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IN THE GARDEN

Corn Emerges as a 'Weed and Feed' Product

By JOAN LEE FAUST

It may sound a bit odd, but now is the time to apply corn gluten meal as a pre-emergent treatment for the control of weeds and a nitrogen boosting substance to spur initial spring green up in the lawn or garden.

Corn gluten meal? Yes. A natural product that represents a big step in the continuing effort by scientists to find alternatives to the chemical way things have been done in this country. It also eliminates worries that families may have about the overuse of lawn pesticides, which can be a threat to children and pets and which also seep into ground water.

The development began several years ago when researchers at Iowa State University were studying the effects of a fungal pathogen on grass growth. The project was headed by Dr. Nick Christians, professor in turfgrass science.

While trying to grow the fungal pathogen on cornmeal and then introduce the pathogen into the soil, the researchers found that bentgrass growth in seeded test plots that received fresh cornmeal was greatly reduced. The next question, of course, was what happened to inhibit growth of the bentgrass?

Research into the use of cornmeal began in earnest, as the study for the fungal pathogen was declared unsuccessful. All parts of the processed corn grain were tested. Then the discovery was made: corn gluten meal has the ability to stop root formation. With no roots, of course, plants died. The key to this was timing. The meal stopped root formation at the time of germination, but after germination, it had no effect. However, the nitrogen contained in the material continued to spur growth. In effect the researchers had found a natural "weed and feed" product.

Corn gluten meal is a yellow powder and a byproduct of the wet-milling process. It is used in cattle and poultry feed and in fish and dog food. It contains 60 percent corn protein that is 10 percent nitrogen. The product can be pelletized for easier application. Among the pesky weeds it helps control are dandelions, pigweed, crabgrass, plantain, lambs quarters and curly dock.

Further field trials demonstrated the merits of this material. It was granted a patent in 1991. Additional work to identify the active ingredient was carried out by Dianna Liu, a specialist in food chemistry. Through the use of a high pressure liquid chromatograph, the corn gluten hydrolysate was identified. With enzyme hydrolysis, a concentrated product is produced, and a patent for this method was granted in 1994.

Timing, as noted, is vital. The corn gluten meal must be applied early, before the seed of the target weeds emerges above the soil. Postemergent products, on the other hand, are applied to weeds after the plants have shown themselves. Although the lawn is the prime location for many of these pests, the product can also be used in flower beds and vegetable plots.

Moisture is also important for the material's effectiveness. Caution: it could also be leached out with excessive rainfall and watering.

According to Dr. Christians the current recommendations of application are 20 pounds of product per 1,000 square feet. At 10 percent nitrogen by weight this would be a nitrogen application of 2 pounds per 1,000 square feet. However, it is essential to read the application rates provided on the package labels before application is made.

Research is a continuing activity for these turfgrass scientists.

There are many facets of the technology still to be discovered. And it may also be that this new product is not as fully effective as its chemical counterparts. But the potential is great. There are many other plant-derived chemicals still to be discovered.

The product is being distributed in the Northeast at garden centers and hardware stores. Two brand names to look for are Safe 'N Simple, which is packaged in 25- and 50-pound bags by Blue Seal Feeds, or Concern Weed Prevention Plus, which is distributed by Necessary Organic Inc.

Meanwhile spring is practically upon us. The lawn and property needs all the help it can get. Much of winter's debris will have to be raked off and either added to the compost pile or hauled to the town's dump. Dead stalks left over from last year's plants should be cut to the ground. Ornamental grasses have given their show for the year and should be cut down to make room for the new green shoots that will appear this year.

But again, caution is the watchword. Under the surface of the soil all kinds of new shoots are trying to push up. They won't be helped by heavy feet treading on them. Proceed carefully and reach in to work as much as possible, keeping those errant feet out of the garden itself.

Finally, if the mowers and power tools have not been taken for their spring tuneup and sharpening, they should be. Deeds done now will beat the spring rush. And it will be one less spring chore on a long list.

GRAPHIC: Drawing (Joanna Roy)