

Will Your Lawn Be Genetically Engineered?

Scotts-Miracle Gro's Roundup-Ready Kentucky bluegrass is coming soon to a store near you

By Chris Ryan

In July of 2011, the U.S. Department of Agriculture (USDA) cleared the way for widespread planting of a new type of genetically engineered (GE) organism: a variety of Kentucky bluegrass which has been engineered by the Scotts Miracle-Gro company to be resistant to Monsanto Company's Roundup herbicide (glyphosate). The approval has sparked concern among health and environmental advocates for a number of reasons. First, the product will be unique among GE crops in that it will be directly marketed to the general public to plant themselves, as opposed to a specific consumer subset, such as farmers. Because of the expected wide consumer appeal due to a perception of easier lawn maintenance, the GE bluegrass will most likely result in a dramatic increase in acreage planted in GE crops, as well as glyphosate applications, throughout the country—bringing with it the health and environmental consequences of such an increase. Additionally, because of the way in which the product was engineered to evade USDA regulatory channels, companies developing future GE crops are now aware of a significant loophole in biotechnology regulations and will likely design their products to fit easily through this loophole.

Skirting Regulations

The GE bluegrass was able to avoid any regulatory oversight because it is engineered in a way that differs from most GE crops. Accordingly, USDA issued a decision stating that it does not consider the GE turf grass to be subject to federal regulations. In the decision announced by the USDA's Animal & Plant Health Inspection Service (APHIS), the department stated that it does not have the authority to regulate introduction or transportation of the GE grass seed under the provisions of the *Plant Protection Act* (PPA), the statute that governs the agency's biotechnology regulations. The grass has been engineered to be resistant to the herbicide glyphosate, commonly sold as Monsanto's Roundup. Kentucky bluegrass is a popular choice for yards and fields, as well as pastures and prairies, and the GE seed is expected to be made available for consumers to plant in their home lawns, potentially making it one of the most widely planted GE crops in the country.

USDA's authority to regulate GE products stems from provisions of the PPA that are designed to ensure that GE crops do not present the potential for new "plant pests."¹ As the *New York Times* explains in discussing the announcement, "Since companies have created most genetically modified crops, like herbicide-resistant corn and soybean, using either genes or tools derived from microbes, USDA has long extended its powers to nearly every biotech plant developed in the country."² However, the Scotts GE bluegrass was developed using genetic material from other plants, such as corn and rice, but no microbes. Accordingly, APHIS stated in its decision that, "The GE bluegrass variety is not within the Agency's regulatory authority because it does not contain plant pest sequences and no plant pest was used to create the GE Kentucky bluegrass."³

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This finding is distinct from previous findings regarding a "determination of nonregulated status," as APHIS terms it, for other GE crops, such as GE alfalfa. In those cases, APHIS had used its statutory authority to evaluate any potential plant pest risk posed by the new crop and found that the risk was minimal, meaning that the crop did not need to be regulated (though the agency is currently being challenged in court over the integrity of its evaluation process). For the GE bluegrass, no review was conducted, since APHIS does not believe it has the authority, meaning the product is automatically free to be marketed and made commercially available without governmental review.

As part of its requirements under the *National Environmental Policy Act* (NEPA), APHIS also prepares a formal environmental assessment (EA), or a more rigorous environmental impact statement (EIS), for every GE product that it reviews.⁴ NEPA mandates that all federal agencies conduct environmental evaluations for any action that is undertaken that may impact the environment.⁵ However, there was no formal review prepared by APHIS of potential impacts that release of the GE bluegrass would have on the environment, because the agency apparently did not believe that it was undertaking an action. It was instead stating that it does not believe it has the authority to act.

The novel method employed in engineering the GE bluegrass was



specifically designed for the purposes of avoiding the APHIS regulatory process through which all other GE products go. In its letter to APHIS concerning the GE grass, the Scotts company specifically states that, "Because Kentucky bluegrass itself is not a plant pest, no plant pest components will be involved in the transformation, and the native plant genomes that will be used are fully classified... Scotts therefore maintains that under current regulations, transgenic Kentucky bluegrass...does not satisfy any of the regulatory criteria that would subject it to [APHIS] oversight."⁶ In detailing the specific engineering methods it used, Scotts then asked the agency to concur that the bluegrass would not be subject to review or regulation. In a short letter of response, APHIS did just that, saying, "Because no plant pests, unclassified organisms, or organisms whose classification is unknown were used to genetically engineer this variety of GE Kentucky bluegrass, APHIS has no reason to believe it is a plant pest and therefore does not consider the Kentucky bluegrass... to be regulated under 7 CFR part 340 and is not subject to the plant pest provisions of the PPA."⁷

Responding to questions about whether this decision sets a precedent for future unregulated approval of GE crops, APHIS indicates that the decision does not represent a shift in policy and that it will make decisions on a case-by-case basis. However, the agency added that, "If a GE organism is not a plant pest, is not made using plant pests, and APHIS has no reason to believe that it is a plant pest, then the GE organism would not fall under APHIS regulatory authority."⁸ This makes clear a significant loophole in the regulation of biotechnology in the U.S. If companies can find ways to engineer the GE products they develop without the use of microbes or other plant pests, then those products will not be subject to any sort of, even limited, public health or environmental oversight prior to being put on the market for the public to obtain.

Consequences

There is little doubt that, if homeowners around the country start sowing

GE bluegrass seed on their properties in large numbers, this will result in a dramatic increase in the amount of Roundup that is sprayed onto the American landscape. Despite claims from biotechnology companies that herbicide resistant crops will reduce overall pesticide applications, studies have consistently shown that applications actually increase, as applicators are more likely to simply douse their crops with the chemicals, since they know it will not harm them and they want to eradicate as many weeds as possible. For example, a 2009 report on the effect of GE crops on pesticide use throughout the country found that, over the first 13 years of the commercial availability of GE crops in the U.S., pesticide use has increased by 383 million pounds.⁹ Additionally, according to an analysis of the *2010 Agricultural Chemical Use Report* released by USDA's National Agricultural Statistics Service (NASS),¹⁰ glyphosate use has dramatically increased over the last several years, while the use of other toxic chemicals such as atrazine has not declined. The 2010 report shows that, in the states surveyed, 57 million pounds of glyphosate were applied that year on corn fields. Ten years prior, in 2000, this number was only 4.4 million pounds, and in 2005, it was still less than half of 2010 numbers at 23 million pounds. Intense corn growing regions have experienced an even greater increase in glyphosate applications. Glyphosate use on corn in the state of Nebraska increased by more than five times in just seven years, going from 1.25 million pounds applied in 2003 to more than seven million pounds in 2010. When pesticide use is compared to the increasing adoption of GE crops over the same time period—in 2000, GE corn made up 25% of all corn planted in the U.S. and, by 2010, this number was 86%¹¹—the correlation is unmistakable.

Aside from the likely increase in residential herbicide applications as a result of home plantings, allowance of the GE bluegrass presents the potential for increased difficulties for organic farmers and ranchers. Because of the popularity of Kentucky bluegrass for use in yards, pastures, and prairies, its reach is expected to be quite widespread. This will make conversion of new land to organic food production more difficult as, according to APHIS's fact sheet on the decision, "Once established,



GE Kentucky bluegrass may prevent transition to organic status unless eradicated from the acreage to be transitioned.”¹²

Additional concerns about large scale planting of the GE bluegrass stem partly from the fact that a separate variety of GE grass developed by Scotts several years ago, which USDA is still considering, escaped from a test plot in Oregon in 2007. The company was fined \$500,000 as a result, but has continued to work on the project and may attempt to commercialize the product in the near future.¹³ In a letter accompanying the GE bluegrass decision, U.S. Secretary of Agriculture Tom Vilsack urged the Scotts Company to “work closely with a broad range of stakeholders” to “develop appropriate and effective stewardship measures to minimize com-

mingling and gene flow between GE and non-GE Kentucky bluegrass,” reflecting the Secretary’s continuing belief and insistence on coexistence between GE, non-GE, and organic farmers.¹⁴ However, it is unclear what kind of efforts could be taken by Scotts to make non-GE and organic land managers more comfortable, and some advocates doubt that Scotts will, in fact, make any serious effort to cooperate with this kind of voluntary initiative.

Glyphosate is a general herbicide used for eradication of broadleaf weeds. It has been linked to a number of serious human health effects, including increased cancer risk, neurotoxicity, and birth defects, as well as eye, skin, and respiratory irritation. One of the inert ingredients in product formulations of Roundup, polyoxyethyleneamine (POEA), has been shown to be toxic to human embryonic cells. The chemical is also of particular concern due to its toxicity to aquatic species, as well as instances of serious human health effects from acute exposure.

As health and environmental advocates have long been aware, herbicide applications to control weeds on residential lawns and playing fields are dangerous and unnecessary. A healthy lawn will be free of pests and create a safe area for outdoor recreation.

Beyond Pesticides has numerous resources on how to create a safe, healthy, and chemical-free lawn. Contact us with any questions or visit www.beyondpesticides.org/lawn for more information.



Endnotes

1 Relevant regulations can be found at 7 C.F.R. part 340.

2 Voosen, Paul. “In Major Shift, USDA Clears Way for Modified Bluegrass.” New York Times July 6, 2011. www.nytimes.com/gwire/2011/07/06/06greenwire-in-major-shift-usda-clears-way-for-modified-bl-51693.html.

3 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.

4 USDA APHIS. “Biotechnology Environmental Documents for Permits and Petitions.” www.aphis.usda.gov/regulations/biotech/brs_environmental_assessments.shtml.

5 42 U.S.C. §4332(2)(C).

6 Scotts Miracle-Gro Letter to U.S. Secretary of Agriculture Tom Vilsack Requesting Confirmation of Nonregulated Status for Glyphosate Tolerant Kentucky Bluegrass. September 13, 2010. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg.pdf.

7 USDA Response Letter to Scotts Miracle-Gro on GE Kentucky Bluegrass. July 1, 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_resp.pdf.

8 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.

9 Benbrook, Charles. Impacts of Genetically Engineered Crops on Pesticide Use: The First Thirteen Years. The Organic Center, November 2009. www.organic-center.org/science/latest.php?action=view&report_id=159.

10 Report data available here: www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/.

11 USDA Economic Research Service. Adoption of Genetically Engineered Crops in the U.S.: Corn Varieties. www.ers.usda.gov/Data/Biotech-Crops/ExtentofAdoptionTable1.htm.

12 USDA APHIS. Questions & Answers: Kentucky Bluegrass. July 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_q&a.pdf.

13 “USDA Concludes Genetically Engineered Creeping Bentgrass Investigation.” November, 26, 2007. www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2007/11/0350.xml.

14 Additional Response to Scotts Miracle-Gro Letter from Secretary Vilsack. July, 1, 2011. www.aphis.usda.gov/brs/aphisdocs/scotts_kbg_secy_resp.pdf.