PESTICIDES IN SWITZERLAND

Continuing its surveys of pest problems and pesticides in other countries, *Ag and Food* presents a report by Dr. E. Gunthart, of Dr. R. Maag Ltd., Dielsdorf-Zurich, Switzerland

Among the most important crop protection programs in Switzerland is the care of the apple crop.

Spray schedules for apple trees normally include: DNOC winterwash against aphis, caterpillars, and other pests; two pre-blossom applications against scab and to a limited extent against apple mildew using lime-sulfur or wettable sulfur with a small amount of copper added to it; at least four treatments after bloom with an organic fungicide so as to avoid russetting and leaf injury. For the last spray application against late and storage scab a weak dose of copper is sometimes used instead of an organic fungicide. Codling moth is controlled by adding parathion to 2–4 sprays against scab.

Important developments in recent years: Of the various organic fungicides Zineb has proved its value for scab control, also the newly introduced captan. However, both are ineffective against apple mildew. Treatments with captan make it necessary to use a specific acaricide against red spider mites (e.g. chlorobenzilate or the new Chlorparacide).

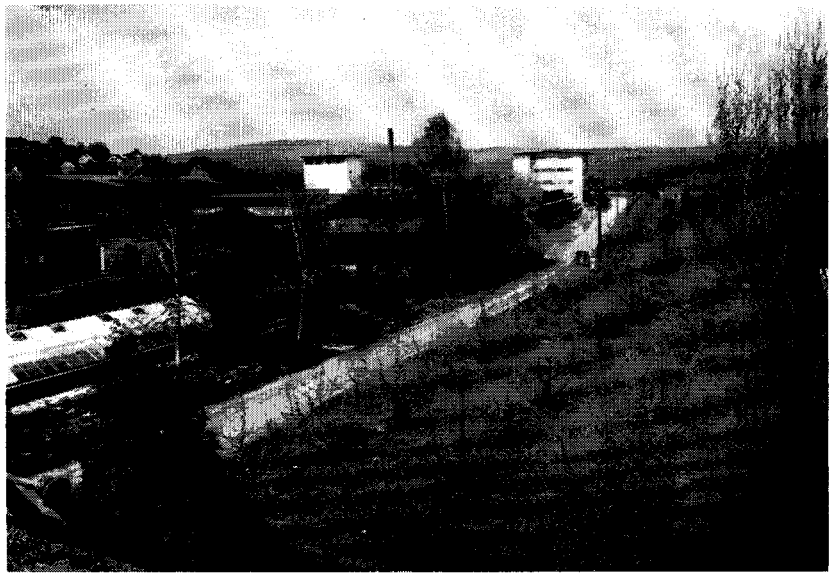
Some people have advocated replacing winterwash by parathion added to pre- or after-blossom sprays. In many mixed smallholdings as common in this country, this is difficult to carry out, owing to pressure of work in the spring and to intercropping in orchards. New organophosphorous compounds in mineral oil used at late dormant stage have given promising results. For the control of codling moth lead arsenate has been replaced almost completely by parathion during the last two years. This year tests are under way with less toxic phosphorus compounds known under the trade names Diazinon and Malathion. DDT has never been used for this purpose, because of the red spider problem. Even on trees treated with parathion in the summer an increase of the red spider population may occur towards the autumn.

The control of plasmopara on vines has made considerable progress through the introduction of a combined copper/zineb preparation and of captan. Against grape berry moth parathion has taken the place of DDT, but here again the red spider problem requires close attention.

For the control of the Colorado beetle on potatoes two to three sprays of lime-arsenate were used at one time, in later years one to two treatments with DDT and nowadays this pest can be checked with only one spray of dieldrin. Potato blight requires one to four sprays with a copper preparation according to variety (Bordeaux, copper oxychloride or copper carbonate). Growers do not as yet use organic fungicides for the control of potato blight. To avoid the spreading of virus diseases in seed potatoes DNOC-potato-vine-killers are employed.

In recent years the common mercury seed dressings failed to control soil born wheat smut. New products containing hexachlorobenzene have proved to be valuable in controlling the menace. Seed dressings combined with lindane are used when there is any danger of wireworm or seed corn maggot attack.

Consistent progress has been made since 1943 in the control of cockchafers or May beetles (white grubs). The BHC products used initially were later replaced by chlordane and afterwards by lindane and aldrin. Today, lindane is mainly used on pastures, as experience has shown that the insecticidal residues in the grass or milk are quite insignificant. For soil treatment on arable land however aldrin is preferred. Dieldrin and DDT are not used for this treatment, as with these there is danger of accumulation of residues in the soil. Besides soil applications, large scale treatment of the border zones of forests against cockchafers has been carried out sine 1948. For this purpose lindane wettable powder or emulsifiable concentrate is being used. Good results are obtained if suitable spraying equipment (mist-blowers, helicopters) is chosen. If the applications are carried out carefully, adverse effects on useful insects, wildlife, or bees will not occur.



Plant and test plots of the plant of Dr. R. Maag, Ltd. Switzerland