

## SPRAY METHODS

### SPRAYING: A method of applying pesticides.

1. Spraying is the most common method of applying herbicides, insecticides, and fungicides. It has many advantages over the granular and dust types of applications.

- a. They can be applied more uniformly since extremely small quantities of pesticides can be diluted sufficiently to permit even coverage.
- b. The amount of spray can be varied from 1 to 500 gal/acre to suit the needs of the treatment.
- c. When properly used spray drift can be reduced to a minimum.
- d. When using contact herbicides complete coverage is a necessity which is not possible when applying granules or dusts.

2. The sprayer usually consists of nozzles, a tank, pumps, filter or strainer, pressure gauge, pressure regulator, shutoff valve and connecting hoses.

a. Nozzles are the most important part of the sprayer.

- (1) It regulates the uniformity of application.
- (2) Rate of application.
- (3) Spray drift as it is influenced by droplet size.

b. Several different nozzles are available for use: flat or fan, cone, hollow and flood. For most purposes flat or fan nozzles are used because they can give an even, solid spray pattern.

c. Nozzle size is very important. It determines the amount of spray used and also, the size of droplets dispersed.

- (1) **Low volume** nozzles as a rule emit small droplets, forming a mist which depending on the spraying conditions could be a serious drift hazard. One advantage to using low volume nozzles is that low volumes of material can be applied.
- (2) **High volume** nozzles generally emit large droplets which decreases the possibilities of drift. Large volumes of material are needed which may be an advantage or disadvantage.

d. Nozzles are made of brass, aluminum, steel, stainless steel, nylon and tungsten carbide. It is very important to purchase a high quality nozzle to insure long life of the nozzle and to prevent corrosion and abrasive effects due to the chemical applied.

In terms of life span nozzles, if a brass nozzle has a life span of "1" then stainless steel nozzles would have a life span of "6"- "8". Although a stainless steel nozzle's initial cost would be approximately three times the cost of a brass nozzle, it would last from 6-8 times longer, which in the long run would be more economical to purchase.

number of nozzles used and the height of the spray boom. Nozzle angles vary in size ranging from 15 to 115 degrees. For most purposes 65, 73 and 80 degree angle nozzles are used.

f. After or during the use of a nozzle if one becomes clogged or dirty they should not be cleaned by wire, knife or other hard objects. Safe methods of cleaning should be used such as a bristle brush, wood match or rinsed in water. By using objects that may be damaging to the nozzle several things may result: (1) decrease in the life span of the nozzle (2) altered spray pattern (3) over application (4) replacement of the nozzle.

3. Screens or filters should be used at all times to insure that nozzles will not become clogged.

- a. When using low volume nozzles usually 100 mesh screens are used.
- b. When using high volume nozzles 50 mesh screens are used.
- c. When using wettable powders 50 mesh screens should be used to insure proper passage of the material to the nozzle.

4. Pressure is very important. It regulates the size of the droplets dispersed which in turn influences the amount of drift and also the volume of material used.

5. The ground speed of the tractor or equipment utilized when spraying is very important. If the ground speed is not known, application of pesticides may be under applied or over applied.

### CALIBRATING THE SPRAYER

There are several methods used to determine the number of gallons sprayed per acre.

#### 1. From prepared tables:

Some manufacturers give the nozzle spacing, pressure, speed and various nozzle size to give various gallons of spray per acre. From these tables the proper nozzle size can be selected. The disadvantage is that the pressure and speeds used in spraying without testing them are not always correct (examples given from tables available).

2. A method that can be utilized with very good accuracy when tables or other means of calibrating are not available would be to do the following:

- a. Measure a known size area.
- b. Fill the spray tank with water to the full mark.
- c. Spray the above area at the desired speed and pressure.
- d. Refill the tank, the amount required to refill the tank equals the number of gallons sprayed per acre if the area sprayed equaled one acre.

### A REFLECTION ...

Once upon a time there was a super-saint. He was a hard-working, enthusiastic greenkeeper at a fine, old, private golf club. One bright and shiny June morning, God's angel appeared before our super-saint while he was mowing the first green at dawn. "It is time you come with me. God has sent me to bring you home, where peace and contentment reign supreme," spoke the angel, with great authority.

The bewildered super-saint answered aghast, "But I've only just begun to mow the greens; they must be completed before the members tee off at 8:30!"

God's angel, not knowing how to handle this turn of events, made his exit in order to check his "Guide for Angelic Messengers," which he hadn't had to check since his college days.

Our super-saint mowed his greens, changed his cups, and tee markers, attended a meeting, and irrigated his golf course on into the evening. The morning's apparition escaping him in his busy schedule.

The day prior to the first round for club champion, found our super-saint in the throes of course grooming. Again God's angel came before him, saying "It is time you come with me. God has sent me to bring you home, where peace and contentment reign supreme."