


(7) Fertiliser Types


Steven Falivene (NSW Department of Primary Industries)






Fertiliser types

- Straights – single nutrients (urea)
- Mixed/blends – dry
 - Dry two bags of fertiliser dry mixed together
 - Granulated “glued together” overcome settling issues
- Compounds – twin nutrient
 - i.e. MAP, MKP
- Organic – difficult to manage, unable to accurately know actual application rate



Fertiliser types

- Blends/mixes save cost of multiple applications - (tractor, time)
 - Blending costs are minor (\$12-\$15/T)
 - Not all nutrients are compatible for blending
 - Urea and super generally not compatible
 - Blends may be higher cost due to use of alternative higher cost compatible nutrients



Fertiliser types

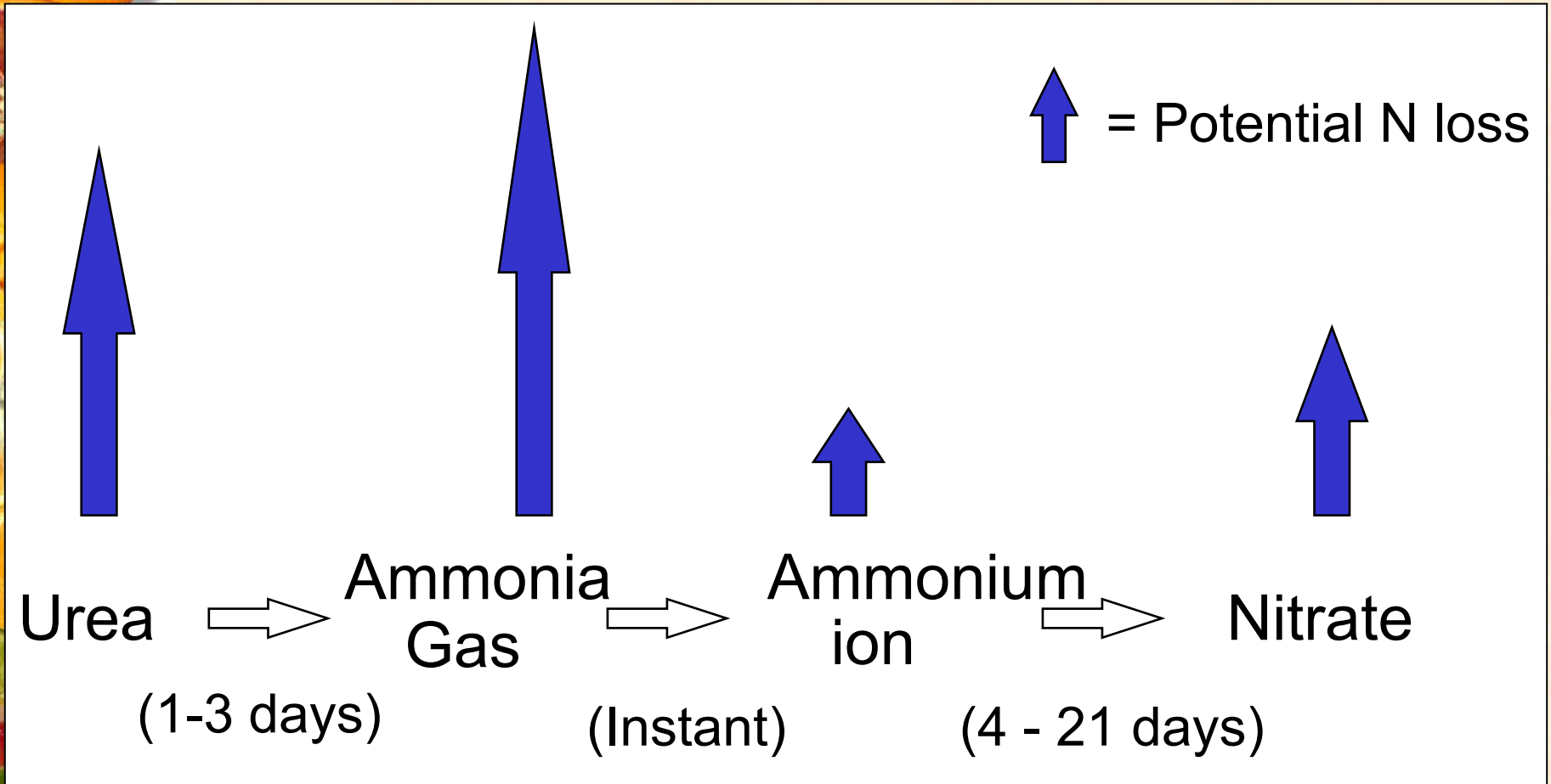
- Compare & check cost per nutrient & \$/ha
 - Assess the time taken to handle nutrients and energy used (diesel) when comparing different types of fertiliser (blends, straights, liquids)



Nitrogen

- Urea
 - 46% nitrogen,
 - Most widely used & cost effective form
 - Care in application to minimise losses
 - Highly leachable in 1st stage urea form
 - not favoured by proportional pulse irrigation programs
 - Turns into gas during conversion process
 - Low leaching when in ammonium form
 - To reduce leaching best applied during last 1/3 of irrigation shift – pulse drip irrigation applied on afternoon pulses


Nitrogen Urea Conversion / Nitrification





Nitrogen

- Ammonia Nitrate & Calcium Ammonium Nitrate
 - Roots uptake both nitrate and ammonium
 - Nitrate is sent to leaves and converted back to ammonium
 - Roots can instantly use ammonium form



Potassium

- Muriate - Potassium Chloride (~50% K)
 - Cheapest form of potassium
 - Used in Israel in moderation with no chloride problems
 - Israel citrus growers/science officers surprised we do not use it
 - Good to use in conjunction with KSO_4

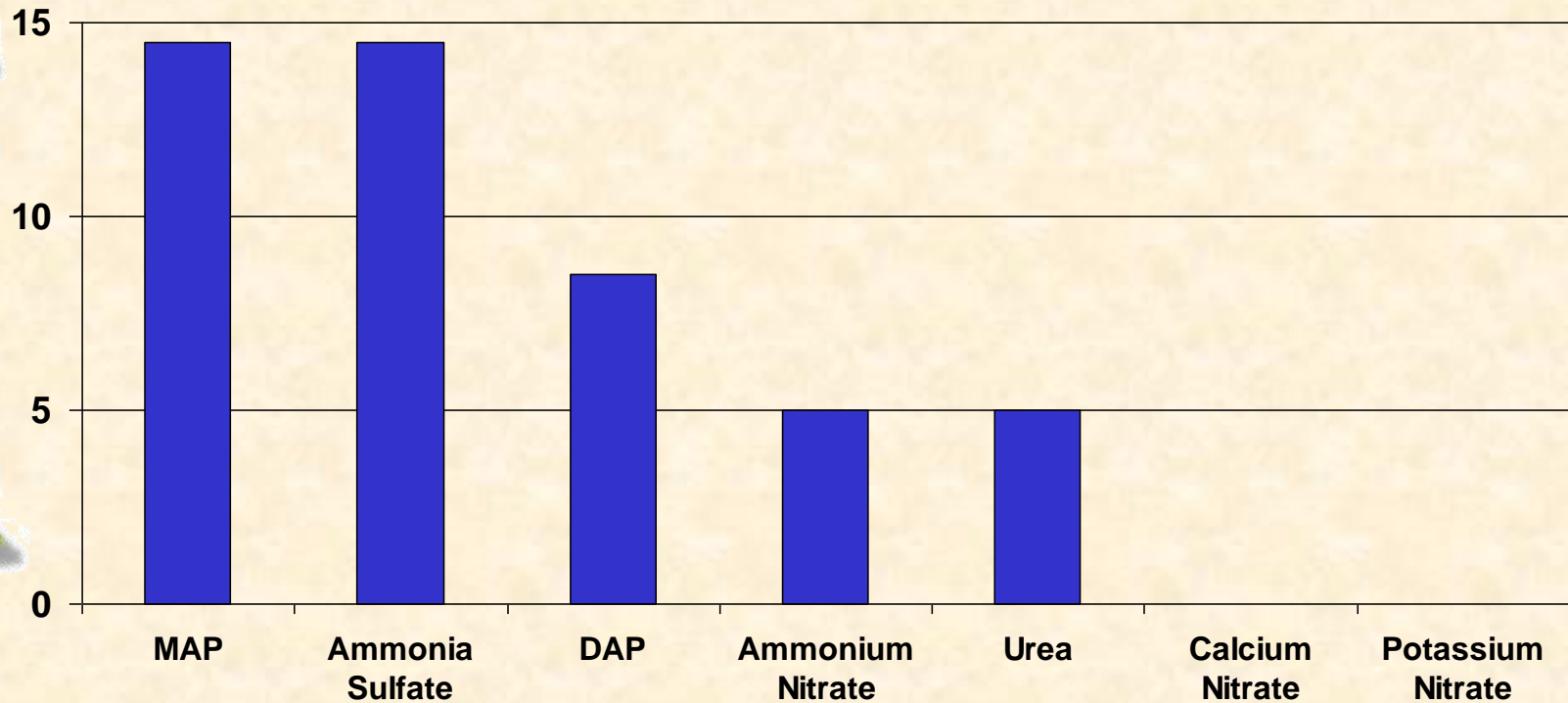


Potassium


- Potassium sulphate
 - More expensive form of potassium
 - But cheaper than nitrate form
 - Can use in chloride sensitive situations - i.e.. excessive leaf drop in spring?
- Potassium nitrate
 - Most expensive form
 - Favoured for fertigation because easy to dissolve and apply N & K at the same time

Acidification of fertilisers

Bags of lime required to neutralise acidifying effect of 100 units of nitrogen.



Adapted from: "Don't let nitrogen acidify your soil" NSW DPI Soil Sense fact sheet
NSW DPI Citrus Nutrition Seminar (7) Fertiliser types



Organic fertiliser & soil health

- Soil biology is often the forgotten factor, however should be a very important consideration
- Healthy soil = health roots = better uptake & tree vigour
 - Feed the worms & microbes
- Incl.: cover crop, organic mulches & soil ameliorants (biological food/activators)
 - Little work done in ameliorant & biostimulants but could be of major benefit ? – especially drip irrigation : organic acids, charcoal & N bacteria