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Greenbug Control

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BY

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Greenbug infestations in the State of South Dakota are unusual and have generally been broken by the interaction of natural factors such as predators, parasites, and weather. In the 1949 outbreak, the greenbug was seldom if ever the sole cause of damage in infested fields and in most cases spraying would not have been paid for by the remaining crop. The chemicals available for control are exceedingly dangerous to man and livestock, and their use should not be encouraged except where a clear and definite need has been shown to exist.

Greenbug injury should not be confused with other crop damaging conditions such as crop diseases, weeds, or nutritional symptoms. If doubt exists as to whether or not to spray, the local County Agent should be consulted.

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EFFECTIVE INSECTICIDES AND MANNER OF APPLICATION

Parathion

Parathion can be used as a spray or as a dust. When applied from the air as a spray the basic formulation should best be an emulsifiable concentrate, if available, as wettable powders frequently cause difficulty by clogging nozzles or by being insufficiently agitated. When equipment is used that can handle wettable powders, however, these are expected to provide a higher margin of safety.

Emulsifiable concentrates should be used so as to provide 3 to 4 ounces of actual parathion per acre. Excellent greenbug control has been obtained in Oklahoma in 1950 using a spray containing 1½ pints of a 16% parathion emulsion concentrate in 2 gallons of diluent applied by air at the rate of 2 gallons per acre. Diesel oil or kerosene has given somewhat better results than water as the diluent for the emulsifiable concentrate. With ground equipment higher gallonage per acre is desirable (though the actual parathion per acre should still be 3 to 4 ounces).

Wettable powders should be used at the dosage of 1½ pounds of 15% or 1 pound of 25% powder in 2 or 2½ gallons of water per acre for air application. As with emulsifiable concentrates, when ground equipment is used, higher gallonage per acre is desirable, though the quantity of actual parathion per acre remains unchanged.

Dusts should be used at the rate of 20 pounds per acre of the 1% or 15 pounds per acre of the 1½% parathion dust.

Parathion should not be used when the temperature is under 45°F. or when the wind is over 15 miles per hour.

Parathion residues disappear slowly. Treated fields should not be pastured for at least two weeks following spraying.

Dimethyl Analog of Parathion (Metacide)

Metacide is a trade name for a chemical, closely related to parathion, that will probably be in commercial production this summer. It is comparable to parathion in its effects on greenbugs but is of slightly lower toxicity to warm blooded animals. When available it would be used at the rate of ¼ pound of the actual toxicant per acre. While its acute toxicity is lower than that of parathion, it is still a very dangerous chemical and full precautions should be rigidly observed. Metacide residues disappear slowly and until more is known about it, it should not be used on fields that are to be pastured.

Tetraethylpyrophosphate (TEPP)

TEPP has given much less consistant control than parathion. It can be used when the temperature is 75°F. or higher, and even moderate wind will materially reduce the effectiveness of this material. Proper dosage is at the rate of 4 to 5 ounces of actual toxicant per acre. This would be equivalent to using ½ pint of a 40% emulsifiable concentrate, 12½ pounds of a 2½% dust, or 8 to 9 pounds of a 3% dust per acre. For best results dust should be used on the day it is prepared, and should be formulated from as dry as possible an inert dust diluent (0.1% moisture or less).

TEPP residues disappear rapidly in the presence of even slight amounts of moisture, hence grains can be pastured within three days after treatment.

Other Insecticides

Other insecticides have not proven practicable for greenbug control. Benzene hexachloride has been effective under some conditions, but has generally proven ineffective, and hence is not recommended.

PRECAUTIONS:

PARATHION, METACIDE, AND TEPP ARE HIGHLY DANGEROUS POISONS. THEY ARE NOT RECOMMENDED EXCEPT WHERE THEIR USE IS CLEARLY JUSTIFIED, WHERE NO OTHER PRACTICAL CONTROL IS AVAILABLE, AND WHERE THE USER IS AWARE OF AND IN A POSITION TO ENFORCE PROPER PRECAUTIONS.

THE FOLLOWING PRECAUTIONS MUST BE OBSERVED IF ACCIDENTS ARE TO BE AVOIDED:

1. Ground spray operators, handlers, loaders, and aircraft flagment, should wear a respirator which has been tested by the U. S. Department of Agriculture for parathion protection.*
2. Pilots should wear full face, canister type masks.**
3. Natural rubber gloves should be used when these chemicals are handled. Synthetic rubber, leather, or cloth gloves are not recommended.
4. Goggles and protective clothing should be worn by individuals exposed to dust or spray drift. A light plastic raincoat and plastic or rubber rain hat will give good protection.
5. After handling parathion or TEPP, hands, arms, and face should be washed before eating, drinking, or smoking.
6. Original containers of these insecticides should be permanently disposed of so that they cannot be used for any other purpose. They should be burned or decontaminated with alkali. Smoke from burning containers should not be breathed.
7. Flight operators should be thoroughly familiar with Civil Aeronautics Administration, Aviation Safety Release No. 325, issued August 26, 1949.

PERSONS WHO HAVE HANDLED THESE INSECTICIDES AND WHO SHOW ANY CONTRACTION OF EYE PUPILS, OR HAVE HEADACHES, NAUSEA OR OTHER SIGNS OF ILLNESS SHOULD BE TAKEN TO A PHYSICIAN IMMEDIATELY. THE PHYSICIAN SHOULD BE INFORMED THAT REPEATED TREATMENT WITH ATROPINE TO THE LIMIT OF THE PATIENT'S TOLERANCE (GRAINS 1/60 TO GRAINS 1/30 EVERY HOUR UNTIL PUPILS DILATE) IS THE MOST EFFECTIVE ANTIDOTE. IT IS HIGHLY DESIRABLE THAT PERSONS REGULARLY USING PARATHION KEEP A SMALL SUPPLY OF ATROPINE ON HAND IN CASE OF EMERGENCY. ATROPINE CAN BE OBTAINED ONLY ON PRESCRIPTION FROM A PHYSICIAN AND SHOULD BE USED ONLY AFTER SIGNS OF PARATHION POISONING APPEAR.

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* AMONG THE SUITABLE PARATHION RESPIRATORS ARE:

1. No. CR 49290 - (Mine Safety Appliance Company, Pittsburg 8, Pennsylvania)
2. Agrisol Chemical Cartridge Respirator - (Willson Products Inc., Reading, Pennsylvania)

** AMONG THE SUITABLE FULL FACE, CANISTER TYPE MASKS ARE:

1. "All Service" mask - Model S, "All Vision" facepiece - Cat. No. EA-42021 (Mine Safety Appliance Company, Pittsburg 8, Pennsylvania)
2. "Fire Fighter" mask - No. WUG-N2 -(Willson Products Inc., Reading, Pennsylvania)
3. "Chief Style" mask - No. 4-FD -(Acme Protection Equipment Co., Chicago, Illinois.