

Mode of action symbols on turf and ornamental product labels*

● Symbols are a ready aid in resistance management

One of the most vital factors to consider in an optimal resistance management program is each product's mode of action (MOA). Mode of action refers to the biochemical mechanism by which a chemical kills a pest. Target site of action refers to the physical location at which the pesticide exerts this action. Mode of action and target site of action are often used interchangeably in practice and are combined as MOA in this information sheet.

For your benefit, all active ingredients from all chemical manufacturers have now been assigned a "group number" based on their MOA. This numbering system allows a quick, easy determination of whether different products have the same or different MOA, thereby aiding in the selection of products in a rotation program.

● Symbols are in easy-to-read format

To help ensure standardization, the EPA requested chemical companies to voluntarily include a pesticide's MOA group number in a standard format on the label. This is the format you see as you view Syngenta labels. Remember, even if a label does not contain a MOA symbol, determining the MOA of a product is important in effective resistance management.

Example of a product containing one active ingredient

GROUP 5 HERBICIDE

This example indicates the presence of a Group 5 herbicide (simazine) in the final packaged product.

Example of a premix containing four active ingredients

GROUP 3 | 11 FUNGICIDES
GROUP 3 | 4 INSECTICIDES

This example indicates the presence of Group 3 and 11 fungicides and Group 3 and 4 insecticides in the final packaged product.

● How should these symbols be used?

- By knowing the MOA of each product, you can more readily manage your product rotation, as you move from one mode of action to another.
- By comparing two labels, you can quickly determine if the products have different modes of action.
- For premix labels, you can determine if more than one MOA is included—and which ones.

● A quick reference list

SYNGENTA FUNGICIDES	
GROUP 1	Arbotect® 20-S (thiabendazole)
GROUP 3	Alamo®, Banner MAXX® (propiconazole)
GROUP 4	Subdue MAXX® (mefenoxam)
GROUP 11	Heritage®, Heritage® TL (azoxystrobin)
GROUP 12	Medallion® (fludioxonil)
GROUP M5	Daconil® Weather Stik®, Daconil ULTREX®, Daconil Zn® (chlorothalonil)
GROUP 3 11	Headway™ (propiconazole, azoxystrobin)
GROUP 3 12 M	Instrata™ (propiconazole, fludioxonil, chlorothalonil)
GROUP 3 M	Concert™ (propiconazole, chlorothalonil)

SYNGENTA INSECTICIDES	
GROUP 3	Scimitar® CS, Scimitar GC* (lambda-cyhalothrin)
GROUP 4	Flagship®, Meridian™ (thiamethoxam)
GROUP 6	Avid® (abamectin)
GROUP 7B	Award® (fenoxycarb)
GROUP 9B	Endeavor® (pymetrozine)
GROUP 17	Citation® (cyromazine)

*Scimitar GC is a Restricted Use Pesticide

SYNGENTA HERBICIDES	
GROUP 1	Fusilade® II Turf and Ornamental (fluzifop-p-butyl)
GROUP 2	Monument® (trifloxysulfuron sodium)
GROUP 3	Barricade® 4FL, Barricade 65WG (proflaminate)
GROUP 5	Princep® Liquid (simazine)
GROUP 9	Touchdown® PRO (glyphosate)
GROUP 15	Pennant MAGNUM® (S-metolachlor)
GROUP 22	Reward® (diquat dibromide)

● Other resistant management resources

MOA symbols should NEVER be used alone to make resistance management decisions. One may determine how to best reduce the potential development of resistant pests by reviewing:

- All the resistance management recommendations on the product label
- Websites of Resistance Management Committees (Fungicide) www.frac.info/frac/index.htm (Herbicide) www.plantprotection.org/HRAC/ (Insecticide) www.irac-online.org
- Bulletins and websites of agricultural chemical companies and Extension

For additional information on Syngenta resistance management strategies, visit our website at <http://www.syngentacroprotection.com/enviro/> or contact Carol Somody at 336-632-2029.

*Excludes antimicrobial, consumer, home and garden, and other non-agricultural labels.



The one online information source with the innovative services and technologies to help you manage your ornamental needs.

www.greencastonline.com

Call 1-866-SYNGENTA (796-4368)
to contact the Syngenta Customer
Center and learn more.

©2007 Syngenta. Syngenta Professional Products, Greensboro, NC 27419. **Scimitar GC is a Restricted Use Pesticide.** Important: Always read and follow label instructions before buying or using these products. Syngenta Crop Protection, Inc. warrants that its products conform to the chemical description set forth on the products' labels. NO OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO SYNGENTA PRODUCTS. Syngenta Crop Protection, Inc. neither assumes nor authorizes any representative or other person to assume for it any obligation or liability other than such as is expressly set forth herein. UNDER NO CIRCUMSTANCES SHALL SYNGENTA CROP PROTECTION, INC. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF ITS PRODUCTS. No statements or recommendations contained herein are to be construed as inducements to infringe any relevant patent now or hereafter in existence. Alamo®, Arbotect®, Avid®, Award®, Banner MAXX®, Barricade®, Citation®, Concert™, Daconil®, Demand®, Endeavor®, Flagship®, Fusilade® II, Headway™, Heritage®, Instrata™, Medallion®, Meridian™, Monument®, Pennant MAGNUM®, Princep® Liquid, Reward®, Scimitar®, Subdue MAXX®, Touchdown PRO®, ULTREX®, Weather Stik®, Zn®, and the Syngenta logo are trademarks of a Syngenta Group Company.

