

Benefits of Pyrethroids to Rice

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 from these analyses.

BENEFITS TO RICE

1. Costs with and without pyrethroids

- The total market value of production was \$2.4 billion for rice in 2015 according to USDA-NASS.
- Of all the insecticide treated acres in rice, 92% were pyrethroids, indicating the significant importance that pyrethroids have for managing insects in rice.
- Average cost advantage for pyrethroids relative to non-pyrethroids is \$4.72 per product acre, or a 54% advantage over non-pyrethroids in rice.
- If pyrethroids were no longer available, the additional cost to the industry would be \$4,615,000 for other insecticides, an increased cost of 88% over pyrethroids.

2. Yield Benefits

- Pyrethroid yield increases were 5.1% for rice against untreated controls.
- Reduction in pest abundance was 30% with pyrethroids in rice.
- Crop damage reduction in rice was 33% with pyrethroid use.
- There is generally only moderate demand for pest control for rice, with 44% of planted acres treated once on average with insecticides. However, pyrethroid use dominates, having a 92% share of all insecticide product acres, and only one other insecticide class, organophosphates, available.

3. Direct and Indirect impacts

- With only two modes of action available, the heavy reliance on pyrethroids is essential to manage resistance.
- If pyrethroids were no longer available, projected cost changes would increase as much as \$1.50 per cropped acre for rice.
- The net economic benefit of pyrethroids to rice is \$11.16 per cropped acre and \$27.35 per treated acre.

