

# Plant nutrition courier

---

The best bits of plant nutrition research

2019-01

*Maize cultivars respond differently to banded nutrients* 4

*Calcium prevents intumescences in greenhouse-grown Russet Burbank* 6

*New tools to detect latent nitrogen and phosphorus deficiency* 9, 10

*Reactive extrusion extends phosphate release profile of APP fertilisers* 10

*Biodegradable iron chelates for calcareous soils* 12

*New urease inhibitors* 14





## Maize cultivars respond differently to banded nutrients 4

Maize cultivars adapt their root growth differently to nutrient-rich patches. Little is known about possible differences between cultivars of other crops and about the practical implications of this phenomenon.



## Calcium prevents intumescences in greenhouse-grown Russet Burbank 6

Intumescence injury in greenhouse-grown Russet Burbank may be a calcium related disorder that can be alleviated by calcium supplementation. Atlantic growing under low calcium circumstances has no defects. *Photograph: Department of Horticulture, University of Wisconsin-Madison.*



## Handheld tool for detection of latent phosphorus deficiency 9

The photosynthesis process offers a unique marker to detect latent phosphorus deficiency in early growth stages. Danish plant scientists discovered this fingerprint of phosphorus deficiency and offer a portable tool for farmers and crop advisers to monitor crops. *Photograph: University of Copenhagen Department of Plant and Environmental Sciences*

## Arable farming

- 4 Maize cultivars respond differently to banded nutrients
- 4 Editorial: Cultivar differences in response to fertiliser banding largely overlooked
- 5 Cover crops enhance phosphate uptake most on soils low in phosphorus
- 5 Cover crops increase annual evapotranspiration
- 5 Potassium reduces frost-induced grain sterility
- 5 Foliar-applied selenium counteracts mycotoxin stress
- 5 Zinc enters sunflower leaves via trichomes and cuticle
- 5 Silicon ameliorates magnesium deficiency
- 5 Nitrogen affects insect defence by silicon

## Potato nutrition

- 6 Calcium prevents intumescences in greenhouse-grown Russet Burbank
- 6 Research into effects of silicon on phosphorus use efficiency
- 6 Publications about potato nutrition research
- 10 Tractor-mounted tool to detect latent nitrogen deficiency

## Fruits and vegetables

- 8 Silicic acid prevents soil acidification after drip fertigation with ammonium nitrate
- 8 Foliar-applied phosphorus affects post-storage apple quality
- 8 Urea helps plant activator to protect cucumber against bacterial disease

## Ornamentals

- 8 Poinsettia cuttings benefit from chelated calcium
- 8 Tipburn in lisianthus is a matter of calcium distribution
- 8 Foliar-applied calcium improves freezing tolerance of forsythia
- 8 Nitrogen recommendations app for ornamentals

## Plant and soil analytics

- 8 Nitrogen recommendations app for ornamentals
- 9 Handheld tool for detection of latent phosphorus deficiency
- 10 Tractor-mounted tool to detect latent nitrogen deficiency
- 10 Low-cost tool for on-site diagnosing of a crop's phosphorus status
- 33 Plant Image Analysis

## Fertilisers

- 10 Reactive extrusion extends phosphate release profile of APP fertilisers
- 11 Granular potassium chloride as carrier for micronutrients
- 11 Fertiliser raw material from phosphate slag
- 11 Surfactants improve leaf coverage with Zn IDHA
- 11 Cell membrane as foliar fertiliser carrier
- 12 New biodegradable iron chelates for calcareous soils
- 12 Publications about new, experimental and potential fertiliser formulations
- 36 Researchers map the world's manure-phosphorus flows

## Urease and nitrification inhibitors

- 14 New and old urease inhibitors scrutinised
- 14 Research into improved phosphoramidate urease inhibitors
- 14 Urea fertiliser with inherent urease inhibitor properties
- 14 Nitrification inhibitors compared

## Silicon

- 5 Silicon ameliorates magnesium deficiency
- 5 Nitrogen affects insect defence by silicon
- 6 Research into effects of silicon on phosphorus use efficiency
- 8 Silicic acid prevents soil acidification after drip fertigation with ammonium nitrate
- 34 Silicon protects tobacco against parasitic plant
- 34 Recent silicon publications

## Plant nutrition on the web

- 33 Plant Image Analysis



## Literature

- 6 Publications about potato nutrition research
- 12 Publications about new, experimental and potential fertiliser formulations
- 15 Publications about plant nutrition research
- 34 Recent silicon publications

## Service

- 37 Calendar of events
- 40 Colophon

## New urease inhibitors 14

Scientists are constantly looking for better inhibitors, and scrutinize existing products.

## Publications about plant nutrition research

from page 15

General	15	Phosphorus	25
Biofortification	15	Potassium	27
Climate change	15	Calcium	28
Greenhouse gas emission	16	Lime / pH	28
Mapping, sensing, sampling and analytics	16	Magnesium	29
Ammonia and urea fabrication processes	17	Sulphur	29
Granulation	17	Boron	29
Application technology	17	Cobalt	30
Foliar fertilisation	18	Copper	30
Chelates	19	Iron	30
Organic fertilisers and industrial wastes (selection)	19	Manganese	30
Green manure / cover crops	20	Sodium	31
Biochar	20	Zinc	31
Humic acids	21	Aluminium	32
Nano-fertilisers	21	Selenium	32
Nitrification and urease inhibitors	21	Rare earth elements	32
Specific release	22	Rhizobia, mycorrhiza etc.	33
Nitrogen	22		

Fertiliser companies



Agricultural cooperatives  
(Dutch - with international network of subsidiaries)



Liquid fertiliser applicators



Fertiliser research



Trial equipment



Soil services



Biostimulants



Mycorrhizae



How to advertise

Advertisements in the international Plant nutrition *courier* are published in six consecutive issues including one free issue. Follow [this hyperlink](#) for details about advertising in the Plant nutrition *courier* and/or in the email newsletter.

Colophon

Editor	<a href="#">Gert van den Berg</a>
Publisher	Landbouwkundige Uitgeverij G.C. van den Berg
Address	Van Maerlantstraat 5, 3906 EL Veenendaal, The Netherlands
Website	<a href="http://www.plantnutritioncourier.nl">www.plantnutritioncourier.nl</a>
Subscriptions	Small: € 125,00/year ex VAT (1 - 10 readers at one physical location of the organisation). Medium: € 375,00/year ex VAT (11 - 50 readers at multiple physical locations of the organisation). Worldwide: € 825,00/year ex VAT (worldwide in-company subscription).
Single issues	€ 40,00/issue ex VAT.

Plant nutrition *courier* is an internationally published bimonthly digital newsletter on plant nutrition, including silicon and other beneficial elements. Authors and publisher declare the information in the Plant nutrition *courier* is provided to our best knowledge of the current situation, but they cannot accept responsibility for the validity or for the consequences of their use. Subscriptions will be extended, unless cancelled at least one month before the end of the yearly subscription.