



Corn Belt farmers' concerns about pest and disease related threats to their farm operations

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Climate change presents a number of threats to the Corn Belt's predominant corn-soybean agricultural system. A key objective of the Sustainable Corn project is to conduct social science research to assess farmers' understanding of climate change and attitudes toward adaptation and mitigation practices and strategies. Toward that end, a survey of Corn Belt farmers was conducted in February and March 2012. This report summarizes a portion of that survey. More comprehensive results are available at: sustainablecorn.org/What_Farmers_are_Saying/Farmer_Survey.

In general, human behavioral responses to potential hazards and threats are influenced by perceived risks. In other words, if people do not view a given situation or event as risky, they are not likely to act in response. Climate scientists predict that Corn Belt weather will become increasingly variable and extreme, with negative implications for agriculture. Our survey sought to measure farmers' level of concern about those predicted impacts.

The survey provided a list of predicted changes in the Corn Belt climate that are viewed as threats to agriculture. The items covered potential threats to farm operations from increased precipitation, drought

The Project

The Sustainable Corn Project is a USDA-funded transdisciplinary partnership among 11 institutions creating new science and educational opportunities. The project seeks to increase resilience and adaptability of midwestern agriculture by identifying farmer practices and policies that increase sustainability while meeting crop demand.

sustainablecorn.org

The Survey

The farmer survey was carried out in partnership with the Useful to Useable (U2U) project, another USDA-funded climate and agriculture project. The 2012 survey was completed by 4,778 corn farmers with at least US\$100,000 of gross sales and a minimum of 80 acres of corn production.

Where

The sample was stratified by 22 six-digit Hydrologic Code Unit (HUC) watersheds that cover a substantial portion of 11 Corn Belt states—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin. The 22 watersheds contain over half of U.S. corn and soybean acres.

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Source: Loy, Adam, Jon Hobbs, J. Gordon Arbuttle Jr., Lois Wright Morton, Linda Stalker Prokopy, Tonya Haigh, Tricia Knoot, Cody Knutson, Amber Saylor Mase, Jean McGuire, John Tyndall, and Melissa Widhalm. 2013. Farmer Perspectives on Agriculture and Weather Variability in the Corn Belt: A Statistical Atlas. CSCAP 0153-2013. Ames, IA: Cropping Systems Coordinated Agricultural Project (CAP): Climate Change, Mitigation, and Adaptation in Corn-based Cropping Systems. Available at sustainablecorn.org.

and heat, and pest and disease. The items were preceded by the text, “The following are problems that some Corn Belt farmers have experienced over the past few years. How concerned are you about the following potential problems for your farm operation?” Farmers’ concerns were measured on a four-point concern scale from “not concerned” (1) to “very concerned” (4).

Survey Results

This report presents data for three items that measured farmers’ concerns about: (1) increased weed pressure; (2) increased insect pressure; and, (3) higher incidence of crop disease. For the purposes of this report, the concerned and very concerned categories are combined.

On average across all watersheds, 49% of farmers were concerned or very concerned about increased weed pressure (table 1). Concern was highest in Kaskaskia watershed, where more than six in ten (66%) farmers selected the concerned or very concerned category. Level of concern was lowest among respondents in Black Root watershed (38%) and Maquoketa Plum watershed (38%) (figure 1).

Across all watersheds half (50%) of respondents were concerned or very concerned about the risk of increased insect pressure to their farm operations (table 1). Respondents in Iowa watershed had the highest level of concern (57%) and respondents in Middle Platte watershed (38%) expressed the lowest level of concern (figure 2).

Among respondents across all watersheds, half of respondents (50%) were concerned or very concerned about higher incidence of crop disease (table 1). Concern was highest in Loup watershed, where almost six in ten (59%) farmers selected the concerned or very concerned category. Level of concern was lowest for respondents in Upper Illinois watershed, where 42% farmers indicated that they were concerned or very concerned about higher incidence of crop disease (figure 3).

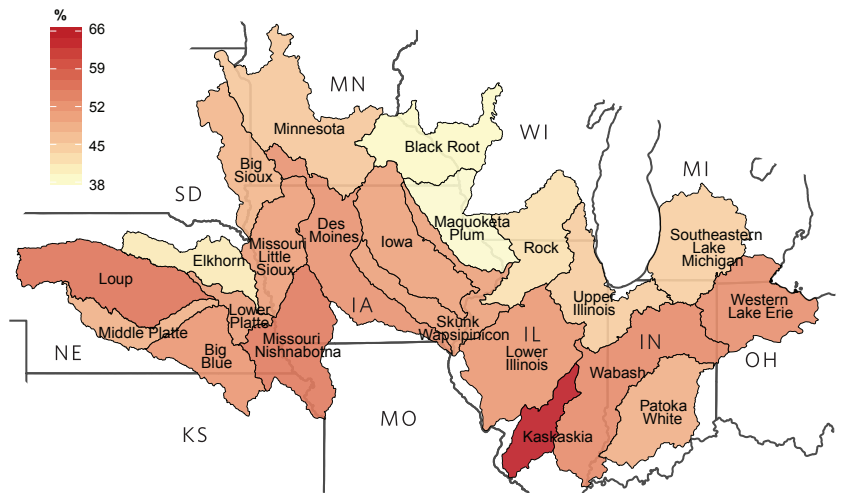


FIGURE 1 | Increased weed pressure, percent concerned or very concerned.

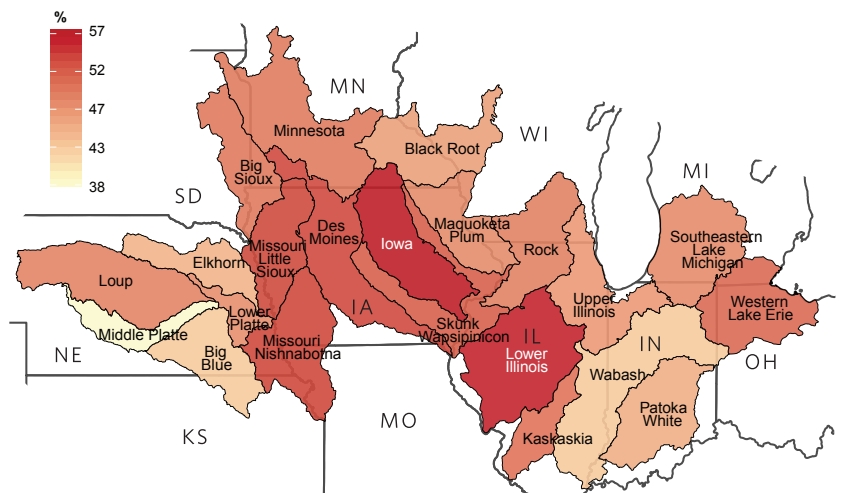


FIGURE 2 | Increased insect pressure, percent concerned or very concerned.

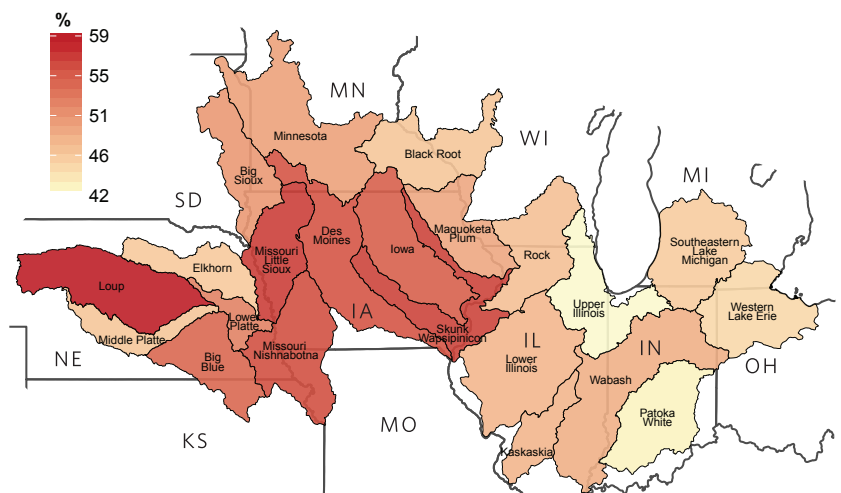


FIGURE 3 | Higher incidence of crop disease, percent concerned or very concerned.



TABLE 1 | Concerns¹ about pest and weed related threats to farm operations, percent concerned or very concerned, by watershed.

Watershed (HUC6)	Increased weed pressure	Increased insect pressure	Higher incidence of crop disease
All Watersheds	49	50	50
Loup	56	49	59
Middle Platte	48	38	47
Elkhorn	41	44	46
Big Blue	52	42	54
Lower Platte	51	48	52
Big Sioux	48	49	50
Missouri-Little Sioux	51	54	57
Missouri-Nishnabotna	55	54	56
Minnesota	45	49	50
Des Moines	52	54	55
Iowa	50	57	55
Black Root	38	46	47
Skunk Wapsipinicon	50	52	57
Maquoketa Plum	38	48	49
Lower Illinois	52	56	48
Rock	42	49	47
Kaskaskia	66	50	48
Upper Illinois	44	47	42
Wabash	53	42	48
Patoka-White	48	45	43
Southeastern Lake Michigan	44	48	46
Western Lake Erie	52	51	45

¹Concerns were measured on a 4-point concern scale: not concerned, somewhat concerned, concerned, very concerned.

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