

# Benefits of Pyrethroids to Sunflower

## PYRETHROIDS BENEFITS PROJECT

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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 sunflower from these analyses.

### BENEFITS TO SUNFLOWER

#### 1. Costs with and without pyrethroids

- Total market value of production for sunflowers in 2015 was \$500 million according to USDA-NASS
- 85% of insecticide treated acres in sunflowers were pyrethroids, indicating the dominant place that pyrethroids hold for managing insects in sunflowers.
- Pyrethroids provide a cost advantage of \$2.98 per product acre in sunflower, or a 46% increase in costs for non-pyrethroids to replace pyrethroids.
- Pyrethroids play a major role in insect management – on average almost all sunflower acres receive an insecticide treatment and most of these insecticides are pyrethroids.
- If pyrethroids were not available, total costs per treated acres would increase by 25% in sunflowers
- The total cost impacts (active ingredient and applications costs) are an increase of \$3.64 per treated acre or \$3.09 per planted acre for sunflowers if pyrethroids were no longer available.

#### 2. Yield Benefits

- Pyrethroids provide a 12.5% yield increase compared to untreated controls.
- Pyrethroids reduced crop damage by 30% in sunflowers.
- Pyrethroids increased overall crop health by 4% in sunflowers.
- Pyrethroids reduce crop damage by more than 30% and pest abundance by over 50% in sunflowers.
- Yield losses of 11.1% would occur if pyrethroids were no longer available in sunflowers.

#### 3. Direct and Indirect impacts

- The results for sunflowers showed a pyrethroid yield advantage of 11.1% per treated acre, and 9.4% loss per cropped acre without pyrethroids.
- The economic benefit of pyrethroid use in sunflowers was \$38.03 per cropped acre and \$44.88 per treated acre.
- If pyrethroids were not available, the total cost increase for the industry would be \$5.2 million in sunflowers.
- Pyrethroids play a key role in insect and resistance management in sunflowers.
- Resistance management would be difficult if pyrethroids were not available as only 2 insecticidal modes of action would be available.

