



The strength of fertilizers.



DOMOGRAN[®] 45 ACTIVATING YOUR NUTRIENT POTENTIAL

THE NITROGEN-SULFUR FERTILIZER FROM LEUNA

www.domogran.de

DOMOGRAN®45 – nitrogen and sulfur fertilizer for positive nutrient dynamics

Because of its attraction effect, **DOMOGRAN®45** causes stronger formation of secondary roots, allowing greater exposure to the soil volume. To absorb ammonium-N, the plant releases a proton in the form of a hydrogen ion as a charge equalization, so that the rhizosphere acidifies. This partial acidification results in a mobilization of nutrients, improving nutrient dynamics.

Sulfur in the form of sulfate ions is an important anion, both directly in the plant's nutrition, and indirectly for the mobilization as well as regulation of cations from the soil.

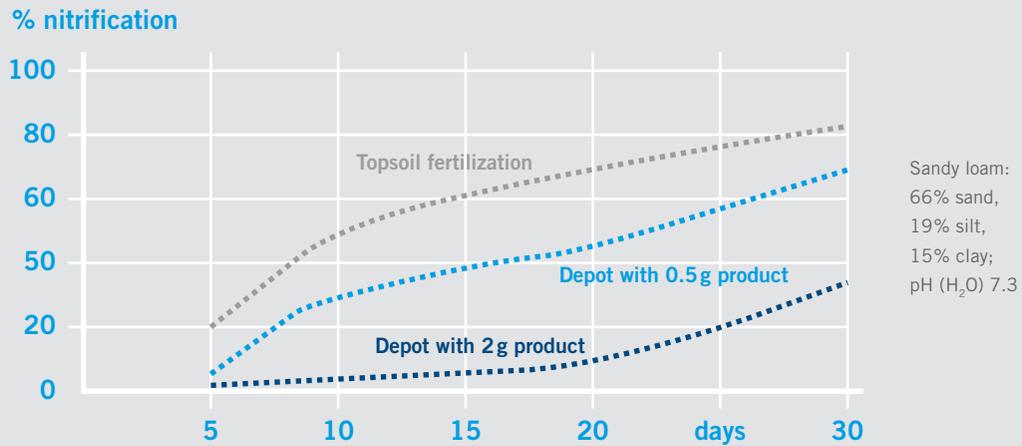
Advantages in topsoil fertilization

- Can be spread up to 36 m
- High degree of nitrogen efficiency
- Synergies with macro- and micro-nutrients
- Readily available sulfur
- Promotes root formation



TOPSOIL FERTILIZATION

Longer ammonium phase and better soil-nutrient release using DOMOGRAN®45 as a seed-placed fertilizer



Depot effect of ammonium sulfate at 20°C Source: Based on Grewal et al. 1998

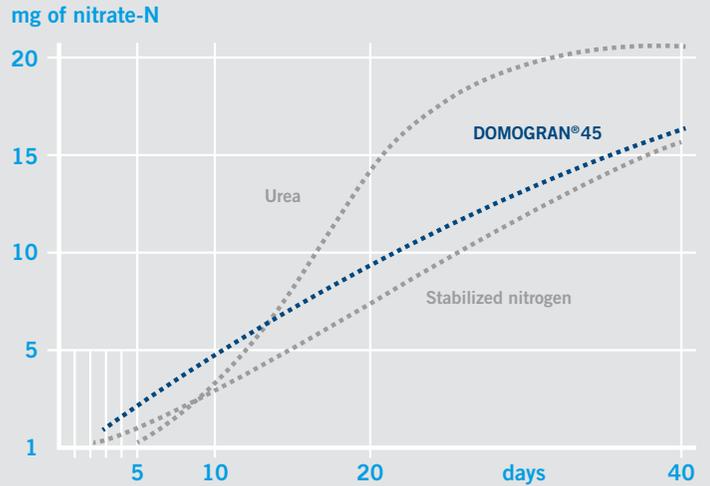
Advantages in Depot Fertilization

- Delayed nitrification results in the highest N-efficiency (especially in light soils)
- Securing the sulfur supply to locations with sulfur provision
- Lowest ion competition between ammonium and other nutrients (K, Mg)
- Promotes soil biology due to wide C/N ratio among the depots

DEPOT FERTILIZATION

Instant and Long-lasting Nitrogen Fertilizer

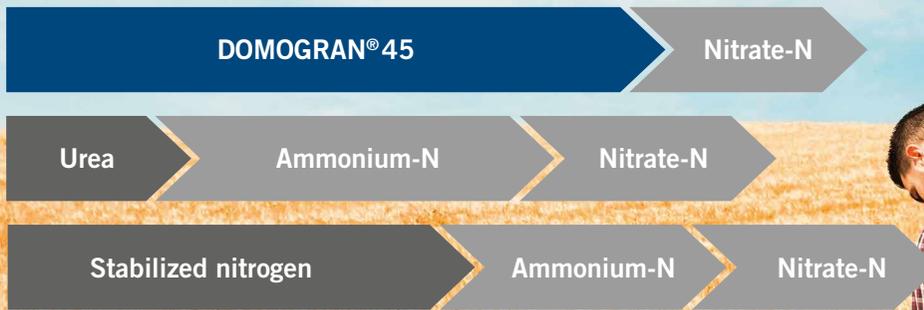
DOMOGRAN®45 is a coarse crystalline ammonium fertilizer that has an immediate effect and continues to be effective over a long period. The nitrification of ammonium is significantly influenced by the pH value, as well as temperature, oxygen concentration and moisture. A neutral to slightly alkaline pH speeds the breakdown of ammonia nitrogen into nitrate.



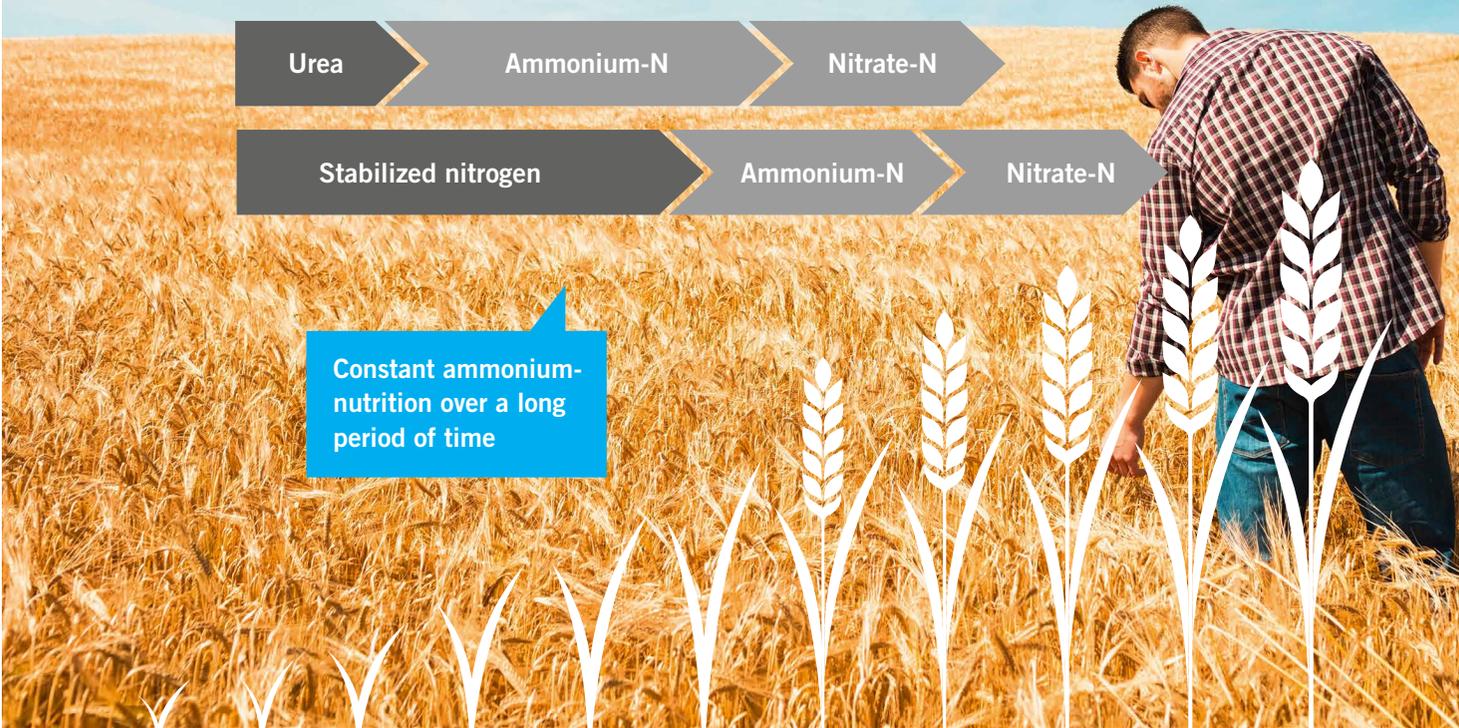
Conversion speeds of various forms of nitrogen in the soil into nitrate-N at 10°C
Source: Based on Vilsmeier and Amberger 1980

Because of its partially acidifying effect, **DOMOGRAN®45** naturally buffers nitrification, enabling a long ammonium phase.

DOMOGRAN®45 therefore results in advantageous effective speeds during the conversion to nitrate:



Constant ammonium-nutrition over a long period of time



LONG-LASTING NITROGEN SUPPLY

Improved Phosphate Availability

Because of its acidifying effect, **DOMOGRAN®45** triggers the release of sulfur-soluble calcium phosphate. In soils with an optimal calcium supply, phosphor from manganese, iron and aluminum compositions is replaced through hydroxide-ion exchange, and then bonds with calcium. Acids in the soil, such as humic, carbonic or even sulfuric acids can cause calcium phosphates to become soluble again. Optimal phosphate solubility occurs within the pH range of 5.5 to 6.5.

DOMOGRAN®45

+

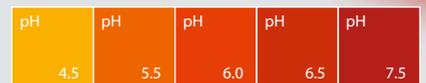
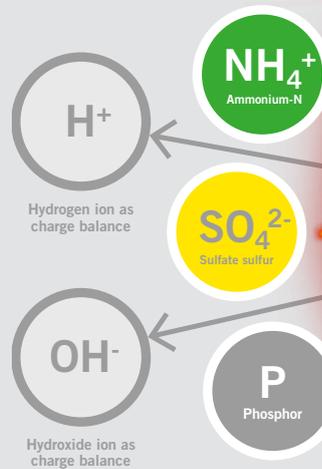
Calcium Phosphate ●

○ Plant-Available Phosphate

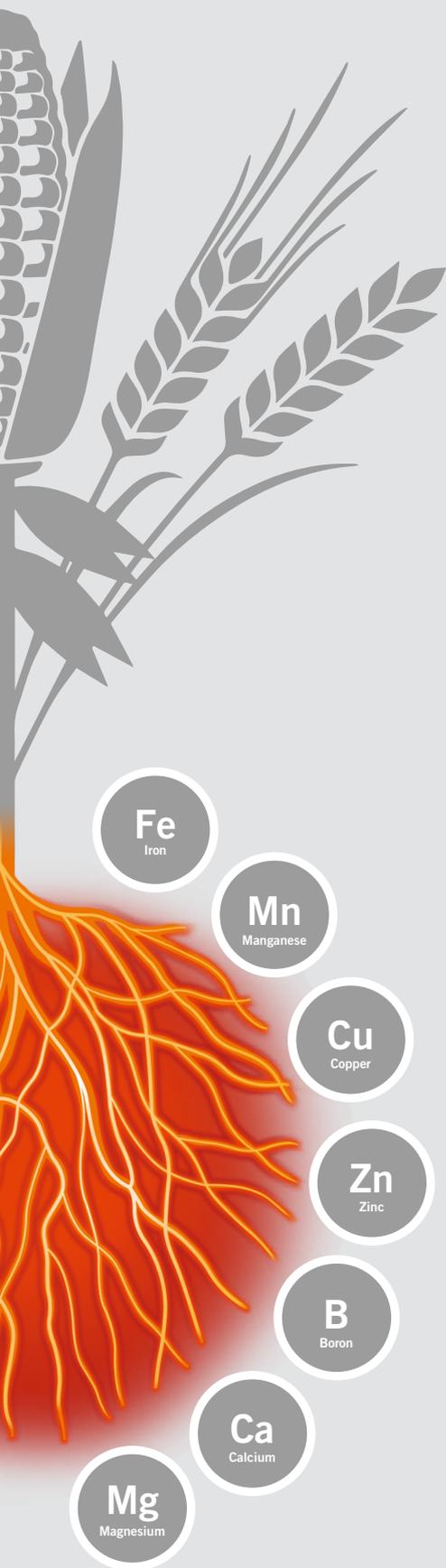
○ Plant-Available **Ammonium**

○ Calcium**Sulfate**

DOMOGRAN® 45 splits complex calcium phosphates to make them more readily available.



FERTILIZING WITH 2 NUTRIENTS AND

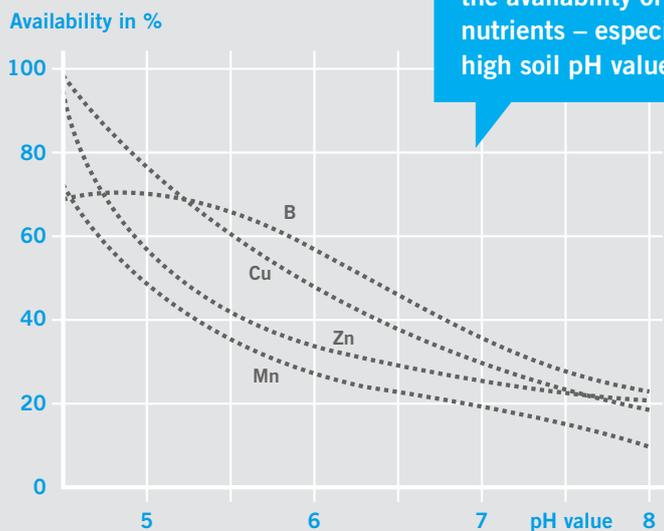


Improved Micronutrient Availability

Micronutrient availability improves as pH values decrease. By applying **DOMOGRAN®45**, the acidic environment within the soil can be selectively modified, making nutrients available to plants. This is due to its triple-action effect:

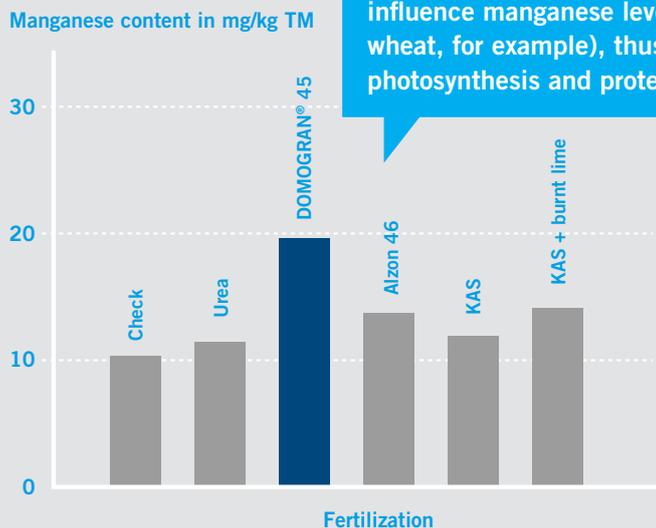
- Ammonium nutrition
- Conversion of ammonium into nitrate
- The acidic nature of the fertilizer pellet

DOMOGRAN®45 increases the availability of micronutrients – especially at high soil pH values.



Source: Based on Knittel, Albert and Ebertseder 2012

Using **DOMOGRAN®45** allows you to influence manganese levels (in winter wheat, for example), thus improving photosynthesis and protein formation.



Source: Based on Weidemann, Mühling 2011

MOBILIZING UP TO 8 NUTRIENTS

Plants Need Sulfur

Sulfur optimizes nitrogen efficiency

One kilogram of sulfur in the plant in need impedes the conversion of up to 15 kilograms of nitrogen. Plus, sulfur lowers nitrate levels in the plant, which results in greater vitality.

Sulfur increases the proportion of sulfur-containing amino acids like methionine and cysteine.

- Outstanding baking quality due to the excellent glutenous properties in grains
- Very high feed values in grains, corn, grasses and fodder crops

Sulfur promotes the buildup of carbohydrates

- Starches/Sugars/Flavorings

Soils Need Sulfur

Because of the lack of mineralization of sulfur from the soil during the autumn and winter, targeted sulfate sulfur fertilizer is necessary at the start of vegetation.

Reducing sulfur depositions from the previous year results in deficits in the C/N/S ratio in the humus.

- The C/S quotient in the humus is responsible for the mineralization of sulfur during the vegetation period
- Quantities of sulfur mineralized from the humus must be replenished using a supplement fertilizer at midyear
- Adding more sulfur than the plants require stabilizes the humus content

Regulating Nutrient Antagonism

- Improves solubility, e.g. of Mg-ions, for better Mg-nutrition of plants
- Sulfate sulfur is well suited for regulating cation antagonism and thus indirectly improves quality

Nitrate deposits form, regardless of the allocation of the cation exchanger calcium in deeper soil layers. Depending on the allocation of calcium to cation exchangers, sulfur in sulfate form can trigger the release of either calcium or magnesium, making them available to plants and depositing them in deeper soil layers.

NO_3^-		SO_4^{2-}		
Ca^{2+}	Mg^{2+}	Ca^{2+}	Mg^{2+}	with free Ca^{2+}
Ca^{2+}	Mg^{2+}	Ca^{2+}	Mg^{2+}	without free Ca^{2+}

The anions and the entrained cation are the same color.

SULFUR FOR QUALITY AND SOIL



The strength of fertilizers.

DOMOGRAN® 45 (ammonium sulfate)

Nutrient content:

21% N – ammonia nitrogen

24% S – water-soluble sulfur

DOMO Caproleuna GmbH

Am Haupttor – Bau 3101

06237 Leuna, Germany

Telephone: +49 3461 43-6368

E-Mail: fertilizer@domo.org

www.domogran.de

DOMOGRAN® 45 QUALITY FROM LEUNA