NEBRASKA CORN BOARD

November 2009

talk Corns

www.NebraskaCorn.org

A Publication of the Nebraska Corn Board

Why should farmers care about greenhouse gas regulations?

Legislation to curb greenhouse gases as part of an effort to battle climate change would have a major impact on farming – both on the bottom line and in how farmers operate. While farmers may not agree on the science of climate change, the alternative is the Environmental Protection Agency stepping in and addressing the issue on its own. In this edition of CornsTalk we provide a primer on the issue.

The U.S. House of Representatives passed a climate change bill in June that uses a "cap-and-trade" system to reduce greenhouse gas emissions. The Senate is expected to take up a similar bill.

The complex, 1,200-page bill sets a "cap" on greenhouse gas emissions countrywide, and issues a set amount of "allowances" nationally that are divided among different industries. A business that can't meet its allowance would have to buy credits from those who reduce their greenhouse gas emissions below the cap and have allowances to sell or they would have to buy credits from industries that can sequester carbon and other greenhouse gases.

Over time, the total number of allowances would decline, which could increase the value of credits. The thinking here is two-fold:

- It would give businesses an incentive to lower their greenhouse gas output – to both meet their allowance and to sell their credits.
- It would raise the cost of items produced from high-greenhouse gas emitters, encouraging consumers to reduce their use of such items or turn to more affordable alternatives.

Both of these apply directly to farmers.

A $30,000 price?

While agriculture is generally exempt from the "cap" part of the proposed legislation, meaning agriculture emissions wouldn't count, it would not be exempt from expected higher costs. These higher costs would come from industries that have a difficult time reducing their emissions and would be forced to buy credits at an increasingly higher price.

This means prices for everything from fertilizer to diesel fuel to electricity would rise – and that would impact farmers directly through their operation and indirectly through higher input costs for fertilizer, seed, chemicals, equipment and more.

These higher costs led many farm groups to not support the legislation. In fact, all three Nebraska members of the House voted against the House bill.

The Food & Agriculture Policy Research Institute (FAPRI) performed a rough analysis of how the House bill would impact a typical Missouri farm. FAPRI

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showed that an 800-acre corn and soybean farm would see its operating costs rise $5,000 in 2020 and nearly $13,000 by 2050. For a 1,900-acre farm, the increase was nearly $12,000 in 2020 and more than $30,000 in 2050.

The most significant increase in the cost of production was fertilizer and fuel/energy costs – with fertilizer costs making up more than 80 percent of the increase. On the 1,900-acre farm higher fertilizer costs would equate to nearly $10,000 in 2020 and $25,000 in 2050.

The Nebraska Public Power District (NPPD), on its website www.ItsYourPower.org, noted that much of the electrical power in Nebraska comes from coal-based power plants. Eliminating carbon dioxide from coal-fired facilities is currently "virtually impossible" since there is no existing, commercial technology available on a large scale to capture and sequester it.

While not addressing specifically the House bill that passed, NPPD estimated the cost under one draft bill would be between $200 million and $300 million each year, rising annually until technology could be developed to reduce carbon emissions. NPPD noted the cost increases would have "a dramatic effect on electric rates," possibly doubling.

Will offsets save the day?

Although agriculture isn't subject to a cap, it can create and sell credits. This has the potential to offset the increase farmers would see in their operations.

These offsets could come in the form of cropping methods – like conservation tilling, no-till and strip-till, which have the potential to sequester carbon in the soil. Farmers could also plant cover crops, convert marginal land to grasslands or forests and construct wind turbines. Livestock producers could capture methane.

The largest potential for all these methods is sequestering carbon in the soil. However, how much carbon can be sequestered is up for debate, as is the production practices that would be most beneficial. Regional variations and soil types can also play a role.

Another option is biomass – converting biomass to ethanol or biodiesel or burning it in power plants to produce electricity. This could provide income for farmers while helping others reduce their emissions.

Yet estimates surrounding potential income from selling offsets and other options remain elusive – and it is likely that not all farmers may be able to participate.

Agriculture Secretary Tom Vilsack, for example, said the U.S. Department of Agriculture's estimates show that the economic opportunities for farmers and ranchers can potentially outpace the costs from climate legislation.

He said conservative annual net returns to farmers range from about $1 billion per year in 2015-20 to almost $15-20 billion in 2040-50, not accounting for the costs of implementing offset practices.

USDA also recognizes that climate legislation will affect different landowners in different ways, which Vilsack said USDA could help smooth the transition

EPA has been given a green light to regulate greenhouse gas emissions.

with farm bill conservation programs that assist landowners in adopting new technologies and stewardship practices.

Several senators questioned USDA's analysis and said assumptions were vague and failed to estimate the potential for lost crop land, because landowners could switch acres from crops to grassland to trees. Nebraska Senator Mike Johanns concluded: "Unless you can quantify this, you can't sell this plan. It becomes a hope and prayer plan for agriculture."

American Farm Bureau Federation (AFBF) president Bob Stallman said the House bill would "unquestionably impose enormous costs on the American economy, including agriculture."

An AFBF economic analysis reports that at a minimum, net farm income would decline by $5 billion annually by the year 2020, and Stallman said that estimate was under "the most optimistic set of assumptions."

AFBF and other groups are concerned because the bill would result in a net economic cost to farmers with little or no environmental benefit. It also does nothing to require other countries, such as China and India, to undertake similar programs – potentially leaving American farmers at a disadvantage in the global marketplace.

"Inclusion of an offset program is not the complete answer," said Stallman. "Even with a robust agricultural offset program, the bill still does not make economic sense for producers because a number of sectors will not be able to participate."

The debate, of course, will go on – and agriculture groups, including the Nebraska Corn Board, have already held meetings with senators to discuss climate change legislation. The hope is a final Senate version of the bill will be more favorable to farmers and agriculture.

Quick take

Greenhouse gases: A number of gases that allow solar radiation to pass through to the Earth but reflect and prevent radiant energy from leaving the Earth's atmosphere. Greenhouse gases include water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons and others. Some scientists believe as greenhouse gases build up, more radiant energy is trapped in the atmosphere and may cause the Earth's surface to warm. The U.S. Supreme Court has ruled that the Environmental Protection Agency can regulate greenhouse gases as air pollutants through the Clean Air Act. According to the EPA, all sectors of U.S. agriculture combined only contribute about 6 percent of all greenhouse gases emitted in the United States.

Carbon dioxide: This colorless, odorless gas is part of Earth's atmosphere. It is absorbed by growing plants and is produced by burning fossil fuels and other processes. It is labeled a greenhouse gas because it traps heat in the atmosphere, potentially contributing to global warming and climate change. Sometimes carbon dioxide is simply referred to as "carbon." It also is the baseline gas that other greenhouse gases are measured against – as in carbon dioxide has a global warming potential of 1, while methane has a potential of 21. That means 1 ton of methane has the same impact as 21 tons of carbon dioxide.

Cap and trade: Federal legislation that aims to create a market-based approach to reducing greenhouse gas emissions. A cap – or limit – of total carbon dioxide and other greenhouse gas emissions is put in place. Businesses are given an emission "allowance" to emit carbon dioxide. Businesses that lower emissions can trade (via an auction or market) the excess to businesses that exceed their allowance. Farmers could potentially earn allowance credits by adopting no-till and other management techniques and then sell those credits on the open market.

Carbon tax: This type tax has been adopted in some European countries. It is levied on fuels based on their carbon content with the idea that raising the cost of that fuel would reduce its use and encourage the use of alternatives.

Carbon sequestration: A way to "fix" carbon dioxide through a biological or geological process. Soil is a biological process, as it can act as a carbon "sink" and absorb organic matter that contains carbon instead of that matter breaking down and releasing carbon into the atmosphere. A geological process could "pump" carbon dioxide into underground formations. Some farmers can sequester carbon by adopting no-till and other management techniques that disturb the soil less often.

Climate change: Sometimes used interchangeably with global warming. Yet the term climate change is broader and allows for any form of climatic inconsistencies over time – both warming and cooling. The main point in scientific, legislative and regulatory circles, however, is that humans are causing a significant change from one climatic condition to another. Some believe climate change will alter the way crops are produced as weather conditions change over time.

Global warming: A rise in temperatures near the surface of the Earth. While global warming has occurred in the distant past, the term today typically refers to warming attributed to greenhouse gas emissions resulting from human activity. Some believe global warming will alter the way crops are produced as weather conditions change over time.

Principles

National Corn Growers Association: Nine principles

The National Corn Growers Association (NCGA) has developed a list of nine key principles that must be met before it will support climate change legislation. Although NCGA worked very hard to help ensure passage of an agriculture-friendly amendment to the climate change bill that passed the House, it remained neutral on the final bill to show good faith in the negotiation process.

Other agriculture groups and state farm organizations remained opposed to the bill. The Senate is expected to tackle the bill this fall.

Here are NCGA's nine principles:

1. The agricultural sector must not be subject to an emissions cap.
2. Any cap and trade legislation must fully recognize the wide range of carbon mitigation or sequestration benefits that agriculture can provide.
3. Cap and trade legislation that makes economic sense for agriculture.
4. USDA should promulgate the rules and administer an agricultural offset program.
5. The use of domestic offsets must not be artificially limited.
6. Establish carbon sequestration and greenhouse gas mitigation rates based on science.
7. Any cap and trade legislation must provide an initial list of project types that are eligible agricultural offsets.
8. Recognize early actors (give credit to farmers who have already adopted no-till and other production methods).
9. Stackable credits.

What about indirect land use?

Indirect land use is thrown into the greenhouse gas, carbon and climate change discussion primarily because of the adoption of biofuels.

In essence, some outspoken researchers and regulators believe that if corn is used to produce ethanol, then acres of grasslands or rainforest will need to be converted to a grain crop to make up the difference. This conversion of land – land use change – may emit a significant amount of carbon. Some have attempted to assign that release of carbon to corn-based ethanol.

On its own, study after study has demonstrated that corn-based ethanol significantly reduces greenhouse gas emissions when compared to regular gasoline. Even the Environmental Protection Agency (EPA), in proposed renewable fuels rulemaking published earlier this year, noted that corn-based ethanol provides a 61 percent reduction in greenhouse gas emissions.

EPA, however, included estimates on indirect land use change in its proposal – even though many argue that such assessments of indirect land use change are unproven and extremely varied. When those are added in, ethanol fairs only slightly better than regular gasoline when it comes to carbon.

The California Air Resources Board (ARB) has proposed a low-carbon fuel standard – and those standards also include a number of estimates for indirect land use changes. When these estimates are included in the total, like with EPA's estimates, corn-based ethanol is comparable to regular petroleum-based gasoline. Interestingly, the indirect land use change assessments used by ARB and EPA are radically different.

In other words, corn-based ethanol is assigned a carbon penalty in EPA and ARB models and could get squeezed out of the marketplace as regulations

that require carbon reduction move forward – either through EPA's action or ARB's action in California that may be adopted in a dozen other states.

"Models are just models; in the end, expert use and judgment are required to get sensible outcomes," said Dr. Tom Hertel, a professor at Purdue University, in comments to ARB.

Dr. Bruce Babcock of Iowa State University said while models are good for facilitating policy agreements, "The jury is still out on their use as a regulatory tool."

Indirect land use change assessments also do not include any indirect effects for oil production or gasoline consumption. Ethanol supporters charge that their absence biases the conclusions because there are indirect impacts of developing Canadian tar sands, expanding oil production in forest regions, military protection of oil routes and more.

A group of scientists, industry associations, biofuels experts and others also question the quality of the data used to make the connection and attempt to calculate global land use changes caused by ethanol production.

"The logic of land use change makes sense, but the big question – how much – involves a number of economic relationships, and to date the data available and studies in question are fairly crude," said Dr. Richard Perrin of the University of Nebraska. "At this point we can't say with any confidence how much forest or grassland conversions would be caused by a 10 percent increase in ethanol production."

Perrin noted that ethanol production is very recent. "We've had trouble even identifying ethanol's role in recent grain price spikes, and we have too little data to accurately correlate these events with recent conversions of forests and grasslands to cultivated crops," he said. "It's important for us to understand the total effect of corn ethanol on atmospheric carbon, but we haven't achieved that yet, and progress will be slow."

The Brazilian rainforest is often used as an example – that the Amazon rainforest is being cleared as a result of biofuels production. A group of Nebraska corn farmers spent time earlier this year in Brazil (see the spring edition of CornsTALK). After speaking with farmers and landowners in the Amazon region, it was clear to them that biofuels play no part in what goes on in the rainforest. Instead, it's politics, local economics and lawlessness.

Supporting this notion is research showing that as U.S. ethanol production jumped in the last five years, deforestation in the Amazon declined dramatically.

Some researchers and regulatory bodies believe that growing the corn ethanol sector will lead to deforestation in other parts of the world, including the Amazon rainforest in Brazil, which is shown here. The reliability of models predicting this, however, are untested and many question the validity of the data.

NEBRASKA CORN BOARD

By Alan Tiemann, Chairman

Certainly many farmers are skeptical about climate change and global warming. In fact, a DTN poll confirmed this, reporting that more than half the respondents doubted that humans had anything to do with climate change.

The idea of profiting by sequestering carbon in a "cap-and-trade" scheme polled worse: Only 4 percent believed they would come out ahead selling carbon credits to offset higher fuel and fertilizer costs.

With all the debate and drama, it is understandable that farmers have their doubts on both fronts.

Yet we must face the reality of the situation, even if we do so reluctantly.

Following lawsuits by several states, the Environmental Protection Agency (EPA) has been given a green light by the U.S. Supreme Court to regulate greenhouse gas emissions. President Obama has made climate change legislation a priority, as has many influential members of Congress. Even the U.S. Department of Agriculture is on board.

So that brings us to a difficult choice: Help craft the legislation in Congress or be left out of the process. If we work to fight legislation and win, we're left to battle EPA and its considerable rulemaking authority.

With those choices in mind, we worked with the National Corn Growers Association to help move the House climate change bill closer to something we could stomach. It was also the first topic when we visited our Congressional delegation during Corn Congress, and was certainly something we brought up when our Congressional delegation was back in Nebraska in August.

In Washington, D.C., the saying goes that if you're not at the table, you're on the table. We need to make sure farmers are at the table, and as the debate goes on, your grassroots support will be important.

At the end of the day we can still say no, but we need to be involved.

FieldNotes

Nebraska corn farmers: Sustaining Innovation

This is one of the four print ads used in the Sustaining Innovation campaign. For more, and to listen to radio spots, go to www.NebraskaCorn.org and click on the Sustaining Innovation campaign.

Delivery trucks decked out in the Sustaining Innovation messages have been on the streets of Lincoln since mid-year – and will stay on the job delivering the important messages to consumers through December. One of the trucks also made an appearance in the University of Nebraska–Lincoln homecoming parade.

In June, the Nebraska Corn Board and Nebraska Corn Growers Association launched a campaign to promote some of the positive aspects of farming today. The campaign runs through the end of the year.

Some of the positive messages include the fact that American farmers have slashed the fertilizer needed to grow a bushel of corn by 36 percent in the last three decades and cut erosion 44 percent in the last two decades. Farmers are also growing five times more corn today – on 20 percent less land – than they did in the 1930s.

The effort builds off an ongoing campaign in Washington, D.C., by several state corn organizations including the Nebraska Corn Board, which is known as the Corn Farmers Coalition (www.CornFarmersCoalition.org).

The campaign comes in response to some negative messages about corn production and, in part, corn-based ethanol that have surfaced over the last year.

The campaign is known as Sustaining Innovation because farmers are incredibly innovative and have continuously improved their productivity since humans first placed a seed in soil. Farmers try to do a better job in every row, on every acre, on every farm, every season – and this campaign helps get that message across.

The campaign includes radio and print advertising in select media outlets plus other activities, including some delivery trucks in Lincoln that are decked out with the Sustaining Innovation message.

The radio spots, ads and images of the trucks are available on a special web page that can be reached through www.NebraskaCorn.org or www.NeCGA.org.
Just click on the Sustaining Innovation icon.

At Husker Harvest Days, Nebraska Governor Dave Heineman (center) signed a declaration proclaiming September as Renewable Fuels Awareness Month in Nebraska. He is flanked on the left by Alan Tiemann, chairman of the Nebraska Corn Board, and on the right by Gregg Fujan, chairman of the Nebraska Soybean Board. All three addressed the crowd, pointing out the importance of agriculture and renewable fuels like corn ethanol and soy biodiesel to the state and country.

Nebraska Ag Classic scheduled

The fifth annual Nebraska Ag Classic will be held at the Cornhusker Marriott Hotel in Lincoln, Neb., December 1-3. The theme this year is "Ag-Vantages in Partnerships". Included on the agenda will be presentations on how some activist groups are using the growing popularity of social networking sites to get their anti-agriculture message across and its adverse impact on agriculture, a closer look at the Water Utilization Learning Center in Gothenburg and a Washington insider perspective on national and Nebraska agriculture issues. The conference will conclude with a joint luncheon on Thursday, December 3, where all Nebraska state senators will be invited to attend and Senator Carlson, chairman of the agriculture committee, will be the keynote speaker.

For more information and updates, go to www.neagclassic.org.

At the Nebraska State Fair and Husker Harvest Days, the Nebraska Corn Board and Nebraska Corn Growers Association provided a visual for the fact that farmers are producing five times more corn today than they did in the 1930s — but on 20 percent less land. The picture on the left shows jars representing United States corn production in the 1930s — notice the full jar of dirt and only a small amount of corn. The picture on the right represents 2008. Note that the jar of corn is packed full, while the amount of dirt in the second jar is about 20 percent less.

NEBRASKA CORN BOARD

By Don Hutchens, Executive Director

From the Corner Office

We were thrilled that more than 5,000 Nebraskans submitted comments to the Environmental Protection Agency in support of using 15 percent ethanol in our nation's fuel supply. It shows how strongly our corn producers feel about seeing ethanol succeed.

Yet that is just the tip of the iceberg. We must address issues from all kinds of organizations and special interest groups head on. On the top of that list are those who paint corn farming and today's food production as some sort of villain.

Groups like the Grocery Manufacturers Association (GMA) wrongly blame corn-based ethanol for higher food prices. At the same time, GMA questions the environmental performance of agriculture and the people who work hard every day to make sure we have the safest, most abundant and cheapest food supply in the world.

GMA doesn't understand that corn farmers today are easily meeting the needs of all industries that rely on corn. By attacking farmers and not using facts and sound science, GMA is hurting itself and its credibility by making farmers and food look bad. It is a foolish web to weave.

Then there are movies and books like *King Corn, Food Inc., Fast Food Nation* and *The Omnivore's Dilemma* that take potshots at farming and ranching. While we respect that people have opinions, we don't like those who try to turn opinions into facts.

The latest on the list is the movie *Food Inc.* It hypes and scares and misrepresents and misinforms. And along the way, it bashes today's food and farm production and pretends that farmers, ranchers and food companies have something to hide.

Chipotle, the fast food burrito chain, signed up to provide free showings of the movie. This moves Chipotle from a restaurant that believes it serves food with integrity to backing a movie that has none.

We need to stand up to these organizations and explain that our farmers and livestock producers are the best in the world at what they do. We equally need to become activists for our industry.

Incredible grassroots response to ethanol waiver

Nearly 5,000 Nebraska farmers mailed in yellow postcards in support of increasing the ethanol blend rate from 10 percent ethanol (e10) to up to 15 percent ethanol. Many more submitted comments electronically.

The postcards were submitted to the Environmental Protection Agency, which was accepting comments on the waiver request through July 20. Electronic comments were submitted directly to the EPA. An EPA decision on the waiver request is not expected until December – but Nebraskans were joined by thousands of other farmers and ethanol supporters from all across the country in making their voices heard on the issue.

The Nebraska Corn Board appreciates the support shown by so many.

Corn, cattle producers promote beef in Asia

Nebraska Corn Board member Mark Jagels (right) of Davenport addresses members of the Japanese media. Greg Hanes (left) is the Japan director for the U.S. Meat Export Federation.

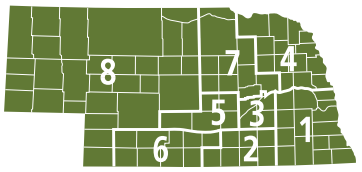
Representatives from the Nebraska Corn Board and Nebraska Beef Council, and their counterparts from Iowa, were in Japan and South Korea earlier this year for a joint trade mission to support corn-fed beef in the region.

The mission was organized by the U.S. Meat Export Federation (USMEF), which the Nebraska Corn Board supports as a way to promote high-quality U.S. and Nebraska beef abroad, which in turn boosts the value of cattle by more than $130 per head.

Nebraskans Alan Tiemann, chairman of the Nebraska Corn Board and farmer from Seward, and David Hamilton, a Nebraska Beef Council member and farmer from Thedford, joined Mark Jagels, a Nebraska Corn Board member and farmer from Davenport, on the mission. Three farmers from Iowa were also on the trade mission.

NEBRASKA CORN BOARD

Nebraska Corn Development Utilization & Marketing Board
301 Centennial Mall South, Fourth Floor
Box 95107, Lincoln, Nebraska 68509
Phone 402/471-2676 Toll-Free 800/632-6761
www.NebraskaCorn.org



Nebraska Corn Board members represent the eight districts indicated on the map and are appointed by the Governor. One at-large member is elected by the other Board members.

District 1
Dave Nielsen
Lincoln, NE

District 2
Mark Jagels
Davenport, NE

District 3
Curtis Friesen
Henderson, NE

District 4
Bob Dickey
Laurel, NE

District 5
Tim Scheer
St. Paul, NE

District 6
Dennis Gengenbach
Smithfield, NE

District 7
David Merrell
St. Edward, NE

District 8
Jon Holzfaster
Paxton, NE

At-large
Alan Tiemann
Seward, NE