

# Weed Resistance Risk Assessment

## ***Best Practices***

### **Question 1:**

**Do you have actively growing weeds in your field at planting?**

#### **Best Practice:**

Actively growing weeds in your field at planting will compete with the crop and should be eliminated prior to planting.

- Already established weeds rob crop seedlings of nutrients and water and reduce crop yield.
- When weeds are present at planting it is more difficult to get a crop established and may cause a poor stand.
- Weeds damaged by the planter are harder to kill with later herbicide application.
- Waiting to control weeds with a postemergence herbicide application means weeds may be larger and harder to control.

### **Question 2:**

**How would you rate the weed control in your field at harvest?**

#### **Best Practice:**

Excellent weed control in your field until crop canopy can be an indicator of good weed control throughout the season.

- Weeds present at crop canopy are competing with your crop and could be reducing yield.
- Uncontrolled weeds can go to seed and provide a much larger weed seed bank for next season.
- Weeds make harvesting difficult and seeds may be distributed to additional fields via the harvesting equipment.
- Weeds at harvest can impact grain quality and lead to dockage for high trash levels.

### **Question 3:**

**What is the normal crop rotation you use in this field?**

#### **Best Practice:**

Include 2 or more crops in your crop rotation and ideally rotate to a different crop each year.

- Crop rotation offers the ability to change cultural practices like planting dates and fertility programs which help reduce certain difficult-to-control weeds from becoming established.
- Crop rotation also allows for tillage or another herbicide program or additional modes of action which help prevent some weeds from becoming dominant in the system.
- Crop rotation can break insect and disease cycles by reducing plant material where they may overwinter.



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### **Question 4:**

**For this field you generally use an early season residual in what crops?**

#### **Best Practice:**

Use a broad spectrum soil active residual herbicide in the corn season of the crop rotation and in soybeans when tough-to-control weeds are present.

- Early season weed control is imperative for maximum yield potential.
- Residual herbicides provide early season control and allow you the opportunity to better time postemergence applications.
- An early-season residual treatment reduces the overall weed pressure giving your postemergence program applied later a much better chance of success so weed shifts don't become an issue.
- In soybeans weeds can grow beyond recommended treatment heights quickly and soybean yields can be reduced.

### **Question 5:**

**(Other than a residual) Your weed control program includes at least one non-glyphosate herbicide how often?**

#### **Best Practice:**

The addition of a non-glyphosate herbicide reduces the sole use of glyphosate which can decrease the risk of developing of weed resistance.

- A residual treatment helps control tough, yield-robbing weeds like waterhemp, lambsquarters, and common ragweed and can help lower the risk of weed resistance development.
- Use of a non-glyphosate herbicide adds another mode of action and reduces the sole use of Roundup® agricultural herbicides which will lessen weed population shifts.
- The use of residuals in corn and in some soybean weed management systems has shown increased yields because of reduced weed pressure.



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### **Question 6:**

**What Roundup® or glyphosate herbicide use rate do you use?**

#### **Best Practice:**

Use the full, labeled rate of Roundup or glyphosate herbicide based on the most difficult-to-control weed in the field.

- Lower rates can allow weed escapes which may require a second trip to control, reduce crop yield and set seed for next season.
- The use of lower than labeled rates can lead to poor weed control and potentially “select” for resistant weeds.
- Recommended, full labeled rates are set after years of research show the best likelihood of commercially accepted control. Low rates, especially when spraying in less than ideal weather conditions, most often lead to poor results and dissatisfied customers. Plus, weed escapes build next season’s weed seed bank.

### **Question 7:**

**When you use Roundup® or glyphosate herbicide in your field, how would you describe your timing of application?**

#### **Best Practice:**

Control weeds in corn before they reach 4 inches tall and in soybeans before they reach 8 inches tall.

- Taller weeds become harder to control. If you allow weeds to continue to grow, a herbicide application may not give you adequate control and some may survive to create potential resistance risks.
- Weed competition studies were conducted with no preemergence herbicide products, but plots were maintained weed free after postemergence Roundup agricultural herbicide application. There was substantial yield loss in corn when weeds were allowed to grow more than 4 inches before postemergence application.



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### **Question 8:**

**Over the past few years, how would you describe your weed problems in this field?**

#### **Best Practice:**

The goal is to reduce weed populations from year to year, allowing for more efficient use of herbicides and other cultural practices to control weeds.

- If weeds are allowed to survive and set seed, dramatically higher weed populations may result the next year. As an example, waterhemp can produce 300,000 seeds per plant.
- If you allow certain tough-to-control weeds to survive then you may accelerate shifting weed species to more difficult-to-control weeds. Shifting weed problems may require a substantially different weed management approach.

### **Question 9:**

**What is your tillage (or cultivation) program for this field?**

#### **Best Practice:**

Tillage can be very valuable in many situations and should be considered as an alternate weed control practice where appropriate.

- Tillage serves as another way to control weeds and break certain weed patterns.
- Tillage reduces complete reliance on herbicides.
- Periodic tillage is a reliable cultural practice that also benefits your system by removing a build-up of trash on the soil surface and can even out ruts or rough spots in fields. However, only use tillage when necessary.

### **Question 10:**

**On this field in 12 months, you typically use glyphosate how many times?**

#### **Best Practice:**

Make glyphosate applications at the right time and right rate when required to achieve good weed control, but caution should be taken if glyphosate alone is used repeatedly over a 12-month period.

- The selection pressure for resistance development increases as the number of glyphosate applications increases in a 12-month period.
- Other chemistry products or tillage may be used to reduce the number of glyphosate applications.
- Periodic tillage can substitute for glyphosate-based burndown programs.
- Rotation to other crops, including Roundup Ready® crops where other chemistry is used, can break the cycle of multiple applications.

