

# Plant nutrition courier

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The best bits of plant nutrition research

2023-01

***In pursuit of new agricultural applications for phosphogypsum and phosphate sludge 4***

***Earthworms enhance solubility of soil phosphorus significantly 7***

***Little-known nitrification pathway more important than previously thought 8***

***Phosphate fertiliser value of recovered and organic fertilisers 12***

***Combustion processes cause a lot of ammonia emissions 16***

***Results of Plant nutrition courier reader survey 37***



## In pursuit of new agricultural applications for phosphogypsum and phosphate sludge 4

Phosphogypsum and phosphate sludge are literally big problems. Moroccan researchers are in pursuit of agricultural applications for the ever-growing piles of these wastes.



## Earthworms enhance solubility of soil phosphorus significantly 7

Earthworms have the largest potential to enhance phosphate solubility in iron-(hydr)oxide-dominated soils.



## Little-known nitrification pathway more important than thought 11



## Combustion processes cause a lot of ammonia emission 16

## Phosphogypsum and phosphate sludge

- 4 In pursuit of new agricultural applications for phosphogypsum and phosphate sludge
- 5 Phosphate sludge: fertiliser, soil amendment and compost material
- 6 Phosphogypsum: soil conditioner and source of macronutrients

## Arable farming

- 7 Earthworms enhance solubility of soil phosphorus significantly
- 7 Phosphate fertiliser in the seed furrow: use a narrow opener spread
- 7 One-time point-applied urea in wheat
- 7 Delayed tillering nitrogen topdressing in rice improves yield and nitrogen use efficiency
- 7 Sugar beet responds differently to metal micronutrients than *Arabidopsis*
- 8 Little-known nitrification pathway more important than previously thought
- 8 Effect of nitrification inhibitor from rice roots differs per soil type
- 8 Barley seed priming with sodium silicate increases salt tolerance
- 8 Soil-applied silicon reduces yellow stem borer damage
- 8 Nitric oxide improves iron status
- 11 Profit-maximizing potassium fertiliser recommendations for US Mid-South crops
- 11 Thiols improve regreening of iron-deficient soybean
- 11 More zinc in wheat by seed coating zinc oxide nanofibers and urea

## Potato nutrition

- 9 Fertilising potatoes via soil-applied mustard seed meal extract
- 9 Publications about potato nutrition research

## Grass and forage

- 9 Selenium nutrition can improve forage digestability

## Fruits and vegetables

- 10 Foliar-applied nutrients enhance disease immunity
- 10 Soil treatment with sulphur compounds reduces *Allium* white rot inoculum
- 10 Sweeter lettuce by short-term pre-harvest nitrogen limitation
- 10 Pak choi cultivars respond differently to low and banded phosphate
- 10 Seed priming with calcium silicate increases the resistance of lettuce against downy mildew
- 11 Camera-equipped drone detects nitrogen-deficient apple trees

## Ornamentals

- 11 Novel calcium chelate outperforms foliar-sprayed phosphite

## Plant and soil analytics

- 11 Profit-maximizing potassium fertiliser recommendations for US Mid-South crops
- 11 Camera-equipped drone detects nitrogen-deficient apple trees

## Organic fertilisers

- 9 Optimising the benefits of applying organic fertilisers
- 12 Phosphate fertiliser value of recovered and organic fertilisers

## Fertilisers

- 8 Effect of nitrification inhibitor from rice roots differs per soil type
- 11 Novel calcium chelate outperforms foliar-sprayed phosphite
- 11 Thiols improve regreening of iron-deficient soybean
- 11 More zinc in wheat by seed coating zinc oxide nanofibers and urea
- 12 Phosphate fertiliser value of recovered and organic fertilisers
- 12 Urea briquettes as carrier for fungicides
- 12 Layer-wise agglomeration of urea-gum mixture into slow-release fertiliser
- 13 Waste sulphur co-granulated into fertiliser products
- 13 Biomedical controlled release systems as leads for agricultural counterparts
- 13 Publications about new, experimental and potential fertiliser formulations

## Ammonia emissions

- 16 Combustion processes cause a lot of ammonia emissions



## Results of Plant nutrition *courier* reader survey **37**

Respondents to the Plant nutrition *courier* reader survey give the magazine an average of 8.8 on a scale of 1 (very poor) to 10 (excellent).

## Silicon

- 8 Barley seed priming with sodium silicate increases salt tolerance
- 8 Soil-applied silicon reduces yellow stem borer damage
- 10 Seed priming with calcium silicate increases the resistance of lettuce against downy mildew

## Results of reader survey

- 37 Results of the Plant nutrition *courier* reader survey

## Literature

- 9 Publications about potato nutrition research
- 13 Publications about new, experimental and potential fertiliser formulations
- 17 Publications about plant nutrition research

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## Publications about plant nutrition research

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Fertiliser companies



Agricultural cooperatives

(Dutch - with international network of subsidiaries)



Fertiliser research



Liquid fertiliser applicators



Soil services



Mycorrhizae



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Colophon

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