

Benefits of Cover Crops: Wildlife and Biodiversity

Conservation practices on working lands can have significant benefits for wildlife. Practices that maintain residue on soil surfaces or increase standing plant matter provide vital forage and habitat for terrestrial and avian species. Reduced or no-till farming is one such practice, and has been shown to provide considerable environmental protection and wildlife habitat value. Adding cover crops can considerably increase the water quality and wildlife benefits.

Cover crops can enhance the water quality benefits effects of no-till. The inclusion of cover crops in a farm management system consistently decreases water runoff, nutrient loss, and soil erosion. By covering the soil with plant material, and holding

nutrients in place with root structures, cover crops can have a big impact on water quality. **This reduces water treatment costs for communities while improving habitat in aquatic ecosystems.**

When compared to bare or tilled soil, cover crops provide a considerable improvement in habitat and food source for wildlife. Cover crops work particularly well with no-till farming. They increase soil health and suppress weeds, making no-till farming easier while providing vital cover and food sources for wildlife.

	Water Runoff	Nitrogen Loss (percent reduction)
Conventional Till	28%	-
No Till	14%	30%
No Till with Cover Crops	7%	50%

Table 1 Comparison of Nutrient Reduction Capability¹

	Conventional Till	No Till
Number of Bird Nests/acre	14	100
Rate of Nesting Success (%)	3	25

Table 2 Effect of Tillage Practice on Bird Species Diversity and Nesting Successⁱⁱ



Geese in a harvested wheat field with an undersown tillage radish cover crop – Credit: Ryan Stockwell, NWF



A study conducted by St. Joseph’s College and Jasper County Soil and Water Conservation District in Indiana shows that just one year of a single species cover crop in a corn-soybean rotation can result in a significantly higher number of bird species. The researchers anticipate **cover crops will have a larger wildlife impact with each year they are used and with more diverse cover crop mixtures.**

	No Till	w/ Cover Crops
Bird Species Diversity Index	2.2	2.3
Number of Bird Species	19	25

Table 3 Effect of Cover Crops on Bird Speciesⁱⁱⁱ

Cover crops often stay green and grow well past the harvest of most commodity crops. **They also rejuvenate much sooner in the spring, providing vital food sources and habitat for wildlife to survive winter or to forage during otherwise vulnerable periods and events, an important wildlife benefit crop residue cannot provide.**



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ⁱ “Iowa Nutrient Reduction Strategy: A Science and Technology-Based Framework to Assess and Reduce Nutrients to Iowa Waters and the Gulf of Mexico.” Sept. 2014: Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, and Iowa State University College of Agriculture and Life Sciences. Dinnes, Dana. “Assessments of Practices to Reduce Nitrogen and Phosphorus Nonpoint Source Pollution of Iowa’s Surface Waters.” 2004: USDA-ARS National Soil Tilth Laboratory.

ⁱⁱ VanBeek, Kelly. “Avian Breeding Ecology in Soybean Fields: Does No-Till Provide Any Benefits?” Master’s Thesis at the University of Illinois at Urbana-Champaign (2012): n. pag. Print.

ⁱⁱⁱ Brodman, Robert et al. “Impact of Cover Crops on Bird, Insect, and Amphibian Diversity.” St. Joseph’s College, Jasper County Soil Water Conservation District. pag. Print.

