

Arkansas example provides piece to solving excess manure puzzle

Truck it out

Rona Kobell | May 06, 2015



Farmer Jeff Marley, left, and University of Arkansas researcher Andrew Sharpley, right, have been working together to monitor and change farm operations to improve water quality in Arkansas streams. (Rona Kobell)

We think of the Delmarva Peninsula as Chicken Central, but it's not the only big poultry producing region in the country. Nor is it the only one facing pollution problems posed by

more manure than can be spread without problems on farm fields. Arkansas faces similar problems, and in one watershed, the Eucha-Spavinaw, farmers truck out a whopping 90 percent of the manure.

Is that a solution? What about the water quality? Is it getting better? And why did the state require this? Are the farmers able to make money in this situation, and is it cost-effective? And what happens to the places where the manure is taken? Do those areas have regulations about how and when to spread it?

It seemed the best way to answer the questions was to visit the state.

Andrew Sharpley, a renowned soil scientist at the University of Arkansas, agreed to show me around. I invited Ann Swanson of the Chesapeake Bay Commission to come, too. She financed her trip herself; mine was paid for by the Abell Foundation, for whom I will write a report.

I'd first heard that Arkansas had done some progressive work on manure from Peter Kleinman, a soil scientist for the U.S.D.A.'s Agricultural Research Service who has taken me on many farm tours. But the idea for the trip crystallized after hearing Dr. Sharpley command the room at the Phosphorus Symposium at Chesapeake College earlier this year. It was a stressful time, as Maryland's incoming Gov. Larry Hogan had blocked a proposed phosphorus management tool, and tension was palpable between the farmers and the regulators in the room.

Sharpley told the audience that Arkansas had limited its manure, and improved the health of its waterways, and there was no reason why the Chesapeake region couldn't do the same. On a day of excellent presentations, his was a show-stopper. (It could be in part because of his English accent, but it was mostly because he spoke so positively about a seemingly intractable problem.)

Arkansas didn't limit its manure out of the goodness of its heart, or compassion for the environment. Arkansas limited its manure spreading because a judge forced the state to do so.

Arkansas and Oklahoma had been fighting for decades over water. Arkansas's rivers flow into Oklahoma, where they become lakes, and Oklahomans draw their water from these lakes. In 1992, the U.S. Supreme Court ruled that upstream states had to meet the water-quality standards of downstream states. In 1997, the Arkansas-Oklahoma River Compact Commission adopted a goal of reducing phosphorus by 40 percent.

But in 2001, officials with the City of Tulsa had enough. The water supply for nearly 500,000 people was polluted. City officials contended the pollution came from poultry manure and at least one sewage treatment plant, in Decatur, Ark., that was discharging too much nitrogen and phosphorus. Arkansas officials contended Oklahomans hadn't done enough to eliminate pollution.

The arguments went on until 2003, when the poultry companies and Decatur settled with the Tulsa Metropolitan Water Authority. The companies agreed to pay \$7.5 million. They also agreed to set up a litter bank and transport the excess manure out of the Eucha-Spavinaw watershed. Decatur agreed to upgrade its plant. They formed collaborative relationships and promised to work together.

But how much phosphorus was too much? Farmers had one idea, Sharpley said, and scientists had another. The judge in the case split the difference. Soil tests had to be at or below 300 parts per million for phosphorus; if they were above that, a farmer could apply no more manure.

Right away, Sharpley said, 15 percent of the manure began leaving the Eucha-Spavinaw watershed, hauled to farm fields in Kansas, Missouri, and Oklahoma. The judge re-evaluated his phosphorus-management tool and dropped the level to 150 parts per million. More manure was hauled out of the watershed. A market developed and the manure now fetches a high price, and rarely sits around. At this time, about 90 percent of it is trucked out of the watershed.

The beef cattle farmers of Arkansas are not happy. They used to be able to get chicken manure cheaply and easily to fertilize their pastureland. Now, they can't. That is also true for chicken farmers who have pastureland. One we met said he can't spread his own manure.

The water quality in the Eucha-Spavinaw watershed has improved, but it's hard to say whether that is because of much less manure going on the fields or because of upgrades to the Decatur sewage treatment plant and others.

But there is much to learn and appreciate from the Arkansas model. One positive model is the Discovery Farms program, which Sharpley imported from Wisconsin. Nine farms are enrolled. With Discovery Farms, researchers put in water pollution control practices, monitor them, and see which bring reductions? When they find something that works, they can replicate and convince federal authorities to offer cost-share money.

Some of the practices we saw include a pond to collect nutrients before they are able to run off into a stream; concrete pads in front of the chicken houses; grass waterways. Also, we

saw not a single manure pile. Farmers told us they just don't do it. They clean out the houses and haul it away. One farmer said he left a pile out for a couple of days because he didn't want to spread it when he knew it would rain. The state's environment department wrote him up.

Another key to making the Arkansas situation work is the litter exchange. Here, we have such a thing, but it's not particularly active. There, they have a company, called BMPs Inc., run by a dynamic woman named Sherri Harron who is almost finished with her PhD. from the University of Arkansas. The judge appointed her to this position. She makes a commission on every transaction. So, she has an incentive to find farmers who want poultry manure and farmers who want to sell it.

Arkansas farmers are required to have nutrient management plans. The plans are not necessarily required in the places where the manure ends up. One day, we might find that soils in Kansas and Oklahoma, where there is no large poultry industry, are saturated with phosphorus from poultry manure. That is why the Arkansas model is only part of the solution, but an important part. Combined with other promising practices such as two-stage ditches that act like mini-wetlands to absorb nutrients and manure to energy plants that use manure to fuel generating plants, it may get us a long way toward solving the problem of excess manure.

The Arkansas model is also important because more urban municipal water systems are suing their rural neighbors over pollution. The water systems want rural counties, farm associations, and poultry companies to do their part to clean up waterways. Other states could learn from the success and cooperation in the Eucha-Spavinaw. Among the states with something to learn is Arkansas itself; Oklahoma sued the state over pollution in the Illinois River watershed a few years ago. That case has not been resolved.

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About Rona Kobell

Rona Kobell is a former writer for the Baltimore Sun. [Send Rona an e-mail.](#)

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