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European Red Mite

Pest of Fruit Trees

European red mite, *Panonychus ulmi*, is a pest of fruit trees, including apple, cherry, peach, pear, plum, and prune. European red mite was first recorded in the United States in 1911 and is now present throughout the country. This publication discusses the biology, damage, and management of the European red mite.

Biology

The European red mite life cycle includes an egg, larva, nymph, and adult. The life cycle, from egg to adult, can be completed in two to three weeks, depending on temperature. Adult females are approximately 1/64 of an inch (0.40 millimeters) long, red, oval shaped, with white hairs on the back and white spots at the base of the hairs (Figure 1). Adult males are smaller than females and yellow green to red. Females live up to 20 days and lay approximately 35 eggs.

Figure 1. Adult female European red mite (Photo: Raymond Cloyd).

Figure 2. European red mite eggs on the bark of a fruit tree.

Females lay summer eggs from spring through fall on the underside of leaves along leaf veins. European red mite larvae, nymphs, and adults feed during the summer. Females lay clusters of red to orange winter eggs in the fall on the bark, in cracks and crevices in the bark, or at the base of buds on branches (Figure 2). European red mite overwinters as an egg. Larvae emerge (eclose) from eggs in spring before apple trees are flowering and continue emerging through the flowering period. A generation can be completed in two to three weeks, depending on the temperature. Six to eight overlapping generations may occur during the growing season in Kansas, resulting in all life stages (eggs, larvae, nymphs, and adults) present simultaneously.

Damage

European red mite larvae, nymphs, and adults feed on the underside of leaves (Figure 3). They damage leaves using their mouthparts by removing the cell contents, including chlorophyll, the compound responsible for the green leaf color. Feeding results in white stippling or bronzing of the topside of leaves (Figures 4 and 5). Adults feed on the topside of leaves and fruit if populations are abundant. Feeding by European red mite larvae, nymphs, and adults results in leaves falling prematurely, smaller fruit, reduced fruit yields, and decreased plant health. Fruit tree cultivars can differ in their susceptibility to European red mite.

Figure 3. Adult European red mites on leaf underside (Photo: Raymond Cloyd).

Management

Managing European red mite populations below plant-damaging levels involves scouting fruit trees and applying miticides in the winter and during the growing season.

Scouting

Check fruit trees weekly from winter to early spring for European red mite eggs. Scout for European red mite nymphs and adults once per week during the growing season by shaking leaves over an 8.5 × 11.0 inch (21.5 × 27.0 centimeter) white sheet of paper attached to a clipboard or shake the leaves over a plastic container (Figure 6). Look for European red mites moving on the paper or inside the container.

Figure 4. Feeding damage on apple leaves associated with European red mite (Photo: Raymond Cloyd).

Figure 5. Damage on apple leaf caused by European red mite feeding (Photo: Raymond Cloyd).

Miticides

Apply a mineral (dormant) oil in the winter to kill overwintering eggs. Miticides labeled for European red mite should be applied during the growing season to maintain populations below plant-damaging levels. Thoroughly cover the trunk and branches with spray applications where eggs are located, and leaf undersides where larvae, nymphs, and adults reside. To keep European red mite populations below plant-damaging levels, multiple applications to fruit trees may be required during the growing season. Miticides with different modes of action should be rotated across generations to mitigate resistance developing in European red mite populations. Apply miticides in the morning or evening to avoid exposing honey bees to spray applications.

European red mite populations may increase to plant-damaging levels on fruit trees if broad-spectrum insecticides are applied for insect pests, such as the codling moth, *Cydia pomonella*, and plum curculio, *Conotrachelus nenuphar*. The broad-spectrum insecticides kill the insect pests, as well as beneficial insects and predatory mites that naturally maintain European red mite populations below plant-damaging levels.

Figure 6. Shaking leaves over a plastic container to detect the presence of European red mite (Photo: Raymond Cloyd).

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