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## Chemical Thinning Refresher

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### Blossom Thinners

#### ATS

- Best option for rapid response.
- Commence applications at petal fall king bloom.
- Sequential applications necessary – 3 to 5-day intervals.
- Only practical where blossom periods are compressed.
- Avoid rain or overhead sprinklers within 24hrs of application.
- Product of choice where blossom cluster numbers are low.

#### Ethephon

- Needs max temperatures on day of application above 18°C.
- Concentration needs to be adjusted downwards for forecast higher temperatures e.g. at 24°C Ethephon is twice as active as at 18°C.
- Rapid response.
- Commence petal fall king bloom to avoid over thinning.(its 3x more active on balloon blossom and 2 x more active on pick, than full bloom)
- Suppresses shoot growth.
- Russet risk if applied near cold wet nights or frost events.
- Very effective on auxiliary buds of one-year wood if applied at blossom stages pink to opening flower on this wood.

#### Ethephon plus ATS

- This combination does the work of 3 ATS applications.
- Good clean up spray for the end of blossom period.



### NAA

- Apply early petal fall period, often 3-4 days after full bloom
- Is an aggressive thinner when applied in combination with ethephon.
- Danger of pygmy fruit if trees stressed or if applied to varieties prone to pygmy fruit e.g. Fuji.
- Can be used in combination with BA when secondary thinning
- Some evidence that NAA may suppress fruit growth.

### Post Blossom Thinners

#### 6 Benzyladenine (6-BA) – ( Cylex® plus, Bapsol™, Exilis® S XL)

- Application window – king fruits over whole tree average 7 to 12mm in diameter.
- Has exacting temperature conditions for satisfactory thinning. 15°C on day of application and rising, then preferably 18°C or above for 3 days with warm nights. High temperatures, or very cloudy weather may lead to over thinning.
- Addition of NAA will bring application window forward by several mm and lift thinning response. Do not use this combination on cultivars prone to pygmy fruit e.g. Fuji.
- Stimulates cell division leading to firmer and larger fruit independent of thinning.
- Needs good leaf/shoot growth and interfruit competition for satisfactory thinning response.
- Adequate surfactant critical for response.
- Where thinning response is satisfactory, return bloom is enhanced.
- Fruitlet drop often slow – up to 6 weeks.
- Useful product for stimulating spur production in young trees, particularly Fuji.

#### Metamitron – Brevis, Mitron®, Meteor®

- Application window 6 to 20mm king fruit diameter, optimum 10 to 18mm.
- Optimum fruitlet size varies among cultivars, cultivars that rise rapidly need larger fruitlet size e.g. 12mm.
- Works by suppressing photosynthesis, requires shoot growth and interfruit competition for response. Little thinning where blossom cluster levels are low.
- Very rate sensitive. High concentrations lead to over thinning and leaf necrosis.
- Surfactants necessary.



- Not as temperature sensitive at 6-BA.
- Pre and Post application weather conditions influence response.
- Cloudy weather with high night temperatures increase thinning response markedly. Sunny days with cold nights reduce thinning response. These weather conditions determine application strategy.
- Photosynthesis suppression commences about 4 days after application and lasts 7 to 10 days.
- Sequential spraying at the low end of label rates can often achieve better results than a single high rate application.
- Apply the second application 4 to 6 days after the first one. If warm cloudy weather occurs a second spray may not be necessary.
- Use high volume sprays around 1 litre of spray to 10 cubic metres of tree row volume. A mature, intensive planting needs 1500 to 2000L of spray per hectare. Old semi-intensive plantings will need even higher volumes.
- When effective, metamitron will bring up to 80% of the fruit bearing clusters down to singles and doubles. This can halve the hand thinning labour requirement, and for some lower value varieties, such as Royal Gala, largely eliminate the need for hand thinning.
- Fruitlet drop is rapid, usually within 14 to 21 days of application.
- Selects fruit for fitness and productive potential.
- Results in high yields with good fruit size.
- Where thinning response is good, there will be excellent return bloom.

### Thinning Strategies

There are a number of different options available.

Assess each variety and block carefully taking account of:

- Past history and chemical thinner response.
- Blossom density and consistency.
- Blossom spread.
- Tree vigour – determines thinner response, low vigour is harder to thin
- Stress factors e.g. soil water logging
- Pollination
- All these factors influence chemical thinner response.



Options include:

- Aggressive blossom program – e.g. sequential ATS, or ATS ethephon. Suited to compressed blossom with low levels of blossom sites. Post blossom thinners need Interfruit competition so do not perform well in this situation. This program enables an early start to hand thinning.
- Combination of mild blossom program, based on ethephon to enhance return bloom, followed by post blossom program based on 6-BA, 6-BA plus NAA, or Metamitron. Experience with 6-BA and 6-BA plus NAA shows it to be much less aggressive and slower acting than metamitron, so best suited to easy to thin varieties such as Cripps Pink, or blocks known to respond well to these thinners. 6-BA may also be useful where targeted thinning application to a small part of the canopy is required.
- Metamitron programs. This is our most aggressive post blossom thinner option. Use on blocks with a history of poor chemical thinner response. When correctly applied blossom thinning is unnecessary. Industry experience is littered with many examples of disappointing results, largely due to inadequate spray coverage where under thinning is the problem, or occasionally over thinning due to excessive spray coverage or weather conditions. This often occurs in blocks with variable tree size e.g. small trees are readily over thinned. Late application has been a problem. Metamitron is the best option for minimising hand thinning.

#### Tips for Metamitron Success

- Two sprays, 4 to 6 days apart at low label rate is better than a single spray at high label rate.
- Start program at the beginning of the application window.
- Where wide spread of blossom, double spraying required.
- In blocks with variable tree size adjust sprayer speed to prevent over spray on smaller trees.
- Suitable for young trees
- Back off rates if cloudy weather with warm nights are forecast.



### Pit and Blotch Control

- Take care with varieties prone to pit and blotch not to over thin
- Heavier pruning and lower crop loads increase vigour , the main driver for these disorders.
- Regalis applied at pick has been shown to reduce pit and blotch risk.
- Other vigour control measures such as root pruning, trunk girdling will help.
- Maintain a full calcium program on pit prone varieties.

### General

- If it aint broke, don't fix it.
- Signs of a good chemical thinning results are sparse fruit distribution 3-4 weeks after full bloom. Most fruit clusters should be down to singles.
- A good chemical thinning program normally eliminates late fruit drops.
- Very biennial blocks that have within block variability – consider hand blossom thinning “on” trees – take out 2 out of 3 blossom sites. Take off flowers only, leave leaf buds on spurs for bloom next year.