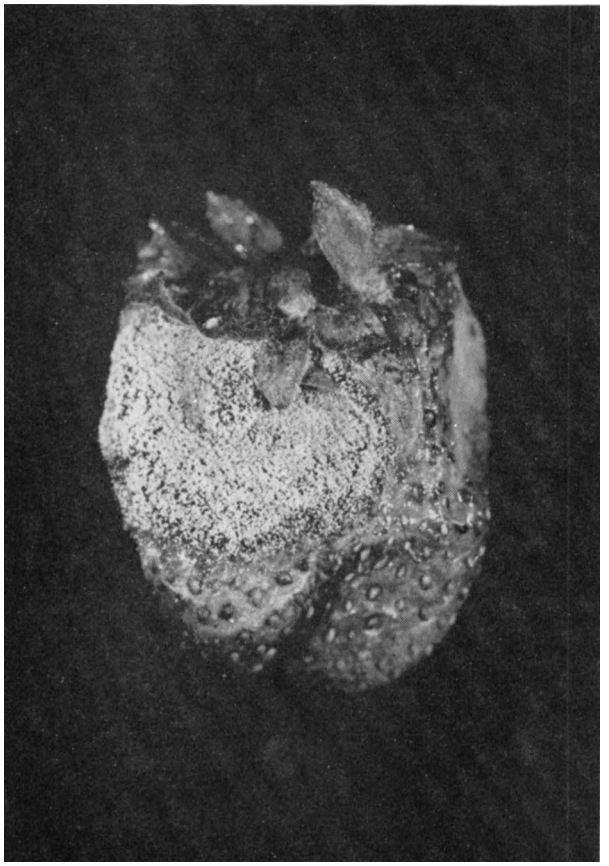

Fungicidal Control of Botrytis Fruit Rot of Strawberry

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TABLE 1. NUMBER OF STRAWBERRIES WITH VISIBLE BOTRYTIS ON APRIL 26, 1967

Spray material	Fresno	Tioga
Per 100 gallons	Number rotted fruit	
Bayer 47531 2 lb. 50W	4.8 a*	2.0 a
Difolatan 1.5 lb. 80W	3.8 a	7.3 a
Difolatan flowable 1 qt. (4 lb. per gallon)	2.5 a	6.3 a
Daconil 2787 1.6 lb. 75W	2.0 a	11.3 a
Captan 2 lb. 50W	4.5 a	10.5 a
Benlate 2 lb. 50W†	6.7 a	10.3 a
Dyrene 2 lb. 50W	7.3 a	15.3 a
Check (no treatment)	18.3 b	33.0 b

* Duncan's Multiple Range Test (1% level)—treatments with the same letter are not significantly different.

† Benlate was applied only three times before data were taken; other materials were applied five times.

TABLE 2. BERRIES WITH VISIBLE BOTRYTIS AND YIELD OF PLOTS, APRIL 1968

Spray material	Rotted fruit-April	Healthy fruit-April
Per 100 gallons	Number	Weight (grams)
Benlate 50W 2 lbs	69 a*	1514 abc
Benlate 50W 2 lbs (sprayed twice)	84 a	1664 a
Bayer 47531 50W 2 lbs	109 ab	1603 a
Difolatan 80W 2 lbs	118 ab	1598 ab
Daconil 2787 80W 2 lbs	188 bc	1471 bc
Difolatan 80W 2 lbs (sprayed twice)	195 bc	1540 ab
Polyram 80W 2 lbs	254 c	1356 cd
Check (no treatment)	347 d	1240 d

* Duncan's Multiple Range Test (1% level)—treatments with the same letter are not significantly different.

BOTRYTIS FRUIT ROT, commonly known as gray mold rot, is the major fruit rot attacking strawberries in southern California fields. It is caused by the fungus, *Botrytis cinerea*, which thrives in wet conditions and cool temperatures. Botrytis spores are produced in tremendous quantities and are carried by the wind. The fungus usually attacks through senescent dead petals, stamens, or other delicate plant tissue. Much of the infection of the fruit originates at the stem end, but the fungus is able to penetrate the unbroken skin of the berry.

1967 tests

Studies of several fungicides for the control of the Botrytis fungus were conducted in 1967 and 1968 at the University of California's South Coast Field Station at Santa Ana. Results reported here constitute a progress report and are not to be considered recommendations of the University of California. For recommendations on the control of Botrytis fruit rot see the latest strawberry pest control guide, available from local farm advisors.

Tioga and Fresno were the varieties tested in 1967 and polyethylene mulch was used in all plots. Plots of 10 strawberry plants were replicated four times. Captan 50W, Bayer 47531 50W, Dyrene 50W, and Benlate (Dupont 1991) 50W were used at the rate of 1 lb of actual material per 100 gallons of water. Difolatan 80W was used at 1.5 lbs and Daconil 2787 75W at 1.6 lbs per 100 gallons of water. The fungicidal mixtures were applied at the rate of 200 gallons per acre and 250 psi. Except for the Benlate treatment, all plots were sprayed on March 21, 30, April 3, 10, 20, and May 1, 1967. Because Benlate was not available as early as March, it was not applied until April 3; then it was regularly applied on schedule.

There was heavy rainfall through most of April, but Botrytis did not develop until just before the April 26 picking. The number of rotted berries infected with visible Botrytis on April 26 is shown in table 1.

After the fungicide treatments there were fewer rotted berries on April 26 and

all treated replicates were significantly better than the check plots (1 per cent level). None of the treatments showed a significant difference in total yield of number of healthy berries produced during the season. However, Dyrene caused a bronzing and necrosis of the leaves of both Tioga and Fresno after several applications but Tioga appeared to be the most affected. Technical flowable Botran (dichloran) was applied to Tioga in an adjacent plot and, after three applications, there was severe bronzing and necrosis of flowers, fruit, and leaves.

1968 tests

In 1968, trials were again conducted at the South Coast Field Station. The Tioga variety was used with polyethylene mulch in all plots. Plots of 20 strawberry plants were replicated four times. Benlate 50W, Difolatan 80W, Bayer 47531 50W, Polyram 80W, and Daconil 2787 75W were used at the rate of 2 lbs of the formulation per 100 gallons of water. The fungicidal mixtures were applied at the rate of 125 gallons per acre and 250 psi. Two treatments with Benlate and Difolatan were sprayed only at flowering time on March 5 and 15. All other treatments were applied every 10 days beginning on March 5 and continuing through March 15, 25; April 4, 15, and 25. All plots were sprinkler irrigated three times weekly to further encourage the development of Botrytis fruit rot.

The number of rotted berries infected with visible Botrytis and the yield of the plots during the month of April are shown in table 2. Applications of Benlate, Bayer 47531, and Difolatan resulted in excellent control of Botrytis fruit rot in the strawberries. Two early sprays of Benlate at the flowering peak resulted in control equal to six sprays of Benlate applied every 10 days throughout the season. Difolatan sprayed twice was not as effective as Difolatan sprayed every 10 days. Polyram applications resulted in poor control of Botrytis fruit rot. Plots sprayed with Benlate and Difolatan (applied either twice or every 10 days) and Bayer 47531 gave a yield of healthy fruit significantly higher than the plots sprayed with any of the other treatments. No phytotoxicity was noted from any of the chemical treatments used in 1968.

Only two sprays of Benlate, applied during the peak flowering period, had an effect equal to applications of the same material every 10 days. Benlate, Bayer 47531, and Difolatan effectively controlled Botrytis fruit rot of strawberry in the 1968 trials. Yield of healthy fruit was highest from the Benlate, Bayer 47531, and Difolatan treatments. In 1967, plots treated with Bayer 47531, Difolatan (wettable or flowable), Daconil 2787, Captan, Benlate, and Dyrene showed results significantly better than the check plot. Dyrene and Botran were phytotoxic to Tioga and Fresno strawberry plants.

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GRANULAR FORMULATIONS OF SYSTEMIC INSECTICIDES FOR CONTROL OF APHIDS ON EASTER LILIES

These experiments indicate that granular formulations of Temik and Furadan are promising insecticides for use in controlling aphids on lilies forced for Easter. Applications to the crown of the plants were as effective as when the granules were applied to the soil in the pots. Crown applications were also easier and thus required less time than soil applications. No phytotoxicity occurred on the varieties Ace and Nellie White. However, these insecticides need to be tested on a larger scale and on more varieties, before they can be recommended for commercial use.

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WHEN FORCED in the greenhouse, easter lilies are subject to continual infestation by aphids. In southern California, Plantfume 103 (sulfotepp, dithio) smoke generators are widely used for aphid control but because residual effects are short, almost weekly applications are required. In addition, Plantfume 103 is not very effective against the cotton aphid, *Aphis gossypii* Glover, one of the most common species attacking lilies. Malathion and Thiodan sprays are also used, but new growth is subject to reinfestation and repeated applications may be necessary. The advantages of systemic insecticides are obvious but our experience with sprays and drenches has been similar to that of previous researchers who found that sprays of systemic insecticides damaged three out of the four varieties tested. However, granular formulations of two carbamate systemic insecticides, Temik and Furadan have shown promise when used on two varieties of lilies. Temik is 2-methyl-2-(methylthio) propionaldehyde O-(methylcarbamoyl) oxime; and Furadan is 2, 3-dihydro-2, 2-dimethyl-7-benzofuranyl methylcarbamate.