

Strip cropping for the birds

New research by US wildlife scientists in the University of Georgia's Warnell School of Forest Resources shows that alternative farming practices like clover strip-cropping provide critically important habitat for threatened songbirds. Clover, interplanted in rows between the cotton, offers the birds ready cover from predators, insects for food, and just as importantly, enough time to nest and fledge young between field operations. This is the first study to compare the effects on birds of conventional and alternative farming practices in cotton.

"Other studies have looked at alternative farming systems in terms of cost savings, erosion control and soil fertility," said UGA wildlife researcher Bob Cooper, "but we're the first to look at clover strip-cropping and conservation tillage systems in cotton with regard to wildlife."

Much of the songbird decline is linked to the loss of rural land, both in the US and in South America where many birds migrate for winter. Thousands of rural acres have been converted to apartment complexes, shopping areas, suburban housing — even to pine plantations.

In South America, forests are being bulldozed to make way for agriculture, such as cattle farms and sun-grown coffee. None of these habitats provide the diverse combination of natural woodlands, open grasslands and shrubby areas the birds need to feed and raise young.

Researchers, who include Bob Cooper, UGA wildlife biologist John Carroll and student Sandy Cederbaum, conducted the study with the cooperation of several farmers in east-central Georgia who are concerned about songbirds. Their research, presented at the American Ornithologists' Union meeting last August, was funded by grants from the USDA Natural Resource Conservation Service, Quail Unlimited, Monsanto, the National Environmentally



Growing strip crops with cotton increases onfarm biodiversity.

Sustainable Agriculture Lab in Tifton, Georgia and state McIntire-Stennis funds to UGA through the Warnell School of Forest Resources.

The researchers compared the density of birds and vegetative cover in cotton fields where farmers used conservation tillage, clover strip-cropping and finally intensive farming practices. They monitored the fields through winter, spring migration, and finally through the breeding and summer growing season, recording the type and number of bird species in each farming scenario. To learn more about food availability for the birds, they also sampled the insects in each field type, noting whether they were beneficial or crop pests.

“Our idea wasn’t to try to come up with something new but to look at existing cropping systems from a wildlife standpoint,” said graduate student Sandy Cederbaum, who monitored the fields through the seasons. “We were really surprised by the extent to which the birds responded to the clover fields. Before this, I hadn’t appreciated the extent to which agriculture could provide beneficial habitat for birds.”

Preparation for strip cropping begins in the autumn when farmers plant a cover crop of clover to stabilise the soil and allow beneficial insects to build up before planting the cotton crop in early May. To prepare the land for cotton, farmers use a shielded sprayer to kill 20-inch strips of clover with a herbicide — usually Roundup — and later plant cotton into the brown strip. This leaves a 20-inch strip of living clover between each row of cotton. As the season progresses, the clover dies back naturally, but still provides enough structure and cover to sustain beneficial insects, some of which move into the cotton plants where they help control pest insects. Dr. Alton Walker, an independent crop consultant in Wrens, Georgia, has been fine-tuning the technique for years.

Researchers found that birds flocked to the strip-clover fields, feeding on plentiful insects amid the blooming clover. The conservation tillage fields also provided some cover and insects though not nearly as much as fields with the living clover. The landscape beneath the conventional cotton crop supported very few insects and offered no cover.

“Many people fail to realise that cotton fields are

wildlife habitat," said UGA wildlife researcher John Carroll. "The key now is understanding how we can integrate the needs of wildlife into existing crop production systems."

Other studies have shown that clover strip-cropping is also profitable, since growers cultivate less and use fewer pesticides, herbicides and fertilisers. Sharad Phatak, horticulture professor at the Coastal Plain Experiment Station in Tifton, who has been studying alternative cropping systems for more than 30 years, was encouraged by this study.

"I was very impressed with the number of birds in the clover stripped fields," he said. "I believe that by changing cotton farming in this direction, we can support and help songbirds as well as build and protect our soil."

From Science Daily magazine adapted from a news release issued by the University of Georgia (www.uga.edu).

[Go back](#)