Plant nutrition courier

The best bits of plant nutrition research

2023-01



In pursuit of new agricultural applications for phosphogypsum and phosphate sludge

Earthworms enhance solubility of soil phosphorus ignificantly 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

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

- In pursuit of new agricultural applications for phosphogypsum and phosphate sludge
- 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
- 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

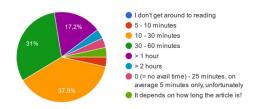
- 9 Optimising the benefits of applying organic fertilisers
- 12 Phosphate fertiliser value of recovered and organic fertilisers

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
- 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 from page 17 General 17 Potassium 30 17 Biofortification Calcium 31 Climate change 17 Lime / pH 31 17 Greenhouse gas emission Magnesium 32 Mapping, sensing, sampling and analytics 18 Sulphur 32 Ammonia and urea fabrication processes 19 Boron 32 Fertiliser production 19 33 Cobalt Application technology 19 Copper 33 Foliar fertilisation 20 33 Iron Chelates 21 Manganese 33 Organic fertilisers and industrial wastes (selection) 21 Sodium 34 22 Green manure / cover crops Zinc 34 22 Biochar Aluminium 34 Humic acids 23 Nickel 34 Nano-fertilisers 23 Selenium 35 23 35 Nitrification and urease inhibitors Silicon Coatings and other specific release mechanisms 24 **Titanium** 36 Nitrogen 24 Rhizobia, mycorrhiza etc. 36 29 **Phosphorus**

Fertiliser companies









Fertiliser research



FERTILISER TECHNOLOGY RESEARCH CENTRE

Liquid fertiliser applicators



Soil services



Mycorrhizae



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Colophon

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