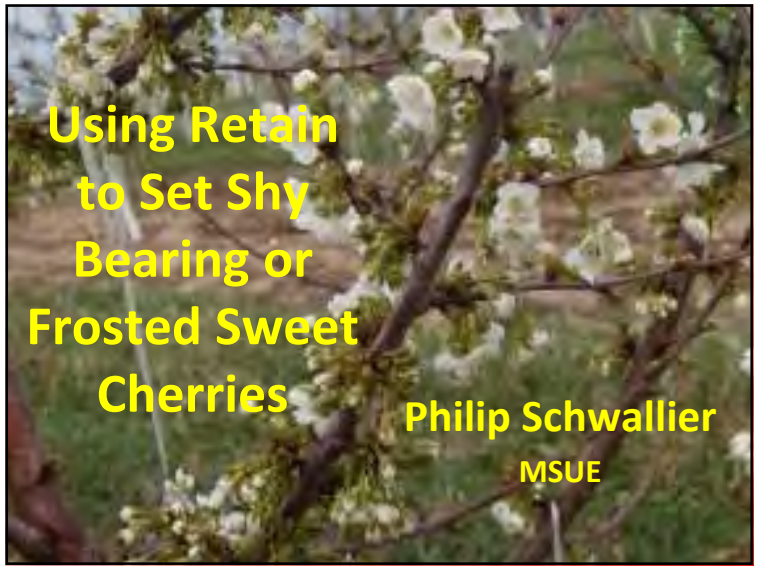


ReTain for Cherry & Apple

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.

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.

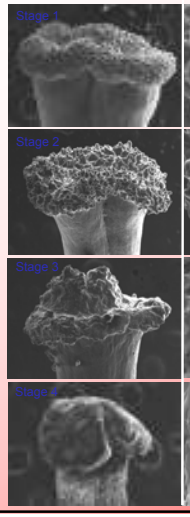
Shy bearing varieties
Regina, Cavalier, etc.

Improving Fruit Set in Sweet Cherries with AVG (ReTain)

Jozsef Racsko, Dept. Horticulture and Crop Science, The Ohio State University

*Data and pictures from Racsko, OSU

Stigma Viability – Stigmatic Surface Morphology

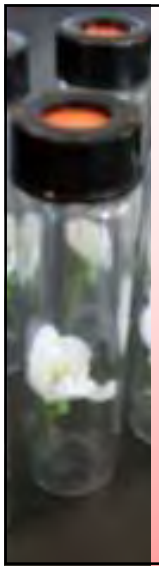


Stage 1
Stigmatic surface is green and wet, full stigmatic activity

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

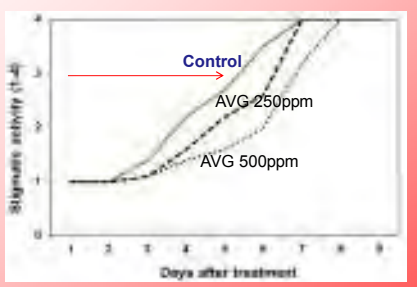
Stage 3
Stigma/style still alive, but no stigmatic activity observed

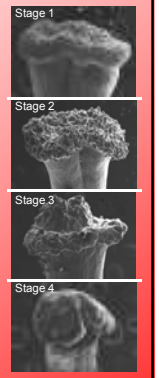
Stage 4
Stigma/style dead and dry



*Data and pictures from Racsko, OSU

Stigmatic Activity





Note
Individual stigmas were dissected from flowers kept in 5% sucrose solution.
Freshly prepared stigma samples were imaged by a Hitachi S4700 scanning electron microscope.

Longevity of Flowering

*Data and pictures from Racsko, OSU

Stage 0
Popcorn stage, just before flower opening.

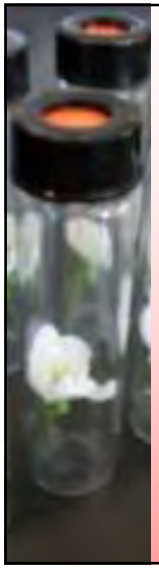
Stage 1
Freshly opened flowers, stigmatic surface green and wet. Pollen shedding started.

Stage 2
Petals sound, stigmatic color yellowish green, pollen shedding.

Stage 3
Petals sound, sepals brown, stigmatic activity decreased.

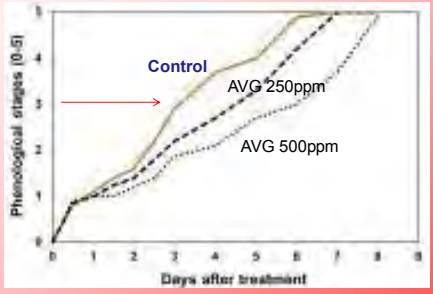
Stage 4
Petals started to dry, no stigmatic activity, stigma dried.

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



*Data and pictures from Racsko, OSU

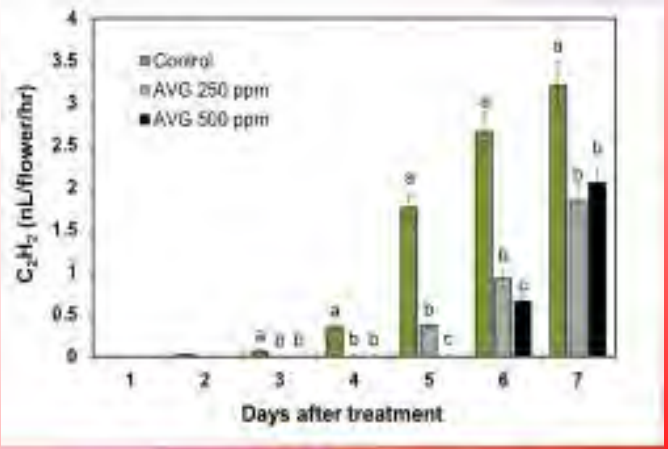
Longevity of Flowering



Note
Individual flowers were kept in 5% sucrose solution in laboratory conditions.
Flowers were not pollinated.
Longevity of flowering in laboratory conditions is assumed to be greater than in field conditions.

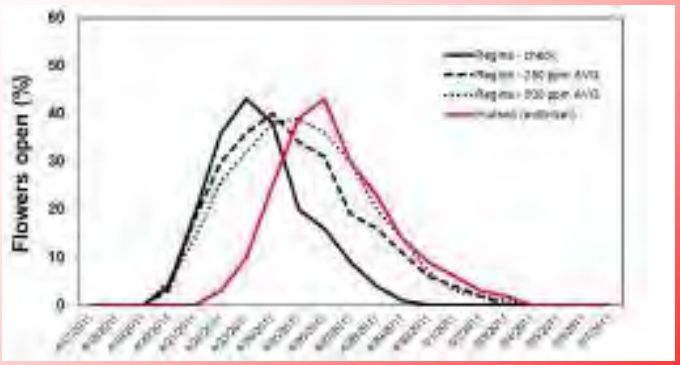
*Data and pictures from Racsko, OSU

Ethylene Reduction



*Data and pictures from Racsko, OSU

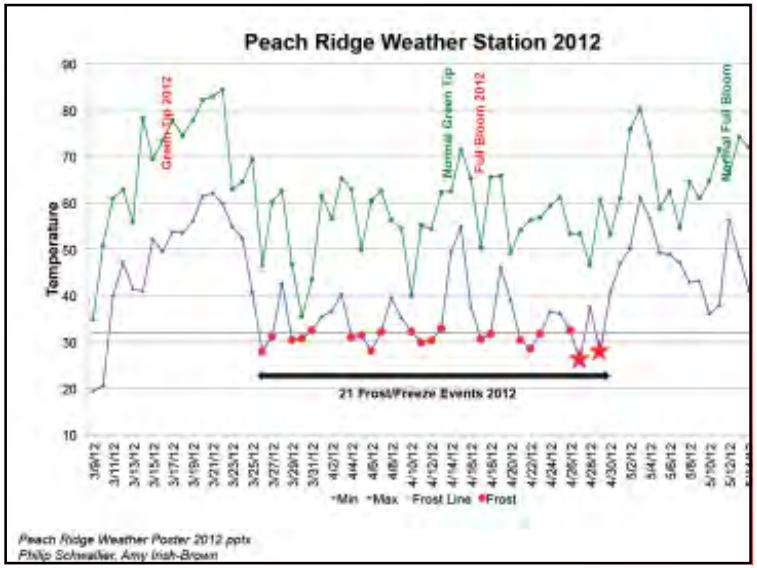
% Flower Opening



ReTain Sweet Cherry 2012
A "Frosty" Year

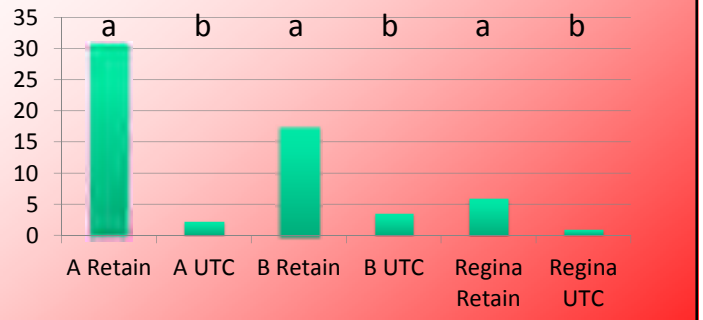
Retain was applied at full rate by handgun to the drip point during the popcorn stage of 3 cherry varieties. Counts were made of flower clusters and fruit on marked limbs.

1 pouch/acre equivalent rate.

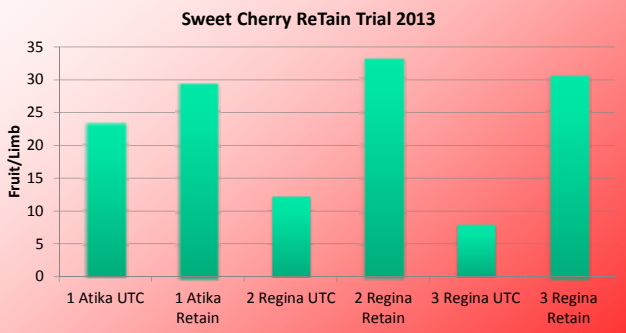


Sweet Cherry ReTain 2012

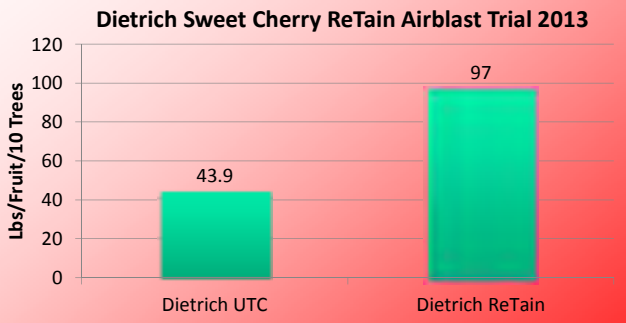
a Frosty Year.



Dietrich Cherry ReTain 2013
Handgun Trial



Dietrich Cherry ReTain 2013 Airblast Trial



OHIO 2012
Regina

	UTC	ReTain
Fruit set (%):	41.3 b	57.6 a
Fruit weight (g):	8.28 a	8. 30 a

OHIO 2013
Regina

	UTC	ReTain
Fruit set (%):	27.4 b	39.8 a
Fruit weight (g):	10.4 a	10.2 a

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

MICHIGAN STATE UNIVERSITY EXTENSION
AgBioResearch

ReTain for Cherry & Apple

AVG aminoethoxyvinylglycine
AVG is an ethylene biosynthesis inhibitor.

Extends flower viability.
Reduces Senescence.
More time for pollination and fertilization