price and packaging

Package: 25, 30 and 50 litre barrels

Expiry date: 3 months in a cool place (4-14 °C), protect it from sunshine

2012 EXW price: 4.50 EUR/litre

AZOTER®

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