

CLEARY PRODUCTS for BETTER TURF

3336 TURF FUNGICIDE — A broad spectrum systemic fungicide that prevents and controls all 6 major turf diseases. Non-toxic, non-mercurial.

BROMOSAN TURF FUNGICIDE — The newest broad spectrum systemic fungicide for those persistent problem areas or areas that have gotten out of hand.

CADDY — Economical Liquid Cadmium Fungicide.

PMAS (10%) — Crabgrass and Disease Control.

SPOTRETE — 75% Thiram Fungicide.

CLEARY'S GRANULAR TURF FUNGICIDE — For snow-mold, spring and summer diseases.

CAD-TRETE — Broad spectrum fungicide containing Thiram and Cadmium.

MCPP — Control of chickweed, knotweed, clover on bentgrass greens and fairways, bluegrass and fescues.

MCPP-2,4-D — Controls chickweed, knotweed, dock, dandelion, plantain, ragweed, pigweed, etc.

METHAR 80 — Controls Dallisgrass and crabgrass. Water soluble.

METHAR 30 — A super crabgrass killer.

AMA PLUS 2,4-D — Control of Dallisgrass, silver crabgrass, plantain, dandelion, knotweed, chickweed, and other broad-leaf weeds.

AMA (SUPER METHAR) — The new "AMA" liquid crabgrass killer.

ALL-WET — Added to water, it allows quicker and deeper penetration...enables soil to retain needed moisture.

CLEAR-SPRAY — Liquid Hygrostatic Sticker to protect against wilt and winter kill.

TRU-GREEN — Liquid Chelating agent.

GRASS-GREENZIT — Permanent green pigment, restores green color to dormant or discolored grass. Not a dye.

CLEARY
CORPORATION

P. O. Box 10 Somerset, N. J. 08873

SYSTEMIC FUNGICIDES

Their Use in Combating Summer Diseases by Houston B. Couch

In basic concept, the systemic fungicide represents the ideal in the chemical control of plant diseases. It is a material that can be applied to the plant in low concentration. Immediately after application it is absorbed by the plant and translocated to all tissues—where it not only eliminates any existing fungus infection, but also protects against any new infections that might occur from external sources of inoculum. This is in contrast with the classic contact fungicide, which must eliminate the invading fungus prior to its successful infection of the plant. An additional side effect from the use of systemic fungicides has been noted in recent reports from Europe in which it has been observed that benomyl, thiophanate, and thio-bendazole are highly toxic to surface feeding earthworms inhabiting grass sod.

There have been recent reports of resistance to benomyl on the part of both powdery mildew organisms and the fungus that incites Sclerotinia Dollar Spot.

Studies revealed an interaction of side effects of benomyl and thiobendazole with respect to air temperature, turfgrass species and variety, and level of plant nutrition. Also, thiobendazole-induced leaf chlorosis, developed earlier, and the total damage was greater, in the plants grown at 95 degrees F.

With the benomyl treated plants, phytotoxicity was observed earlier and was most severe in the plants grown under low nitrogen nutrition. Also, plants grown at the higher air temperature showed symptoms of injury earliest and were most severely affected by the material than those grown at 75 degrees F.

In the field trial studies, benomyl and the ethyl and methyl formulations of thiophanate were tested as 50% wettable powders in 5 gal. water/1000 sq. ft. In these trials, a single application of either benomyl or the thiophanates at 6 oz. 50% wettable powders per 1000 sq. ft. induced visible signs of phytotoxicity. The first symptoms appeared in 36 - 72 hours from the time of fungicide application and lasted approximately 21 days. The individual leaves were characterized by a tip die-back—beginning as a yellow discoloration and finally becoming brown in color. In overall view, the turf assumed a mottled light yellow appearance, with light yellow ring 1 - 2 ft. in diameter. From the foregoing however, it can be seen that in using systemic fungicides for turfgrass disease control it is extremely important that dosage rates and prescribed intervals of application be followed without variation. If the often used practice, employed with contact fungicides, of increasing dosage rates and closing up the interval between dates of application is applied to systemic fungicides programs, it could result in undesirable side effect problems, including fungus resistance to the materials. As a general rule in developing the total program, **no more** than 6 - 8 ozs. of formulated 50% wettable powder of either benomyl or thiophanates (or combinations thereof) should be applied annually to 1000 sq. ft. of turfgrass.

Suggested Program for Sclerotinia Dollar Spot: 0.5 oz. 50% wettable powder/1000 sq. ft. at 2-week intervals, or 1 oz./1000 sq. ft. at 3-week intervals, beginning in mid-spring and continuing through the fourth week of August. If this program does not hold Dollar Spot, then additional systemic fungicides should not be applied. Rather, a good contact fungicide should be used. He also stressed the point that systemic fungicides should not be watered into the soil after application.

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Then I told my greens Chairman
Who needs **PAR-EX!**

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By

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