



NATIONAL
CORN GROWERS
ASSOCIATION

The Economic Benefits of Pesticides to Farmers & Society

MAY 2025

U.S. farmers consistently raise abundant crops that provide consumers reliable, **low-cost** access to food. One of the central tenets to producing crops is the control of pests that, when left unchecked, can reduce corn yields by up to 70%. Pesticides are one tool that farmers use to control pests, the safety and efficacy of which have been repeatedly tested and documented for decades.

Farmers use different types of pesticides depending on the pest: herbicides for weeds, insecticides for insects, and fungicides for fungi. Corn growers need access to all types of pesticides.

One important pesticide is glyphosate, a revolutionary herbicide developed over fifty years ago to control a wide range of problematic weeds. Atrazine is another valued herbicide that corn growers have used for nearly seventy years. Now the future of these important products is at risk, despite science repeatedly proving no risk to human health. Without these products, corn growers and society would bear added costs, reduced crop yields and a threat to long-term food security for the nation.

Over 50 Years of EPA Approval and Scientific Research

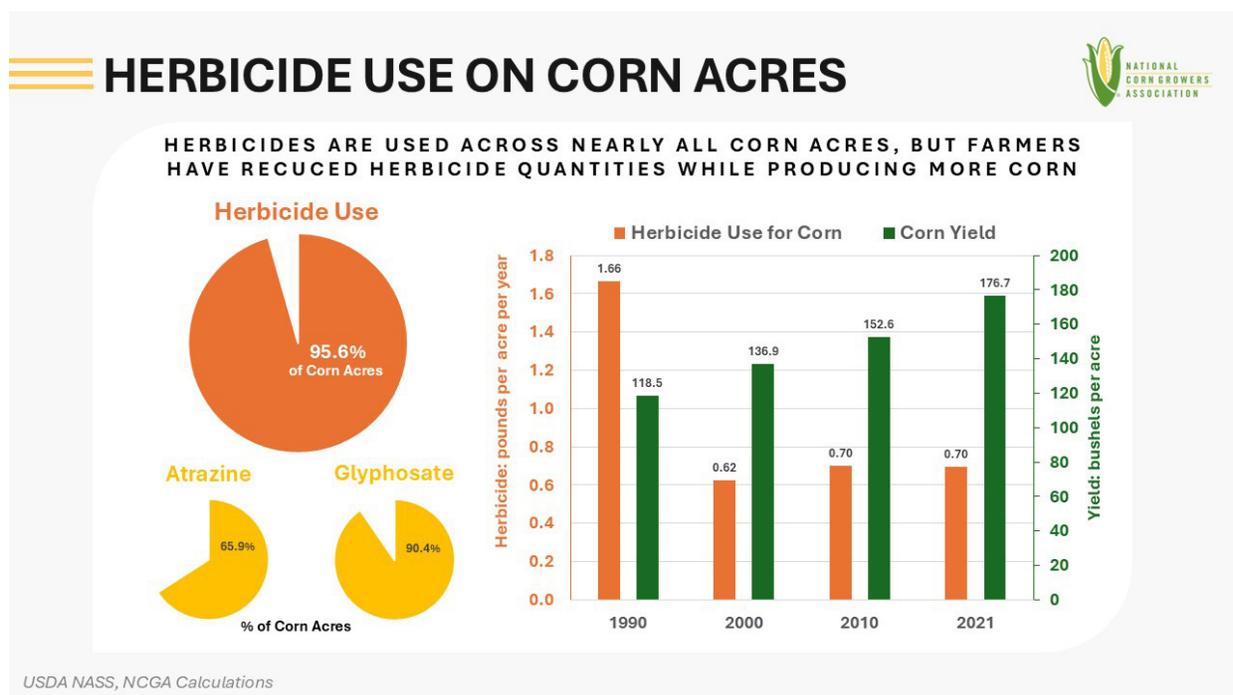
Glyphosate and atrazine are time-tested products that have been in use for more than half a century. Glyphosate has been registered as a pesticide in the United States since 1974 (EPA) and atrazine has been registered as a pesticide since 1958 (EPA). Since then, the U.S. Environmental Protection Agency (EPA), as well as other regulatory agencies around the world, has reviewed and reassessed each product's safety and use multiple times.

After analyzing and reassessing all available scientific data through a regular registration review process every 15 years, EPA has found that glyphosate poses no risk to human health when used according to the label (EPA) and no risks of concern for atrazine when evaluating all dietary exposure sources, including drinking water (EPA).

Farmer Adoption of Glyphosate & Atrazine

The National Agricultural Statistics Service (NASS) at USDA conducts surveys through the [Agricultural Chemical Use Program](#), providing the official source of statistics for on-farm chemical use and pest management practices. Practices on corn acres were most recently surveyed in 2021, tracking usage in eighteen states that represent over 90% of corn production.

The survey shows that atrazine is used on 65.9% of corn acres, the largest usage of a single active ingredient. However, glyphosate, as part of active ingredient formulations, is used on 90.4% of corn acres, nearly all herbicide-treated acres. In total, farmers applied one or more herbicides to 95.6% of corn acres.



Using Less, Producing More

Herbicides are used across nearly all corn acres, but the NASS survey data shows the volume of herbicides used per acre has declined from decades ago. In 2021, farmers used an average of 0.7 pounds of a herbicide per acre, less than half the 1.7 pounds used in 1990. The amount steadily dropped throughout the 1990s and has stayed consistent at current levels since then. Farmers often combine a few herbicides, resulting in an average total herbicide use of 2.5 pounds per acre in 2021, lower than the 3.1 pounds per acre average in 1990.

Between 1990 and 2021, corn yields rose 49% from 118.5 bushels per acre to 176.7 bushels per acre. The advent of commercially available genetically modified seed hybrids in the mid-1990s and corresponding targeted action herbicides have allowed farmers to use less herbicides while producing more corn.

One Large Coffee and One Football Field

The product label for glyphosate-based herbicide [Roundup PowerMAX® 3](#) specifies a range of application rates for corn depending on factors like hardness of the weeds and timing of the application. The range extends from 15 ounces per acre to 60 ounces per acre, not to exceed a total of 60 ounces per acre in a year. Glyphosate is 41.8% of the herbicide formulation, by weight, so the actual amount of glyphosate is in the range of 6 to 25 ounces per acre. Not including the endzones, a football field is very close to the size of an acre. In other words, corn farmers using glyphosate to control weeds are spreading the equivalent of one large coffee across a football field.



Herbicides Are Not Free

While herbicides are widely used to control weeds that threaten productivity if left untreated, farmers are vigilant in their use. They follow safety and use guidelines to safeguard their own families and communities, but also for prudent cost management for their business.

There are multiple reasons why glyphosate and atrazine are two of the most widely used active ingredients in herbicides. One reason is their effectiveness targeting the most problematic weeds for corn farmers. Another reason is their decades-long proven safety record. Another reason is their relatively low cost compared to alternative herbicides.

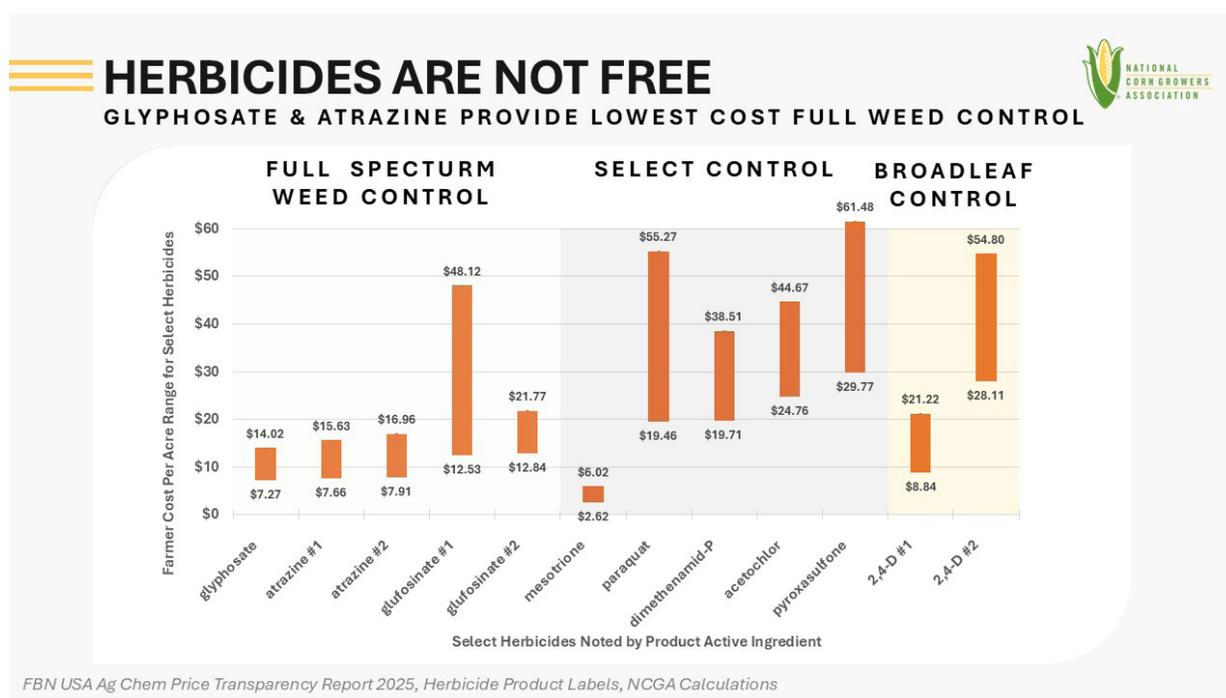
In their annual [USA Ag Chem Price Transparency Report](#) for 2025, Farmers Business Network (FBN) uses actual farmer submitted invoices for ag chemical purchases to gather insights on pricing of

available crop production products. The FBN prices and product label maximum annual application rate for corn are used to calculate the cost per acre.

Glyphosate and atrazine-based herbicides range from about \$7 to \$15 per acre. Glufosinate-based herbicides, the primary alternative, are more costly ranging from about \$12 to \$48 per acre.

A few other alternatives are available, but they provide a smaller spectrum of weed control at a higher cost, ranging from about \$20 to over \$60 per acre.

Most other herbicide options can be used to control subsets of weed types. Some of these come at a lower individual cost but may take a stack of two to four herbicides to replicate the weed control glyphosate or atrazine can provide.

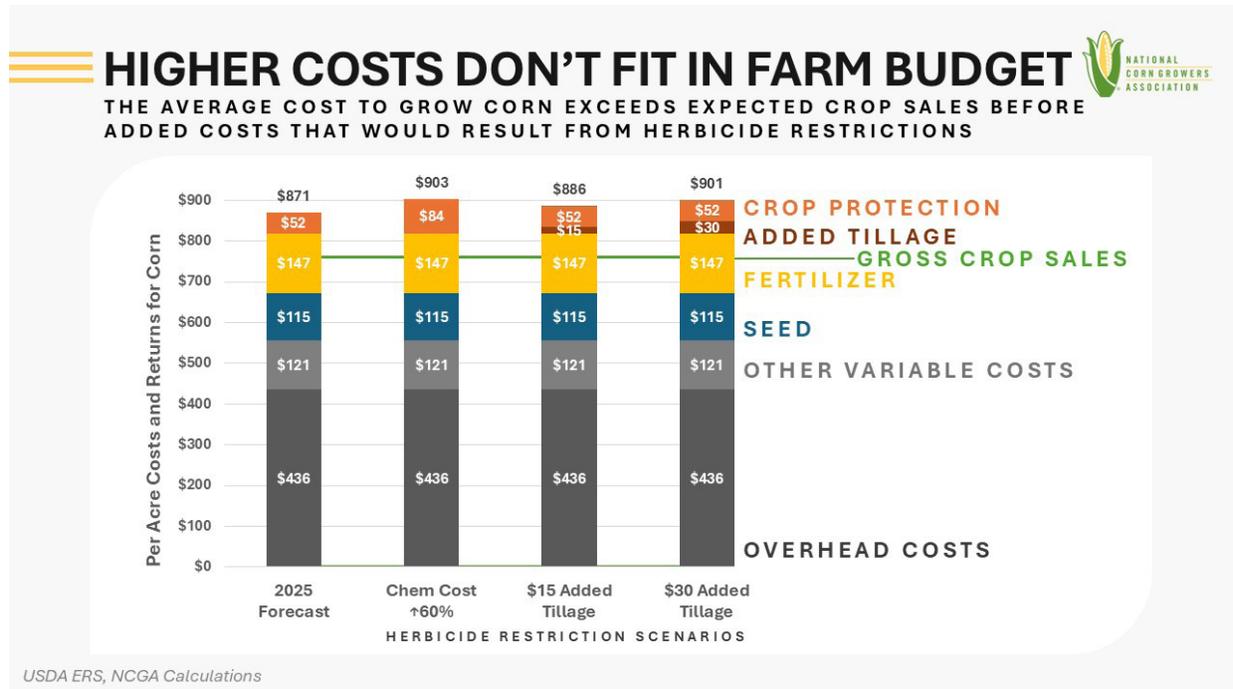


Farm Budgets: No Room for Added Costs

Herbicides and other crop protection products account for about 6% of the total cost to grow corn. USDA forecasts the average cost to grow an acre of corn in 2025 is \$871. Even with record high productivity expected, anticipated low prices mean farmers are facing a loss of over \$100 per acre for corn this year. There is no room for unnecessary added costs in a budget that is already deep in the red.

Our calculations show farmers would be facing at least a 60% increase in costs to switch to alternative herbicides, and potentially much greater than that. Similarly, a recent North Carolina State Extension [analysis](#) looking at the potential short-term economic impact of losing glyphosate in North Carolina estimated a 73% increase in costs for corn.

Without access to effective and affordable herbicides, farmers could turn to other options to control weeds, though all present difficult trade-offs. Given current labor wage rates and challenges in finding farm labor, manual control is likely too costly and inaccessible to be realistic on most corn acres. That leaves mechanical control. While increasing tillage could be used, that leads to greater soil erosion and compaction, contrary to sustainable farm practices favoring less tillage. And it could take up to three or four tillage passes per acre to effectively control weeds, costing about \$15 to \$30 per acre, per pass.



Higher Costs Beyond the Farm

Increasing tillage doesn't just have implications for farm costs and soil sustainability, it takes more fuel and increases carbon emissions. A 2023 study by the Directions Group, shows glyphosate has enabled conservation practices that result in a slew of environmental gains, including: 22% reduction in sediment loss, 19% reduction in water use for irrigation, 16% reduction in soil erosion from wind, 13% reduction in soil erosion from water, 1.2 million tons fewer carbon emissions from farm machinery, and 32.5 million additional tons of carbon equivalents captured by farmland soil.

Aside from the societal burden on the environment, denying farmer access to pesticides like glyphosate and atrazine puts inflationary pressure on food prices, impacting the pocketbooks of households across the nation. This also translates to higher costs for the Farm Bill, both the farm safety net and nutrition programs.

Affordable, Abundant, and Sustainable Corn

In the [2025 Corn Competitiveness Report](#) published in January, NCGA identified maintaining status as producers of the world's most affordable, abundant, and sustainable corn as a challenge. One solution is preserving access to seed and pesticide technologies.

Without continued access to pesticides that protect against devastating pests, U.S. farms and ranches would quickly become economically unsustainable, jeopardizing U.S. farmers' ability to provide affordable food and other agricultural products to consumers. Preserving access to these technologies and encouraging further advancement is essential to maintaining both a robust, quality supply of goods for U.S. consumers and competitiveness for U.S. agriculture globally.

PESTICIDES ALLOW FARMERS TO PRODUCE AFFORDABLE, ABUNDANT AND SUSTAINABLE CROPS

Up to 40% of global crop production is lost to pests and diseases each year. Without pesticides losses could be as high as 85% and lead to:

- U.S. farmers producing less
- Crop production expands in less sustainable areas
- Higher food prices
- Reversing environmental gains in soil erosion
- Higher carbon emissions
- Strain on rural communities



Sources: CropLife America Pesticide FAQs and A Future Without Glyphosate by Aimpoint Research June 2023

[NCGA.COM/CornEconomy](https://www.ncga.com/CornEconomy)

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