The results of an economic model exercise conducted through the Weed Science Society of America (WSSA), demonstrates that the benefits of proactive resistance management, specifically with horseweed, can be long-lived, and can substantially increase farm profits long-term. Depending on cropping system, proactive resistance management increased farmer profits 14–17 percent over a 20-year planning horizon. The following contains the results of this study as summarized by a committee of the WSSA.

ECONOMIC RETURNS to Herbicide Resistance Management (HRM) of Horseweed (Marestail)

14–17% increased farmer profits over 20 years

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According to George Frisvold, Ph.D., University of Arizona professor, proactive resistance management can pay for itself in as little as two years. Managing resistance can involve higher weed-control costs, but provides better weed control, higher yields and more sales revenues. Farmers can get their initial investment – and more – back in as little as two years.

PROACTIVE WEED MANAGEMENT COSTS

A recent study found that, in its first year, proactive management can reduce soybean profits by $12 per acre and corn profits by $6 per acre. But by year two, profits were $14 per acre higher for soybeans and $40 per acre higher for corn. The extra profits in the second year more than make up for the lower profits in the first year.
THE PROFIT ADVANTAGE OF PROACTIVE MANAGEMENT CAN CONTINUE TO GROW AFTER THE SECOND YEAR. THE CHART AT RIGHT SHOWS PROJECTED ANNUAL PER-ACRE PROFIT ADVANTAGES.

**CORN:** Profit advantage over a three-year time period averages $26 per acre per year, with a profit advantage of nearly $60 per acre per year over a 10-year time period.

**SOYBEANS:** Profit advantage over a five-year time period averages $10 per acre per year, with a profit advantage of almost $20 per acre per year over a 10-year time period.

**Better weed control is leading to higher long-run yields.** Long-run average yields when using proactive weed-management practices were more than 6 percent higher for soybeans and nearly 8 percent higher for corn.

All farms are different and results will vary by farm. The chart at right shows the cumulative change in profits over eight years.* After just 4 years on a 1,000-acre farm, profits would be more than $95,000 greater! This gain would surpass $300,000 by the eighth year.

*These values are in constant (current) dollars, accounting for the fact that people place more weight on costs and benefits today than identical costs and benefits in the future.

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For more information, see:


Technical editing for this infographic was led by a committee of the Weed Science Society of America (WSSA), and developed with funding from the soy checkoff.
HORSEWEED (MARESTAIL) FACTS

1 horseweed plant can produce up to 200,000 SEEDS which are readily dispersed by wind.

Horseweed can germinate in the fall AND CAN WITHSTAND WINTER COLD TO CONTINUE GROWING IN THE SPRING. It can also germinate in the spring before planting.

For corn, soybeans or cotton, HORSEWEED IS PROBLEMATIC in no-till or minimum-tillage situations where herbicides are solely relied upon for weed management prior to planting.

If not controlled prior to planting, HORSEWEED CAN CAUSE SIGNIFICANT YIELD LOSS.

Horseweed is one of the 10 worst herbicide-resistant weed species. To date, scientists have confirmed the plant’s resistance to five different herbicide chemistries, including glyphosate, chlorimuron, paraquat, diuron and atrazine.