

## 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."



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"But, tomorrow is the first round of the club championship. Surely you can understand the necessity of preparing the course for the members!"

Handbook clutched to his heart, God's angel again departed, and was just as quickly forgotten by our super-saint.

The first week of August was upon our bustling super-saint. Three more days until Member-Guest weekend and so many projects as yet undone. "I can never depend on Help," cried the poor 'ole super-saint. "If I'm not after them every minute, nothing gets done." When out of nowhere God's angel appeared saying, "It is time you come with me. God has sent me to bring you home, where peace and contentment reign supreme."

"No way! Not with Member-Guest weekend coming and 50,000 things to be done!" Needless to say, our super-saint wasn't going that route.

September and the gorgeous hue of autumn painted this fine, old country club. The course was never more beautiful. While out on the tenth, our super-saint is laboring in the mud, wet to his waist, with a shovel in his hand. God's angel made his presence known, "It is time you come with me. God has sent me to bring you home, where peace and contentment reign supreme."

"Look here, Mr. Angel: I don't know what your game is, but I've got a break in my watering system which has to be fixed immediately. As it is, every second wasted is costing the members more money. Now get the message and split! I'm too busy to put up with this nonsense." Indeed our super-saint was angry!

A beautiful blanket of snow tucked the golf course in for a long winter's nap. The air was crisp and cold and our super-saint was at peace with the world, knowing his course was safe and sound.

"Perhaps I should not have put off God's angel as I did during my hectic summer. If you wish me still, God, send your angel for me. I believe I am ready for this 'peace and contentment' he speaks of," reflected the super-saint.

On cue, God's angel appeared, and with much wisdom said, "But, you have found your own sanctuary of 'peace and contentment' in an earthly fashion few people ever realize."

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## ALGAE CONTROL

Writer Unknown

Now that the warm weather is with us again many superintendents who have lakes on their golf courses will be faced with the problem of getting rid of the algae, which is unsightly and which often gives trouble at the pumping plant by blocking up the intake screen.

Copper sulphate, in the powder or crystal form, is widely used for the control of algae, it can be effectively applied in various forms such as:

1. By dragging a sack of the crystals by means of a boat up and down the lake in parallel paths about 15 feet apart, the wave action on the lake gives adequate dispersion.
2. Where the lake is fed by a creek a sack of crystals may be placed in the creek where it enters the lake so that the water carries the dissolved copper sulphate into the lake.
3. By mixing the copper sulphate in powder form in the spray tank and then evenly spraying it on the surface of the lake.

The amount of copper sulphate required is usually based upon treating the top six feet of water in the lake; however in rare cases troublesome growths can be encountered at greater depths.

Where the lake supports fish life care must be taken to prevent an overdosage of the copper sulphate otherwise many of the fish will be killed. The following table shows the **minimum lethal** doses for various fish based upon a lake of ONE ACRE in surface area and SIX FEET in depth, and which contains approximately two million gallons of water.

FISH	Lbs. of Copper Sulphate Per Acre
Trout	2.40
Carp	5.00
Suckers	5.00
Catfish	7.00
Pickrel	7.00
Goldfish	8.00
Perch	12.00
Sunfish	20.00
Black bass	34.00

Where fish life was not of importance the writer has seen where 20 lbs. of copper sulphate completely cleared a one acre lake of algae in a few days.

## ROSEMAN

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### TURF EQUIPMENT HEADQUARTERS

ROSEMAN GANG MOWERS	FORD TRACTORS
TILLER RAKES	DEDOES AERIFIER
LELY SPREADERS	LOADERS
SEEDERS	LEAF MULCHERS
ROTO TILLERS	ROTARY MOWERS
HOMELITE CHAIN SAWS	HOMELITE PUMPS

SALES ● SERVICE ● PARTS ● RENTALS