

# Actions to reduce the source of H<sup>+</sup> by reducing ammonium

## Reducing the Rate of Acidification, part 2

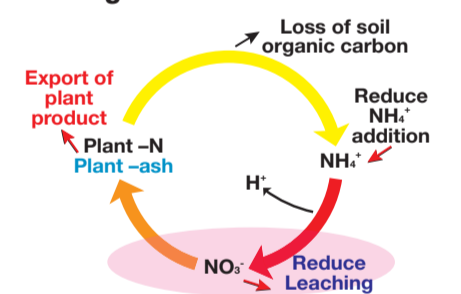
By JEANETTE CHAPMAN, project manager, Step up Soil Condition, Hortex Alliance Inc.

**G**ROWERS should use legumes to provide base line supply of nitrogen, and supplement with fertiliser during periods of higher demand. They are advised to minimise use of ammonium-based fertilisers in favour of urea or nitrate-based products.

### Recommendations for growers:

- Use precision technology to adjust application of fertiliser for soil conditions.
- Use reduced tillage to minimise nitrification of ammonium to nitrate from turnover of stubble and soil organic matter.

### Actions to maintain neutralising capacity by reducing nitrate leaching:



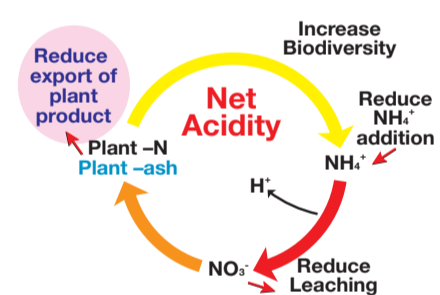
- Maintain living plant cover rather than bare earth to encourage uptake of mineralised soil organic nitrogen reserves dur-



ing dormancy of vines, fruit or nut trees, and between annual crop cycles; apply to areas with high winter rainfall.

- Ensure plant vigour is not impacted by disease, nutrition, compaction or other causes.
- Improve timing of nitrogen fertiliser application to match demand by plants.
- Ensure nitrogen inputs do not exceed crop demands.
- Use soil water monitoring devices to ensure irrigation does not result in deep drainage when not required for leaching salt.
- Fertigate within the depth of the active root zone and allow crops to take up the nutrients before applying deeper irrigation.
- Install more water efficient irrigation systems with high distribution uniformity (DU-even horizontal distribution) Maintain pumps and emitters to ensure maximum efficiency and DU.

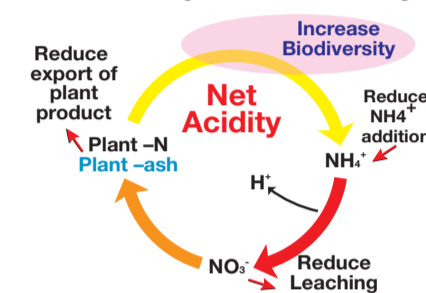
### Actions to reduce export of plant materials:



- Return pruned plant materials to the soil.
- Replace plant waste materials sent off for composting (e.g. from glasshouse crops).
- Fertilise to replace lost plant alkalinity contained in harvested products.

- Lime to neutralise net acidity resulting from export of plant material.
- Avoid burning stubble.
- Return the amount of hay carted from paddocks when feeding stock.
- Regularly shift animal camps.

### Actions to improve biodiversity:



- Use a diverse mix of cover crop species – include deep rooted perennials and species which flower at different times of the year.
- When planting cover crops use planting densities and types that suit the purpose, e.g. lighter densities to allow minimum tillage or direct seeding.
- Maintain activity of soil biota that returns plant residues to areas of active root growth.
- Inoculate soil to stimulate microbial populations, eg some carrot growers add a little compost at sowing.

Residues or compost should be returned to the crop row of trees and vines when practicable, rather than the midrow.

Gypsum can be applied to help mop-up excess aluminium to improve root growth, and to open up clayey soil to improve drainage.

Apply lime to raise soil pH above pH 5 to stimulate activity of earthworms and microorganisms

These actions will maintain higher soil organic matter which plays an important role in buffering against change in pH.

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## Waste major cause of pests and disease

By BRIAN R JOHNSTON, consultant, One World Environmental Solutions Pty Ltd

A PART of successful land management is controlling the waste produced in the process of horticultural production.

This includes a variety of organic wastes and plastics, metals and some hazardous wastes (chemicals). Appropriate management of waste streams can prevent the propagation of diseases and pests that may breed on properties where wastes are stockpiled, which is still common practice throughout the NAP.

The Hortex Alliance has recently been awarded funding from the NRM to host workshops for growers on the northern Adelaide Plains to help educate growers in better waste management practices and how to achieve it in the most cost-effective manner.

Workshops will held this month (June).

Tips for good waste management:

- Understand exactly what your waste consists of and where it is coming from.
- Avoid/reduce the waste you produce by buying items that will minimise wastage or only buy quantities you need to minimise wastage.
- Equally important – reduce the amount of waste you send to landfill by buying items that are readily recyclable or compostable.
- Purchase items that can be reused, rather than just used once and thrown away.
- Maximise recycling by separating the waste material streams at your site to increase the quality of the materials for recycling and reduce the costs of disposal.

The Waste Service Guide has a number of facilities and service providers listed.

They will take a variety of waste types and growers can minimise their costs by understanding a few important points.

Common recyclable items in horticulture include:

- Organics – plant off-cuts/prunings, waste fruit and vegetables, plants, and timber.
  - Plastics – pots, sheet plastic, plastic bags, plastic off-cuts; they should all be fairly clear of dirt and other foreign materials.
  - Metals – steel, wire, car bodies, roofing iron, old iron implements.
  - Chemical containers – the plastic and metal drums can be delivered to a drum muster enclosure at any of the council transfer stations.
  - Workshop bookings: Hortex via admin@hortexalliance.com.au
- Details: 08 87127 2812, 0419 018 806 or brian@beyondgarbage.com

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