Introduction

- Soybean growers are planting earlier in the spring to maximize yield potential.
- Earlier planting dates subject the crop to weed competition for longer durations of time.
  - May impact the optimum timing of a single postemergence (POST) glyphosate application
  - May require more intensive early-season weed control strategies, such as using a preemergence (PRE) residual herbicide, for adequate weed control and yield maximization

Objective

- Evaluate weed control and soybean yield as influenced by residual herbicide use and postemergence (POST) glyphosate application timing following three different planting dates

Materials and Methods

- A field study was conducted near Arlington, WI in 2012 and 2013.
- Treatments were replicated four times.
- Trial area was cultivated in advance of the first planting date.
- Glyphosate was applied at 0.87 kg a.e. ha⁻¹ prior to each planting date to control existing weeds.
- Soybeans were planted at 296,400 seeds ha⁻¹ in rows 76 cm wide.
- Main plots were blocked by the planting date (PD)

Results

- Soybean yield was adjusted to 13% moisture
- Main plots were blocked by the planting date (PD)
- Herbicides were replicated four times
- Plots were 3 m wide by 15 m long, and treatments were replicated four times
- Trial area was cultivated in advance of the first planting date

Discussion

The optimum timing of a POST glyphosate application was highly variable in our experiment and was potentially influenced by weather. The 2012 growing season was hot and dry until late-July. Under these conditions, delaying POST applications until V4 or R1 reduced yield at the early planting date when a PRE herbicide was not used (Figure 3). The 2013 season was cooler, and moisture was adequate during the same time period. Delaying application until R1 did not significantly reduce soybean yield in any of the planting dates, possibly due to the lack of competition for water. The use of a residual significantly reduced the number (Figure 1) and the height (Table 1) of weeds exposed to the POST glyphosate application. In conclusion, there is a trade-off between planting date and residual herbicide use for resistance management, where earlier planting may place greater reliance on a residual herbicide for reducing exposure to the POST herbicide application.