Using Retain to Set Shy Bearing or Frosted Sweet Cherries

Anthesis
The process of anthesis (flowering) produces considerable amounts of ethylene.

Ethylene ages the flower, shortens longevity of the flower.

Retain will increase fruitset of Sweet Cherry, Apples.

Shy bearing varieties Regina, Cavalier, etc.

ReTain for Cherry & Apple
AVG, aminoethoxyvinylglycine
An ethylene biosynthesis inhibitor.

Extends flower viability.
Reduces senescence.
More time for pollination and fertilization.
Improved pollen tube growth and/or increased ovule longevity.

Improving Fruit Set in Sweet Cherries with AVG (ReTain)
**Stigma Viability – Stigmatic Surface Morphology**

**Stage 1**
Stigmatic surface is green and wet, full stigmatic activity

**Stage 2**
A portion of the stigma papillae dead, stigma still viable but activity decreased

**Stage 3**
Stigma/style still alive, but no stigmatic activity observed

**Stage 4**
Stigma/style dead and dry

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**Longevity of Flowering**

**Stage 0**
Popcorn stage, just before flower opening.

**Stage 1**
Freshly opened flowers, stigmatic surface green and wet. Pollen shedding started.

**Stage 2**
Petal sound, stigmatic color yellowish green, pollen shedding.

**Stage 3**
Petal sound, sepals brown, stigmatic activity decreased.

**Stage 4**
Petals started to dry, no stigmatic activity, stigma dried.

**Stage 5**
Flowering is over, all flower parts turned into brown and dried.

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**Stigmatic Activity**

*Data and pictures from Racsko, OSU*

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**Longevity of Flowering**

*Data and pictures from Racsko, OSU*
ReTain Sweet Cherry 2012
A “Frosty” Year
Retain was applied at full rate by handgun to the drip point during the popcorn stage of 3 cherry varieties. Counts were made of flower clusters and fruit on marked limbs.

1 pouch/acre equivalent rate.
### Sweet Cherry ReTain 2012

**a Frosty Year.**

#### 2012 Fruit/Limb

<table>
<thead>
<tr>
<th></th>
<th>A Retain</th>
<th>UTC</th>
<th>B Retain</th>
<th>UTC</th>
<th>Regina Retain</th>
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<tbody>
<tr>
<td>a</td>
<td></td>
<td></td>
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<td>b</td>
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### UTC Regina 2012

![Image of UTC Regina 2012]

### ReTain Regina 2012

![Image of ReTain Regina 2012]

### Dietrich Cherry ReTain 2013

**Handgun Trial**

<table>
<thead>
<tr>
<th>Fruit/Limb</th>
<th>1 Atika UTC</th>
<th>1 Atika Retain</th>
<th>2 Regina UTC</th>
<th>2 Regina Retain</th>
<th>3 Regina UTC</th>
<th>3 Regina Retain</th>
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**Dietrich Cherry ReTain 2013 Airblast Trial**

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<th>Dietrich ReTain</th>
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<tbody>
<tr>
<td>Lbs/Fruit/10 Trees</td>
<td>43.9</td>
<td>97</td>
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**OHIO 2012 Regina**

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<thead>
<tr>
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<tr>
<td>Fruit set (%)</td>
<td>41.3 b</td>
<td>57.6 a</td>
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<tr>
<td>Fruit weight (g)</td>
<td>8.28 a</td>
<td>8.30 a</td>
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**OHIO 2013**

**Regina**

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<tr>
<td>Fruit set (%)</td>
<td>27.4 b</td>
<td>39.8 a</td>
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<tr>
<td>Fruit weight (g)</td>
<td>10.4 a</td>
<td>10.2 a</td>
</tr>
</tbody>
</table>

**ReTain for Cherry & Apple**

- 1 pouch of ReTain per acre.
- 100 gallons/acre.
- Single application during bloom.
- Cherry: Between balloon stage to first bloom.
- Apple: Between pink to full bloom.

**Thanks to:**

- Valent BioScience
- Dietrich Orchards
- Jozsef Racsko
- Michigan Hort Society
- Michigan Apple Research Committee

**ReTain for Cherry & Apple**

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- Reduces Senescence.
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