

Benefits of Pyrethroids to Sugar Beets

PYRETHROIDS BENEFITS PROJECT

The Pyrethroid Working Group contracted an extensive analysis of the benefits of pyrethroids to agriculture. A multitude of data was analyzed with different methodologies to determine the value of pyrethroids, and the costs to farmers if they were no longer available. These analyses determined: (1) costs to the farmer of key insect pest management practices with and without pyrethroids, (2) yield benefits of pyrethroids, (3) monetary and non-monetary value of pyrethroids based on a farmer survey, and (4) a multi-market analysis to project the aggregate economic benefits of pyrethroids to the U.S. economy. Below are the primary benefits of pyrethroids to sugar beets from these analyses.

BENEFITS TO SUGAR BEETS

1. Costs with and without pyrethroids

- The total market value of production for sugar beets in 2015 was \$1.67 billion for sugar beet, according to USDA-NASS.
- Pyrethroids make up 43% of the total insecticide treated acres in sugar beet.
- The cost advantages of pyrethroids were \$12.09 per product acre for soil-applied insecticides and \$11.55 per treated acre for foliar-applied insecticides in sugar beets.
- If pyrethroids were lost, growers would experience a 61% cost increase for foliar insecticides in sugar beets.
- If pyrethroids were lost, projected application costs would increase by around 4% in sugar beet.
- Pyrethroids give a cost advantage of \$9.66 per product acre for foliar applications and \$12.07 per product acre for soil applications in sugar beets based on a three-year average of farmer expenditures.
- If pyrethroids were no longer available, sugar beet growers would experience a 45% increase in insecticide costs, resulting in a \$4,067,000 increase to the industry. Broken out by foliar and soil, loss of pyrethroids would result in increases of \$2,924,000 (61% increase) and \$1,143,000 (27% increase) for the industry.

2. Yield Benefits

- Pyrethroids provide yield increases of 36% for sugar beets compared to the untreated controls.
- Pyrethroids give sugar beets a 0.6% yield benefit over other insecticides.
- A relative yield loss of 2% would occur if pyrethroids were no longer available in sugar beets.
- Pyrethroids reduce crop damage by 68% in sugar beets.
- Pyrethroids alone reduce pest abundance by 55%, while the combination of pyrethroid and non-pyrethroid insecticides reduce pest abundance by 94%.

3. Direct and Indirect impacts

- The cost impact if pyrethroids were no longer available is an increase of \$3.55 per planted acre and \$11.69 per treated acre for sugar beets.
- With only 5 insecticide modes of action available, the longer-term issue is the potential for the development of resistance by relying even more heavily on one insecticide class if pyrethroids were no longer available.
- The overall economic benefit of use of pyrethroids is \$13.38 per cropped acre, and \$44.11 per pyrethroid treated acre.

