INSECTICIDES IN ALCOHOL

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It has been two decades since the first report was published in this newsletter telling how to use alcohols as surfactants in insecticidal sprays. A few details have been changed during these years but the concept is still viable.

Why use alcohol? It is a very efficient surfactant (wetting agent), providing penetration of an insect's waxy protective coating and carrying the pesticide into (or in contact with) the insect's body. It is especially effective in controlling mealy bugs since alcohol alone will kill some of them.

Any common alcohol seems to work. Methanol (wood alcohol) appears to evaporate a bit too fast. Isopropanol (a rubbing alcohol) is readily available. Ethanol (grain alcohol) seems to work best. If purchasing rubbing alcohol (either ethanol or isopropanol) make certain it doesn't contain some additive such as an oil.

The alcohol concentration for sprays should be about 50%. For swabbing it can be 70% as purchased at the grocery or drug store or 95% available commercially. For sprays, dilute the 70% with a half volume of water (2:1); dilute the 95% with an equal volume of water (1:1).

The insecticide used can be almost anything that has activity against the pest to be controlled. A usual recommendation is a general all-purpose formulation commonly sold as a home or garden spray such as Iso-Tox. We have tested specific chemicals such as malathion or DDVP (Vapona) and found them effective. The most important thing to remember is that they must be emulsifiable concentrate (EC) formulations. DO NOT USE oil base formulations (for use in fogging machines or steam pipe volatilization) since they are usually phytotoxic in alcohol.

The rate is the same as when preparing a spray in water. For instance, if the formulation calls for a pint per 100 gallons (1:800), use 1/4 teaspoon per quart. Mix the pesticide in the alcohol and place it in a dark bottle (so it will remain potent for a few months) labeled POISON. List the contents and store under lock and key. A small sprayer such as those used for spraying window cleaners works very well. But the spray mixture may damage the valves so keep the spray in the dark bottle, transfer to the sprayer when needed, then wash out the sprayer.

Why use alcoholic insecticides? They cost more than aqueous sprays and are not practical for large areas. But they are more effective. For the retail greenhouse or flower shop operator who has a valued customer who brings in an infested plant, it is an easy solution. For the small greenhouse with a problem plant in a corner, it may get rid of a chronic pest. For the mall maintainer, it may provide pest control when other measures fail.

Phytotoxicity doesn't seem to be any more common than with aqueous sprays. But please let us know if you find a problem.

Legality of unusual pest control procedures must be considered. The use of alcohols is not a problem. Surfactants do not require EPA clearance. Alcohol is used solely as a surfactant (wetting agent) and does not require labelling. At lease one commercial product in aerosol cans now contains some alcohol.

CAUTION: Alcoholic insecticides may be absorbed by you as efficiently as by insects. Label the containers POISON. Avoid contact with your skin. If accidental contact is made, wash immediately with soap and water.

REFERENCES

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