

be required for effectiveness. This shows the necessity for knowing soil types.

Following is a discussion of some important new pre-emergent herbicides.

Bandane

Bandane (polychlorodicyclopentadiene) as a granular formulation applied in a pre-emergent treatment gives good crabgrass control. At 30 lbs. per acre, Bandane has shown no injury to established turf grasses. Of crabgrass materials, Bandane is one of the least phytotoxic to turf. Tests indicate that when used at crabgrass control rates, Bandane will also control ants and grubs in the soil. This chemical is safe to handle according to mammalian toxicity studies.

Dacthal

Dacthal (dimethyl 2,3,5,6-tetrachloroterephthalate) is sold in various concentrations and on a number of carriers for different uses. It has a recommended application rate of 10 lbs. active ingredient per acre, and gives good pre-emergence control of crabgrass, foxtail, witchgrass, purslane, common chickweed, carpet weed, and lambsquarters. Residual effects of Dacthal often last through one season, it is claimed, but the compound does not retard germination of desirable grass seed if reseeding takes place after about 5 weeks. It is also said to be safe for use in proper amounts on seedling grasses of freshly landscaped areas given the same safety margin of 5 weeks.

Diphenatril

Diphenatril (diphenylacetone) is available as an 11.5% concentration on a vermiculite carrier, or a 5.5% strength on a fertilizer carrier, as well as other formulations. Applied at 30 to 40 lbs. active ingredient per acre, diphenatril prevents germination and growth of crabgrass, goosegrass, and green or yellow foxtail. It is not effective against seedlings of broadleafed weeds, however. Established bluegrass, fescue, bentgrass, zoysia, Bermuda grass, centipede grass, and St. Augustine are all tolerant to diphenatril.

Dipropalin

Dipropalin (N,N-di-n-propyl-2,6-dinitro-4-methyl aniline) is re-

lated to trifluralin, but differs by three flouride atoms. Applied at 4 to 6 lbs. active ingredient per acre, it has given excellent control in tests of crabgrass, yellow and green foxtail, and goosegrass. It is considered safe for use on freshly planted landscapes.

Tricalcium arsenate

Basic rates for *tricalcium arsenate*, using a 48% granular concentration, are 18 lbs. per 1000 square feet. If a 73% concentration is used, only 12 lbs. per 1000 square feet are needed. This compound, researchers have said, may have a residual effect of up to one year. In addition, tricalcium arsenate will also control grubs and worms in the soil, killing most of them. Tricalcium arsenate should be applied when foliage is dry. If the chemical is dissolved by moisture on leaves, it may act as a contact herbicide and damage the plant. Arsenicals must be used cautiously because they are toxic to other organisms.

Trifluralin

Trifluralin (N,N-di-n-propyl-2,6-dinitro-4-trifluoromethyl aniline) concentrations vary, but it is usually obtained on a vermiculite carrier, and is applied at 1.6 lbs. of active ingredient per acre. Trifluralin is not recommended for pre-emergent control on freshly planted areas. This compound will control all the weeds mentioned for its relative, dipropalin, without injury at recommended rates, to established grasses such as bluegrass, bentgrass, Bermuda grass, zoysia, and St. Augustine. This compound also has a good residual rating.

Zytron

Zytron (O-(2,4-Dichlorophenyl) O-Methylisopropylphosphoramide) is formulated as a 4.4% concentration on an organic carrier, among others. The granular form of Zytron, applied at 15 lbs. active per acre, has shown to work as well on turf as the liquid form of the same chemical. Zytron has a residual effect of several months, but it may delay germination of fresh turf seed. This results in what researchers call "excellent" control on established turf. Caution must be observed with Zytron in that it has an effect upon the sensitive grasses. In ad-

dition to crabgrass, Zytron can control foxtails, barnyardgrass, goosegrass, pigweed, purslane, smooth and mouse-eared chickweed, henbit, and oxalis. Zytron can be applied in winter or early spring. Zytron has been researched and used commercially for more than four years.

Researchers advise that turf be established about 5 weeks before any seeded landscapes are pre-treated for crabgrass with the above chemicals. In all cases mentioned here, label directions will be the best guide to successful pre-emergent treatment.

Pre-emergent weed control is new and it needs more advocates. They will come when experience and information based on this efficient type of treatment is more widespread.

One of the major problems still to be solved, and it has nothing to do with technology, is to overcome customer apathy towards buying control of weeds they can't see. But when this idea is sold successfully, contract applicators will find many pre-emergence applications can be made in winter or spring when business might otherwise be slow.

Changes Mark New Century Pump

A stainless steel shaft, extended so power take-off slides over it with greater support, is one new feature of the 1962 Century 8-nylon-roller spray pump, manufactured by Century Engineering Corp. With this extension, the shaft can also be used for pulley or motor operation, the manufacturer says.

Price reductions in the 8-nylon-roller pumps mean PCOs can get increased gallonage output, increased agitation, and increased pressure, for prices comparable to 6-roller pumps, Century claims.

PCOs desiring more details may write Century Engineering Corp., Cedar Rapids, Iowa.

Carter Guide Available

Carter Insecticide & Chemical Co. has a complete guide on its soil fumigant applicators available to interested CAs. Applicators, kits, methods, and mixtures are described. For a free copy, write to P.O. Box 209, Wallace, N. C.