



Cornell University  
Cooperative Extension



## CORN GLUTEN MEAL

### *What is it?*

Corn gluten meal has been available since the mid 1980's for pre-emergence weed control. Pre-emergence products formulated from corn meal contain primarily gluten, which has several related amino acid derivatives that are potentially suppressive to weed germination and seedling growth. Corn gluten meal is a byproduct of the corn milling industry, and poses no risk to humans or other animals. Products containing corn gluten meal are also high in organic nitrogen, and can typically be used as a supplemental fertilizer for landscape use, particularly in turfgrass or garden soils. These products must be applied before weed emergence because they are not effective on already established weed infestations, and are applied to the top ¼ inch of soil. Corn gluten meal was discovered during research performed at Iowa State University by Nick Christians on turf pathogens.

### *How does it work?*

Corn gluten meal reportedly suppresses weed growth due to the presence of growth inhibitory compounds. However, the nitrogen supplied by the product appears to be the primary reason for weed suppression because of its stimulation of growth of turfgrass and ornamentals, allowing them to outcompete weeds for limiting resources (space, water, etc.). Unfortunately, the growth of established weeds may also be enhanced by the additional nitrogen, worsening weed problems. At recommended rates of 20 lbs/1000 sq ft applied twice per year, corn gluten meal will add about 4 lbs of total N per 1000 square feet. The products should be applied in spring before annual weeds germinate so weed seed germination can be inhibited. Corn gluten meal will also control winter annual weeds before they germinate in the fall, so a late summer application is necessary for control of these weeds. The product should be applied uniformly at the recommended times (early May and mid-August), and watered in lightly for activation.

### *What does it control?*

Corn gluten meal is a pre-emergent inhibitor of weed seed germination. It inhibits germination of seeds of many problem annual weeds in turf and gardens, including crabgrass and foxtail, and broadleaf weeds such as purslane, dandelion, and prostrate pigweed. It does not control already established weeds. Application of corn gluten meal to an established turf may help reduce annual weeds by providing nitrogen that enhances growth of turfgrass and its ability to compete successfully with weeds.

### *Where can corn gluten meal be used?*

Corn gluten meal is generally applied in home landscape settings such as turfgrass, ornamental gardens, and vegetable gardens. One should apply the product to the soil surface or turf before the presence of established weeds, or after cultivation or clean-up or in the spring before weeds emerge. Moderate rainfall after application will help to activate the product. When applying corn gluten meal to vegetable gardens that are direct seeded, wait until the vegetable or flower seedlings are up and growing well before applying gluten meal to the garden.

*What products are available?*

Corn gluten meal is available in a variety of products and formulations. The products are generally sold as a yellow or light brown powder, the consistency of flour, or as pellets. After application, the product will be visible on the turf or soil surface until it breaks down. These products are available in home or retail garden centers as well as on the web. The products tend to be relatively expensive as compared to inorganic sources of N; for example, corn gluten meal is typically 4 to 5 times more expensive than ammonium nitrate.

For additional information on corn gluten meal, consult the following references:

<http://attra.ncat.org/attra-pub/nursery.html>

<http://www.extension.umn.edu/yardandgarden/ygbriefs/h53/corn gluten.html>

Nick Christian's website at Iowa State University: <http://www.gluten.iastate.edu.html>