# WEED CONTROL AND SPRAYER CALIBRATION FOR GENERAL TURFGRASS AREAS

by
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Weeds disrupt the appearance and quality of a turf. This disruption is generally due to the fact that weeds differ substantially from the turfgrasses in regard to (a) leaf width and shape, (b) growth habit, and (c) color. Weeds also compete with the desirable turfgrass species for light, water, nutrients, and carbon dioxide.

Employment of sound cultural practices such as (a) selection of an adapted turfgrass species, (b) proper mowing height and frequency, (c) adequate fertilization, and (d) proper irrigation practices are the best means of preventing weed problems. Factors such as drought stress, inadequate fertilization, high or low temperature injury, and traffic tend to reduce the turfgrass stand and encourage weed encroachment. When weeds do invade a turf, herbicides are effective in alleviating the problem, however no herbicide has every grown a good turfgrass stand. Herbicides are only a tool in the total cultural program, with sound management practices being a must to prevent the problem from occurring on an annual basis.

Some of the best means for controlling broadleaved weeds and weedy grasses in Michigan are indicated in Table 1. Most broadleaved weeds in general turfgrass areas are effectively controlled in the fall with a combination of 2, 4-D and silvex, however in some situations it may be necessary to use MCPP to obtain effective control. Broadleaved weeds may be controlled in the fall, as long as the weeds are actively growing. Annual, weedy grasses such as crabgrass, goose grass, and barnyard grass are most effectively controlled with pre-emergence herbicides applied in the early spring (late April or early-May). The perennial weedy grasses such as quackgrass, tall fescue, and bentgrass are best controlled with a non-selective herbicide, amitrol, or dalapon. These materials can be applied on a total area or a spot treatment basis, as long as the weedy grasses are actively growing. A waiting period of 4-5 weeks for amitrol and 7-8 weeks for dalapon is necessary for the herbicide residue to dissipate before the treated areas may be replanted.

## Sprayer Calibration for General Turfgrass Areas

Proper calibration of pesticide applicators or sprayers is essential for safe, economical, and effective control of weed problems in turf. The amount of spray applied is governed by a number of factors including (a) speed, (b) pressure, (c) type of nozzle, and (d) height, angle, and spacing of the

nozzles. Sprayer units should be calibrated before the initial use of each season and periodically during operation over a growing season.

The general procedures for calibrating a broadcast or boom sprayer are:

1. Adjust nozzles, spraying pressure, and ground speed as they are to be operated in the field.
2. Fill the spray tank completely with clean water.
3. Spray the water over a measured course by bringing the sprayer to the desired speed, turning the valve on at the starting marker, and shutting the valve off at the end of the measured course.
4. Return the sprayer to a level area and determine the amount of water required to refill the tank to the level prior to spraying the measured course.
5. Determine the area sprayed. This may be done from charts supplied with the spraying unit, or by the following formula: area sprayed (sq. ft.) = boom width (ft.) x distance traveled (ft.).
6. Determine the amount of water applied per acre. This may be done by chart or by the following formula:
   $$\text{gallons per acre (GPA)} = \frac{43,560 \text{ sq. ft.} \times \text{gallons of } H_2O \text{ sprayed}}{\text{area sprayed (sq. ft.)}}$$
7. The rate of application per acre can be decreased by using smaller nozzle tips, lower pressure, or a greater ground speed.
8. The rate of application per acre can be increased by using larger nozzle tips, a greater pressure, or a slower ground speed.

Sprayer calibration should be checked frequently in the field, because certain herbicides, particularly wettable powders, may cause wear of spray nozzle tips and pumps. Remember to read the label and follow the directions carefully before using any herbicide. Always clean and drain the equipment thoroughly before putting it away.

Table 1. Recommended herbicides for controlling broadleaved weeds and weedy grasses in general turfgrass areas in Michigan.

Broadleaved weeds readily controlled (post-emergence) with 2, 4-D:

a. Dandelion
b. Buckhorn plantain
c. Broadleaved plantain
d. Shepherd's purse
e. Wild carrot
f. Yellow rocket

Broadleaved weeds readily controlled (post-emergence) with silvex:

a. Common chickweed
b. Creeping Charlie or ground ivy
c. Mouse-eared chickweed
d. White clover
e. Prostrate spurge
f. Roundleaved mallow

Broadleaved weeds controlled (post-emergence) with dicamba:

a. Knotweed (seedling stage)
b. Red sorrel
c. Yarrow

Annual weedy grasses readily controlled (pre-emergence) with azak, benefin bensulide, siduron, and DCPA:

a. Crabgrass
b. Barnyard grass
c. Goose grass
d. Foxtail

Perennial weedy grasses readily controlled (post-emergence) with amitrol or dalapon:

a. Bentgrass
b. Tall fescue
c. Quackgrass
d. Niblewill