

TECHNICAL INFORMATION BULLETIN (ALMONDS—CALIFORNIA)

OVERVIEW

Ethylene affects many plant processes, such as flower development, fruit/nut set, fruit/nut maturation, fruit/nut ripening, fruit/nut and flower abscission. **ReTain® Plant Growth Regulator for California extends stigmatic activity by reducing ethylene evolution in almond flowers. This effect results in flowers being viable longer, which allows more time for pollination to occur.**

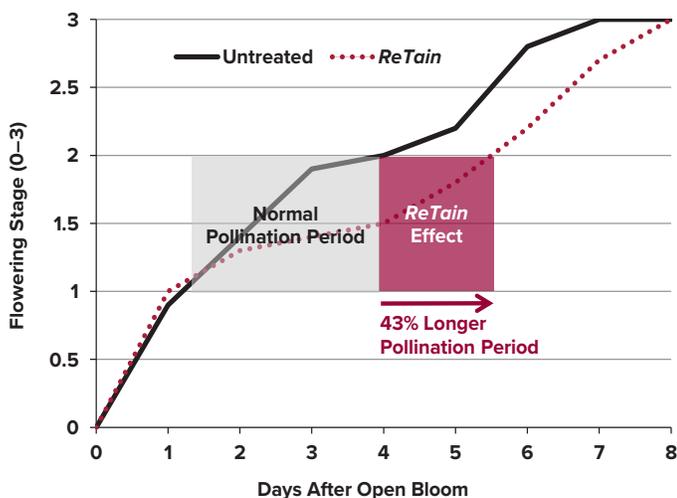


FEATURES

- ▶ Extends pollination period
- ▶ Improves crop load potential
- ▶ Contains a naturally occurring active ingredient
- ▶ Is a proven technology for fruit/nut set in cherries and walnuts

EFFECTS OF *RETAIN* ON POLLINATION PERIOD

Aminoethoxyvinylglycine HCl (Avigylcine, AVG), the active ingredient in *ReTain*, is a potent inhibitor of 1-aminocyclopropane-1-carboxylic acid (ACC) synthase and thus effectively inhibits ethylene synthesis in plant tissue. Data shows that ***ReTain* reduces ethylene evolution in almond flowers and delays flower and stigmatic senescence (graph 1)**. Due to this effect, **almond flowers have a better chance for pollination, increased nut set (table 1) and yield (graph 2)**.



Graph 1. *ReTain* Extends the Pollination Period for Increased Nut Set

ReTain effectively delayed bloom senescence in almonds, thus improving the chances for pollination by 43%



ReTain Increases Stigma Receptivity in Almond Flowers

By reducing ethylene synthesis, *ReTain* improves the receptivity of floral stigma, resulting in a greater potential for fertilization and increased nut set

Table 1. Effect of *ReTain* on Almond Nut Set

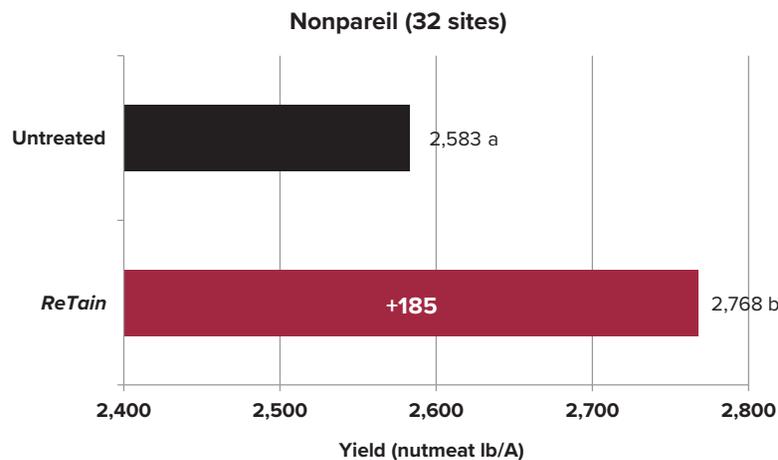
Location	Variety	Nuts/LCSA (cm sq)		% (+ -)	Signif. ¹
		Treated	Untreated		
Chowchilla	Nonpareil	16.7	12.0	39%	***
Kerman	Monterey	39.7	31.4	26%	**
Chowchilla	Carmel	22.0	18.6	18%	**
Waterford	Nonpareil	24.78	19.61	26%	**
Waterford	Carmel	24.59	17.36	42%	**
Patterson	Padre	23.19	16.43	41%	**
Patterson	Butte	46.06	27.94	65%	**

¹Data analyzed using a two-sample t-test for statistical differences at the 1% and 5% levels

Use of *ReTain* Significantly Increased Nut Set in the Above Trials by 18–65%

Nut set was evaluated on five varieties in replicated trials. Trees were treated with bloom applications of *ReTain* at a rate of 333 grams per acre at 100 GPA. *ReTain* treatments were applied between 20–30% bloom. At each site, single limbs of 30 separate trees were evaluated per treatment. Trees were selected at random to represent the length and width of the respective plot. The amount of nut set was then determined by dividing the number of nuts on an individual limb by the corresponding limb cross sectional area (LCSA).

Graph 2. *ReTain* Boosts Nut Set for Optimized Yield Potential



Source: Valent

USE RATE, APPLICATION INFORMATION & PRODUCT PROPERTIES

Rate	1 water-soluble pouch/A (333 grams)
Application Method	Air (fixed wing or helicopter), Ground (air blast sprayer)
Timing	From 10% bloom to petal fall (recommended timing: 30–60% bloom)
REI / PHI	12 hours / 0 hours
Rainfastness	8 hours after application
MRLs	No residue restrictions for export markets
Formulation	0.11 lb AI/0.73 lb water-soluble pouch (15% active ingredient)