

# **Vigour Management**

## **Future Orchards 2012 Notes – Orchard Walk 6**

**Prepared by J Wilton  
AGFIRST HB Ltd.  
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### **Lifting Tree Vigour**

Poor vigour maybe due to:

1. Poor root development -
  - Drainage
  - Hard pan
  - Saline soil
2. Water stress
3. Specific replant disease
4. Nutrient deficiency or imbalance
5. Overcropping
6. Inadequate pest and disease control

The key to improving tree vigour lies in identifying the problem then rectifying it.

Maintain branches at positive gradients until long enough to fill allotted space.

### **Excess Vigour**

Excess vigour is much easier to overcome than lack of vigour.

Tools for vigour control include:

1. Cropping
2. Branch selection and training
  - Remove excessively large growthy branches to leave behind weaker, more fruitful branches.
  - Branch diameter should not exceed 3cm per metre of length.
  - Training branches down into a pendant position weakens their growth and limits further extension.
3. Pruning
  - Thinning cuts weaken vigour response, shortening cuts stimulate new vegetative growth.
  - Keep branches slim and do not allow significant sub-branches to develop. Allow only short fruiting laterals to develop on the side of branches.
  - Remove any upright lateral except where a new leader is required.
4. Growth regulators
  - Regalis®
  - Ethrel®
5. Trunk girdling

- At petal fall will increase fruit set, markedly reduce shoot growth and stimulate return bloom.
  - At time of December drop – eg late November, early December will still reduce vigour, stimulate return bloom, advance fruit maturity, lift fruit soluble solids, but not increase fruit set.
6. Regulated Deficit Irrigation (RDI)
- Reducing irrigation water over the spring growth flush controls vegetative growth with little or no effect on fruit sizing. Very useful technique for pears but with apples there is some evidence of risk of fruit cracking with RDI.
7. Root pruning
- Needs to be done Autumn or late winter to enable new feeder roots to become established before high summer temperatures arrive.
  - On shallow soils root pruning one side of the tree is usually adequate.
  - Widely used in Northern Europe for vigour control.
  - Not recommended in dry stressful growing conditions unless there is a very good irrigation water supply and adequate trialing has been done to work out how to manage the technique under local conditions.
8. Avoid scion rooting
- Plant with bud union at least 10cm above soil level, preferably 15cm.
  - Maintain uniform height between bud union and soil level.