

# Study documents conversion of grassland to crops

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A new study documents a loss of 1.3 million acres of grassland over a five-year period in the Western Corn Belt - a rate not seen since the 1920s and 1930s.

The research by Christopher Wright and Michael Wimberly of the Geographic Information Science Center of Excellence at South Dakota State University said a recent doubling in [commodity prices](#) has created incentives for landowners in South Dakota, North Dakota, Nebraska, Minnesota and Iowa to convert grassland to corn and soybean cropping.

"Historically, comparable grassland conversion rates have not been seen in the [Corn Belt](#) since the 1920s and 1930s, the era of rapid mechanization of US agriculture," the authors wrote.

The study is published in Tuesday's edition of the [Proceedings of the National Academy of Sciences](#).

It found that corn and soy production has expanded onto marginal lands with high potential for erosion and drought. The authors compared the land use change rate in the Western Corn Belt to the deforestation of Brazil, Malaysia, and Indonesia, but Wright said it's over a much smaller area.

"And we're not talking about a pristine landscape like a Brazilian rainforest," Wright said.

The researchers say that high corn and soybean prices, prompted largely by demand for biofuel [feedstocks](#), are driving the change. Growers groups say the increased demand for their crops is also spurred by the rising international need for protein sources, and American farmers are doing all they can to keep up with the skyrocketing demand.

The analysis identifies areas with elevated rates of grass-to-corn and grass-to-soy conversion, ranging from 1 percent to 5.4 percent annually. Grassland conversion between 2006 and 2011 was mostly concentrated in North Dakota and South Dakota, east of the Missouri River.

In Minnesota and the Dakotas, this expansion was concentrated near wetlands, posing a threat to waterfowl breeding habitats.

The percentages don't appear large during a single year, but when they accumulate over a longer period, it could mean the loss of hundreds of thousands of acres, said Eric Lindstrom, a Bismarck, N.D.-based government affairs representative for Ducks Unlimited.

"We've been very concerned about the accelerated loss of native prairie," Lindstrom said.

The conservation organization is supporting the Protect Our Prairies Act, a U.S. House bill introduced last week by Rep. Kristi Noem, R-S.D., and Tim Walz, D-Minn.

The bill would conserve native grasslands by reducing crop insurance for the first four years on newly broken native sod or grasslands.

Ducks Unlimited also would like federal crop insurance subsidies based on the productivity of the land versus incentivizing wetland drainage and habitat destruction.

In their study, the South Dakota State researchers found some differing trends when looking at state-level data.

In the Dakotas and Minnesota, grassland conversion was concentrated on relatively high-quality land, suggesting that land owners are seeking higher rates of return by moving from livestock ranching to growing corn and soybean.

In Minnesota, the researchers found that much of the grassland conversion was on lands with excessive wetness, pointing to a likely increase in the use of man-made drainage systems.

Grassland conversion in Iowa was concentrated on less suitable land, likely reflecting a relative lack of higher quality land available for growing more corn and soybeans. The change in Nebraska focused on lands highly unsuited to crop production, suggesting an increase in irrigation in southwest Nebraska.

The authors say that their findings may have implications for the region's land productivity, carbon sequestration, biodiversity, flood risk and vulnerability to drought.

**More information:** PNAS paper: [www.pnas.org/content/early/2013/02/20/1210001.pdf+html?with-ds=yes](http://www.pnas.org/content/early/2013/02/20/1210001.pdf+html?with-ds=yes)

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