

# Another Fungus Needs Control

By Patrick Cavanaugh  
Editor

Everyone talks about powdery mildew fungus, but there's another fungus that can knock the heck out of a grapevine if allowed to latch on. It's known as *Phomopsis viticola*, and like powdery mildew, it's spread by spring rains after bud break.

The disease, formerly known as grape dead arm, is most common in the San Joaquin Valley from Tulare County

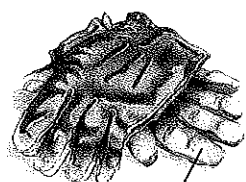


*Heavy grapevine Phomopsis infection usually results in a scabby appearance of the basal portion of the shoot.*

northward. It has been particularly severe in San Joaquin and Stanislaus Counties, where spring rains are more common.

Infections generally occur when shoots begin to grow. Spores are re-

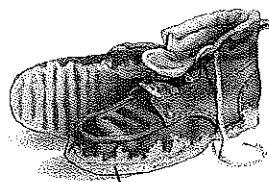
leased in large quantities from the overwintering pycnidia (saclike spore case producing asexual spores on the inside). These are splashed by rain onto early developing shoots, and infection occurs when free moisture remains on the un-



*Sand*



*Loamy Sand*



*Sandy Loam*



*Loam*

# Disease Symptoms

**On leaves:** *Phomopsis viticola* causes tiny dark-to-brown spots with yellowish margins on leaf blades and veins. Spots first show three to four weeks following rain. Leaf defoliation may occur if larger numbers of spots build up. Basal leaves with heavy infection may become distorted and usually never develop to full size.

**On Shoots:** Small spots with black centers similar to those found on leaves occur usually on a basal portion of the shoot. After spots lengthen a few millimeters, the

epidermal layers of the shoots usually crack at the infected parts. Heavy infection usually results in a scabby appearance of the basal portion of the shoot.

**On Clusters:** Spots similar to those that occur on leaves and shoots occur on the flower cluster stems.

Lesions on the leaves, shoots and clusters become inactive during the summer heat, but in areas like New York where it rains throughout the summer, berries can be infected, causing them to shrivel and become mummified. □

protected green tissue for several hours.

"Over the years, grape growers, especially in the northern San Joaquin Valley, have had steady pressure from *Phomopsis*, but last year, with the persistent rains during and after bud-break, it was a serious problem for many," said George Leavitt, viticulture farm advisor, UC Cooperative Extension,

Madera County. Leavitt has been working on the cause and control of the disease for 16 years.

Thompson seedless, Grenache and Tokay are the most susceptible varieties. The three, with the exception of Tokay, currently declining in acreage, constitute a large portion of the varieties planted in the southern and northern San

Joaquin Valley. Leavitt said that this past spring he found that Flame Seedless and Red Globe were also susceptible to *Phomopsis*.

"In the recent dry years, disease incidence has been minimal, but in 1993 it was a wet spring and many growers were caught off guard," Leavitt said.

While both leaves and shoots can be damaged by the fungi, Leavitt said it's apparent that shoot damage is eventually most damaging to current and future cropping capacity.

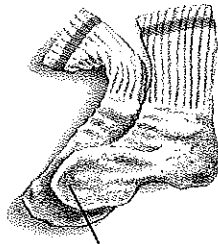
"Growth on highly infected shoots is slowed or stunted. The damage to the basal shoot buds results in bud death, making them worthless as spurs," said Leavitt. "And the infested canes or spurs become the source of infection on next year's shoots.

"Defoliation of the leaf area can have detrimental effects on crop development and perhaps fruit set; however, last year shoot infections seemed to be the greatest problem.

"In 1978, when severe leaf infections resulted in distortion and defoliation of the basal leaves, and a 36 percent crop loss was observed, rain was heavy and frequent over an extended period of time," Leavitt said.



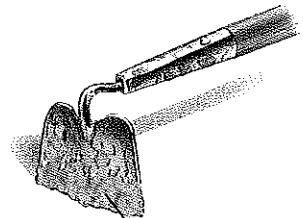
Silt Loam



Silt



Sandy Clay Loam



Sandy Clay

In the rainy 1993 spring, Leavitt happened to have two *Phomopsis* research plots layed out in a Tokay vineyard in Lodi and a Grenache vineyard in Madera. The goal of the trials was to test a wide variety of materials for efficacy in protecting vines from the fungus.

Since Captan, Mancozeb and sulfur are the only registered products for *Phomopsis* control, Leavitt wanted to explore the efficacy of other products. Also, Captan and Mancozeb (Dithane) have been singled out by several wineries and raisin buyers for limitations on use.

The shoot infection levels over both trials indicated that Mancozeb, Maneb, Ziram, Ziram plus Microthiol, Microthiol (5 pounds), Microthiol (10 pounds), Orthorix plus Microthiol (5 pounds) and two formulations of Captan performed equally well in preventing disease.

Microthiol (5 pounds) was slightly less effective in the Madera plot, while Champ (copper hydroxide) plus Microthiol (5 pounds) was slightly less effective in the Lodi plot. Lime sulfur was also slightly less effective in the Madera plot and not significantly different from the control in the Lodi plot.

Leavitt said Ziram is not registered for use on grapes; however, Maneb is in the registration process and may be available for use in 1994. Leavitt also found that the one-half label rate of Captan 50 plus Spray Tech oil appears to be an acceptable treatment for reduction of overall chemical usage. Leavitt stressed that this half-rate treatment was effective under moderately light infection levels experienced last spring, but it may not offer adequate controls in heavy pressure situations.

In both plots, leaf position and disease incidence were significant. The further away from the spur the leaf was, the less infection the leaf had.

Leavitt said some of the materials used in the experiment are considered to be "softer" chemistry and might be acceptable for use under organic farming regulations. Microthiol alone, or in combination with several different compounds (Ziram, Champ, Orthorix), provided good control.

Leavitt said that in a 1993 powdery mildew experimental plot the combination of Champ plus Microthiol (5 pounds) was more effective in controlling powdery mildew than Microthiol alone. This treatment could offer dual

early season control for grower looking to inhibit both *Phomopsis* and powdery mildew.

"Timing of sprays are important," said Leavitt. "Registered product sprays (Captan or Mancozeb) should be applied before prolonged cool, wet weather. Current recommendations for the spring foliar treatment is at early growth. But to be effective, these materials must be applied before the first rain after budbreak and again when shoots are five to six inches in length, or 10 to 12 days later.

"Growers should try and delay the spray as long as possible, in order to get maximum growth of the vine and thus maximum protection. The sprayer should be ready to go. The materials should be in the barn ready to mix and apply when rain is imminent, then spray before the rain. A repeat of rain dictates a repeat application for adequate control. That is, if growers can get back into the vineyard."

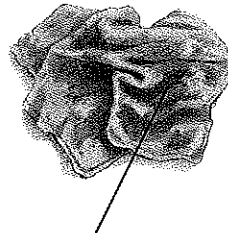
A dormant spray of sodium arsenite has been used for many years, but it cannot be used after June 30, 1994. The recommended treatment time is late in the dormant period at least one month after pruning and tying. □



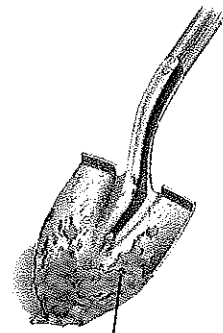
Clay Loam



Silty Clay Loam



Silty Clay



Clay

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# NAFTA and the Prospect for Grapes

By Jaguar Bennett  
Assistant Editor

The New Year has come, and with it the North American Free Trade Agreement (NAFTA), which went into effect Jan. 1, 1994. The effects NAFTA will have on the grape industry are complex in the extreme. Table grapes, raisins and wine will all be treated differently by NAFTA. While many producers will be better off because of NAFTA, some might be put to a disadvantage by it.

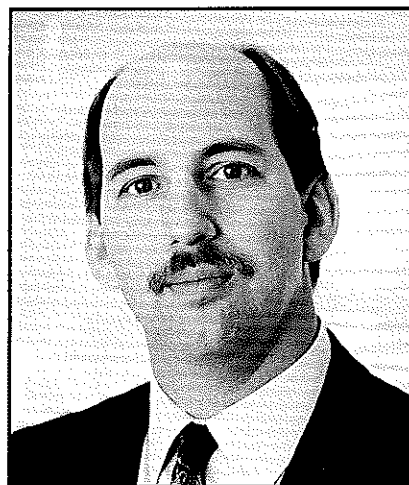
Clyde Nef, manager of the Raisin Advisory Committee, believes raisin producers will be among the winners in NAFTA. "We'll be in tall clover," he said, when asked about his expectations for NAFTA. "It depends on how NAFTA ultimately comes out. Right now, for raisins to get into Mexico, we have to pay a 13-cents-per-pound tariff, and under last year we had to pay a licensing fee. If those barriers go down, we have opportunities there. There's a very large market down there."

Raisins will have a special advantage entering the Mexican market because they can be stored. Henry Voss, secretary of the California Department of Food and Agriculture, said, "Raisins will be a growth product, as will prunes, other dried fruits, nuts, basically all products that are easy to store and move. For the first few years, at least, under NAFTA, the state of transportation and refrigeration in Mexico will impact how fresh fruits and vegetables are able to be sold there."

The market for California wine in Mexico is uncertain. Mexicans drink beer and brandy more than wine, but that may not be an insuperable obstacle as the market develops. "The opening of the Mexican market should be very beneficial for the wine industry," said Nancy Light of the Wine Institute. "Mexico is a very new market for us—

we weren't allowed there until 1982. There's a large tourist industry in Mexico, as well as a growing middle class, and we think they will be an excellent customer base for us."

That sentiment was echoed by Bob Hartzell of the California Association of



*Scott Horsfall of the California Table Grape Commission: "The demand for grapes in Mexico is tremendous. ... Mexican buyers were scrambling to obtain permits for the full amount of grapes allowed."*

Winegrape Growers. "Mexico is a very promising market for California table wines," he said.

Both Light and Hartzell said the wine industry's support for NAFTA is conditional on further negotiations to give American wine the same market access in Mexico that Chilean wines have. Hartzell said, "We want the tariff on American table wine to be identical with the one on Chilean wine, which will phase out in 1996." In November, U.S. Trade Representative Mickey Kantor announced that negotiations on this matter would begin this January, and that an agreement would be reached

within 120 days.

California raisins and wine do not compete with Mexican agriculture; table grapes do. For this reason, negotiations for NAFTA allowed a good deal of protection to remain for the Mexican table grape industry. According to Scott Horsfall, vice president of international marketing for the California Table Grape Commission, NAFTA guarantees that, "From June to mid-October, a tariff of 18 percent will be imposed on imported grapes in Mexico. This tariff will be phased out over 10 years." Horsfall added, "This is one of the longest phase-outs allowed for any fresh commodity and is clearly designed to protect Mexican grape growers from foreign competition. During the period when California and Mexico compete most directly, NAFTA grants Mexico a significant edge with this import tariff on California grapes."

But NAFTA will not put California table grape growers at a complete disadvantage. Said Horsfall, "On Oct. 15 of each year, the tariff on grapes will drop to zero. This break will give California's farmers at least three months of tariff-free access to the Mexican market." Additionally, NAFTA has eliminated Mexican licensing requirements, the single largest barrier against California table grapes.

Bruce Obbink, president of the California Table Grape Commission, sees entering the Mexican market as more of a necessity than a new opportunity. "I think a lot of people are of the opinion that after NAFTA the gates will open and everything will commence," he said. "That's not the case. Those that aren't marketing in Mexico already are going to have to start, and they'll have to start at the beginning, getting their product certified in Mexico."

Horsfall believes the Mexican market will be of immense benefit to table grape producers. For proof, he