



**State of Connecticut**  
**SENATOR DONALD E. WILLIAMS, JR.**  
*Twenty-ninth District*  
**President Pro Tempore**

**Testimony before the Environment Committee**  
**Senator Donald E. Williams, Jr.**

**In Support of S.B. 443, AAC Pesticides on School Grounds, Parks, Playgrounds, Athletic Fields and Municipal Greens**  
**March 17, 2014**

Good afternoon Senator Meyer, Representative Gentile, and members of the Environment Committee. I am here today to support S.B. 443, An Act Concerning Pesticides on School Grounds, Parks, Playgrounds, Athletic Fields and Municipal Greens, and to bring to your attention a related issue of significant concern to public health, the environment, and our state's school grounds, parks, playgrounds and other green spaces.

Let me begin by expressing my support for the underlying bill. Connecticut set an example for the rest of the country when we adopted a ban on the use of pesticides on the grounds of our elementary and middle schools. Scientific studies have concluded what may seem obvious—exposure to pesticides is harmful to children's health, and it makes sense to limit the use of these poisons in additional public spaces and to extend the ban to all public schools.

I would like to draw your attention specifically to the chemical glyphosate, more commonly known by its trade name "Roundup." As an herbicide, it falls under the existing school pesticide ban under CGS Sec. 10-231a, and for good reason. Studies have shown a link between glyphosate and serious health problems, including: DNA damage, premature births and miscarriages, birth defects, multiple types of cancer, and disruption of neurological development in children.

The U.S. Environmental Protection Agency has reported that glyphosate is the most commonly used herbicide in U.S. agriculture, and the second most commonly used weed killer for homes and gardens. Glyphosate ends up in the air we breathe and the water we drink. A 2011 study by the U.S. Geological Survey Office examined air and water samples taken from two states over a two-year period. It found glyphosate present in every water sample examined in Mississippi, and in most of the air samples taken.

A new product will soon be marketed in Connecticut—unless we take action—that will dramatically increase the amount of glyphosate sprayed on soil and introduced into the air, streams and rivers of Connecticut. Genetically modified and engineered (GMO) grass seed that

is resistant to glyphosate is slated for field-testing this spring and summer; introduction of this product could begin as early as next year. This will create the equivalent of an arms race of toxic chemicals that are damaging to human health and the quality of our air and water.

*I respectfully request that the Environment Committee add language to S.B. 443 that would ban genetically modified grass seed in Connecticut and other genetically modified landscaping plants, annual and perennial.*

Fortunately a ban is easier to implement at this time and works a hardship on no one because these products are not currently on the market. After my testimony on a similar bill in the Public Health Committee on Friday, I heard some who support the chemical and GMO corporations complain that they did not know enough the proposed amendment. You may no doubt hear similar complaints today. What I am proposing, however, is simple and straightforward; it is a prohibition on the sale of genetically modified grass or landscaping plants. This does not affect farmers who currently plant GMO corn or other GMO crops, or greenhouses that sell their existing plants.

I want to stress the following point—the future of farming and horticulture in Connecticut depends on environmental stewardship and the preservation of clean air, clean water, and rich soil that is not repeatedly scorched with poison. That should be obvious to everyone. The purpose of this ban is to prevent a massive increase in the use of toxic herbicides in Connecticut that will occur when the new genetically modified lawns and outdoor plants are regularly saturated with toxic poisons—not in spot treatments—but by spraying hundreds or thousands of acres, permeating the soil and washing into our streams, rivers, and the Long Island Sound. The idea is to head off the significant environmental damage that we can clearly foresee, before it occurs. It is critical that we take a stand in favor of leaving our children a cleaner and healthier environment, rather than enriching chemical corporations while degrading our environment.

Those who promote genetically modified grass may say they are interested in engineering plants that are not only resistant to toxic chemicals, but are also hardy and drought resistant. When it comes to lawns, however, I know from personal experience that simply cutting my lawn at a higher setting and using occasional low-strength organic fertilizer is the best way to go in terms of weed control, protection against drought and scorching, and preserving the environment. In addition, strong, healthy lawns are *diversified*, with multiple strains and types of grass. The GMO grass being field-tested is one type of grass—genetically modified bluegrass. It will be even more reliant on regular treatment with toxic herbicides.

Any chemical you spray on the land will affect the chemistry and biology of that land, and the runoff will affect the watercourses and water quality of the state. The issue is not just glyphosate or Roundup. A major corporation is now moving forward with GMO agriculture products that will be resistant to the stronger and more poisonous 2,4-D—a component of the infamous defoliant Agent Orange—that will cause even more damage to our environment.

The GMO plants that will survive heavy spraying with 2,4-D are being engineered because existing Roundup-ready plants and the widespread use of glyphosate have created super weeds—weeds that are resistant to glyphosate. This is similar to the overuse of antibiotics—initially,

everything is killed; over time, however, resistance builds and effectiveness disappears. A recent report by the U.S. Department of Agriculture on genetically engineered crops found that “glyphosate resistance is currently documented in 14 U.S. weed species,” and the potential exists for much more weed resistance in the future.

The GMO products that promised less use of herbicides have actually resulted in greater use, and as resistance builds the GMOs require even more powerful and toxic herbicides. This is the wrong way to look at environmental stewardship, and the wrong way to create a legacy for our children and future generations.

The recent collapse of the honeybee and monarch butterfly populations has been linked to increased use of herbicides and pesticides, as has the dramatic decrease in the lobster population in the Long Island Sound. Last year Governor Malloy signed a bill banning the use of the pesticides methoprene and resmethrin in coastal areas due to their toxicity to fish, lobster, and other aquatic life. Glyphosate can retain its toxic qualities in water for between 12 and 90 days. It takes the herbicide 2,4-d between two and seven weeks to degrade in water. Once in our waterways, these chemicals can adversely affect insects, plants and fish. The Wall Street Journal said that, “some of the old pesticides—in particular, those called 2,4-D and dicamba—have a history of posing more risks for the environment than the chemical in Roundup. That's partly because they have more of a tendency to drift on the wind onto neighboring farms or wild vegetation.”

I bring this to your attention because we are at a critical juncture. It is not often that we can so clearly see two pathways ahead. The question is whether we will have the vision and foresight to choose the path that protects and preserves our environment for future generations. We can ban GMO grass seed and landscaping plants now, before their introduction, and stop the guaranteed environmental destruction that will occur over the next five to ten years and beyond. If we do not take action, next year could literally be too late.

For these reasons I urge the committee to amend this important legislation, ban genetically engineered grass seed, and protect Connecticut's environmental future. Thank you.

### *Additional Testimony*

Genetic engineering of plant resistance to glyphosate is a practice already well established in commercial agriculture. “Roundup Ready” crops account for at least 90 percent of the soybeans and 70 percent of the corn and cotton grown in the United States.

Because no new major herbicide chemistry has been made commercially available in the last 20 years, and because few new ones are expected to be available soon (Harker et al., 2012), many plant scientists believe that slowing the rate of glyphosate resistance and the spread of glyphosate-resistant (GR) weeds are among the most important problems facing U.S. crop producers (NRC, 2010, 2012).

Glyphosate-resistant weeds are now present among soybean, cotton and corn crops (all of which exist in “Roundup ready” varieties) in at least 22 states and also in other countries. The New York Times describes one such mutated weed, pigweed, which, “can grow three inches a day and reach seven feet or more, choking out crops; it is so sturdy that it can damage harvesting equipment.”

Introduction of large amounts of glyphosate to American lawns is sure to cause lawn weeds to evolve a resistance to the chemical, just as has occurred in commercial agriculture. Agricultural biotechnology expert Douglas Gurian-Sherman of the Union of Concerned Scientists warns that, “The more a chemical is used consistently, the more likely that somebody’s weeds will become resistant. That’s standard, agreed-upon science. The way that Roundup is used because of transgenic crops exacerbates that problem.”

GMO seed corporations once denied that agricultural weeds would evolve resistance in response to glyphosate exposure, even sponsoring research that claimed otherwise. This contention has now been thoroughly disproven. An article posted in November of 2013 on the website of Michigan State University describes research conducted by scientists from Pennsylvania State University, University of New Hampshire and Montana State University:

*“I’m deeply concerned when I see figures that herbicide use could double in the next decade,” said David Mortensen, professor of weed ecology at Penn State. “During the period since the introduction of glyphosate-resistant crops, the number of weedy plant species that have evolved resistance to glyphosate has increased dramatically.”* Mortensen said. *This list includes many of the most problematic weed species, such as common ragweed, horseweed, johnsongrass and several of the most common pigweeds. According to the research team, despite company-sponsored research that indicated resistance would not occur, 21 different weed species have evolved resistance to several glyphosate herbicides, 75 percent of which have been documented since 2005.*

As glyphosate loses its effectiveness, the alternatives are even less attractive. The alternatives are older chemicals, such as 2,4-D and dicamba, widely regarded as even more toxic. Corporations are already working on new GMO plants that would be resistant to the older, more toxic chemicals.

The U.S. Environmental Protection Agency (EPA) has published a "Toxicity and Exposure Assessment for Children's Health" of 2,4-D. It contains a summary of chemical's toxicity:

*Health effects of chronic or acute 2,4-D exposure reported for adults included blood, liver, and kidney toxicity (1, 3, 4). Specific effects included a reduction in hemoglobin and red blood cell numbers, decreased liver enzyme activity, and increased kidney weight (3, 4). Acute exposure can result in skin and eye irritation (1). Acute exposure to very high concentrations of 2,4-D can cause the following clinical symptoms: stupor; coma; coughing; burning sensations in lungs; loss of muscular coordination; nausea; vomiting; or dizziness (3, 4, 13, 14).*

*Experimental animal studies of chronic oral exposure have reported adverse effects on the eye, thyroid, kidney, adrenals, adrenals, and ovaries/testes (1). In addition, some experimental animal studies have reported teratogenic effects (birth defects) at high doses, including increased fetal death, urinary tract malformation, and extra ribs (15, 16). When adult female experimental animals were exposed to 2,4-D during their pregnancy and lactation periods, their exposed offspring exhibited neurological effects, including delayed neurobehavioral development (5) and changes in several neurotransmitter levels or binding activities (6-9, 17) and ganglioside levels (18, 19) in the brain. Delayed neurobehavioral development was manifested as delays in acquisition of certain motor skills such as the righting reflex (5).*

We should also be concerned about the ease with which GMO grass seed could spread into the wild. Before experimenting with Kentucky bluegrass, Scotts Miracle-Gro Company first attempted to genetically modify another grass species known as bentgrass, and was fined \$500,000 in 2007 by the federal government for failing to contain the grass in approved test fields, despite considerable efforts to do so.

Not only can GMO grass plants and their seeds spread into the wild, but their genetically modified genes may also be cross-bred with other, similar species. Wired Magazine interviewed plant geneticist Norman Ellstrand of the University of California, Riverside, on this subject, who said, "I don't know what other bluegrass species it's cross-compatible with, but I can say with 98 percent certainty that it's cross-compatible with some. If this plant grows and flowers at the same time as other bluegrass, they'll flourish. You'll have a new incidence of herbicide resistance getting into the wild."

As resistance to glyphosate spreads further into the wild and into additional species, the effectiveness of glyphosate will further erode, leading to an even greater reliance on more toxic pesticides.

Unlike the GMO bentgrass described above, the new GMO Kentucky bluegrass is not subject to federal regulation of any kind, due to a technicality in federal law exempting certain methods of genetic modification from oversight. Scotts Miracle-Gro CEO Jim Hagedorn has spoken publicly about the company's GMO bluegrass, stating that, "I think we will see limited commercial activity the following year (2015), and I think, if all goes well, much more (activity) in the consumer market in 2016."

As a perennial plant, grass spreads much more readily than annual plants, which must be replanted every year. Common GMO crops like corn are annual plants, which make them easier to contain in designated areas. Genetically modified perennial plants therefore merit a higher level of regulation and oversight. We must also be mindful of emerging trends in genetic modification of other plants. In cooperation with Monsanto Corporation, Scotts Miracle-Gro has also explored the genetic modification of flowers for glyphosate resistance. Our response to the imminent availability of GMO grass seed should not be limited to grass seed only.

Past practices of GMO seed companies should also give pause to consumers. Once corporations establish significant market share in the sale of GMO seeds they typically raise the price significantly—the price of GMO soybean and corn seeds grew by about 50 percent in real terms (adjusted for inflation) between 2001 and 2010.