

Appendix III: Special Issue – Pollinators and Food in Kansas

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As this *Feeding Kansas* report attests, food is a systems issue, which applies not only to processing and distribution, but to growing food as well. In the biological systems of food production, pollinators can be considered a “canary in the coal mine.” With global pollinator decline, global human food systems are at risk. Many of the crops that supply high-nutrient, healthful foods to Kansans rely upon pollinators. This special report looks at pollinator-related considerations for Kansas agriculture as Kansas looks to meet its food needs here at home.

POLLINATORS AND THE FOOD SUPPLY

“Food security, food diversity, human nutrition and food prices all rely strongly on pollinators. The consequences of pollinator declines are likely to impact the production and costs of vitamin-rich crops like fruits and vegetables, leading to increasingly unbalanced diets and health problems. Maintaining and increasing yields in horticultural crops under agricultural development is critically important to health, nutrition, food security and better farm incomes for poor farmers” (FAO, 2013).

“Pollination is a keystone process in both human managed and natural terrestrial ecosystems. It is critical for food production and human livelihoods, and directly links wild ecosystem with agricultural production systems” (FAO, 2014).

Pollinators are crucial to food production and access to healthful foods. The majority of the earth’s flowering plants require pollination in order to produce seeds, and in the absence of pollinators entire ecosystems would collapse. This extends to agriculture, including some of the world’s most nutritious human food crops.

About one in every three bites of food humans eat is pollinator-dependent. Worldwide, insects pollinate 75 percent of human food crops, contributing \$210 billion in agricultural earnings per year (Conniff, 2014). In the U.S., European honey bees are the primary providers of pollination services for agriculture, with an economic value of \$17 billion per year. Pollination increases yields and results in higher quality produce. Even crops that don’t require pollination in order to set fruit have been found to have higher yields when visited by bees or other pollinators, and there is evidence that pollination may protect crops from pests.

A study published in September 2014 in *Proceedings of the Royal Society B: Biological Sciences* has shown that **there is a disproportionately large link between pollinators and human nutrition** because many of the most vitamin- and micronutrient-rich human foods are pollinator-dependent. Apples, apricots, avocados, lima beans, blackberries, blueberries, cabbage, canola, citrus, cucumber, eggplant, kiwi, mango, melons, peaches, pears, peppers, pumpkins, strawberries, sunflowers, squash, and watermelon are all pollinator-dependent crops.

In Kansas, where food access issues and nutritional imbalance impact a wide swath of the population, and access to healthful foods can be greatly enhanced by local production and availability, **pollinator protection is extremely important.** Access to healthful, vitamin- and nutrient-rich fruits and vegetables depends on pollinator services, which requires pollinator populations sufficient to carry out the task.

POLLINATORS AT RISK

Worldwide, pollinators are in decline – and we can assume the same is true in Kansas. Habitat loss, increased use of pesticides and other chemicals, and introduced diseases and pests all play a role in pollinator decline. In 2000, the Convention on Biological Diversity declared a “pollinator crisis” and implemented an International Pollinator Initiative aimed at stemming the tide of the decline (FAO, 2014). Since then, awareness of the crisis has increased but pollinators continue to struggle. Calling attention to the gravity of the situation, in June 2014 President Obama issued a Presidential Memorandum directing federal agencies to “reverse pollinator losses and help restore populations to healthy levels” (Balmer, 2014).

Loss of habitat due to large-scale conversion of natural areas to cropland and pastures is one of the primary culprits in pollinator population decline over the course of the last century. In Kansas, 90 percent of the state’s 53 million acres have been converted to farmland, with 57 percent in monoculture and 29 percent in pastures. The result is a homogenized landscape devoid of habitat for pollinators and other wildlife.

Pesticides and other chemicals used in agriculture also play a significant and growing role in declining pollinator populations. By 2006, neonicotinoids, a class of systemic insecticides introduced to the market in the 1990s, were the fastest-growing class of insecticides in the history of synthetic insecticides. **There is mounting evidence that neonicotinoid insecticides cause significant harm to pollinators** and are accelerating pollinator population declines. The European Commission has banned use of three neonicotinoids based on a study which concluded that the insecticides posed “... a high, acute risk” to the food supply and economy (EEA, 2014).

WHAT CAN BE DONE?

In order to ensure adequate availability and access to healthful foods across Kansas, pollinator populations need protection.

Critical steps for shoring up pollinator populations, fundamental to ensuring long-term availability of and access to healthful food in Kansas and globally, include:

- **Providing habitat specific to pollinators,**
- **Increasing natural areas within the agricultural landscape, and**
- **Eliminating use of harmful pesticides.**

Everyday Kansans and policy makers should consider these key priorities in their work to address farm and food issues in their communities and statewide.