

SMART N 21

Due to below given reasons, losses of nitrogen occur in fertilizers (such as UREA, AS, AN, CAN) in gaseous forms (NH_3 – NO_2 – NO - N_2) or in solution forms (NO_3) when washed with water. When fertilizer is applied to the soil, ammonium in the fertilizer is converted to nitrates via enzymatic reactions undertaken by bacteria in soil. To prevent such losses of nitrogen, coating materials (organic and inorganic substances) and inhibitors against bacterial reactions may be utilized. Such losses of nitrogen may also occur in composite fertilizers or double nutrient (MAP-DAP) fertilizers containing nitrogen in the form of urea or ammonium. Depending on weather and soil conditions, losses of nitrogen occur in a short period of time such as 2 to 3 weeks for fertilizers without inhibitors or coating materials.

Factors affecting loss of nitrogen:

- Soil temperature
- Airing of soil
- Humidity of soil
- pH value of soil
- Organic composition of soil
- Cation exchange capacity of soil
- Bacteria concentration of soil
- Heavy rains or over-watering
- Type and timing of fertilizer application

When pH value of soil is equal to or larger than 7, 5 or temperature of soil is between 20 and 25 degrees centigrade or fertilizer is not mixed with soil but scattered, loss of nitrogen is observed in the gaseous form (ammonia) and in soil types with low nutrient holding capacity containing low levels of organic substances or over-watering or heavy rains can cause losses of nitrogen in the form of nitrates.

In soil, there is no mineral containing nitrogen. Fertilizers of animal origin, wastes of harvest and plants, living creatures in soil, nitrogen fixation of beans and rains cause nitrogen gains for the soil. In addition to above-mentioned natural conditions, to the soil we supply mineral fertilizers for this purpose.

Therefore, prevention of nitrogen losses is very important for productivity and cost reductions.

Smart N 21 is fertilizer formulation with rich nitrogen content and its application is recommended at each vegetation period when high levels of nitrogen are required by plants. It contains ammonium nitrogen at a level of 21%. This ammonium nitrogen is a special fertilizer manufactured via inhibition by DMPP. Thanks to DMPP, for 6 to 10 weeks, conversion of ammonium to nitrates is prevented and thereby gaseous losses of nitrogen and also washed away nitrogen is hindered. As a result, nitrogen is stabilized so that without any losses it can be absorbed and used by plants slowly, regularly and in a balanced way. It is completely soluble and is a high quality fertilizer that can be applied via sprinklers or other means of pressurized watering systems.

SMART N 2's content:

Total nitrogen (N)	%21
Ammonium nitrogen (NH₄ - N), DMPP inhibited	%21
Ammonium Inhibitor (DMPP)	%0.80
Soluble sulphur trioxide (SO₃)	%60

SMART N 21's properties and advantages:

- Thanks to use of the most up to date nitrification inhibitor DMPP, conversion of ammonium to nitrates is delayed for 6 to 10 weeks and thereby losses of nitrogen to air in the form of ammonia or washing away in the form of nitrates are prevented and as a consequence loss of nitrogen is minimized ensuring a more effective fertilizing.
- With ammonium fertilizers, lower levels of energy are required by plants.
- It lowers fertilizing costs as number and quantity of fertilizer applications are reduced.
- Thanks to DMPP inhibited ammonium fertilizer, syntheses of phytohormones and polyamines is promoted and consequently higher productivity is obtained via increases in flowering rates.
- Ammonium fertilizers lower pH values of soil at levels of roots and these ideal pH levels are maintained for long periods thanks to DMPP inhibitor. Thereby phosphorus and microelements in soil can easily be absorbed by plants.
- Nitrification is delayed and nitrate quantities in plants are reduced. As a result, nutrient capacity of fruits, vegetables and grains increase and their storage times are extended.
- It increases productivity and quality for any kind of plants.
- As it prevents nitrate accumulation in underground water sources and leafy vegetables, it is an environment friendly fertilizer.

Suggestions for use:

- Suggestions are given as examples. It is recommended that selection of fertilizing type should be made based on the soil and leaf analyses and only after consulting a specialist agricultural engineer of Toros Tarım.

Plant	With sprinkler system (each application)
Flowers	3-4 kg/minutes application via soil
In greenhouses	3-4 kg/minutes application via soil
In field grown plants	4-5 kg/minutes application via soil
Leafy vegetables	4-5 kg/minutes application via soil
Fruit trees	4-5 kg/minutes application via soil
Citrus trees	4-5 kg/minutes application via soil
Bananas	3-4 kg/minutes application via soil
Vineyards	3-4 kg/minutes application via soil
Field plants	4-5 kg/minutes application via soil
(Corn, Cotton, Potato, Wheat, Sunflower etc)	