Chemical Ripeners

Greg Gillespie
Historical information

• SASRI started with experiments with ripeners in 1968.
• Commercial applications from the mid 1980’s

• Registered products
  ✓ 1976 – Ethrel
  ✓ 1977 – Embark
  ✓ 1981 – Polado
  ✓ 1984 – Fusilade Super (fluazifop-p-butyl 125g/l)
  ✓ 1998 – Gallant Super
  ✓ Current – Fusilade Forte (fluazifop-p-butyl 150g/l)
  ✓ Ethephon
Chemical registration

- Toxicology data provided by chemical companies and regulated by government
- Efficacy studies conducted by SASRI on behalf of chemical companies
Chemicals applied

• Fusilade Forte
  0,367ml/ha for N14
  0,275ml/ha for other varieties

• Ethephon
  1,5 lt/ha for the recommended varieties

• Adjuvants
  Agral 90 @ 0,012ml/ha (wetter)
  41A @ 10 – 15 g/ha (antidrift)
Objectives

• To improve cane quality at the beginning and end of the milling season
• Improve sucrose content
• Reduce non-sucrose
• Improve juice purity
• Improve RV%
• Improve the yield of sugar per hectare
Application

- Turbo Thrush fixed wing aircraft
- Equipped with a GPS Satloc M3 system
- CP nozzles
- Swath width of 20 metres
- Sprays up to 500ha’s/day
- 20 000 ha’s per year
Mixing tanks
<table>
<thead>
<tr>
<th>Varietal responses</th>
<th>Ethephon</th>
<th>Fusilade</th>
<th>Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>N14</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>N19</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N22</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>N23</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N25</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N32</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Fusilade Forte

Week of spray

Week of harvest

Spray only if conditions permit

Milling season

Month | February | March | April | May | June | July | August | September | October | November | December
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Week | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4

[Image of a calendar with color-coded weeks indicating the schedule for Fusilade Forte.]
## Ethephon & Fusilade

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

- **Week of spray - Ethrel**
- **Week of spray - Fusilade**
- **Week of Harvest**
Ripener Response

**Chemical**
- **Control**
- **Ethephon**
- **Fusilade**
- **Eth & Fus**

**ERC t/ha**

**N25**

- Control: 18.5 t/ha
- Ethephon: 20.0 t/ha
- Fusilade: 21.5 t/ha
- Eth & Fus: 22.0 t/ha
Guidelines for spraying

• Vigorous growth & stress free

• Juice purity of 70 to 80% for Ethephon (early season) and 80 to 85% for Fusilade (early & late season)

• 8 or more green leaves per stalk

• Not severely lodged

• Less than 20% flowered stalks

• Sufficient soil moisture for up to 3 - 4 weeks after applying Fusilade
• A good response should increase the sucrose yield by 1 ton/ha for Fusilade and 1.5 ton/ha for the combination treatment

• Cost of application & chemical is R160/ha

• Value of 1 ton of sucrose is +/-R1650

• Tsb subsidises the total cost of ripening by 75%
Thank you