March 2016: survey to Midwest soybean farmers to understand perceptions & management of glyphosate resistant weeds (GRW)

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Soybean production historically more reliant on glyphosate than corn production, thus soybean fields experiencing higher rates of resistance.

Problem of GRW increasing. In 2012, 32 million (42%) US soybean fields were affected; farmers losing ~$22 per acre.

CONCLUSIONS

Midwest Soybean Farmers’ Perceptions and Management of Glyphosate Weed Resistance

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INTRODUCTION

- March 2016: survey to Midwest soybean farmers to understand perceptions & management of glyphosate resistant weeds (GRW)
- Glyphosate (RoundUp) is a herbicide frequently used in conjunction with seeds genetically modified (GM) to tolerate it (RoundUp Ready soybeans, corn.)
- Soybean production historically more reliant on glyphosate than corn production, thus soybean fields experiencing higher rates of resistance.
- Problem of GRW increasing. In 2012, 32 million (42%) US soybean fields were affected; farmers losing ~$22 per acre.

U.S. Soybean Production, Glyphosate Use, and Glyphosate Resistance

FINDINGS

- 67% respondents had GRW.
- 96% concerned about GRW; 91% GRW “serious problem within agriculture.”
- “Most responsible” for glyphosate development: Farmers (95%), pesticide manufacturers (89%), seed companies (73%).
- Respondents most concerned about: treadmill of herbicide resistance (86%), herbicides effects on family (79%), herbicide effects on environment (79%).
- Though increased use of glyphosate worsens resistance, over 1/3 of farmers have done so.
- Most effective management strategies: preemergence herbicides (85%), rotating herbicide chemistries (82%), adding additional sites of action (80%).
- Most strategies found to be effective/very effective, suggesting a diversity of approaches necessary for GRW management.
- To manage GRW management in long term: farmers must adopt long term approach to weed management (98%); companies must develop new herbicide tolerant crops (85%) & new herbicide sites of action (90%).

METHODS

- Mail & internet survey administered to 2,400 soybean growers in Iowa, Illinois & Indiana, the 1st, 2nd & 5th largest soy producing states respectively.
- Response rate: 31%; N = 725

CONCLUSIONS

- Glyphosate weed resistance poses a serious challenge to Midwest soybean production. How farmers manage it will have important environmental, economic, & social consequences.
- Dissonance exists between respondents’ near unanimous belief that farmers should adopt “diversity in weed management” (98%) & desire for new herbicide & herbicide tolerant GM seed combinations. Statement about integrated crop production that included “less reliant on herbicides” elicited far less support than statement without mention of herbicides. We believe this is due to increased labor demands & risk associated with integrated weed management (IMW) & hesitance to decrease reliance on herbicide based weed management.
- Farmers concerned about environmental & human health consequences of herbicide use.
- Public & private support necessary to help farmers adopt IMW practices that can prevent herbicide resistance from occurring with other herbicides and help farmers address environmental and health concerns related to herbicide use.