



## How to Calculate Parts per million (ppm) in Pounds or Gallons for Chemical Aquatic Weed Control

Accurate calculation of aquatic herbicide rates in pounds or gallons from "parts per million" (ppm) recommendations to treat a given pool (lake or pond) will lead to more economical operation and prevent excessive treatment.

Determination of pool surface area (*s*) is critical. This can be done by estimating the number of acres or parts of acres on a pool surface. Pool depth (*d*) and dosage in ppm (*c*) are also needed to determine weight or volume rates.

Weight (pounds) of chemical necessary for treatment of the total quantity of water in a pool is calculated with the following formula.

$$\text{Pounds required} = \frac{\text{pool depth}}{2} \times \text{ppm desired} \times 2.71 \times \text{surface acres}$$

For example, if 7 ppm is recommended for aquatic weed control, and the pool has a maximum depth of 12 feet with 5 surface acres, then 569.1 pounds of toxicant are prescribed. Using the formula, the pounds of toxicant needed were calculated as follows. Pool depth (12 feet) is divided by 2; this gives an average pool depth (6 feet). In large pools, average depth is best determined by calculating the average of 15 depth measurements. Multiply the average depth (6 feet) by ppm desired (7 ppm) to get 42. Multiply the number of surface acres (5) by the constant 2.71; this gives a 13.55 value. Now multiply 13.55 by 42, and the answer is 569.1 pounds of toxicant required to treat a 5-acre pool, 12 feet deep, at the 7-ppm dose.

The volume (gallons) of chemical needed for treatment of the total quantity of water in a pool is calculated by using .325 as the constant instead of 2.71 used to determine weight.

$$\text{Gallons needed} = \frac{\text{pool depth}}{2} \times \text{ppm desired} \times .325 \times \text{number of surface acres}$$

If 7 ppm is recommended for aquatic weed control, and a pool with 5 surface acres has a maximum depth of 12 feet, 68.25 gallons of chemical are needed. Gallons of chemical were calculated by first dividing the pool depth (12 feet) by 2; this gives the average pool depth (6 feet). Multiply the average depth (6 feet) by ppm desired (7 ppm) to get 42. Multiply the number of surface acres (5) by the constant .325; this gives a value of 1.625. Now multiply 1.625 by 42, and the answer is 68.25 gallons of poison to treat a 5-acre pool, 12 feet deep, at a 7-ppm dosage rate.

The "Constants," 2.71 (for weight) and .325 (for volume), are derived from calculations based on treatment of a one-acre pool, one foot deep.

## Cornell Tree, Shrub Recommendations Are Out

A comprehensive 40-page booklet with sections on tree and shrub insect and disease control, fertilizer recommendations, and insecticide uses has just been published by Cornell University.

"Cornell Recommendations for Trees and Shrubs—Commercial Production and Maintenance" was specially prepared for nurserymen, arborists, city foresters, agricultural chemical dealers, and others involved in commercial production, maintenance, and protection of shade trees and ornamental shrubs.

"Insect Control on Trees and Shrubs," by Dr. John A. Weidhaas, Jr., is one of the chief works in the handbook. This section gives insecticide dilution rates, a table of equivalents, a host plant guide to insect names, and control recommendations for over 130 insects and mites.

A disease control section by Dr. W. A. Sinclair discusses use of fungicides, soil fumigants, nematocides, and wetting and spreading agents.

In a section by Dr. A. M. S. Pridham titled "Other Difficulties in Growing Plants," controls for problem weeds are reviewed along with shade tree fertilization procedures. Correction for chlorotic conditions is also covered.

Available free, a copy of the handbook may be obtained by writing to Cooperative Extension Service, New York College of Agriculture, Cornell University, Ithaca, N. Y.

## Gives Gall Controls

"How to Control Galls on Shade Trees and Shrubs," is the title of an information sheet now available from Purdue University, West Lafayette, Ind. Illustrated with drawings of gall-infected plants and leaves, the sheet shows four gall types and gives control suggestions. For a copy, request publication E-56, April 1966, Agricultural Publications, AES Building, Purdue University, West Lafayette, Ind. 47907.