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## **Agriculture and the WTO: Future Directions in the Grain and Oilseed Sectors**

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This paper examines the larger economic forces that shape multilateral trade agreements and concludes that further WTO trade reform in the grain and oilseed sectors will be difficult to achieve. The somewhat successful Uruguay Round had budget and internal reform pressure to assist the process. The United States currently has large budget surpluses, and efficiency effects from policy reform following the Uruguay Round have reduced the possible gains from further domestic reform. Without these pressures, further negotiated reform in the grain and oilseed sectors is a remote possibility. On the other hand, there are good prospects for a multilateral environmental agreement on climate change. Ratification of a climate change agreement could have a large impact on the grain and oilseed sectors as such an agreement would divert excess resources from food production.<sup>1</sup>

Keywords: carbon sequestration; food security; grain; Kyoto Accord; oilseed

### **Introduction**

Currently there is a great deal of uncertainty regarding the timing and nature of future agricultural trade reforms. The Uruguay Round of GATT ended in 1993 with significant success in reform of agricultural trading rules and an agreement to examine further agricultural reforms in 1999. With last year's debacle in Seattle, and more importantly the booming U.S. economy, it is unclear how and when further progress will be made.

The purpose of this paper is to explore the prospects for significant WTO agricultural trade reforms in the grain and oilseed sectors. The paper presents a long-term perspective that examines the larger political economic forces that could motivate significant reform and does not address many of the smaller issues that are part of the current negotiation process.

Two hypotheses are examined in this paper:

- Further significant agricultural trade reform in the WTO is unlikely for at least the next decade.
- The ratification of a climate change accord would have a significant impact on agricultural trade and agricultural trade agreements.

The following section of this paper develops the first hypothesis, beginning with a brief historical review that highlights the conditions that existed prior to the somewhat successful Uruguay Round (UR) and the difficulty in making progress in agriculture. Some of the unique conditions that existed during the UR are outlined. The effect the WTO agreement has had on domestic and trade policy design in grains and oilseeds is examined. This is followed by a description of recent market conditions and the effect these conditions have had on the belief that free trade will benefit primary producers. The conclusion of the second section of the paper summarizes the current apathy toward further grain and oilseed trade reform.

The second hypothesis, which deals with the potential importance of a climate change agreement, is developed in the third section of the paper. This section begins with a brief outline of the Framework Convention on Climate Change (FCCC) and a discussion of the status of the Kyoto Accord. This is followed by a description of greenhouse gas (GHG) emissions from agriculture and the potential role agriculture can play in short-term GHG reduction. This section then examines the U.S. perspective on how agriculture's role in GHG reduction enhances the prospects for ratification of the Kyoto Accord. The third section concludes with a discussion of the pervasive effects a climate change agreement could have on world agricultural production and trade. Closing remarks and conclusions are outlined in a fourth and final section.

## **Further Agricultural Trade Reform in the WTO is Unlikely**

### *Past Failures to Include Agriculture in the GATT*

Between 1947 and 1993 significant agricultural trade reform was not a part of the GATT. In fact, the only GATT agreement that included significant reforms for agriculture was the UR. Thus, agricultural reform is not an inherent part of the GATT/WTO process—it is the exception rather than the rule. According to Rausser:

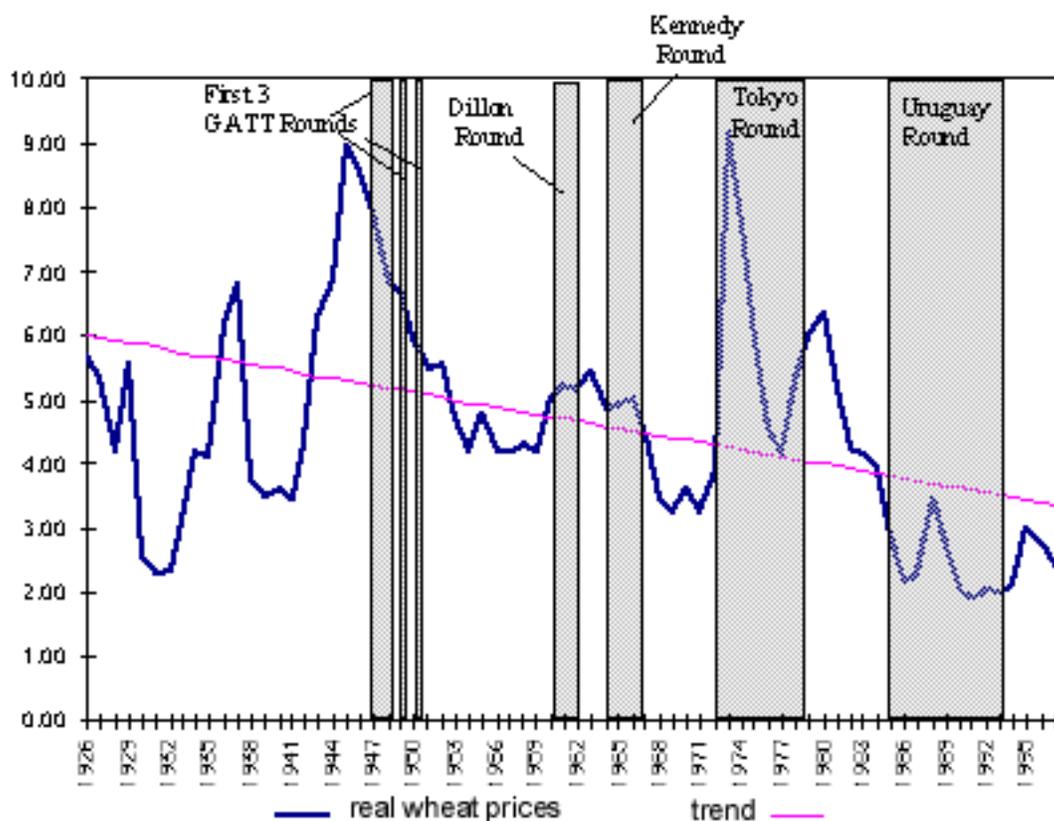
In summary, in one round of GATT negotiations after another the major obstacle to successful negotiations has been agriculture (1995, p.8).

At least three identifiable factors contributed to the exclusion of agriculture from the GATT for the first 45 years:<sup>2</sup> (1) the negotiations were influenced by issues of food security and grain prices that existed prior to and during each GATT round; (2) in Europe, food security issues, and later the Common Agricultural Policy, made agricultural trade reform undesirable; and (3) in the United States, there was a strong desire to stabilize and manage markets, which the U.S. government successfully did. Given that these forces could still play a role today they warrant some review.

### *Grain Prices and Food Security*

In the year 2000, after many years of abundant food supplies and low real grain prices, it is easy to forget that concern about food security was a major obstacle for the inclusion of agriculture in the GATT. Clearly, in the early post-GATT years, food security was an important issue for European countries. The Netherlands had suffered from famine during World War II. After the War, Europe as a whole was a significant importer of grain. As a result, the industrial countries of Europe wanted to become less reliant on agricultural imports. In the United States and Canada agriculture had come out of the very difficult depression years and was prospering with high prices at the time of the first GATT round. Given these conditions it is not hard to understand why agriculture was exempted from the 1947 GATT agreement. The issue of global food security gained profile again in the early 1970s, during the Tokyo Round of the GATT, when large grain purchases by the USSR caused a decrease in grain stocks and high grain prices throughout the world. Figure 1 shows the inflation-adjusted Saskatchewan farm price for wheat from 1926 to present, and the timing of the GATT rounds. The figure shows that all rounds that failed to bring about agricultural reform took place with higher than average wheat prices and that the initial 1947 Round and the Tokyo Round took place during periods of very high grain prices. These high prices not only reduced the perceived need for reform; they raised the profile of the food security issue.

While the high grain prices of the late 1940s and the early 1970s raised concerns about global food security, for many developing countries and developed Asian countries food security has continued to be an important issue since the inception of the GATT and continues to be an issue today. This persistent concern about food security, and the international will to address the issue, can be observed in the creation and funding of various international research institutes to address the world food problem. This process began with the establishment of the International Rice Research Institute in 1960 and the International Wheat and Maize Improvement Center (CIMMYT) in 1966 to develop higher yielding



**Figure 1** Deflated Saskatchewan wheat prices 1926–99 (\$1999/bu.)

Source: Saskatchewan Agriculture and Food Statistics Handbook 1999

wheat varieties. Currently, 18 international agricultural research centres operate as part of the Consultative Group on International Agricultural Research (CGIAR). The CGIAR was established in 1971 with the stated objective of contributing to food security and poverty eradication in developing countries. The cosponsors of the CGIAR are the World Bank, the United Nations Food and Agricultural Organization (FAO), and the United Nations Development Programme (UNDP). The international will to support the CGIAR suggests that food security was, and continues to be, an important issue for many countries. Food security in less developed countries will continue to be an important issue. As these countries gain importance within the WTO, concern about food security may continue to be an obstacle to further agricultural trade reform.

### *European Community Solidarity*

The European Community (EC) with its original six members was established in 1957. The development of the Common Agricultural Policy (CAP) was a central pillar of the European Community. Member countries viewed the EC as a way to keep Europe unified,

which was an important goal given its history of armed conflict. The protection of the CAP made EC member countries strongly opposed to agricultural trade reform within the GATT. The EC strongly resisted agricultural trade reform in the Dillon Round (1960–62), in the Kennedy Round (1963–67), and in the Tokyo Round (1973–79) (Rausser, 1995). Although the prospect of European Union (EU) expansion has created pressure for some reform, the CAP continues to be a central pillar of the EU.

### *United States Support for Agriculture*

The United States has been one of the central players in each GATT round. At least part of the reason for unsuccessful agricultural trade reform lies within the U.S. borders. From 1940 to 1980 U.S. farm policy was heavily influenced by the years of the Great Depression, when low commodity prices impoverished many farm families. After the high prices of the 1940s, the government of the United States introduced farm legislation to protect producers from the vagaries of over supply and low prices. From the mid-1950s until the 1985 Farm Bill, the government successfully supported wheat and corn prices with commodity storage programs and area set-asides. From 1957 until 1984 the world wheat price remained very close to the U.S. loan rate, with the exception of some upward deviation in seven of the years when wheat stocks reached low levels. The U.S. Congress found it politically important to retain the right to protect their producers from low prices and was opposed to having its hands tied by foreign policy. Section 22 of the U.S. Agricultural Adjustment Act of 1933 explicitly allowed for the use of import quotas to protect the operation of domestic farm programs. In 1951, Congress passed an amendment to Section 22 by adding subsection (f):

No trade agreement or other international agreement heretofore or hereafter entered into by the United States shall be applied in a manner inconsistent with the requirements of this section (Rausser, 1995, p.7).

This amendment to Section 22 tied the hands of U.S. trade negotiators, preventing them from bargaining away U.S. domestic protection; it was not repealed until 1995 with the creation of the WTO.

### *Success in the Uruguay Round*

Limited agricultural trade reform was achieved in the UR after nearly a decade of negotiations. During the negotiations agriculture again became the most significant barrier to a new agreement. Rausser (1995) outlines the major forces that came together to make an agreement possible. The Reagan Administration had unsuccessfully tried to reform internal U.S. agricultural policies in 1981 and again in 1985. Both times, Congress soundly rejected these proposals. In the process that followed the 1985 Farm Bill it became clear that, while U.S. unilateral policy reform was not possible, multilateral trade reform was perhaps desirable.

Despite the negotiations and vocal rhetoric that began in 1985, it was not until the early 1990s that agreement between the EU and the United States began to look feasible. At that time both parties were facing severe budget crises and growing grain stocks. Both had developed internal reform packages to reduce export subsidy expenditures. The Dunkel plan took these internal packages and used them as the foundation of the UR Agreement on Agriculture (AoA). Finally, to the relief of all parties involved in the marathon round, an agreement was reached in December 1993 and the WTO and the AoA came into effect in 1995 (Sumner, 1995).

### *The Impact of the WTO on Domestic Program Efficiency*

The AoA has increased the efficiency of domestic agricultural support, and this improved efficiency will influence direction of further agricultural trade reform. The Uruguay Round agreements resulted in the creation of the WTO, with new rules disciplining both domestic agricultural policy and agricultural trade policy. The new disciplines have coincided with significant changes in domestic policies that reduce the economic distortions associated with support of the grain and oilseed sectors throughout the developed world. In Canada, this has meant the elimination of both the Guaranteed Revenue Insurance Program and the subsidy through the Western Grain Transportation Act.

In the United States, the “freedom to farm” legislation provisions within the Federal Agricultural Improvement and Reform (FAIR) Act of 1996 resulted in “decoupled” payments to farmers, which enhance farmer income but have a limited impact on production decisions. The Conservation Reserve Program reduces the output from the grain and oilseed sectors. Table 1 reports Gardner’s (2000) estimates of gains and losses from grain and oilseed commodity programs in 1987 versus 1999/2000. According to his figures, the transfer efficiency increased from 81 percent in 1987 to 99 percent in 1999/2000. The FAIR Act came into effect during the interval. (Transfer efficiency is a measure of the amount of benefit provided to the target group for every dollar of cost to others in the economy. In this case, transfer efficiency is a measure of the amount of benefit provided to producers for every dollar of cost to consumers and taxpayers in the economy.)

In the EU, set-aside requirements and reductions in the level of support have reduced the economic distortions. These changes to the form of support have reduced the dead-weight loss associated with farm programs.

The fiscal situations of OECD countries have improved dramatically in the past five years and tax rates have fallen in most countries. This has not only reduced budgetary pressure; it has reduced the amount of economic distortion caused by taxation, making income transfers easier to carry out than they were during the UR, and decreasing the associated efficiency losses. The economic efficiency reasons given in the past for reform are less important today than they were during the UR.

**Table 1** Gains and Losses from U.S. Commodity Programs: 1987 and 1999/2000

	<b>Producer gains</b>	<b>Buyer &amp; taxpayer gains</b>	<b>Deadweight loss</b>	<b>Transfer efficiency</b>
<b>1987</b>				
	..... <b>Billion dollars</b> .....			
Grains and oilseeds	11.8	-14.6	-2.8	81%
Total commodities	17.5	-22.5	-5.0	78%
<b>1999/2000:</b>				
	..... <b>Billion dollars</b> .....			
Grains and oilseeds	15.5	-15.6	-0.1	99%
Total commodities	19.1	-20.2	-1.1	95%

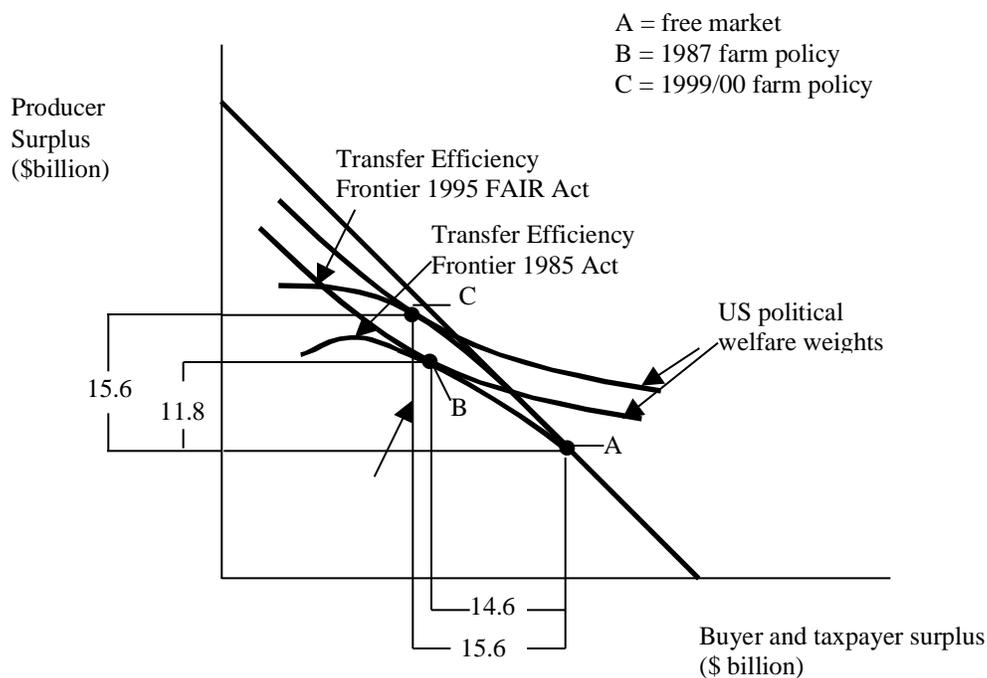
Source: Gardner, 2000

If one uses Gardner's transfer efficiency frontier, holding welfare weights constant, an increase in the efficiency of a farm program will result in a choice of greater income transfer by policy makers. Figure 2 illustrates this using numbers from table 1. During the UR, when U.S. farm policy was imposing large costs on the U.S. economy, policy makers sought reform through international negotiations. The current programs give policy makers the ability to support agriculture with fewer economic losses. This suggests that U.S. policy makers no longer need trade agreements to reduce domestic losses, and furthermore, they now may be less eager, and perhaps reluctant, to negotiate any of this new-found ability away in future trade agreements. This policy environment reduces one of the economic forces that played a role in the success of the AoA under the Uruguay Round.

### *Price Effects of Trade Liberalization*

At the time of the UR there was a great deal of rhetoric surrounding the beneficial effects of agricultural liberalization. In particular, the reductions in trade distortions were to benefit farmers through higher and more stable prices. For instance, in Canada, the minister of agriculture chastised an economist over the results of his study that indicated that farmers would be worse off in a freer trade environment. This pro-market rhetoric, which was very much a product of the Reagan, Thatcher and Mulroney era, helped sell the UR negotiations to the agricultural sector.

This type of argument would not sell as well today. After a brief period of higher grain prices in 1996/97, grain prices have declined and are at, or are approaching, all-time lows despite significant trade liberalization. These low prices cannot easily be attributed to large distortions; rather, they are more commonly viewed as an inevitable part of a functioning,



**Figure 2** Grain and oilseed support and the transfer efficiency frontier

Source: data from table 1; adapted from Gardner's framework (1987)

competitive commodity market. Rather than look at free trade as a solution to the income crisis, many farmers in Canada are beginning to look at decoupled forms of income support. More importantly, U.S. farmers do not see their potential economic salvation in a free market. The lack of significant perceived price impacts from further grain and oilseed policy liberalization reduces the pressure for further agricultural trade reform.

### Summary

This section has outlined several factors that support the hypothesis that further significant agricultural trade reform in the WTO is unlikely for at least the next decade. Agricultural trade reform has always been difficult to incorporate in the multilateral process. The distinctive budgetary conditions that existed in both the EU and the United States during the UR no longer exist. The reforms made as result of the AoA have increased the efficiency of domestic support programs. Growing budget surpluses have also reduced the efficiency losses associated with taxation. Finally, very low commodity prices, despite a more liberal trading environment, make further liberalization a very tough sell to the grain and oilseed sectors. Given this combination of factors, the pressure for further agricultural trade

reform is much more limited than it was during the UR. With reduced pressure for further agricultural trade reform the rent-seeking and protectionist forces are much more likely to prevail. Prospects for further multilateral trade liberalization in the grain and oilseed sectors are poor.

### **The Potential Impact of the Kyoto Accord**

This section examines the hypothesis that the ratification of a climate change accord would have a significant impact on agricultural trade.

In 1992, in Rio de Janeiro, many countries agreed to stabilize greenhouse gas emissions, creating the United Nations Framework Convention on Climate Change (UNFCCC). Despite the agreement, emissions continued to grow. In 1997, the parties to the UNFCCC met again in Kyoto and made further commitments to limit and reduce GHG emissions. In the Kyoto agreement, the developed countries of the world agreed to specific emission targets to be achieved during the 2008–2012 period, relative to a 1990 baseline. In this accord, Canada committed to a reduction in GHG emissions to a level 6 percent lower than 1990 emissions, the United States agreed to a 7 percent reduction, and the EU agreed to an 8 percent reduction (UNFCCC, 1997). These reduction targets are much more significant than the absolute percentages would suggest given the growth in post-1990 emissions. In Canada, the 6 percent Kyoto reduction target represents a 25 percent reduction below business-as-usual projections.

At present, the Kyoto Accord is very much an incomplete agreement. The developing countries of the world, including the very populous countries of India and China, are not signatories to the accord. Many features are vaguely described, for example, “joint implementation” and “clean development mechanisms”. These are emission-trading mechanisms that have yet to be defined. Many definitions and measurements have yet to be agreed upon, for example, the definition of a managed versus an unmanaged forest. While the decomposition of organic matter in agricultural soils has been defined as a source of carbon dioxide (CO<sub>2</sub>) in the accord, soil is not included as a sink. (A sink is a process whereby atmospheric CO<sub>2</sub> is sequestered by plants, converted into organic matter, and stored in the soil.) Similarly, the uses of agricultural and forest crops in building products are not yet included as sinks. Importantly for trade, there are no agreed upon penalties for non-compliance within the accord.

Despite the current incompleteness of the accord, the greatest limitation at this time is that it has to be ratified in order to become a binding agreement. The accord does not “come into effect” until countries responsible for 55 percent of the GHG emissions have ratified the agreement (UNFCCC, 1997). In other words, if Canada were to ratify the

agreement by having Parliament commit to the 6 percent reduction, this commitment would not be binding until enough other countries did likewise, bringing the accord into effect. This ratification process has introduced a great deal of uncertainty for the signatories because there is a good chance the accord will not have sufficient ratification to come into effect.

At this time, the United States Congress has not granted presidential fast-track approval to negotiate a climate change agreement. By not granting this approval, Congress retains the ability to vote on and accept particular parts of the accord while rejecting other parts. As previous experience with trade agreements has shown, other countries will be very reluctant to ratify the accord under such conditions. Furthermore, given that the United States is responsible for 35 percent of total GHG emissions, U.S. ratification is pivotal to the overall agreement. The ratification climate could change further following the outcome of the 2000 U.S. congressional and presidential elections. In general, the Democrats are in favor of GHG reduction while the Republicans are opposed.

### *Agricultural GHG Emissions*

The agricultural sector is a significant global GHG emitter. Each country has different levels of emissions depending on the agricultural systems employed. The agricultural emissions from Canada are provided below to give some idea of the magnitude and the sources of GHG emissions in agriculture.

The estimates of 1991 GHG emissions for Canada and those associated with Canadian agriculture are shown in table 2. Several points in this table are worthy of note. Direct and indirect emissions from agriculture make up 14 percent of total Canadian GHG emissions; thus agriculture is nationally important. Nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) dominate direct emissions from agriculture, while CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> are all important for indirect emissions. Although non-agricultural Canadian emissions are dominated by CO<sub>2</sub>, agricultural emissions have large components of N<sub>2</sub>O and CH<sub>4</sub>.

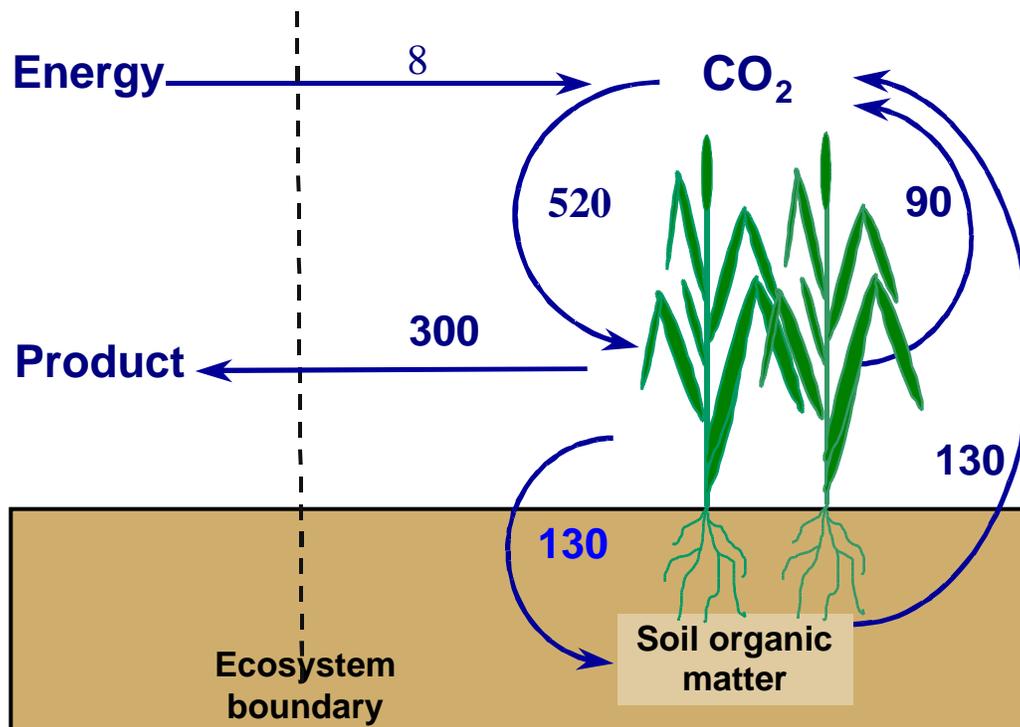
**Table 2** Canadian Total and Agricultural Anthropogenic GHG Emissions in 1991

	All sources	Direct ag.	Indirect ag.	Total ag.	% ag.
Million tonnes of CO <sub>2</sub> equivalent					
Carbon dioxide	452	5	15	20	4
Methane	70	20	9	29	41
Nitrous oxide	51	24	10	34	66
Total	575	49	34	83	14

Source: Janzen et al., 1999

Nitrous oxide is the GHG producing the largest net CO<sub>2</sub>-equivalent emissions from agriculture (Janzen et al., 1999). About one-half of the agricultural N<sub>2</sub>O emissions are created primarily from the nitrogen cycle that occurs within agricultural soils. During the processes of nitrification and denitrification N<sub>2</sub>O is released into the atmosphere. The amount of nitrogen released depends on many factors, including moisture levels, carbon and nitrogen availability, and temperature. These N<sub>2</sub>O releases occur both with natural forms of nitrogen, e.g., manure and legumes; and with manufactured forms of nitrogen, e.g., nitrogen fertilizer. The release of nitrous oxide tends to be episodic with large quantities released in very short periods. Other N<sub>2</sub>O emissions occur during the decomposition of manure during storage and application, and during the manufacture of fertilizer and other agricultural inputs. The estimates of emissions of nitrous oxide from Canadian agriculture are very preliminary and will be the focus of study and measurement for the next several years.

Methane is another important GHG for agriculture. Methane is released during anaerobic decomposition of organic matter. By far the largest source of CH<sub>4</sub> emissions within agriculture is enteric fermentation within the rumen of beef and dairy cattle, accounting for 80 percent of agricultural methane emissions. Most of the remaining 20 percent of methane



**Figure 3** Net annual exchange of CO<sub>2</sub> by crops

Source: Desjardins, 1999

emissions comes from the decomposition of all forms of livestock and poultry manure during storage and handling.

The large CO<sub>2</sub>/carbon cycle within agricultural production systems is not apparent in these net emission figures because the cycle is nearly in balance. Agricultural crops use the energy in sunlight to combine CO<sub>2</sub>, water, and other nutrients to produce organic matter. Each year agricultural crops in Canada use photosynthesis to convert approximately 500 million tonnes of CO<sub>2</sub> from the atmosphere into plant material each year—roughly equivalent to the total Canadian net emissions of GHGs (Desjardins, 1999). As figure 3 shows, most of this material is harvested in crops and returned to the atmosphere as soon as it is digested by animals or humans. A significant portion of the carbon is retained in the soil or as crop residue for short periods. A small portion of the crop residue becomes part of the soil organic matter where it can be stored for long periods of time before being returned to the atmosphere as CO<sub>2</sub>.

The large amount of carbon/CO<sub>2</sub> in the agricultural system creates significant scope for management that could sequester carbon and reduce atmospheric CO<sub>2</sub>. There has been a significant loss of soil carbon since cultivation began in Canada. More recently, soil organic matter has begun to accumulate in many soils, largely due to the adoption of zero tillage–continuous cropping systems (Janzen et al., 1999). These increases in the organic matter in the soil reduce the stock of carbon in the atmosphere. Activities that use crop material to replace fossil fuels leave the fossil fuels in the ground and thereby contribute to GHG emission reduction. Overall, management of the carbon cycle provides some of the greatest scope for reducing GHG emissions from agriculture.

### *Implications of Including Sinks*

The inclusion of agricultural soils and other carbon sinks in the Kyoto Accord is a very important issue for the sector and for the potential ratification of the accord. Recent analysis indicates that the U.S. Conservation Reserve Program has resulted in a massive sequestration of carbon in these soils. Further sequestration can be achieved through restoration of mine sites and through agro-forestry in the Southeastern United States. This large potential for agricultural sinks has resulted in the United States joining Canada as a promoter of the inclusion of sinks in the Kyoto Accord. The Sixth Conference of Parties to the FCCC (COP 6) will be held in November 2000 to discuss the inclusion of agricultural sinks in the Kyoto Accord. The United States and the EU held bilateral talks on the same issue prior to the meeting. The inclusion of agricultural sinks as a form of emission reduction would greatly increase the probability of U.S. ratification of the Kyoto Accord.<sup>3</sup>

The trade and production implications of including agricultural sinks in a ratified accord would be significant for the sector. Inclusion would give agricultural land an alter-

native use to food production. At current commodity prices and \$20/t CO<sub>2</sub> abatement costs, agroforestry and marginal land–permanent cover programs become economically feasible. Governments and potentially the private sector would provide significant incentives to remove land from annual cultivation and place it under permanent vegetative cover to sequester carbon. There would also be increased emphasis on the use of agricultural crops to produce biofuels and fibre. These alternative uses have the potential—far more than further trade liberalization has—to increase and stabilize the prices of grains and oilseeds. Industrial uses would divert resources away from food production, particularly during periods of low prices.

The domestic policies used to reduce agricultural GHG emissions are likely to affect trade policy in the sector. Given that GHG abatement is likely to require resources, countries that comply with the accord may demand some form of reciprocity from their trading partners. This will create pressure to include GHG policies within bilateral and regional trade agreements.

## **Conclusions and Implications for Future Agricultural Trade Policy**

**F**urther WTO trade reform in the grain and oilseed sectors will be difficult to achieve. The somewhat successful UR had budget and internal reform pressures that do not presently exist to assist the process. There is little pressure now to bring the United States or the EU to an agreement. This does not imply that efforts toward further agricultural trade reform should not be pursued, it only suggests that the process should continue to simmer so that progress can be made when economic forces create the short-lived opportunities necessary for further progress.

The Kyoto Accord is potentially a very important agreement for agricultural production and trade. Ratification of a GHG reduction agreement would divert excess resources from food production. Much research is still needed to assess the potential implications of GHG reduction agreements on global agricultural production and trade. There is a need to understand how GHG reduction agreements and policies can be used to ameliorate some of the adverse effects of existing domestic support policies for agriculture. There is also a need to anticipate how GHG reduction agreements will inevitably spill over into trade agreements and trade policy.

## **Endnotes**

1. An earlier version of this paper was presented at the Canadian Agri-Food Trade Research Network Workshop on Agricultural Trade Liberalization: Can We Make Progress? Quebec City, Quebec, October 2000.

2. In addition to this list there are rent-seeking activities as outlined by Schmitz and Gray (1992). For this analysis it is assumed that rent-seeking activities did not change a great deal in the Uruguay Round nor will they change a great deal in the foreseeable future.
3. The parties failed to reach an agreement regarding sinks at COP 6 in November. The negotiations have continued into December with all parties hoping an agreement can be reached early in 2001. At present it appears that sinks will be part of the agreement, with their use subject to some restrictions.

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