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Cornhusker Economics

Cooperative Extension

Institute of Agriculture & Natural Resources
Department of Agricultural Economics
University of Nebraska - Lincoln

Carbon Trading in Europe is on the (Near) Horizon

Market Report	Yr Ago	4 Wks Ago	7/25/03
Livestock and Products,			
Average Prices for Week Ending			
Slaughter Steers, Ch. 204, 1100-1300 lb Omaha, cwt	62.37	73.83	\$77.95
Feeder Steers, Med. Frame, 600-650 lb Dodge City, KS, cwt	82.50	*	97.00
Feeder Steers, Med. Frame 600-650 lb, Nebraska Auction Wght. Avg	88.52	103.36	103.94
Carcass Price, Ch. 1-3, 550-700 lb Cent. US, Equiv. Index Value, cwt	98.37	118.11	119.45
Hogs, US 1-2, 220-230 lb Sioux Falls, SD, cwt	40.62	40.00	43.00
Feeder Pigs, US 1-2, 40-45 lb Sioux Falls, SD, hd	*	30.00	*
Vacuum Packed Pork Loins, Wholesale, 13-19 lb, 1/4" Trim, Cent. US, cwt	*	113.84	96.69
Slaughter Lambs, Ch. & Pr., 115-125 lb Sioux Falls, SD, cwt	84.50	90.12	*
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb FOB Midwest, cwt	165.03	203.19	182.26
Crops,			
Cash Truck Prices for Date Shown			
Wheat, No. 1, H.W. Omaha, bu	3.71	3.10	3.34
Corn, No. 2, Yellow Omaha, bu	2.18	2.23	1.97
Soybeans, No. 1, Yellow Omaha, bu	5.35	6.30	5.44
Grain Sorghum, No. 2, Yellow Kansas City, cwt	4.12	3.91	3.70
Oats, No. 2, Heavy Minneapolis, MN, bu	1.82	1.57	1.49
Hay,			
First Day of Week Pile Prices			
Alfalfa, Sm. Square, RFV 150 or better Platte Valley, ton	110.00	115.00	117.50
Alfalfa, Lg. Round, Good Northeast Nebraska, ton	82.50	70.00	57.50
Prairie, Sm. Square, Good Northeast Nebraska, ton	117.50	105.00	*
* No market.			

The European Parliament just recently committed the 15-European Union countries to forming a greenhouse gas market trading in carbon equivalents starting January 1, 2005, consistent with each country also ratifying the Kyoto Protocol. Other European countries will also likely be included, for a total of twenty-seven countries. Trading will be among as many as 10,000 to 12,000 industrial and public firms (e.g., electric utilities burning coal) that account for almost one-half the emissions of greenhouse gases in Europe. The precursor to trading will be the setting of emissions caps on 1) each country; 2) on each industry within each country, and; 3) on each firm within each industry. Once the caps are set, then the initial number of European Union Emission Allowance Units (EAUs for short) will be allocated by each country to each of the affected firms within each industry. For example, if the cap on a particular firm is set at 1,000-metric tonnes of carbon equivalent per year, then that firm will be initially assigned 1,000-EAUs or 1-EAU for each 1-metric tonne of allowed emissions. Each firm will then be asked to always keep at least 1-EAU in their investment portfolio of EAUs for every metric tonne emitted. Extra EAUs may be held as investments or sold on the market. If emissions in some given year exceed the number of allowances in the portfolio, then extra EAUs have to be purchased on the market, or some other way of covering emissions must be found, such as storing carbon in agricultural land.

What stage is Europe in? Where is the U.S.? What are implications for U.S. agriculture? Table 1 (from Colby, 2000) helps tell the story about how "cap-and-trade" evolves, which is becoming a more common way to handle conflicts over all kinds of natural resources, including water; fisheries; sulfur emissions from coal-fired electricity plants; and the capacity of the atmosphere to hold more heat as represented in global warming from too much greenhouse gas. In Stage 1, everyone believes there is plenty of water in the rivers and aquifers; plenty of fish in



the sea; and plenty of capacity for the atmosphere to accept and hold more heat. In Stage 2, we start to acknowledge there is scarcity, perhaps an aquifer or river is being over-pumped; or a fishery is being over-fished; or too much carbon is being put into the air from burning of coal so that we start to see global temperature increases. The European Union is now moving into Stage 4.

Where is the U.S.? Generally, both within the current administration and in Congress the apparent mind set is that the global warming issue is best viewed as in Stage 1. Yet, intriguingly, several U.S. government agencies and large private companies in the U.S. have moved the conversation beyond Stage 1. The U.S. Department of Energy’s research program is focused on ways to sequester carbon in everything from saline aquifers to agricultural land, i.e., increase the organic matter content of agricultural soil and thus “sequester (store)” the carbon therein. The U.S. Department of Agriculture (USDA) announced in early June that traditional farm level conservation programs will now also focus on storing carbon as well as on reducing emissions of greenhouse gases. The USDA is also coordinating a program in agricultural research and extension education, under the banner of the Consortium for Agricultural Soils Mitigation of Greenhouse Gases (CASMGs or “Chasms” for short), underway in 10-midwestern states, including Nebraska. The “Chasms” effort in Nebraska is focused on whether we can successfully store substantial amounts of carbon in corn and soybean fields; on what it will take to make such storage financially interesting to farmers; and how Nebraska farmers might best take advantage of any opportunity to store carbon. These opportunities will emerge as carbon trading starts to operate around the world - notably carbon trading in Japan, and Canada is also on the (more distant) horizon.

How would this work? Well, it is really not that complicated, although like is often the case “the devil is in the details” and most of the details are yet to be worked out. Most simply, if a capped private or public firm needs to cover extra emissions it will have two options, 1) it can go into the carbon trading market and buy more emission allowances, like the European EAUs, and/or 2) it can go into the storage market and offer a price to a farmer (more than likely it will have to be to a large group of farmers with a larger offering) or some other entity, to store that

carbon for some defined period of time at so many dollars per ton. In effect, an offering by agriculture to store carbon would be an alternative way for an emitter of carbon ... a potential buyer ... to cover the emissions. Actually, there are a couple of other options under the Kyoto Protocol. One is called the Joint Implementation (JI) program and the other the Clean Development Mechanism (CDM). In both cases the firm would be partnering with some other firm or public sector agency to reduce greenhouse gas emissions in either another industrialized country (the JI program) or in a less developed country (the CDM program). Such efforts would earn the firm “credits” and thus free-up emission allowances for sale on the carbon market. As you can see, this can get complicated; the European Parliament is addressing the connection with JI and CDM during July.

In any case, the thing to watch is where the U.S. and other countries around the world are at in the stages shown in Table 1. Intriguingly, several large U.S. corporations (including DuPont and Ford Motor) are moving into Stage 4, through voluntarily setting caps on themselves and in trading allowances through the recently formed Chicago Climate Exchange (see <http://www.chicagoclimatex.com/>) for the North American Market. The trigger to the start of activity is “the cap,” whether set voluntarily or by government mandate. “The cap” recognizes and in effect creates the scarcity; and with scarcity, markets naturally evolve. So, watch for “the cap” with the subsequent market opportunities generally not far behind. In the case of the sulfur emissions market in the U.S., Stage 5 was reached about 10-years after the cap was set. Keep monitoring the website maintained by the Nebraska Carbon Sequestration Advisory Committee (<http://www.carbon.unl.edu>) if this intrigues you at all!

Sources:

Colby, B. G. “Cap-and-Trade Policy Challenges: A Tale of Three Markets.” *Land Econ.* 76,4 (Nov., 2000): 638-658.

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Table 1. Stages in Implementing Cap-and-Trade on the Way to Market Pricing (Colby, 2000)

Stage 1	Resource abundant; Few conflicts; Informal rights/rules
Stage 2	Scarcity perceived; Conflicts begin (see high transactions costs); Debate over proposals to limit use
Stage 3	Caps on use, rights allocation and trading rules proposed and debated
Stage 4	Caps on use established; Rights allocated; Trading rules promulgated; Cautious trading begins with high transaction costs; Ambiguities in rules/rights create conflicts; Rules/rights clarified
Stage 5	Trading widely accepted; Active market develops; Transaction costs diminish