Does the Corn Craze Have a Downside?
By Ben Shouse, Quotes Thomas Dobbs
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CHESTER - For about the last two decades, much of eastern South Dakota’s farmland has followed a metronomic pattern: corn, soybeans, corn, soybeans. With the rise of ethanol and the recent jump in corn prices, more farmers are dialing the metronome to a new tempo: corn, corn, corn, corn. It’s part of an abrupt nationwide expansion of America’s favorite crop, with South Dakota forecast to plant more corn than any time since 1933. Farmers like Keith Alverson say if it’s done right, “corn on corn” can be economically and environmentally superior to a corn-soybean rotation.

But critics inside and outside of South Dakota say corn’s dominance is an unsustainable symptom of a “national eating disorder.” The debate reflects not only political and geographic rifts, but a profound disagreement over the future of U.S. agriculture.

Among the points of contention:
Whether corn on corn worsens pollution from nitrogen and other nutrients. Whether it will increase the chances of a crippling disease or insect outbreak.

Whether ethanol production makes up for corn’s reliance on fossil fuels. Alverson, 27, is a sixth-generation farmer near Chester with a degree in agronomy from South Dakota State University. He is newly appointed to the board of the South Dakota Corn Utilization Council, and a fan of the New York Yankees. On a recent Thursday morning, he was at the wheel of his John Deere, planting corn into the stubble from last year’s corn. His family farm has been doing this for years, but now they are upping their acreage from 75 percent corn to about 90 percent.

Darren Hefty, co-owner of Hefty Seeds in Centerville, said corn on corn is getting more popular, especially with young farmers. His seed sales are up 15 percent, and he and his brother, Brian, have put on several farmer workshops in how to manage a continuous corn system. “We’re actually building fertility in our soil,” Hefty said. “It’s a good thing doing corn on corn long term.”

“Certainly there isn’t anything detrimental about planting corn on corn,” Alverson said. Certainly, there are people who disagree. One of the most visible and vocal is Michael Pollan, a journalism professor at the University of California at Berkeley and author of the 2006 book The Omnivore’s Dilemma. Pollan says abundant corn leads to a flood of cheap calories in the food supply and contributes to “our national
eating disorder.”

That disorder also brings “unprecedented risks” to the health of the environment, Pollan writes. Closer to home, SDSU economist Thomas Dobbs also worries about the loss of biological diversity on the farm.

“I’ve been concerned for a long time, even about the corn-soybean rotation not being ecologically sound. But corn on corn is much worse. I think this is a real step backwards,” Dobbs said.

**Reasons for crop rotation**

Crop rotation serves several ecological and agronomic purposes. It makes it harder for diseases, weeds and insect pests to persist. It allows farmers to spread out their labor and equipment use, rather than planting and harvesting a single species all at once.

The right rotation also builds soil fertility. Soybeans are a natural partner to corn because they capture nitrogen from the atmosphere, leaving more in the soil for the next year’s crop. Corn-on-corn production has become more feasible and profitable because of products that replace many of the functions of crop rotation. Fertilizer provides many of the benefits of a soybean rotation, for example, and genetically modified corn fends off corn rootworm. That worries Dobbs, who says farm subsidies have pushed U.S. agriculture to focus on too few crops.

“As long as we have very little diversity, we remain very dependent on chemical solutions to problems. We remain committed to highly intensive farming that is not purely market-driven,” Dobbs said. Corn is a heavy user of fertilizer, so one consequence could be increased pollution. Nitrogen is suspected of causing health problems in children, and cities such as Des Moines must remove it from their drinking water.

In South Dakota, though, only one of the state’s 450 community water systems currently has a nitrate problem, said Mark Mayer of the Department of Environment and Natural Resources. A handful of systems have switched to different water sources to avoid nitrate, he said. Nutrient runoff also has been linked to a “dead zone” in the Gulf of Mexico the size of Maryland. Nutrients boost the growth of algae, which become food for bacteria, which in turn suck up all the oxygen and drive out fish. States to the east and south are thought to be bigger contributors to this problem than South Dakota, with its drier climate.

Low crop diversity also might open the door to a serious disease outbreak, said Dwayne Beck, manager of the Dakota Lakes Research Farm near Pierre. He cites the example of a 1970 outbreak of Northern Corn Leaf Blight, a minor disease that suddenly caused major damage when seed companies reduced the genetic diversity of their corn. Corn-on-corn rotations could someday lead to a similar problem, he said.

“If we get a preponderance of people trying to do that, we’ve created the opportunity for something
pretty dramatic to happen, and none of us can really predict what that’s going to be,” Beck said. He is a proponent of no-till agriculture, a technique that leaves the soil in place to reduce erosion, and often uses long, diverse rotations to control pests and disease. He agrees with Dobbs that U.S. farm policy has invested too heavily in improving and subsidizing corn, and a handful of other crops. “It’s kind of like the New York Yankees,” Beck said. “There is just a lot more money there.”

**Corn on corn: Plus side**

But Alverson likes the New York Yankees. And he sees no conflict between taking care of his ground and growing the most profitable crop. “We like a dollar, but we like to leave this land for future generations.”

Properly managed, corn on corn can do that, he said. Corn leaves more residue in the field, which builds soil organic matter and therefore the soil’s ability to hold onto water and nutrients. Alverson’s high-tech tractor also monitors the soil as he fertilizes, reducing the amount of nitrogen he applies by about 20 percent of the recommended rate, he said. David Clay, a soil scientist at SDSU, agrees that careful management can make the system work.

“Yes I believe that we can maintain the productivity of our soils under continuous corn,” he said. He added that research into the long-term effects of various production systems should continue, and so should the debate in society over the best use of the land. “When we think about agriculture, we need to balance our ability to produce food and now energy (ethanol and biodiesel) with our need to maintain our natural resources.”

Some critics fear research will not keep up with the problems of corn-heavy agriculture, especially the big-picture issues like the overuse of fossil fuels, which account for much of the rising cost of fertilizer. “How can we say that we’re developing renewable fuels in this country when we’re dependent on kernel agriculture to do it? When we can’t even grow a crop without huge amounts of inputs?” said Charlie Johnson, an organic farmer. He grows corn, soy, alfalfa, wheat and oats with his brother, Allan, near Madison. Dobbs worries that some other problem will emerge from the narrowing focus on corn.

“What’s the crisis with bees due to? What’s the crisis with avian flu due to? What’s the crisis with mad cow disease due to? We constantly have problems cropping up,” he said. “And at least some of them have their roots in this lack of diversity, this highly concentrated farm policy.” Congress is set to address that policy this year as it renews federal farm programs. Payments to corn farmers are likely to remain about the same, but there also could be more conservation dollars for both fragile land and productive land like the Alverson farm.

Alverson said he is open to more Farm Bill money for stewardship. He does not keep up with food policy critiques from places like Berkeley, Calif., but he has an obvious interest in what happens on his family’s own land. If corn-on-corn production causes problems, it will be despite farmers like Alverson,
not because of them. “We put our whole hearts into this,” Alverson said. “This is where we make our living. We’re not going to abuse it.”

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