may be spaced at 20 inches with a boom height of 17 to 19 inches while a 65 degree series of nozzle might be spaced at 20 inches with a 21 to 23 inch boom height.

It is usually best to standardize the nozzles on various pieces of equipment, which limits confusion and requires a smaller item inventory.

Manufacturers typically publish charts with their catalogs that describe the various nozzles, their best functions and capacities.

Hollow-cone type nozzles are often selected for use on boom sprayers when applying pesticides. This type of nozzle produces, as its name indicates, a hollow cone of spary. The pattern is circular with tapered edges and little or no spray in the center. Its main advantage is better foliage coverage. Material is usually applied at higher pressures with this nozzle, assuring even better foliage coverage.

Boomless flooding nozzles are often used to apply liquid fertilizers. This nozzle works at lower pressures than the fan type nozzle and gives a fairly uniform coverage across its width. The wide off-center nozzles are also used in boomless spraying. They can also be used to extend the effective swath width of a boom when attached to the ends.

Many nozzles can be used for spraying more than one type of material. Some general guidelines are: for weed control, select either a regular flat fan, flooding fan or hollow cone; for fungicides, use either a hollow or solid cone; for insecticides, use a regular flat fan, or a hollow or

Mistblowers

by William Burdick, Canterbury Country Club, Beachwood, Ohio

We started mist blow spraying at Canterbury about five years ago and it has developed into our primary means of applying fungicides to fairways.

The equipment we're using is a small, three point hitch mist blower from Myers. We bought this machine in 1972, more or less as an insurance policy, in case during our PGA championship in 1973 we had to get out there and do a fast spray job. We did not buy it to be our primary piece of spray application equipment, although it has turned out that way.

The biggest factor in favor of mist spraying is time saved. With a boom system it was taking us anywhere from a day to a day and a half, with play on the golf course, to spray all our fairways. With the mist blower we've gotten that time down to two and a half hours or five hours, depending upon the method we're using.

Our program at Canterbury is to spray each week, and we do this religiously. We use all chemicals at half rate. We've found this to be very effective since we spray once per week.

The first week we'll spray down the center of the fairway blowing out both sides of the machine. Our fairways average 90-120 ft. wide and we can easily cover that.

The second week, and this is where we came up with five hours as opposed to the two and a half hours, we'll spray one side of the fairway, then back up the other. We're actually getting double coverage that way, still using the chemical at half rate. We also find that there is a benefit because the machine has a boom directly underneath the tractor.

If we have to operate in a wind of more than six miles per hour we're losing a great deal of effectiveness. The operator can, however, become accustomed to using the wind to some advantage.

Morning applications are of benefit because of the dew. We're using 20 gallons per acre so we like to spray in the early morning when we have dew cover. I can't honestly say we've seen any noticeable difference in the amount of control between spraying on mornings when we do or don't have dew.

One of the disadvantages of this early morning application is the noise level. The fan on the sprayer plus the high tractor rpm that's needed are loud. We've had few complaints but if you have close neighbors or apartment buildings, I'm sure that this could be a problem.

An advantage of mist spraying is that the machine can be operated in almost any kind of weather condition. If you have a very wet situation you don't have to drive on the fairway — you can drive down the sides. This has saved us many times. In a pythium situation, we can get out there after any kind of rain storm, doing no damage to the fine turf, and still getting a beautiful application of chemical.

I think the mist blower is pretty much goof-proof. We've had no trouble at all with calibration. All you have to do is know your ground speed and pump pressure and the nozzle size takes care of the rest.

It's also a very low maintenance piece of equipment. I think the biggest problem, or the thing that you have to watch the closest, is nozzle size and wear, because you're operating at about 350 lbs. of pressure.

We were using brass tee-jet nozzles and found that we could only spray 18 holes of fairways about twice before changing nozzles. Since then we've changed to the same round steel nozzle that we use in the blower manifold and we only have to change those about twice a season.

There are many different types of stainless steel and hardened steel nozzles that can be used. It becomes a systematic thing to know exactly how much chemical we're going to use on an 18 hole fairway application. For example, if we don't have that extra 10 gallons left over to spray the practice tee area, we know it's time to change those nozzles.

Unlike boom spraying, where you're operating at low pressure nozzle clogging is not a problem.

The mist blower solved the problem of disease control in rough areas around our greens where it's just too tight to get any kind of boom spray equipment in. We can go up around the green very easily and we do this about three times a year. If we get into a situation where we can't get on the green or tee to spray with our regular equipment, we can give it enough of a shot with the mist blower to hold until the weather dries up.

We used to find that leaves were a problem on the fairway. A lot of times we were putting more chemical on the leaves than we were on the grass. We didn't have time to get out and clean them up before we sprayed. With the most blower there was enough air blast to get the fungicide to the turf.

One of the primary things you must do is to be sure your operator has the proper protective clothing. We require they wear a rubber suit and respirator. We also require them to take a shower as soon as they are finished spraying. WTT