



## FACT SHEET

### The Value of Neonicotinoid Insecticides in North American Agriculture

*Value of Insect Pest Management to U.S. and Canadian Corn, Soybean and Canola Farmers*

#### Summary

A new study of North American corn, soybean and canola farmers conducted by independent agricultural economists finds that the value of neonicotinoid seed treatments is among the highest of all insect management practices. The detailed research examined the pest management operations of farmers in Canada and the United States, including the use of non-monetary factor analysis and econometric methods, to estimate a total farmer value of \$1.4 billion in these crops – surpassing the value of alternative practices.

#### Background

- Insect pest management has been transformed by the use of genetically engineered plant-incorporated protectants and, more recently, by neonicotinoid seed treatments.
- The rapid and widespread adoption of genetically engineered crops and seed-applied insecticides suggests a perceived value to farmers well beyond potential increases in profitability.
- Non-monetary values include reduced risk of pest losses, increased flexibility, convenience, simplicity of pest management, and reduced human or environmental risks.

#### Methodology

- Data were collected from a 2014 telephone survey of U.S. and Canadian growers regarding their 2013 pest management and business operation practices. Participants included:
  - 622 corn farmers from 12 U.S. states and three Canadian provinces
  - 622 soybean farmers from 14 U.S. states and three Canadian provinces
  - 500 canola farmers from three Canadian provinces
- Survey collected details on each farmer's operations, including key pests, alternative pest management and consulting practices, production costs, yields, and perceived value.
- Farmers ranked the importance of 20 factors affecting their pest management decisions on a scale ranging from "not important" to "very important."

Factor Groups	Examples
Cost, Planting, Time & Ease	Reducing equipment wear & tear, Convenience, Saving time & labor, Simplicity, Reducing Scouting, Flexibility, Cost, Planting early, Replant
Health, Environment & Marketability	Public safety, Protecting water quality, Protecting beneficial insects, Protecting wildlife, Family & worker health, Crop marketability
Plant Performance	Improving plant health, Improving crop stand, Protecting yield
Yield Risk	Consistent insect control, Long-lasting insect control
Marketability	Crop marketability, Simplicity and convenience

- Established econometric models were used to analyze how dependent variables varied geographically and in relation to non-monetary factors.

### Key Findings

- The major insect pests noted by corn farmers were corn rootworm and the European corn borer, while aphids and beetles were considered the biggest threat on soybeans. Canola growers identified flea beetles and armyworms as the biggest threats.
- Bt corn was the most frequent management practice reported by U.S. and Canadian corn farmers, used by 82 and 90 percent, respectively.
- Neonicotinoid seed treatments were the leading application method used for insect control soybeans and canola and the second most-used application method in corn.

Application	Corn		Soybeans		Canola
	U.S.	Canada	U.S.	Canada	Canada
Bt Corn	82%	90%	---	---	---
Seed Treatment	64%	79%	51%	74%	88%
Soil Insecticide	20%	3%	---	---	---
Foliar insecticide	8%	12%	23%	14%	27%

*No soil insecticides are registered for use on soybeans*

- All farmers viewed human and environmental health (e.g. family, worker, water quality, beneficial insects) risks to be of similar importance in making pest management decisions.
- Corn farmers tended to view the importance of plant performance and yield risk differently, while soybean and canola farmers viewed these concerns similarly.
- Total value estimates to farmers were calculated by multiplying the value of a management practice (in \$ per acre) by the percentage of planted acres receiving that treatment.

Application	Crop	Total Perceived Value - U.S. \$ Per Treated Acre		Total Perceived Value – U.S. \$ Per Planted Acre	
		U.S.	Canada	U.S.	Canada
Bt Corn	Corn	19.78	20.05	13.09	15.18
Seed Treatment	Corn	13.38	12.02	7.56	9.03
	Soybean	11.93	14.53	5.32	9.62
	Canola	---	12.85	---	11.20
Soil Insecticide	Corn	12.92	---	1.83	---
Foliar insecticide	Corn	14.17	14.75	0.85	0.74
	Soybean	13.48	10.06	2.18	0.74
	Canola	---	13.88	---	2.55

*Canadian value converted to U.S. dollar equivalents*

- Multiplying the estimated value per planted acre by the total planted acres for each crop, and then adding up all three crops gives the total farmer value.

Application	Perceived Total Farmer Value (U.S. \$)		
	U.S.	Canada	Total
Bt Corn	1,248	56	1,304
Seed Treatment	1,130	301	1,431
Soil Insecticide	175	---	175
Foliar insecticide	249	57	306

*Canadian value converted to U.S. dollar equivalents*

- Neonicotinoid seed treatments were the most valued insect management practice for North American corn, soybean and canola farmers, with a total farmer value of \$1.4 billion.

## Report References

### ***The Value of Neonicotinoid Insecticides in North American Agriculture: Value of Insect Pest Management to U.S. and Canadian Corn, Soybean and Canola Farmers***

*This report is one of a series that will be released over the next few months as part of a comprehensive evaluation of the economic and societal benefits of neonicotinoid insecticides in North America. The research was conducted by AgInfomatics, a consulting firm of independent agricultural economists and scientists, and jointly commissioned and sponsored by Bayer CropScience, Syngenta and Valent U.S.A. For questions or information concerning this research and reports, please contact the Porter Novelli address identified below.*

All reports will be published online at: <http://GrowingMatters.org/case-studies/>.

## About Growing Matters

Growing Matters is a coalition of organizations and individuals committed to scientific discourse on the stewardship, benefits and alternatives of neonicotinoid insecticides in North America. [Bayer CropScience](#), [Syngenta](#) and [Valent U.S.A. Corporation](#) are leading this coalition with support from Mitsui Chemicals Agro, Inc.

Agriculture and horticulture are key to nourishing families and communities. Feeding a growing population, enhancing the beauty of our surroundings, and sustaining a commitment to environmental protection are fundamental needs that matter. Crop protection products, both natural and synthetic, are important tools that protect plants from tough and invasive pests that can devastate crops and urban landscapes.

Go to [www.GrowingMatters.org](http://www.GrowingMatters.org) for the latest information, reports, videos and infographics on the benefits of neonicotinoid insecticides or to show your support.