

Plant nutrition courier

The best bits of plant nutrition research

2024-03

Novel compounds target nitrifiers not blocked by current inhibitors 4

High dose of slaked lime provides more plant-available phosphate than high dose of aglime 7

Nitrate leaching from cattle slurry on grassland lower than previously thought 8

Simultaneous pH and EC control in hydroponics through tactical addition of ammonium and nitrate 11

Novel additives reduce emissions from stored slurry 18

Recent plant nutrition patent publications 47



Novel compounds target nitrifiers not blocked by current inhibitors 4

Commercial nitrification inhibitors only block part of the nitrifying organisms in soil. Scientists are looking for compounds that fill the gap left open by current inhibitors.



Slaked lime provides more plant-available phosphate than aglime 7

Aglime and slaked lime differently affect nitrification and phosphate availability in soil, particularly at (very) high doses.



Leaching from cattle slurry on grass lower than previously thought 8



Simultaneous pH and EC control through tactical addition of ammonium and nitrate 11

Nitrification inhibition

- 4 Novel compounds target nitrifiers not blocked by current inhibitors
- 5 Various nitrification pathways
- 5 Nitrifiers have natural enemies
- 6 Competition among nitrifiers
- 6 Deep-rooted crop has most ammonia-oxidizing archaea in subsoil
- 6 Grant for breeding wheat that inhibits nitrification
- 6 Sugarcane roots release nitrification inhibitors

Arable farming

- 7 High dose of slaked lime provides more plant-available phosphate than high dose of aglime
- 7 Phosphorus level determines nitrogen-phosphorus interactions in soil
- 8 Amorphous silica promotes potentially beneficial rhizosphere microbes
- 8 Silicon mitigates plant stress by promoting nutritional balance
- 8 Plant hormones improve grain biofortification

Grassland

- 8 Nitrate leaching from cattle slurry on grassland lower than previously thought
- 8 Gras mixture for low-phosphorus soils
- 8 Mycorrhizae reduce grass-legume competition

Potato nutrition

- 9 Oil radish cover crop increases potato tuber yield
- 9 Publications about potato nutrition research
- 10 Potato nitrogen nutrition diagnosis estimated using hyperspectral data and machine learning

Fruits, vegetables and ornamentals

- 10 More and better tomatoes through foliar-applied silicon
- 10 Nitrogen level affects strawberry's preference for ammonium and nitrate
- 10 Root irradiation increases nutrient absorption
- 10 Strontium biofortification
- 11 Simultaneous pH and EC control in hydroponics through tactical addition of ammonium and nitrate

Plant and soil analytics

- 10 Potato nitrogen nutrition diagnosis estimated using hyperspectral data and machine learning
- 11 Simultaneous pH and EC control in hydroponics through tactical addition of ammonium and nitrate
- 11 Soil sample storage conditions affect measured nutrient contents
- 11 Portable soil analyser

Fertilisers

- 11 Iron fertiliser evaluation in Strategy I plants
- 11 Optode system visualizes subsurface ammonia and pH dynamics around nitrogen fertiliser granule
- 12 Designing novel sustained-release urea molecules
- 12 Granular urea with zinc oxide coating
- 12 Zinc borate co-granulation to reduce boron leaching
- 12 Slow-release manganese fertiliser
- 13 Powdered iron phosphate is effective phosphate fertiliser under reducing conditions
- 13 Fertiliser with dual-release magnesium for leaching-prone soils
- 13 Surfactant improves granule shape in fluidized-bed granulation
- 13 Potassium feldspar processing to obtain water-soluble potassium fertilisers
- 14 Nano fertiliser additive improves nitrogen uptake and wheat yield
- 14 Publications about new, experimental and potential fertiliser formulations

Slurry additives

- 18 Novel additives reduce emissions from stored slurry



Novel additives reduce emissions from stored slurry 18

Addition of a surfactant to cattle slurry can significantly reduce ammonia and methane emissions. Academics and companies are investigating the practicability of this and other slurry additives.

Silicon

- 8 Amorphous silica promotes potentially beneficial rhizosphere microbes
- 8 Silicon mitigates plant stress by promoting nutritional balance
- 10 More and better tomatoes through foliar-applied silicon

Rhizobia, mycorrhizae and other beneficials

- 8 Mycorrhizae reduce grass-legume competition

Plant nutrition patents

- 47 Recent plant nutrition patent publications

Literature

- 9 Publications about potato nutrition research
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- 19 Publications about plant nutrition research

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Fertiliser companies



Analytical services



Fertiliser research



Liquid fertiliser applicators



Soil services



Agricultural cooperatives

(Dutch - with international network of subsidiaries)



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Colophon

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