

## INCREASING RETURN BLOOM AFTER THE THINNING SEASON

Frequently there are situations where the orchardist feels that the potential for return bloom is less than desirable, and the time has passed where chemical thinning can be done effectively. In this case, there are two choices for enhancing flower bud formation.

**NAA.** Application of NAA should begin soon after the thinning window of opportunity has passed, which in most cases is 35 to 40 days after bloom, when fruit size approaches 1 inch in diameter. There is no unanimity of opinion in the industry about the concentration to use, time of application, and number of applications that will be necessary to assure return bloom. We suggest using 2 to 4 applications of NAA at 3 to 5 ppm (based on dilute TRV) spaced 7 days apart, (or close to this when a cover or other spray goes on in this relative time period). In some years, especially when it is dry, NAA may have a limited influence on increasing flowering. **The restricted entry interval for K-Salt Fruit Fix is 24 hours and for Fruitone-N is 48 hours.**

**Ethrel.** This is the most effective plant growth regulator available to increase flower bud formation. This product is not used universally to enhance flower bud formation for two reasons. First, it has the potential to thin, even when fruit is as large as 1 inch in diameter. Second, it can advance fruit ripening, reduce fruit firmness at harvest and following storage, and increase preharvest drop. Some varieties, especially McIntosh, are more sensitive to Ethrel than others. Ethrel at 3/4 pint/100 gal at the end of June drop can advance ripening. If you have not used Ethrel at this time of year, we suggest that you take a conservative approach. An entry point would be starting 35 to 40 days after bloom and make 2 to 3 applications of Ethrel at the 1/4 to 1/3 pint/100 gal rate (based on dilute TRV), spaced 7 to 10 days apart. It would be a good idea to check starch levels in fruit near harvest to determine if ripening was advanced by Ethrel. **The restricted entry interval for Ethrel (ethephon) is 48 hours.**

## FRUIT ELONGATION FOR DELICIOUS

Promalin has been used to increase the length of Delicious apples, however, the results are not consistent. Sometimes fruit from Promalin-treated trees are similar to those from untreated trees; in other situations, Promalin causes significant fruit elongation. Furthermore, this growth regulator has fruit thinning capabilities. **Restricted entry interval is 4 hours.**

For growers planning to use Promalin, here are some guidelines.

- Calibrate your sprayer. Thinning due to Promalin has often been traced to over application because of improper sprayer calibration and nozzle adjustment. The margin of error with Promalin is not great.
- Apply Promalin at 1 pint/100 gals. Finished tankmix. (Do not apply more than 2 pints per acre.)
- Do not apply Promalin when the temperature exceeds 85°F. Excessively warm temperature may increase the thinning response without a corresponding increase in the shape response.
- Do not apply Promalin on young trees. A good rule of thumb is not to apply this growth regulator on any tree until it is bearing heavily enough to consider chemical thinning.
- Apply Promalin as soon as weather permits after opening of the king blossom.
- Adding surfactant or spreader sticker increases both the fruit shape and thinning response to Promalin.
- Leave a few untreated and representative trees in the Promalin-treated block. Initial fruit set, subsequent drop and fruit shape are not constant from year to year. Therefore, the only way to accurately assess the performance of Promalin in your orchard is to leave a few untreated trees in the same block to indicate