

# Conservation Management Practices Among Kentucky Farmers: Adoption Constraints and Opportunities

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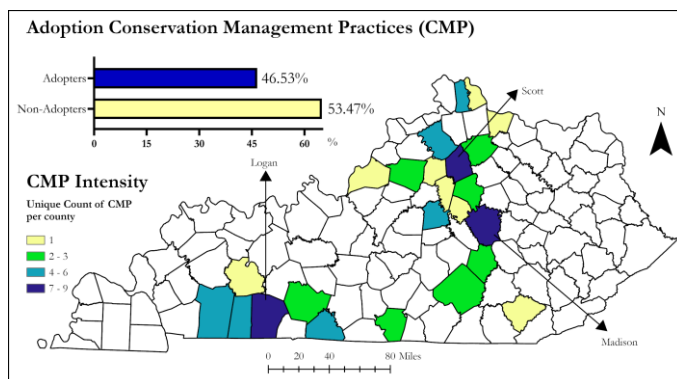
## Low Adoption Intensity: A Concern for Kentucky Agriculture

Conservation Management Practices (CMPs) help Kentucky farmers protect soil and water resources while maintaining farm productivity. These practices include conservation tillage, cover crops, crop rotation, riparian buffers, prescribed grazing, integrated pest management, nutrient management, and double cropping. Kentucky's position in the Ohio and Mississippi River watersheds means that conservation practices adopted here contribute to downstream water-quality goals, including nutrient-reduction efforts to address Gulf of Mexico hypoxia.

In our recent study, 46.5% of Kentucky farmers have adopted at least one conservation practice; most adopt only 1 or 2 practices rather than comprehensive systems. Crop rotation leads at 15.7%, followed by cover cropping and nutrient management at 14.9% each, while double cropping is the least adopted at 6.0%. Logan, Madison, and Scott counties have the widest adoption portfolios, with up to 9 practices, while many counties report only 1 or 2. Understanding what drives farmers to adopt multiple practices has become a priority for conservation programs.

## Limited Information and Resource Constraints

The decision to adopt that first conservation practice doesn't happen in isolation. Farmers who invested in precision agriculture technologies are 30% more likely to adopt conservation practices. Those with irrigation systems are 24% more likely to adopt. College-educated farmers are 18% more likely to adopt CMPs. Farmers with off-farm income are 28% more likely to start using conservation practices, possibly because additional income provides a financial cushion for experimentation.



However, the landscape can be a barrier. Each 1% increase in county slope reduces the likelihood of adoption by 5%. Farmers receiving higher crop insurance payments show less inclination to adopt conservation practices, perhaps because insurance payouts reduce perceived need for risk reduction.

Once a farmer adopts the first practice, different factors determine portfolio expansion. Education emerges stronger at this stage, with farmers holding advanced degrees showing the greatest tendency to layer practices. Information becomes crucial. Farmers who use multiple information sources (extension services, consultants, fellow farmers, media) adopt more practices than those who rely on one or two channels. Farmers earning \$50,000 to \$150,000 adopt significantly more CMPs than their lower-income counterparts. While off-farm income helps farmers start conservation, heavy reliance on off-farm work reduces the adoption of conservation practices, likely reflecting time and labor constraints.

## Potential Solutions to Improve Adoption Intensity

Strengthening information networks is essential to increasing the adoption of multiple practices. Repeated engagement across multiple channels is more effective

than single workshops for expanding conservation portfolios. Extension programs should establish demonstration farms, create peer-learning networks for farmer-to-farmer knowledge exchange, host regular field days showcasing practice combinations, and develop decision-support materials comparing practice interactions.

**Positioning CMPs as complementary to existing technologies could increase adoption.** Farmers investing in GPS-guided equipment or variable-rate systems have demonstrated technical aptitude and financial capacity for conservation practices.

**Part-time farmers need different support to transition from single to multiple practices.** These farmers face time and labor constraints. Extension programs can help by emphasizing low-labor practices, simplifying program requirements, offering flexible scheduling, and creating networks for sharing strategies.

**Tailoring approaches to education levels helps all farmers build confidence in managing multiple CMPs.** Develop stepwise adoption pathways that allow farmers to master one practice before adding another, create hands-on training modules that build skills progressively, and establish mentorship programs pairing experienced conservation farmers with beginners.

**In counties with steep terrain, conservation programming must acknowledge the challenges of implementation.** Focus on feasible practices, provide intensive technical assistance, and consider higher cost-share rates where conservation is more difficult.

## Summary

Limited access to information and resource constraints have led to low adoption of conservation practices among Kentucky farmers. Multi-channel information delivery and tailored support are essential to ensure the adoption of multiple practices. Strengthening networks through demonstration farms, peer learning, and field days improves adoption intensity. Supporting part-time farmers with flexible practices and bundling CMPs with precision agriculture technologies helps more Kentucky farmers expand conservation portfolios.

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## Source

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