

Insecticide Application Concerns ¹

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Compatibility

Most spray materials perform satisfactorily when mixed together. There can be many suitable mixtures of chemicals; but a given application must meet certain requirements, including: (1) each component must be fully effective and (2) must not be harmful to the crop; and (3) the materials must mix readily and cause no difficulty in operation and maintenance of equipment. It is advisable not to mix insecticides and/or fungicides with soluble fertilizers. In case of questionable compatibility of a mixture of chemicals, do not attempt the combination.

Formulations

Insecticides may be formulated as emulsifiable concentrates, suspension concentrates, wettable powders, soluble powders, flowables, water-dispersible granules, dusts, granules or baits. The effectiveness of an insecticide and its potential for damage to crop plants is partially determined by the quality of the formulation, which includes both active and inert ingredients.

Spraying Pressure

Spraying pressure should not be excessive. Excessive spraying pressure causes spray droplets to be broken down so small that they drift and are not deposited on the plant. In addition, high spraying pressures cause undue wear on engines, pumps, nozzles and other sprayer parts. If fog is formed at the nozzles, the spraying pressure is too great. The speed of the sprayer should not exceed 5 miles per hour. Greater speed results in poor coverage.

Residues and Tolerances

Some of the chemicals used on crops may remain when they are harvested and marketed. In excessive amounts, many are injurious to humans. Any contamination of vegetable and other agricultural foods is a matter of concern to growers, shippers, the chemical industry, agricultural and public health authorities, law enforcement officials and the consumer.

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The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication does not signify our approval to the exclusion of other products of suitable composition. Use pesticides safely. Read and follow directions on the manufacturer's label.

What is a Residue?

A pesticide residue is the remnant of a pesticide or its degradation products that can be found on or in a crop or commodity after application or other exposure to the chemical. Residues may result from a direct application, drift, up-take from contaminated soil, or from other environmental sources. Residues are usually expressed in parts per million (ppm) or parts per billion (ppb) on a weight basis.

What is a Tolerance?

Tolerance is the amount of chemical that scientists and governmental agencies have determined may safely remain as a residue on the food crop without injury to the consumer. Tolerances for specific chemicals in or on crops are established by regulation.

How Can Growers Avoid Excessive Residues?

Generally, growers can avoid residues in excess of allowed tolerances on harvested crops by applying pesticides only on the crops specified in the amounts specified and at the times specified in this guide or on the label. It is not safe to reason, "if a little is good, more will be better." The pre-harvest interval (PHI) specified on the label must be observed to ensure that residues are within legal limits at the time of harvest. Growers should be especially careful in measuring and applying the more concentrated chemicals to avoid exceeding the recommended amounts. Examples of high concentrate materials are 8 pounds per gallon emulsifiable concentrates (8EC), 75% wettable granules (75WG), and 80% soluble powder (80S).

Drift of pesticides onto adjacent crops should be prevented. Consideration of the wind direction and velocity, adjoining crops, and methods of application is extremely important.

Growers are urged to consider carefully the locations of various crops when planning their farming operations. If possible, plant crops likely to receive the same approved chemicals in the same general area. Do not locate a crop adjacent to another if either is likely to be treated with a chemical not

cleared on the other. Also, two crops should not be planted next to each other if one will require insecticide applications during the time of harvest of the other crop.

Application of chemicals with ground equipment results in less drift than application by aircraft under similar conditions. Sprays, especially coarse sprays, drift less than dusts. Higher spray pressures result in more drift than lower pressures.

Each grower should plan and follow a control program that will assure him of harvested vegetables without excessive residues. Raw agricultural products marketed with residues exceeding tolerances set by the Environmental Protection Agency are potentially injurious to consumers, may result in serious financial loss to the grower, and may reduce public acceptance of fresh Florida products.