

ETHEPHON ON CHERRIES

Jim Nugent, District Horticulturist, MSU Extension

Ethephon used properly will promote fruit loosening to facilitate mechanical harvesting of sweet and tart cherries. However, excessive activity can result in tree injury. Response will depend upon the variety, rate, time of application, temperature during and after application, tree stress and crop load.

Time of application is an important factor from two aspects. First, a lower rate will provide adequate loosening if given adequate time for action (10 to 14 days), while higher rates will loosen fruit to the same degree more quickly. Therefore, it is possible to substitute time for rate and obtain the same effect. Second, it is important that the chemical not be applied too early in the season. The fruit should be in Stage III of growth, that is, enlarging rapidly and the grass-green color beginning to yellow or take on a tinge of red. If ethephon is applied earlier than this, the fruit may fail to enlarge further and drop from the tree with the stems attached.

Temperature and tree vigor are associated with the degree of response achieved. At higher temperatures during the 72 hours following application the magnitude of response is increased, and at lower temperatures it is decreased. Trees low in vigor or under stress respond to a greater extent, and gumming and leaf abscission may result. Do not treat such trees with ethephon.

Consider the following points before applying ethephon to cherries:

- 1. Rate:** Vary the rate depending on anticipated temperatures for 72 hours after application, days before harvest, tree stress, crop load and past experience. Lower rates decrease the likelihood of tree injury.
 - A. Light sweets --** When applied concentrate (80 gals. water/acre or less), 1 to 2 pts/acre applied 10-14 days before anticipated harvest should provide adequate loosening. Rates up to 2.5 pts/acre may be necessary for harvesting in less than 10 days. When applied dilute, use no more than $\frac{3}{4}$ pt/100 gals or 3 pts/acre.
 - B. Dark sweets --** When applied concentrate, use 1.5 to 2.5 pts/acre applied 10-14 days prior to anticipated harvest. Rates up to 3 pts/acre may be necessary for harvesting in less than 10 days. When applied dilute, use no more than 1 pt/100 gals. or 4 pts/acre.
 - C. Tart cherries --** When applied concentrate, use 0.5 to 1 pt/acre applied 7 to 14 days prior to anticipated harvest. When applied dilute, apply no more than $\frac{1}{3}$ pt/100 gals or 1 pt/acre.
- 2. Time of Application:** Apply approximately 7 to 14 days before anticipated harvest. Do not harvest within 7 days of application (7 day PHI).
- 3. Temperature:** Avoid application when high temperatures are expected to exceed 85°F or remain below 60°F for the 72 hour period after application. Use relatively high rates when high temperatures are expected to be in the 60's °F and lower than normal rates when highs are expected in the lower 80's.
- 4. Tree stress:** Do not spray trees that are low in vigor or under stress conditions.
- 5. Do not** spray trees that had serious gumming the previous year.
- 6. Crop load:** Heavy crop load, ie, low leaf to fruit ratio, is more difficult to loosen so use relatively higher rates or expect a longer time to achieve desired loosening.
- 7. Concentrate spraying:** Applying ethephon with concentrate sprayers (i.e., 80 gallons of water/acre or less) achieves the same level of loosening at lower rates per acre than does dilute applications. Uniform coverage is important.
- 8. Tree size:** Suggested rates/acre are based on full-sized trees. Adjust rates downward when treating blocks with smaller trees.
- 9. Re-entry interval (REI):** Ethephon has a 48-hour worker protection REI.
- 10. Tank mixing:** Do **not** tank mix with foliar nutrients or compounds such as fruit-cracking inhibitors, bird repellents, etc. While no problems have been reported by growers for tank-mixing ethephon with the fungicides and insecticides commonly used at this time, it is possible that these materials may act as a buffer to the ethephon, thereby altering activity. This can be overcome by acidifying the tank mixture prior to the ethephon.
- 11. For specific application instructions, consult the current product label.**