

Implications of commodity and input prices on soybean herbicide programs.

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High commodity prices have rejuvenated optimism in production agriculture. Two years ago it was common to have cash soybean prices in the five to six dollar per bushel range, compared to recent selling opportunities where producers have had the potential to contract cash soybeans for \$14.00 per bushel. Recent increases in the price of glyphosate products have also been a topic of interest with producers ([see related article](#)). With the high soybean cash prices and increasing glyphosate prices, it is beneficial to take a fresh look at the options for weed control in soybeans.

For the purposes of this article we will be focusing on herbicide selection for the first application of a planned a two pass weed control program in glyphosate resistance soybeans. It is assumed that the second pass would consist of only glyphosate based products applied post-emergence.

Given the current high commodity prices, it is important to use proven Integrated Pest Management (IPM) principles, such as Economic Thresholds (ET) to avoid losing yield potential. The ET is defined as the level of weed infestation at which the cost of control equals the increased return on crop yield in the current year. This is a dynamic relationship between commodity price, the cost of weed control, weed size & density, and crop growth and development. As a commodity price increases, the ET decreases. Table 1 illustrates the difference in the ET at two different soybean prices with a fixed herbicide application cost and demonstrates the need for more aggressive weed management strategies when crop prices are high.

TABLE 1. Economic Threshold (ET) at two different prices assuming a 50 bushel per acre soybean yield potential.

| Soybean Cash Price (\$/bushel) | Initial Herbicide Application* (\$/acre) | Economic Threshold (ET) (% yield loss or bushel/acre loss) |
|--|--|--|
| 6.00 | 18.00 | 6% or 3 bu/acre |
| 14.00 | 18.00 | 2.6% or 1.3 bu/acre |

* This price is based on a 22 ounce/acre rate of a brand name glyphosate product at \$65 per gallon, plus application costs of \$7.00 per acre.

An important consideration of the ET is the timing of weed competition. Yield lost to early season weed growth is often greater than producers realize. In Figure 1, data

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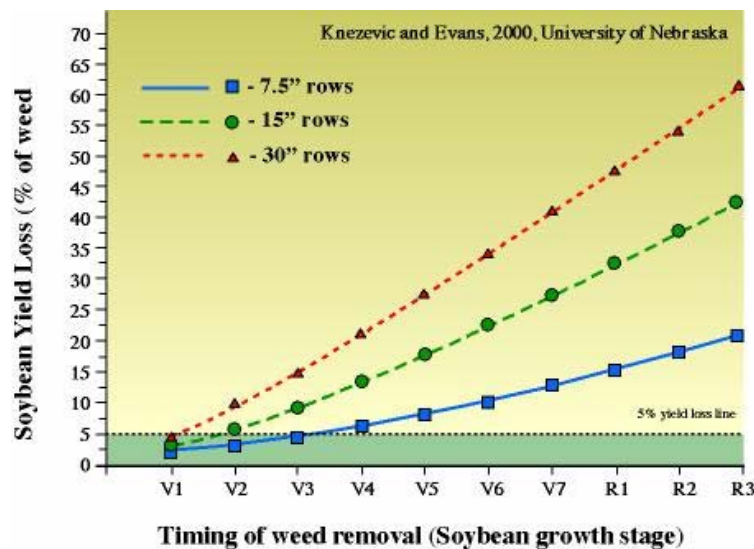


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from Nebraska indicates that 5% yield loss can occur in soybeans by V3 or sooner depending upon row spacing. If the soybean cash price is \$14.00 per bushel, the ET is only 2.6% yield loss (Table 1). In this scenario, soybeans planted in 30" rows are beyond the ET at V1. For soybeans in 15" rows, the ET is exceeded by V2 and in 7.5" rows by V3. Because it can be difficult to control weeds by V1 with a post-emergence application, using a pre-emergence herbicide will protect valuable yield, especially if a producer has a large number of acres to plant. The use of a pre-emergence residual herbicide can also increase timing flexibility for a planned post-emergence application.

FIGURE 1. Soybean yield loss and beginning of the critical period of weed control as influenced by the timing of weed removal and row spacing.



In recent years, the low cost and effectiveness of a two pass post-emergence glyphosate herbicide program in soybeans made it unquestionably the preferred herbicide program of most producers. In past years, both brand name and generic glyphosate products were less than most pre-emergence soybean herbicides. However, with recent increases in glyphosate prices, this dynamic has changed.

In Table 2 we compare the cost of several common pre-emergence herbicides and glyphosate based products. Generic glyphosate products may still be less expensive relative to the listed pre-emergence products, but brand name glyphosate product prices are similar to most of the listed residual pre-emergence products labeled for soybeans.

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If a soybean grower decides to apply a pre-emergence herbicide, it is important to select the product that best controls the weed spectrum in a given field. In the end, it can pay dividends by maintaining the highest yield potential for your soybean crop.

TABLE 2. Estimated PRE and POST herbicide prices in 2008.

| Herbicide | Timing | Rate | Cost per unit | Cost per acre |
|-------------------------|--------------|-----------|---------------|---------------|
| Authority First | PRE | 4 oz/ac | \$54.66/lb | \$13.66 |
| Canopy | PRE | 3 oz/ac | \$2.90/oz | \$8.70 |
| Gangster | PRE | 2.4 oz/ac | \$6.25/oz | \$15.00 |
| Valor | PRE | 2 oz/ac | \$4.75/oz | \$9.50 |
| Valor XLT | PRE | 3 oz/ac | \$3.50/oz | \$10.50 |
| Dual II Magnum | PRE | 1 pt/ac | \$121.00/gal | \$15.12 |
| Intrro | PRE | 2 qt/ac | \$24.00/gal | \$11.00 |
| Prefix | PRE | 2 pt/ac | \$48.00/gal | \$12.00 |
| Prowl H ₂ O | PRE | 2.5 pt/ac | \$34.00/gal | \$10.60 |
| Glyphosate (generic) | PRE or EPOST | 32 oz/ac | \$25/gal | \$6.25 |
| Glyphosate (brand name) | PRE or EPOST | 22 oz/ac | \$65/gal | \$11.20 |

Summary Points:

- As commodity prices and input prices change producers should re-evaluate their weed control program in order to maintain high yield potential. With current soybean and herbicide prices, producers may benefit by using pre-emergence herbicides as part of a two pass herbicide program in glyphosate resistant soybeans. This will protect against early season yield loss and allow greater flexibility in post-emergence glyphosate application timing.
- Higher commodity prices reduce the ET and widen the “weed free window,” making pre-emergence residual soybean herbicides more economical and useful in maintaining high yield potential.

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