APPLE: *Malus domestica* Borkh, 'Golden Delicious,' 'York Imperial'
Tafted apple budmoth (TABM); *Platynota iadeavis* (Walker)
European red mite (ERM); *Panonychus ulmi* (Koch)
Mite predator; *Stethorus punctum* (LeConte)

APPLE, EVALUATION OF FENOXYCARB FOR TABM CONTROL, 1987: Experimental sprays were applied to 3-4 tree plots arranged in a randomized complete block design consisting of 6 replicates of alternating 'York Imperial' and 'Golden Delicious' trees. One 'York Imperial' and 'Golden Delicious' tree in the center of each plot was used for monitoring. All treatments were applied with a Friend Airmaster 393 airblast sprayer calibrated to deliver 50 gal/acre (complete spray), or 25 gal/acre, alternate-side spray, driven at 2.3 mph. The first 4 treatments were applied as complete sprays, whereas the fifth, sixth, and seventh treatments were applied as alternate-side sprays. Dates of application were as follows: first and second treatments on 11 and 22 May, 20 and 29 Jul, third and fourth treatments on 1 and 15 Jun, 29 Jul, and 13 Aug; the fifth, sixth, and seventh treatments 1, 8, 15, and 22 Jun, 29 Jul, 7, 13, and 20 Aug. On 3 Jun an alternate-side application of Lannate 1.8L (710 ml/acre) was applied to all plots to control periodical cicada. Phosphamidon 7, 13, and 20 Aug. On 3 Jun an alternate-side application of Lannate 1.8L (710 ml/acre) was applied to all plots to control periodical cicada. Phosphamidon 4EC (237 ml/acre) was applied as alternate side applications to all treatments on 6, 13, and 23 Jun and 10 Jul to control aphids. Vydate 2L (710 ml/acre) plus Carrol 92SP (227 g/acre) and Plictran 50WP (680 g/acre) were applied on 10 and 17 Jul, respectively, as alternate-side sprays to control mites. During the experiment, general maintenance sprays of Dithane M-45 and calcium chloride were applied to all treatments. Effect of treatments on ERM was evaluated by scoring for injury all apples on the center 'Golden Delicious' and 'York Imperial' trees at harvest and on all drops up to harvest. Pest pressure was moderate.

Fenoxycarb appears to affect the *S. punctum/ERM* complex by reducing the density of *S. punctum* and *ERM* at harvest and on all drops up to harvest. Pest pressure was moderate.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate/acre (lb AI)</th>
<th>Method of application</th>
<th>ERM/leaf</th>
<th>S. punctum/3 min&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adults</td>
<td>Larvae</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Jul</td>
<td>1 Jul</td>
</tr>
<tr>
<td>Fenoxycarb 25WP</td>
<td>120 g (0.06614)</td>
<td>Complete</td>
<td>26.3a</td>
<td>2.3a</td>
</tr>
<tr>
<td></td>
<td>240 g (0.1323)</td>
<td>Complete</td>
<td>19.9a</td>
<td>2.0a</td>
</tr>
<tr>
<td>Fenoxycarb 25WP</td>
<td>120 g (0.06614)</td>
<td>Complete</td>
<td>31.9a</td>
<td>0.2a</td>
</tr>
<tr>
<td>Fenoxycarb 25WP</td>
<td>240 g (0.1323)</td>
<td>Complete</td>
<td>77.2a</td>
<td>1.3a</td>
</tr>
<tr>
<td>Fenoxycarb 25WP</td>
<td>120 g (0.06614)</td>
<td>ARM</td>
<td>34.2a</td>
<td>1.3a</td>
</tr>
<tr>
<td>Fenoxycarb 25WP</td>
<td>240 g (0.5)</td>
<td>ARM</td>
<td>36.3a</td>
<td>3.0a</td>
</tr>
<tr>
<td>Guthion 50WP</td>
<td>454 g (0.5)</td>
<td>ARM</td>
<td>23.0a</td>
<td>1.0a</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td>51.3a</td>
<td>2.0a</td>
</tr>
</tbody>
</table>

<sup>a</sup>Means followed by the same letter(s) are not significantly different (P = 0.05, DMRT).
Treatment & rate form/100 gal

% Clean fruit

CM larva: 18.67c 14.33c 4.67a 1.33a 3.00a
CM sting: 1.00a 2.67a 1.33a 0.33a 1.33a
PC: 2.00a 10.00bc 1.33a 0.00a 2.67a
LR: 3.8a 2.9a 2.7a 2.0a 3.6a
SB: 4.67a 4.67a 2.67a 1.33a 1.33a

No. damaged fruit/pest

% Means followed by the same letter(s) are not significantly different (P = 0.05, DMRT).

APPLE: Malus domestica Borkh. 'Ozark Gold'
Codling moth (CM); Cydia pomonella (L.)
Obliquebanded leafroller (LR); Choristoneura rosaceana (Harris)
Stink bug (SB); Pentatomidae
Plum curculio (PC); Conotrachelus nenuphar (Herbst)

APPLE, BROAD SPECTRUM CONTROL WITH INSECTICIDES, ALL-SEASON TEST, 1986:
Treatments were applied to 12-yr-old mature trees in a randomized complete block design with 3 replications. Treatments were applied as dilute sprays to the point of drip with an FMC DP-20 handgun sprayer at 375 psi, using approximately 5 gal finished spray/tree. Cover sprays of dormant oil, mancozeb, Funginex, Plictran, and Omite were applied separately to all trees. Samples consisted of 50 fruit/replicate, 150 fruit/treatment. The fruit was collected randomly from around the tree at chest height. Samples were visually inspected, and the numbers of clean and damaged fruit were recorded. Rating fruit for russeting was not possible due to severe freeze damage on 29 Apr. Climatic conditions were typical for Missouri growing conditions, with less than average rainfall until late summer. An early freeze (28 deg. F.) on 29 Apr caused severe crop loss, with the remaining crop having a high percentage of russetting due to the freeze.

APPLE: Malus domestica Borkh. 'Empire'
European red mite (ERM); Panonychus ulmi (Koch)

APPLE, MID-SEASON EUROPEAN RED MITE CONTROL WITH ACARICIDES, 1987:
Treatments were applied to 12-yr-old mature trees in a randomized complete block design with 3 single-tree replications. Treatments were applied as dilute sprays to the point of drip with an FMC DP-20 handgun sprayer at 375 psi, using approximately 5 gal finished spray/tree. Applications of treatments were made on 24 Jun and 21 Jul. Samples consisting of 25 leaves per replicate, 75 per treatment, were taken at chest height from the periphery of the tree. The leaves were inspected with a hand lens. Leaves were scored as infested if they had one or more mites or mite eggs per leaf and as uninfested if no mites or eggs were found.

James W. Johnson
Department of Entomology
University of Missouri
Columbia, MO 65211

Mite pressure was extremely heavy in the test orchard when treatments were applied. Treatments were delayed until approximately 4 wk after preventative sprays would have begun, to have adequate populations for testing. Several miticides, notably the synthetic pyrethroids, provided excellent control. One product tested, Stirrup-M, is a purported tetranychid (mite) pheromone. It did not significantly enhance activity of materials it was tested with. A problem with the sampling technique probably accounts for the closeness of the data; it appears to separate well from lightly infested treatments, but not from intermediate densities.

No. damaged fruit/pest

% Means followed by the same letter(s) are not significantly different (P = 0.05, DMRT).