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**MAHAWINE EXPOSITION
JANUARY 2008
NUTRITION FOR WINEGRAPE VINES**

**Presented by Ms Dianne Davidson
Of**

**DAVIDSON VITICULTURE
AUSTRALIA'S VINE EXPERTS**

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VINES IN A TEMPERATE ENVIRONMENT

- Productive Lifespan – 30-80 years
- Dormant period 3-4 months
- In dormancy vine rests, sugars are converted to carbohydrate – stored in trunk, spurs, roots
- Budburst in Spring – Root growth – commences
about one month after budburst
- Harvest in Autumn - Leaves must be active until harvest
- Root growth and trunk expansion after harvest: “driven”
by leaf photosynthesis

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VINES IN A TROPICAL ENVIRONMENT

- Productive Lifespan: 8-15-20 years
 - no dormancy
 - poor carbohydrate storage
- After harvest pruning
 - removes active leaves “factories”
 - should keep leaves for as long as possible
- Budburst late April, root growth by May
 - Monsoon leaches many nutrients from the soil
- Budburst Sept, root growth early October

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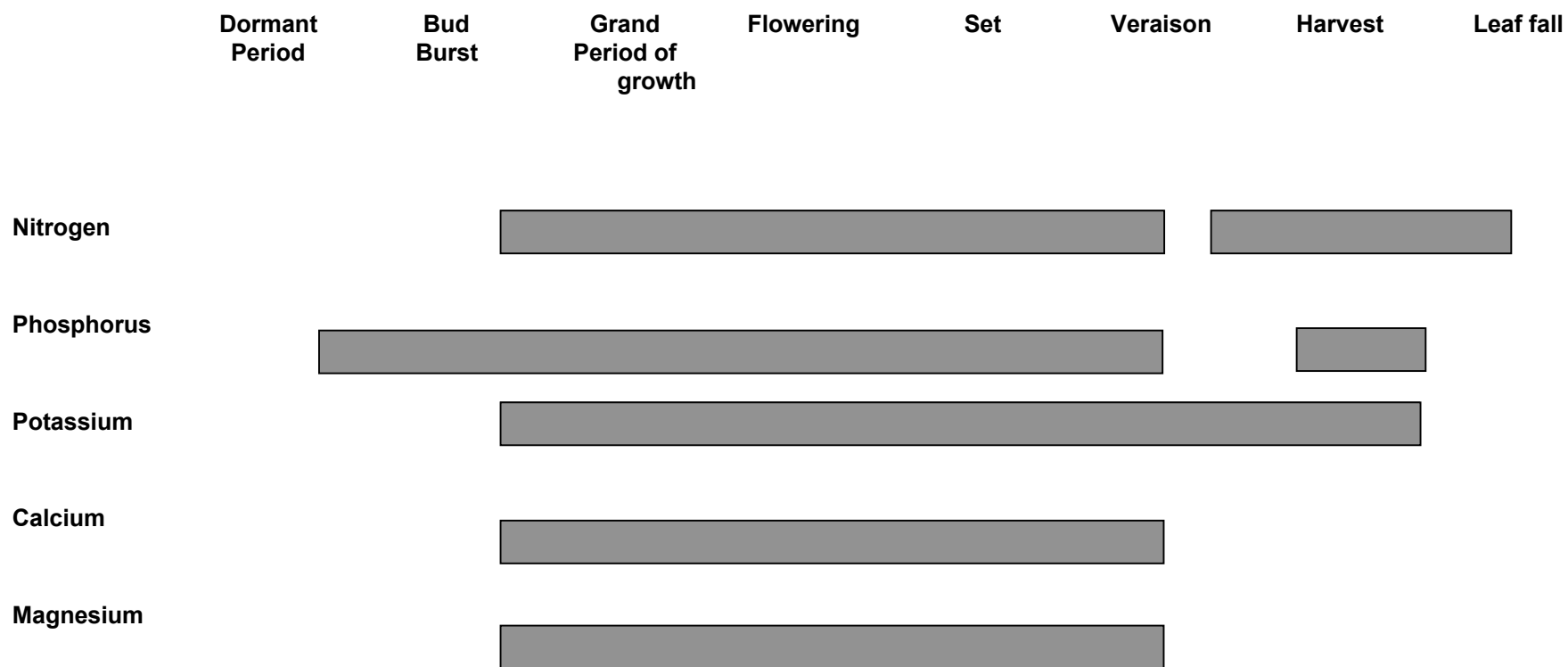
WINEGRAPE NUTRITION

- Fruit & wine flavour colour & quality reflects vine health
- **Vine physiological balance very important**
 - Foliage/canopy must be in balance with crop
 - Moderate to low cropping levels. e.g. 10t/ha or 5kg vine. Range 5-20t/ha, much lower than tablegrape yields
- Regular fertiliser application is essential – not necessarily large quantities



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Timing of nutrient uptake by vine roots



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HOW TO INCREASE/IMPROVE NUTRIENT UPTAKE IN TROPICS?

- Make the most of dry months!
- **Strong growth** and fruitful buds in rainy season only achieved if shoots lignified before June and if buds well nourished during dry season.
- If achieve fruitful buds lower on canes, can spur prune (2-3 buds) – becomes mechanisable

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HOW TO INCREASE/IMPROVE NUTRIENT UPTAKE IN TROPICS?

Encourage earlier harvest e.g. January/early February

- Cultural practices

e.g. Earlier prune at end of rainy season?

Minimise tipping and removal of active leaves.

Encourage strong shoot growth right from budburst

Encourage strong leaf activity up to harvest



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HOW TO INCREASE/IMPROVE NUTRIENT UPTAKE IN TROPICS?

- Keep leaves functioning longer after harvest
 - Prune later (use machine?)
 - Earlier prune
 - Minimise tipping
 - Strong leaf growth to harvest
- Use Rootstocks

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NUTRIENT REQUIREMENTS – how to decide

- Essential to understand the vine's nutritional status first
- Petiole tests
 - at flowering time
- Soil tests
 - twice a year
- Fertiliser Analysis
 - synthetic
 - organic – farm compost etc

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FERTILISERS – how & when to apply

- Foliar applications regularly
 - every 2 weeks
 - in each fungicide spray
 - especially for N to keep leaves active
- Fertigation – weekly applications during growth
- Solid fertilisers – at or just before each pruning time
- Apply fertiliser straight after harvest. This will benefit new root growth & keep leaves active. Take care not to promote new shoot growth.

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KEY NUTRIENTS

- Nitrogen** (N): involved in all growth functions; An excess will cause unmanageable canopy, increased disease susceptibility and lower wine quality. About 1.2-2.4kg removed/tonne grapes
- Phosphorus** (P): essential. Approx 0.6kg removed/tonne grapes
- Potassium** (K): Root system development & growth
Approx 1.5-3kg removed/tonne grapes.
- Magnesium** (Mg): essential for photosynthesis
- Calcium** (Ca): Cell walls
- Micronutrients/Trace Elements:** Boron, Copper, Iron Manganese, Molybdenum, Zinc



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P O Box 845
Langhorne Creek
South Australia 5255

Telephone + 61 8 85370 511
Fax + 61 8 85370 518

Web www.dvcs.com.au

Email dvcs@dvcs.com.au