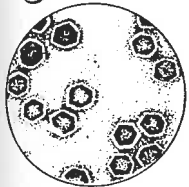
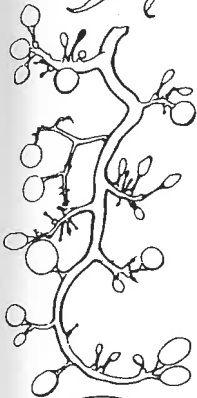




8th MEETING
of the INTERNATIONAL COUNCIL
for the study of
VIRUSES AND VIRUS DISEASES OF THE GRAPEVINE
BARI and SASSARI, ITALY



SESSION 5

CONTROL AND SANITATION PROGRAMMES, RESULTS
OF USING SELECTED OR HEAT TREATED MATERIALS

COMPARISON OF 1,3-D AND METHYL BROMIDE FOR CONTROL OF Xiphinema index-
FANLEAF DISEASE COMPLEX

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A nine-acre block of twenty-year old grapevines (cv Cabernet Sauvignon) near Ruthford, California, was pulled in the winter of 1987/80. The vines had a high rate of infection with the X. index/fanleaf complex and were in advanced stages of decline. Fumigants were applied in single blocks, non-replicated (about 3 acres, 1368 vines each) in September 1980, as follows: 1) methyl bromide 400 /A covered with polyethylene tarp; 2) methyl bromide /A uncovered; 3) 1,3-D (Telone II) 150 g/A; 4) checks were designed as two rows of 72 vines on each end of block left untreated. Bench grafted 'Cabernet Sauvignon' scions on AXR-1 rootings certified free of grapevine fanleaf virus were planted in 1981. Soil samples taken in May 1982 in the southern pair of check rows, showed 4 of 4 infested with X. index; the northern pair showed 1 of 2 infested. In October 1982 the samples showed 7 of 7 and 2 of 7, respectively; the MBr (covered) showed 9 of 14 infested; MBr (uncovered) 6 of 14 infested; 1,3-D 7 of 7 infested. The May 1983 samples held similar percentages of X. index incidence. Fanleaf virus symptoms were first noted in 1982 in 1 vine from the check plants (288 total) and 1 vine (1368 vines total) from the 1,3-D treatment. By October 1983, there were 4 positive vines in the checks, 1 in the MBr (uncovered), 7 in the 1,3-D treatment and none in the MBr (covered). Dormant cuttings were taken in December 1983 from 256 plants (155 in groups of 7-10 vines each and 101 from individual vines). Green shoots from buds and roots were forced in late winter 1983-84. These were checked for grapevine fanleaf virus (GFLV) by ELISA technique. Two groups samplings were found positive for fanleaf (1 from a check row, 1 from 1,3-D treatment); 14 individual vines were positive including all 12 detected by visual symptoms. The two additional were from the 1,3-D treatment. This demonstrated that ELISA testing was completely reliable. X. index was not completely eliminated from grape soils by the fumigation treatments and GFLV invaded vines in the MBr (uncovered) and 1,3-D treatments by the second growing season.

NEMATICIDAL EFFECT AND VERTICAL DISTRIBUTION OF 1,3-D SOIL
FUMIGANT IN REPLANTING VINEYARDS

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Abstract missing

Strategies for Controlling Tomato Ringspot virus
of Grapevines in New York.

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Since the early 1970's, tomato ringspot virus (TomRSV) has been generally recognized as the dominant virus infecting grapevines in New York. Although severe in localized areas, TomRSV has not inflicted widespread damage to New York's grape industry. However, this situation is not due to the lack of disease pressure per se, because the virus and its nematode vector, Xiphinema americanum Cobb., are endemic in the Northeastern United States. Our observations and experimental data point to several reasons why TomRSV has not caused more damage in grapevines. First, Vitis labrusca type grapes, which make up the primary commercial varieties of New York, are resistant to TomRSV. Second, many French hybrids also show resistance to the virus. Third, natural spread of TomRSV in vineyards planted to susceptible varieties occurs quite slowly. And fourth, spread of TomRSV through infected propagation material has been minimal due to the lethal nature of the disease. At the present time, the primary control strategy for TomRSV in New York is a natural consequence of the grape industry's preference for V. labrusca type varieties which are resistant to TomRSV. Different strategies would have to be used if the industry shifts to growing more varieties which are susceptible to TomRSV. In this case, resistant rootstocks would be an attractive control strategy. Experimental data indicate that several common rootstocks are resistant to TomRSV. Fortunately, one of the best control strategies (use of clean material) has been a natural one for TomRSV in New York because wood from infected vines are unsuitable for propagation.

THE RESPONSES OF THE GRAPEVINE FLECK AGENT TO TETRACYCLINE-HCL
ANTIBIOTIC AND DIENES' STAIN

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Tetracycline-HCl (TC) was shown to be absorbed from solution by roots of young plants of Vitis rupestris du Lot (St. George) and rapidly traslocated to leaves. In rooted cuttings TC showed phytotoxicity, often resulting in the death of plants, at the higher concentrations (1000 and 2000 µg/ml) used for root treatments.

Distribution of the antibiotic into representative leaves (i.e. apical, middle and basal) of healthy and diseased plants was determined by bioassay on plate cultures of Rizobium trifolii (Dangéard). The highest detectable concentration of antibiotic in apical leaves was, after a single application, 3.9 µg/g fresh weight, when the roots were immersed for 64 hr in a solution containing 100 µg/ml antibiotic.

Plants failed to accumulate detectable quantities of antibiotic in their foliar tissues after a single soil drench with TC at a concentration of 1000 or 2000 µg/ml. In additional tests in which the drenching was repeated several times, TC was occasionally detected, but only at extremely low levels (less than 0.5 µg/g).

After root treatments or soil drenches, the infected plants continued to show marked symptoms, with no signs of recovery from the disease.

Freezing-microtome cross-section of roots, stems, petioles and veins of healthy and diseased rooted cuttings of V. rupestris du Lot and V. vinifera cv Sangiovese were examined with a light microscope after treatment with Dienes' stain. Preliminary tests carried out on herbaceous plants showed the usefulness of Dienes' stain as a diagnostic test for a tomato big bud-like disease which resulted associated to MLO.

All the sections obtained from infected Vitis plants were free of blue-stained phloem cells as were their healthy counterparts.

Taken in conjunction these results fail to support the concept of a prokaryotic etiology for Fleck Disease of the grapevine.

INCIDENCE OF SOME GRAFT-TRANSMISSIBLE VIRUS-LIKE DISEASES
OF GRAPEVINE IN VISUALLY SELECTED AND HEAT TREATED STOCKS
FROM SOUTHERN ITALY

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In visually selected stocks (38 wine and 10 table grape varieties) coming from four different southern Italian regions, except for corky bark, which was detected in a negligible number of cases, the incidence of other graft-transmissible virus-like diseases such as fleck, vein necrosis and leafroll, was very high ranging from about 46 to 71%. In general, the sanitary conditions of table grape varieties was worse than that of wine grapes. Heat treatment reduced the level of infection. In some instances, heat therapy yielded total elimination of the diseases under consideration. The size of shoot tips and growing conditions of the vines during heat treatment appeared to be more critical factors than the duration of the treatment.