NOZZLES SUITABLE FOR HERBICIDE APPLICATION IN NURSERIES OR CHRISTMAS TREES

J. F. Ahrens[1/]

Spraying Systems Company, Wheaton, Illinois, has a wide variety of "Teejet" spray nozzles. These are all illustrated in Catalog 36 or 37, available from local distributors. Other spray equipment manufactures such as Delevan, Century, etc. have similar types of nozzles, but they are listed under different symbols than the "Teejet" nozzles that are mentioned below.

For spraying bands (with a knapsack or tractor-mounted sprayer) at swatch widths up to 4 ft wide, the "Teejet" 8004-E tips are effective. For swath widths between 4 and 6 ft wide where one wants to broadcast spray between rows of trees, we suggest the "Floodjet" TK-2 tip. For swath widths of 6 to 14 ft wide we suggest a "Fieldjet" KLC-5 nozzle for knapsack sprayers, and a KLC-9 nozzle for tractor-mounted boomless spraying.

For tractor mounted broadcast boom applications, fan-type 8003 or 8004 nozzles spaced at 20 inches or TK-2 nozzles spaced at 40 inches are effective. Using the TK-2 "Floodjet" nozzles reduces spray volume by about 50%, saving labor, time, and fuel involved in hauling water to the field.

The difference between 8004 (broadcast) and 8004-E (even spray) tips is that the 8004 tips are designed to cover uniformly with an overlapping spray pattern, whereas the 8004-E tips are designed to spray uniform bands individually.

Off-center tips such as OC-03 or OC-04 are especially useful for spraying semi-directed bands where over-the-top applications are not feasible. Since they spray more on one side than the other the boom is held further from the centerline of the row than with standard fan-type nozzles, allowing greater clearance from lower branches. Off-center nozzles are adjusted with swivels to apply an overlapping spray pattern in the center of the row. A pass is made up one side of the row and down the other. A sprayer moving between rows can be set up to spray a half row on each side.

What it means to calibrate a sprayer. To calibrate a sprayer means to determine the volume of liquid that the prayer delivers per unit area, usually measured in gallons per acre (GPA). To calibrate you must control 3 variables.

a) Speed must be held constant. Halving the speed doubles the GPA and vice versa.
b) Pump pressure must be held constant. Increasing pressure increases GPA.
c) Swath width must be held constant. With multiple nozzle booms the effective swath width is always the number of nozzles x the distance between the nozzles (nozzles are always spaced evenly on the boom and are of the same size orifice).

With the fan-type broadcast nozzles such as "Teejet 8004", effective coverage is attained when the nozzles are held 19 to 24 inches above the "target". The spray patterns will overlap several inches. When the "target" is weeds 12 inches tall the nozzles should be held at least 12+19=31 inches off the ground.

Single nozzle (boomless) applicators spray wider swaths when held higher off the ground. The proper height is determined and held constant.

After a sprayer is calibrated, Remember - the desired rate of herbicide per acre is always added to water and made up to the volume of spray delivered per acre.

1/ The Connecticut Agricultural Experiment Station, Valley Laboratory, Windsor, CT 06095. September 1986.