sterilants are certainly considered post-emergence herbicides. However, safety concerns associated with their use in the homeowner environment have reduced their popularity.

Many factors affect herbicide efficacy. Some of the more important factors that should be given consideration prior to use include the following:

1. Identification of the weed and desirable turfgrass. Positive identification of the weed to be controlled is essential to prescribing the most effective herbicide.

In addition, it is important to know which turfgrass the weed is in since different turfgrasses have varying susceptibilty to applied herbicides.

2. Growth stage of the weed. Most effective post-emergence weed control is achieved on young, actively growing weeds. If weeds are nearing the end of their life cycle and not actively growing, they will not be effectively controlled.

Examples of improper timing would include attempts to control winter annuals such as common chickweed, henbit, German moss (Knawel) and sowthistle in June when they have already produced seed for the upcomimg fall germination and are near the end of their annual life cycle.

3. Growth rate of the weed. The more metabolically active a weed is, the more effectively it will be controlled by herbicides. Therefore, any factor such as sunlight, moisture or good nutrition that speeds up growth rate will generally increase herbicide efficacy.

If weeds to be controlled are under heat or drought stress they will not be metabolically active and will be less affected by applied herbicides.

On the other hand, if the desirable cool-season turfgrass is somewhat sensitive to the herbicide being applied and is under drought or heat stress, it is likely it will suffer greater damage from the application.

3. Morphology of the weed. If the weed to be controlled has a thick, waxy cuticle or a leaf shape which is not conducive to good herbicide spray contact, decisions about which formulation of the herbicide to utilize can be critical. Weeds like wild onion and wild garlic are better controlled with liquid sprays than granular sprays.

Additionally, waxy cuticles are better penetrated by low-volatile esters than amine formulations. Concern about the increased probability of ester volatilization in the landscape has however reduced ester popularity.

4. Air and soil temperature. Maximum metabolic activity in most weeds occurs between 55 and 80 degrees Fahrenheit and therefore herbicide spraying should be planned for times of the year when temperatures are in this range. Temperatures outside this range will reduce metabolic activity and therefore herbicide effectiveness.

5. Rainfall probability and foliage wetness. Liquid herbicides are most effectively absorbed when applied to dry leaf surfaces. Water dilution rates for herbicides have been recommended assuming the foliage is dry at the time of application.

Wet foliage will reduce liquid herbicide effectiveness at normal water spray rates. Granular herbicides are generally more effectively absorbed when applied to wet foliage.

Most foliar absorbed post-emergence herbicides require four to six hours of foliar absorption to be effective. Rainfall prior to this time will significantly reduce herbicide effectiveness.

Anything that reduces metabolic activity of the weed during the foliar absorption period will increase the time required to achieve adequate herbicide absorption. Other factors such as physiological detoxification of applied herbicides, organic matter binding, soil binding, leaching,

Herbicide Manufacturers

American Cyanamid
1 Cyanamid Plaza
Wayne, NJ 07470
(201) 831-2000

The Andersons
P.O. Box 119
Maumee, OH 43537
(419) 893-5050

Applied Biochemists
5300 West County Line Rd.
Mequon, WI 53092
(414) 242-5870

BASF Wyandotte
100 Cherry Hill Rd.
Parisippany, NJ 07054
(201) 263-3400

Ciba Geigy Corp.
P.O. Box 18300
Greensboro, NC 27419
(919) 292-7100

W.A. Cleary Chemical Corp.
1049 Somerset St.
Somerset, NJ 08873
(201) 247-8000

PBI/Gordon Corp.
1217 West 12th St.
Kansas City, MO 64101
(816) 421-4070

Hoechst-Roussel
Route 202-206 North
Somerville, NJ 08876
(201) 231-2000

Hopkins Agric. Chem. Co.
P.O. Box 7190
Madison, WI 53707
(608) 221-6200

ICI Americas
P.O. Box 751
Wilmington, DE 19899
(302) 575-3000

Lebanon Chemical Corp.
P.O. Box 180
Lebanon, PA 17042
(717) 273-1685

Crystal Chemical InterAmerica Co.
1523 North Post Oak Rd.
Houston, TX 77055
(713) 682-1221

Dow Chemical USA
P.O. Box 1706
Midland, MI 48640
(517) 636-1105

Drexel Chemical Co.
2487 Pennsylvania St.
Memphis, TN 38109
(901) 774-4370

E.I. Du Pont de Nemours
1007 Market St.
Wilmington, DE 19898
(302) 774-1000

Elanco Products Co.
Lilly Corporate Center
Indianapolis, IN 46285
(317) 276-3759

Fermenta Plant Protection
P.O. Box 348
Painesville, OH 44077
(216) 357-3000

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photo decomposition, water pH, mixture incompatibility and rate of the herbicide applied can all have an effect upon the efficacy of the applied herbicide.

Combinations of commonly used broadleaf post-emergence herbicides are generally more effective in providing broad spectrum weed control than single herbicide mixtures.

Repeat applications of some herbicides will be necessary for 100 percent control. Use of post-emergence arsenicals for annual grass control actually necessitates re-application two or three times at 10- to 14-day intervals.

Repeat applications of the broadleaf herbicides should be spaced at least 30 to 45 days apart to minimize injury to the turfgrass.

In all spraying situations, spot spraying minimizes cost, environmental exposure and general stress on the desirable species while maximizing herbicide efficiency. In all instances, it is of paramount importance that label recommendations be closely followed.

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Herbicide Manufacturers

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Lesco Products
20005 Lake Rd.
Rocky River, OH 44116
(216) 333-9250

Mallinckrodt Inc.
P.O. Box 5439
St. Louis, MO 63147
(314) 895-2000

Mobay Chemical Group
P.O. Box 4913
Kansas City, MO 64120
(816) 242-2000

Monsanto Co.
800 North Lindbergh Blvd.
St. Louis, MO 63167
(314) 694-1000

Nor-Am Chemical Co.
3509 Silverside Rd.
PO Box 7495
Wilmington, DE 19803
(302) 575-2000

Ortho Div. Chevron
575 Market St.
San Francisco, CA 94105
(415) 894-7700

Pennwalt Corp.
Three Pkwy.
Philadelphia, PA 19102
(215) 587-7000

Regal Chemical Co.
P.O. Box 900
Alpharetta, GA 30201
(404) 475-4837

Rhone-Poulenc Inc.
Agrichemical Div.
P.O. Box 125
Black Horse Lane
Monmouth Junction, JN 08852
(201) 297-0100

Rohm & Haas Co.
Independence Mall West
Philadelphia, PA 19105
(215) 592-3000

Sandoz Crop Protection
341 E. Ohio
Chicago, IL 60611
(312) 670-4665

OM Scott & Sons
Proturf Div.
Marysville, OH 43041
(513) 644-0011

Stauffer Chemical Co.
Agricultural Chem. Div.
Westport, CT 06881
(203) 222-3294

Union Carbide
Agricultural Products
T.W. Alexander Dr.
Research Triangle Park, NC 27709
(919) 549-2000

Uniroyal Chemical
Elm Street
Naugatuck, CT 06770
(203) 723-3000

Vertac Chemical Co., Inc.
5100 Poplar Ave.
Suite 3122
Memphis, TN 38137
(901) 767-6851

Vineland Chemical Co., Inc.
1611 W. Wheat Rd.
P.O. Box 745
Vineland, NJ 08360
(609) 691-3535