

The Fern Mite

a newly recognized pest on California ferns readily controlled by treatment with proper chemicals

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The fern mite—*Hemitarsonemus tepidariorum* (Warburton)—is now known to be a pest of ferns in California. It was originally found damaging brake or *Pteris* ferns in England in 1904, and scientists later recognized it feeding on holly or *Polystichium* ferns in Minnesota in 1929. Its occurrence in commercial greenhouses in the San Francisco Bay region was recently established. Growers report, however, that its damage has been known to them for many years.

The fern mite feeds on both types of ferns in California, and is particularly injurious to *Pteris Alexandrae*, *P. argyraea*, *P. Mayii*, *P. Ouwardii*, *P. Parkeri*, *P. Victoriae*, *P. Wilsonii*, and *P. Wimsettii*. Others such as Boston, Maidenhair, bird's nest, and tree ferns are not subject to its attack.

The fern mite is closely related to the broad mite—*Hemitarsonemus latus* (Banks)—and its habits are similar. It feeds generally on the underside of the fronds causing brownish areas to appear. Feeding on the tender new growth causes the fronds to become wrinkled and misshapen. The egg is elliptical, white, with tiny, frosted spots—much smaller than those on the broad mite egg.

Experimental work indicated that the

fern mite—like the broad mite—may easily be controlled with sulfur. Certain of the newer acaricides were also tested against the mite—88R at a rate of one pound of the 15% wettable powder per 100 gallons of water; parathion at a rate of three-fifths pound of the 25% wettable powder per 100 gallons of water; toxaphene at a rate of 1½ pounds actual toxaphene in emulsion form per 100 gallons of water, and American Cyanamid-4049—an experimental material that is not commercially available—at a rate of

2½ pounds of 25% wettable powder per 100 gallons of water. All of these materials gave excellent control of active stages, but only the toxaphene spray eliminated the infestation. No damage to brake or holly ferns was noted with any of the treatments except possibly on tips heavily infested by mites.

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Pteris fern — nearly normal frond on the left and on the right a frond infested with fern mite.



MARKET

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are related mainly to grades and packs rather than to country of origin. Buyers shift quickly from United States raisins to others or the other way around, depending on which price is lowest.

In the European markets currants are important competitors of raisins, especially in the bakery trade. Commercial bakeries substitute currants for raisins when the price of currants is relatively lower than the price of raisins. Western European imports of currants come mainly from Greece.

The finding that dried fruits are considered a luxury by most European governments is based on statements of government officials and dried fruit importers, as well as on actions of the governments.

Among the six countries surveyed, Belgium alone has during the postwar

period permitted relatively unrestricted importation of dried fruit from the United States. The other governments have exercised tight controls over the kinds and amounts of dried fruit imports. Neither France nor the Netherlands have thus far granted any dollars for the purchase of dried fruit, and in 1948 both Sweden and the United Kingdom closed their markets entirely to United States dried fruit.

While some of the countries, particularly Sweden and the United Kingdom, stepped up their imports of dried fruit from the United States after the institution of the Economic Co-operation Administration, they did not permit the entry of a sufficient quantity to fill the demand of consumers. They could have used more of the dollars available to them for the purchase of dried fruits, but they chose instead to import other goods. Dried fruit stood low on the list of desired imports.

Shipments of United States prunes and raisins to Western Europe in 1949-50 were stimulated also by the direct payment of export subsidies. These subsidized exports enabled European countries to obtain large amounts of prunes and raisins for relatively few dollars.

No evidence was found that the European governments would soon change their classification of dried fruit from the luxury to the essential list. United States exports of dried fruit to Western Europe will likely continue to be limited until those countries acquire sufficient dollars to adopt a policy permitting unrestricted imports of virtually all goods and services of United States origin.

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