An Analysis of the EC Commission Plan for CAP Reform

GATT Research Paper 92-GATT 4
November 1991

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This material is based upon work supported by the Cooperative State Research Service, U.S. Department of Agriculture, under Agreement No. 89-38812-4480.

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ABSTRACT

The Commission of the European Community has proposed a restructuring of the Common Agricultural Policy (CAP) that is independent of the ongoing General Agreement on Tariffs and Trade (GATT) negotiations. This study analyzes the proposal in terms of the flexibility it would grant EC negotiators at the GATT. The results indicate that adopting the proposal would sharply reduce the volume of EC cereal, meat, and dairy product exports. EC negotiators at the GATT would be able to offer significant reductions in export subsidies, a primary concern of the United States and other exporting countries. By reducing production, the proposal would also significantly reduce internal supports. An Aggregate Measure of Support (AMS) calculation estimates reductions from a base period of 1986-88 to 1997 that range from 17 percent for beef to 60 percent for pork and poultry. The proposal would provide increased market access, but would still insulate internal prices from world price fluctuations. Long-term world price increases attributable to EC export reductions are estimated to range from 5 percent to 10 percent for meat, corn, barley, and soybeans to 15 percent to 20 percent for wheat and dairy products.

AN ANALYSIS OF THE EC COMMISSION PLAN FOR CAP REFORM

Since its introduction in February 1991, the European Community's proposed restructuring of its Common Agricultural Policy (CAP) has been viewed by some as a basis upon which the General Agreement on Tariffs and Trade (GATT) negotiations could be brought to a successful conclusion. The proposal is surprisingly ambitious and, more surprisingly, has not been rejected by European decision makers. In a July 22, 1991 communication, the commission provided more detail and some minor modifications, and EC officials began openly discussing the compatibility of the restructuring proposal with the European Community's current GATT submission (*Agra Europe* 1991b).

Only three countries--France, Germany, and Ireland--have opposed the proposal to date. Although these countries form a blocking minority, recent conflicting statements by German Economics Minister Jürgen Möllemann and German Agriculture Minister Ignaz Kiechle have created confusion about Germany's current position regarding the proposal (*Agra Europe* 1991b). Should the German position change, as Möllemann now suggests, it seems likely that some version of the proposal will be accepted.

This proposal has been offered independent of the GATT negotiations. The commission has argued quite convincingly that the proposed changes make sense from monetary and environmental standpoints and has inferred that debate on the proposal should not focus on the current GATT round. If the GATT negotiations progress very slowly and if this proposed restructuring is accepted by the European Parliament and the individual member states, the ensuing CAP reforms would form the basis upon which the European Community will approach the GATT negotiations. Alternatively, if the GATT negotiations reach an early decision point, the CAP reform proposal could become an integral part of the GATT process and the decision on both could be accelerated. It is unclear, therefore,

whether one should analyze the impact of the proposal by assuming that other countries make GATT-negotiated cuts or by viewing its impact on world markets in isolation.

The purpose of this paper is to assess the impact of the proposed changes (as laid out in the July 22 communication) on production, consumption, and trade in cereals, oilseeds, beef, pork, poultry meat, and dairy products. The analysis assumes that other countries continue policies under existing legislation, which allows evaluation of the impact of the policy change without additional assumptions about how other countries would react. Multilateral liberalization would create higher world market prices for most commodities than would result from the unilateral CAP reform analyzed here.

This paper summarizes the EC proposal and provides a brief overview of the modeling method. The assumptions required to translate the commission's proposals into model parameters are then outlined. Results are presented for the European Community as a whole and for the United Kingdom, France, Italy, and western Germany individually.

As with all projects of this type, the results need to be viewed with great caution. The simulations are based on the assumption that people will respond to incentives in the same manner as they have in the past and that the data and assumptions on how the proposed changes would be translated into reality are correct and accurate. Because of the complexity and relative immaturity of the proposal and the difficulty in finding consistent data for selected EC countries, the normal qualifications are particularly relevant to this analysis.

The Proposal

For years, economists have argued that the existing CAP is an inefficient way to transfer money to producers because European consumers pay more for food than do consumers in the United States and some other countries while simultaneously subsidizing food in food-importing countries. Further, they argue that most of the benefits are captured by the wealthier producers (Hayes and Schmitz 1988). Proposed solutions have invariably suggested lower prices for marginal production and some form of

direct assistance, either through direct income transfers or through a two-price system. (For a detailed discussion, see IATRC n.d., Commissioned Papers 1 through 4).

The obvious incompatibility of the CAP with the desires of other GATT participants may have been the catalyst that finally brought economic logic to this complex socioeconomic problem. One month after the failure of the GATT round in December 1990, EC Agriculture Commissioner Ray MacSharry offered some "reflections" on the problems facing the CAP and a restructuring package to alleviate them.

The proposal received a predictable amount of condemnation from agriculture ministers and farm groups in public media, but this opposition was not translated into votes in Brussels. In early July 1991, the agriculture ministers accepted the proposal as a basis for discussion, and on July 22 a revised and more detailed proposal was made public. As of October 23, strong opposition seems to exist only in France and Ireland.

In its current form, the proposal shares some features with current U.S. farm programs. In return for withdrawing a portion of their crop acreage from food production, grain producers would be eligible for a government payment that is independent of current yields. Institutional prices would be significantly reduced from current levels, but intervention buying would continue to place a floor on EC market prices, analogous to the way in which U.S. loan rates have placed a floor on U.S. market prices. Lower grain prices would allow EC livestock producers to become more competitive.

The program also differs from U.S. farm programs in important respects. Proposed intervention prices far exceed U.S. loan rates for grains and purchase prices for dairy products. EC compensation payments would not depend on current market prices, as do U.S. deficiency payments. Payments to crop producers would depend on current acreage rather than on historical bases. Small-scale producers would be exempt from set-aside requirements and the production of nonfood products would also be allowed on set-aside area. Direct payments would be made to some livestock producers, milk-marketing quotas would be continued, and no payment limitation has been proposed. Many of the

differences between the proposed EC and existing U.S. mechanisms may be attributed to the much smaller farm size and greater diversity of livestock feeding practices across EC nations.

Cereals

Under the proposed reform package, existing mechanisms such as import levies, intervention prices, and export subsidies would be retained and used where necessary, but the average EC-wide cereal price would be sharply reduced over a three-year period to a target level of 100 European currency units (ECUs) per metric ton. This target level is 35 percent less than the existing average buying-in price for cereals. Intervention prices would be set at 90 ECUs per metric ton and the threshold price would be set at 110 ECUs per metric ton. These prices would apply to all cereals, with special provisions for rice and durum wheat. Producers would receive a compensation payment equal to the difference between the current buying-in price and the proposed target price (i.e., 55 ECUs per metric ton), multiplied by the regional average cereal yield.

"Professional" producers would be required to set aside part of their crop area to be eligible for the compensation payments, with the requirement initially set at 15 percent but subject to annual review. Small-scale producers, defined in terms of area used for crop production and regional average cereal yields, would be exempt from the set-aside requirement. On average, producers with fewer than 20 hectares of cereals, oilseeds, and protein crops combined would qualify as small-scale producers. Set-aside area could be used for nonfood purposes such as pasture for horses or "energy-related products" (Commission of the European Communities 1991, 16). Given a 15 percent set-aside requirement and EC average yields, compensation would be paid only on the first 7.5 hectares set aside (i.e., producers with more than 50 hectares of crop area would not receive full compensation for the set-aside).

Livestock Products

The primary impact of the CAP reforms on the meat sector would be lower feed costs. Lower EC cereal prices would reduce ration costs for pork and poultry meat producers, which would

automatically be translated into lower border protection via the mechanisms used by the commission. Lower grain prices would allow EC livestock producers to compete with producers outside the European Community on a more equitable basis, reducing the justification for export subsidies.

Intervention beef prices would be reduced by 15 percent, of which 10 percent is meant to offset the effects of lower grain prices. To compensate grass-based producers, the new 180-ECU headage payment would be spread over three years, with the third payment occurring when the male animal is between 30 and 33 months of age. In addition, a 75- to 100-ECU suckler cow premium would be available. In both cases, payment would be made only on the first 90 animals and on farms with less than two livestock units per hectare of forage area (1.4 units per hectare in less-favored areas). The proposed package also includes a calf slaughter/disposal scheme to control beef production.

Dairy producers would receive average quota reductions of 3 percent in addition to the 2 percent cut agreed to in 1991. Larger scale producers (those with sales of more than 200,000 kilograms of milk per year) would have their quotas reduced by 4 percent, and a cessation scheme is designed to create a milk quota pool so that smaller scale producers would be exempt from quota reductions. Member states would redistribute 1 percent of the 4 percent cut in individual quotas to extensive dairy holdings and other deserving producers as identified by national governments. Producers would receive a 5 ECU per 100 kilogram compensation for 10 years for their reduced quota rights. Institutional prices for dairy products would be reduced by 10 percent (15 percent for butter and 5 percent for skim milk powder) to account for grain price reductions. An extensification package similar to that for beef would be implemented to compensate producers of grass-fed dairy cows.

Analytical System and Procedures for the Quantitative Analysis

To assess the impact of the proposed CAP reform, results for EC and world agriculture over the period 1992-2000 are compared under two alternative scenarios:

1. A baseline scenario that continues existing policies in the European Community and other major trading countries, and

2. A CAP reform scenario that incorporates proposed changes in EC agricultural policies, but continues existing agricultural policies in other countries.

The analysis is conducted by using the agricultural commodity models of the Food and Agricultural Policy Research Institute (FAPRI) and additional models created at the Center for Agricultural and Rural Development (CARD). For major trading countries, the FAPRI models are econometric models that estimate the supply, utilization, net trade, and prices of wheat, feed grains, rice, and soybeans (Devadoss et al. 1989). For purposes of analyses related to the GATT negotiations, CARD has developed models of the world beef, pork, poultry meat, dairy, and sugar markets (CARD 1991). All the components of the modeling system used in this analysis are dynamic, meaning that both short- and long-term effects of policy changes can be identified. The models are calibrated to reproduce recent historical data as closely as possible and to generate projections for the next ten years that are plausible, given what we know about the forces likely to shape world agricultural markets in the years ahead.

For the European Community, models of the wheat, barley, corn, soybean, rapeseed, beef, pork, and poultry meat sectors are structural econometric models, based on historical relationships among prices, quantities produced and consumed, and other economic variables. A synthetic model of the EC dairy sector is used to determine results for the EC milk, butter, cheese, and skim milk powder markets. Projections of total EC commodity supply and utilization include results for the new eastern states of Germany, based on synthetic models of eastern German agriculture.

Models of the livestock, dairy, and poultry meat sectors for four individual EC member states were created for this analysis. Structural econometric models of each country were estimated, and elasticities were calculated for each country. Because problems with data and limited degrees of freedom resulted in implausible or unreliable parameter estimates for some countries and commodities, a pooling procedure was utilized to increase degrees of freedom and obtain more realistic estimates. The elasticities used in the simulation model for each member country represent a simple average of the estimated elasticities for that country and the average estimated elasticities for all member states.

Assumptions for the Quantitative Analysis

The results of the quantitative analysis are driven by the assumptions underlying the baseline and CAP reform scenarios. The two scenarios utilize a common set of assumptions about the general economy, the weather, underlying rates of technological change, and agricultural policies in countries outside the European Community. The baseline scenario assumes the indefinite continuation of current CAP policies, including the application of stabilizer mechanisms. The CAP reform scenario assumes that the reform proposal from the July communication of the Commission of the European Communities (1991) is adopted and that its provisions remain in force indefinitely.

Assumptions Common to Both Scenarios

Macroeconomic assumptions in the analysis are based on forecasts from The WEFA Group (1991) and Project LINK (1991). For the European Community, WEFA is projecting a 1992 recovery from the current recession, with real growth in gross domestic product averaging slightly less than 3 percent per year and inflation averaging approximately 4 percent per year between 1992 and 1996 (Table 1). WEFA does not prepare annual projections for the 1997-2000 period, so this analysis assumes that macroeconomic conditions in the late 1990s will reflect a continuation of trends established in the mid-1990s.

WEFA projects a strengthening of the U.S. dollar in relation to European currencies in 1992, but then a continuing decline in the value of the dollar beginning in 1993. A weakening dollar makes EC products less competitive in world markets and has important implications for the analysis of the CAP reform scenario. The sharp reduction in EC market prices in the CAP reform scenario narrows the gap between internal EC prices and those prevailing in world markets, but the decline in the value of the dollar means that a gap still remains for most commodities. Results of the analysis would differ significantly if the exchange rate were assumed to remain constant or if the dollar were assumed to strengthen against European currencies. A stronger U.S. dollar would make it more likely that, under

Table 1. Assumptions of the baseline and CAP reform scenarios

	1992	1993	1994	1995	1996	1997	1998	1999	2000
					(Percent)				
Real GDP Growth	2.5	2.9	2.8	2.7	3.0	2.8	2.8	2.8	2.8
GDP Deflator Inflation	4.5	4.2	3.9	4.0	3.9	3.9	3.9	3.9	3.9
					(Dollars per ECU)				
Exchange Rate	1.15	1.23	1.30	1.37	1.44	1.48	1.51	1.54	1.57
Wheat and Corn Prices					(ECUs per Metric Ton)				
Baseline Net Producer Support[a]	159	154	149	145	140	136	132	128	124
Scenario Target	–	125	110	100	100	100	100	100	100
Scenario Net Producer Support[a]	159	136	141	145	145	145	145	145	145
Barley Prices									
Baseline Net Producer Support[a]	150	145	141	136	132	128	124	120	116
Scenario Target	–	125	110	100	100	100	100	100	100
Scenario Net Producer Support[a]	150	136	141	145	145	145	145	145	145
Soybean Net Producer Support[a]									
Baseline	345	320	347	349	363	372	383	394	406
Scenario	345	326	326	326	326	326	323	325	326
Rapeseed Net Producer Support[a]									
Baseline	239	253	255	256	256	257	257	257	257
Scenario	239	326	326	326	326	326	326	326	326
Beef Intervention Price									
Baseline	3,430	3,430	3,430	3,430	3,430	3,430	3,430	3,430	3,430
Scenario	3,430	3,259	3,087	2,916	2,916	2,916	2,916	2,916	2,916
Milk Target Price									
Baseline	268	268	268	268	268	268	268	268	268
Scenario	268	259	250	241	241	241	241	241	241
Butter Intervention Price									
Baseline	2,928	2,928	2,928	2,928	2,928	2,928	2,928	2,928	2,928
Scenario	2,928	2,781	2,635	2,489	2,489	2,489	2,489	2,489	2,489
Skim Milk Powder Intervention Price									
Baseline	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724
Scenario	1,724	1,702	1,667	1,638	1,638	1,638	1,638	1,638	1,638
Crop Set-Aside Rate					(Percent)				
Baseline	0	0	0	0	0	0	0	0	0
Scenario	0	15	15	15	15	15	15	15	15
Milk Overall Guaranteed Quantity					(Million Metric Tons)				
Baseline	106.69	106.69	106.69	106.69	106.69	106.69	106.69	106.69	106.69
Scenario	106.69	105.62	104.55	103.49	103.49	103.49	103.49	103.49	103.49

[a]Guaranteed producer price, minus effects of stabilizers, plus government payments.

the CAP reform scenario, the European Community could compete in international markets without using export subsidies.

Average weather conditions are assumed to prevail in all countries throughout the 1992-2000 period. For the European Community, this assumption results in a decline in 1992 wheat yields relative to those of 1990 and 1991 and an increase in 1992 U.S. corn yields relative to those of 1991. Actual weather will be variable, implying greater variation in production, trade, and prices than what appears in these projections

Underlying rates of technological change are projected to remain the same in the 1990s as those in recent years. Projected growth rates in crop yields, milk production per cow, and a number of other variables in the model depend both on trends reflecting technological change and on economic factors such as the prices of outputs and inputs. In general, it is assumed that producer and consumer response to changes in prices, income, and other economic factors will be similar to these of recent years and that any underlying trends will continue.

Current agricultural policies in countries outside the European Community are assumed to remain in force. In the United States, the Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA-90) provides the framework for agricultural policy through 1995, and it is assumed that provisions of FACTA-90 will be extended indefinitely. Likewise, in Japan, Canada, and other countries included in the model, existing policies are assumed to continue through 2000. No GATT agreement is assumed, but neither is it assumed that current trade frictions will expand the subsidy war. For example, the United States is assumed to continue its use of the Export Enhancement Program (EEP) to subsidize wheat exports, and the per unit subsidy is assumed to average $30 per metric ton, comparable to 1990 and 1991 levels.

The possibility that CAP reform would result in changes in agricultural policies in other countries cannot be dismissed. At the very least, it is likely that CAP reform would reduce the perceived need for export subsidies by other countries. It is possible, though by no means certain, that CAP reform could make it possible to reach a meaningful GATT agreement on agriculture. This

analysis examines the effects of CAP reform considered separately from policy reform in other countries. CAP reform is more likely to be politically acceptable in the European Community if it is coupled with subsidy cuts in other countries, so our analysis provides a conservative estimate of the impact of the proposal.

Baseline EC Policy Assumptions

The baseline assumes a continuation of current EC policies. In general, this assumption means that current institutional prices remain in effect through 2000, except where existing stabilizer mechanisms result in automatic changes in support levels, as in the cereal and oilseed sectors. Milk quotas are frozen at 1991/92 levels, and other supply control measures are assumed to remain in place. With nominal price support levels constant or declining, real cereal, meat, and milk prices fall significantly between 1992 and 2000.

In the cereal sector, baseline production exceeds the maximum guaranteed quantity (160 million metric tons, excluding production in the five eastern German states) in every year between 1992 and 2000. In accord with current policy, this production level triggers a 3 percent annual reduction in intervention prices so that cereal support prices fall by approximately 35 ECUs per metric ton between 1992 and 2000 (Table 1). The operation of oilseed stabilizer programs results in annual changes in producer support to soybean and rapeseed farmers. Soybean producer supports generally increase in the 1990s because of the projected decrease in soybean production. Rapeseed support levels are relatively constant, reflecting stable rapeseed production.

In the livestock and dairy sectors, there are no automatic stabilizer mechanisms under current law. Beef, butter, and skim milk powder intervention prices and milk target prices are assumed to remain constant at 1991 levels. With no change in support prices, beef producer prices are assumed to remain unchanged, and pork, poultry meat, and mutton prices are assumed to remain constant in nominal terms. Milk marketing quotas are assumed to remain frozen at 1991/92 levels.

EC Policy Assumptions in the CAP Reform Scenario

The CAP reform scenario assumes that the July proposal of the EC commission is adopted. EC market prices for grains, meats, and dairy products are reduced, but direct payments offset part or all of the resulting reduction in market receipts for many producers. A set-aside program reduces the amount of area devoted to cereal and oilseed production, and a reduction in the milk marketing quota reduces the amount of milk production eligible for support.

All institutional prices for cereals are reduced in the CAP reform scenario over a three-year transition period (Table 1). Beginning in 1995, the intervention price for all cereals is set at 90 ECUs per metric ton, the threshold price at 110 ECUs per metric ton, and the target price at 100 ECUs per metric ton. Baseline intervention prices are greater for wheat and corn than for barley, so the price change is proportionately smaller for barley than for the other cereals. When the CAP reform is fully in place, stabilizer programs are discontinued, meaning that institutional prices remain unchanged after 1995. The gap between baseline and CAP reform cereal prices widens between 1993 and 1995 as institutional prices fall sharply in the CAP reform scenario. After 1995, the gap narrows as CAP reform scenario prices remain unchanged, and baseline prices continue to fall because of the effects of stabilizers.

To offset the drop in market receipts, producers are assumed to receive a per hectare payment equivalent to the regional average yield multiplied by 30 ECUs per metric ton in 1993, 45 ECUs per metric ton in 1994, and 55 ECUs per metric ton in 1995 and subsequent years. The payments do not depend on each producer's actual yields, so the compensation payment should not be taken into account by producers as they decide about fertilizer use and other variable inputs.

This analysis assumes that producers must plant a cereal crop to receive the compensation payment. Although not mentioned explicitly in the July proposal, comments made by the director general for agriculture, Rolf Mohler, as reported in the October 4, 1991 edition of *Agra Europe* (1991a), indicate that the payments would, in fact, depend on planted cereal acreage. Thus, acreage decisions should depend both on expected market prices and on the compensation payment. The

compensation payment is sufficiently large that the average producer would receive approximately the same total return in the baseline as in the CAP reform scenarios in 1994 and 1995. Assuming that the compensation payment and support prices remain unchanged, total producer returns in the CAP reform scenario actually exceed baseline levels in later years, given the baseline price reductions from stabilizer programs. Were it not for the set-aside program, cereal acreage in the CAP reform scenario would be expected to equal or exceed baseline levels in the late 1990s.

The commission proposal indicates that the compensation payment should depend on the regional average yield for all cereals, but this analysis assumes that the payment would depend on the average regional yield for each cereal so that the policy change does not result in major area shifts across cereals. If the all-cereal yield were used, the per ton payment would be greater for low-yielding crops than for high-yielding crops. If everything else remains equal, this method would increase the relative incentive to produce low-yielding crops.

In the oilseed sector, producer prices are not supported in the CAP reform scenario but farmers receive per hectare payments that provide a support level designed to be equivalent to that offered to the cereal sector. Net producer support levels for soybeans and rapeseed are equalized, which implies a reduction in soybean support relative to the baseline and an increase in rapeseed support. As with cereals, payments to individual producers do not depend on actual yields, but rather on average regional yields. Market prices, therefore, should determine fertilizer use and other nonland inputs, but area decisions are affected by the compensation payments.

Producers with more than 20 hectares devoted to cereal and oilseed production must set aside 15 percent of their area to qualify for compensation payments. The proposed compensation payments are sufficiently lucrative that the vast majority of large-scale producers are likely to participate in the set-aside program. Small-scale producers are exempt from the set-aside requirements. Approximately 25.7 percent of agricultural area in the European Community consists of farms with less than 20 hectares of utilized agricultural area, and these farms account for 79.5 percent of all holdings (Westhoff and Hennessy 1991). Approximately 40 percent of the cereals area consists of farms with

less than 20 hectares of cereals (Commission of the European Communities 1991, 7). Because the definition of small-scale producers depends on combined area of cereals, oilseeds, and protein crops and because some small-scale producers may choose to participate in the set-aside program, it is assumed that 30 percent of cereal and oilseed area is held by farmers not participating in the set-aside program.

The beef intervention price in the CAP reform scenario is reduced by 15 percent over the 1993-95 period, in line with the commission proposal. It is assumed that this reduction results in a corresponding 15 percent reduction in producer prices. To compensate for the reduced price support, a per animal payment is made on male animals to small- and medium-scale producers that meet particular extensification criteria. Annual beef and dairy cow premia are also paid to small-scale producers. For purposes of this analysis, it is assumed that 50 percent of all animals in the European Community qualify for the compensation payments. Given differences in herd size and stocking ratios in different member countries, it is assumed that 30 percent of the animals in the United Kingdom qualify for the payment, compared with 50 percent in Italy and 60 percent in France and Germany.

Compensation payments are introduced into the model by adjusting the beef price in the supply equation. Specifically, the compensation payments are converted to a per kilogram basis, multiplied by the assumed proportion of animals eligible to receive the payments, and added to the market price. Because the male animal premium is paid in three installments and the final installment is made when animals are 30 to 33 months old, some producers would switch from intensive to extensive methods. This switch is captured in the model by reducing slaughter slightly during the transition and allowing total inventories to increase to levels greater than those that would otherwise exist. The calf disposal scheme proposed by the commission is not incorporated in the analysis because the European Community becomes a net importer of beef in the CAP reform scenario.

The commission proposal makes no specific recommendations for the pork and poultry sectors. The reduction in feed prices in the CAP reform scenario would result in a large increase in pork and poultry production if there were no reduction in pork and poultry prices. We implicitly assume that the

European Community reduces gate prices for pork and poultry in line with the reduction in feed costs. This represents a continuation of current policies. The assumed 15 percent reduction in pork and poultry prices results in little net change in production and leaves the relative prices of beef, pork, and poultry the same as those in the baseline.

In the dairy sector, milk marketing quotas are reduced by 3 percent between 1993 and 1995. Some producers would face a larger quota reduction and others might obtain quota increases, but sectoral results are determined by the size of the average quota reduction. Over the 1993-95 phase-in period, butter intervention prices are reduced by 15 percent, skim milk powder intervention prices are reduced by 5 percent, and the milk target price is reduced by 10 percent over a three-year period. Institutional cheese prices are also assumed to be reduced by 7.5 percent so as not to significantly distort relative dairy product prices, although no such proposal is specified in the commission plan.

To compensate dairy producers for reduced marketing quotas and milk prices, annual per cow payments are available on the first 40 cows in herds of producers who meet extensification criteria. Some dairy farmers may choose to meet their quota obligations by changing production practices so that they reduce milk production per cow rather than the number of cows. On the other hand, reduced feed prices would tend to increase production per cow. For the European Community as a whole, it is assumed that both cow numbers and production per cow in the CAP reform scenario would fall below baseline levels, with the largest adjustment in production per cow. The proportion of adjustment to production per cow is assumed to be greatest in countries where most producers would receive compensation payments.

Other provisions of the commission's CAP reform proposal are not explicitly considered in the analysis, and some of the proposals could be important. For example, the proposed agri-environmental programs may significantly change production patterns in some parts of the European Community. Measures to promote early retirement may result in larger production units and changes in product mix and productivity. This analysis focuses on the effects of policy proposals aimed directly at particular commodities.

Results of the Quantitative Analysis

Given the assumptions outlined in the previous section, CARD models of EC and world agriculture are solved to obtain results for the baseline and CAP reform scenarios. This section reports results for the EC crop and livestock sectors, world prices, and livestock supply in four major EC member countries (the United Kingdom, France, Italy, and Germany).

EC Cereal and Oilseed Sectors

Results for the EC cereal and oilseed sectors are summarized in Table 2. Average land use, production, consumption, trade, and prices are reported for the baseline and CAP reform scenarios for the 1993-2000 period. Annual estimates are reported in Appendix A.

Total area harvested for wheat, corn, barley, soybeans, and rapeseed is reduced by an average of 8.9 percent in the CAP reform scenario relative to the baseline. The 3.1 million-hectare reduction in harvested area is less than the 3.4 million hectares enrolled in the set-aside program, and the difference can be explained by the relative effects of baseline stabilizers and CAP reform scenario compensation payments. In the baseline, net producer support falls over time for cereal producers as stabilizers result in annual reductions in intervention prices. In the scenario, cereal producer returns including compensation payments are stable and exceed baseline levels after 1995. In the CAP reform scenario, the sum of the cereal and oilseed area harvested plus the area idled by the set-aside program remains essentially unchanged, whereas total area harvested declines slightly in the baseline.

Results concerning total area harvested and idled are sensitive to two major assumptions. First, it is assumed that 30 percent of cereal and oilseed area is exempt from set-aside provisions. If the actual percentage of farms with less than 20 hectares of cereals and oilseeds is significantly different than 30 percent, the estimates of set-aside and harvested area under the CAP reform scenario would be biased. Second, it is assumed that farmers can only receive compensation payments if they produce the crop in the current year. If payments are determined by fixed historical production bases rather than current area, then payments would be decoupled from current planting decisions. Given the lower

Table 2. EC grains and oilseeds under the baseline and CAP reform scenarios

	1993-2000 Average Levels			
	Baseline	CAP Reform	Change from Baseline Level	
Grain and Oilseed Area	(1,000 Hectares)			(Percent)
Harvested	34,810	31,700	-3,110	-8.9
Set-Aside	0	3,368	3,368	–
Total	34,810	35,068	258	0.7
Wheat	(1,000 Metric Tons)			
Production	86,150	75,540	-10,610	-12.3
Consumption	66,270	67,930	1,660	2.5
Net Exports	19,980	7,820	-12,160	-60.9
Barley				
Production	52,509	47,260	-5,249	-10.0
Consumption	44,337	45,380	1,043	2.4
Net Exports	8,195	2,105	-6,090	-74.3
Corn				
Production	27,606	24,902	-2,704	-9.8
Consumption	30,165	31,403	1,238	4.1
Net Imports	2,664	6,624	3,960	148.6
Soybeans				
Production	1,648	1,414	-234	-14.2
Crush	12,631	12,837	206	1.6
Net Imports	12,760	13,216	456	3.6
Rapeseed				
Production	6,949	6,637	-312	-4.5
Crush	6,723	6,442	-281	-4.2
Net Imports	324	355	31	9.6
Soybean and Rapeseed Meal				
Production	14,075	14,074	-1	0.0
Consumption	24,946	24,372	-574	-2.3
Net Imports	10,875	10,302	-573	-5.3
Market Prices	(ECUs per Metric Ton)			
Wheat	138	102	-36	-26.1
Barley	130	103	-27	-20.8
Corn	139	104	-35	-25.2
Soybeans	150	158	8	5.3
Net Producer Support[a]				
Wheat and Corn	139	143	4	2.9
Barley	130	143	13	10.0
Soybeans	367	326	-41	-11.2

[a]Guaranteed producer price, minus effects of stabilizers, plus government payments.

market prices prevailing in the CAP reform scenario, the expected result would be a greater reduction in total area harvested.

Area harvested declines in the CAP reform scenario relative to the baseline for all major grains and oilseeds, but the changes are greater for some crops than for others. Wheat area, for example, declines by more than does barley area because the relative net support levels change in favor of barley in the CAP reform scenario. (In the baseline, barley intervention prices are lower than those for corn and wheat; in the CAP reform scenario, market prices and compensation payments are identical for the two crops.) Because of the significant reduction in net producer support for soybeans in the CAP reform scenario, soybean area falls sharply, with some of the area switching into corn and rapeseed. Net support for rapeseed producers increases in the CAP reform scenario relative to the baseline, so some area switches from other crops into rapeseed. Even for rapeseed, however, the 15 percent set-aside requirement modestly reduces area harvested relative to the baseline.

Average crop yields are affected in the CAP reform scenario by two opposing factors. The sharp reduction in market prices and the fact that compensation payments do not depend on actual yields of individual producers would tend to result in significant yield reductions as producers change practices to reduce fertilizer use and other variable inputs. On the other hand, the set-aside program is likely to idle each farmer's least productive land and to boost productivity on remaining area because of rotational benefits. Results of the CAP reform scenario reflect a slight reduction in cereal yields relative to baseline levels, indicating that the price effect dominates the set-aside effect. Arguments can be made for larger or smaller yield impacts, but the assumed yield impacts are consistent with U.S. experience under somewhat similar programs.

The changes in area harvested and yields result in a 12.3 percent average reduction in EC wheat production in the CAP reform scenario relative to the baseline and in slightly smaller reductions in barley and corn production. Total cereal production falls an average of 18.6 million metric tons from baseline levels. The proportional decline in soybean production is greater than that for rapeseed, and

total soybean and rapeseed production in the CAP reform scenario declines by more than 500,000 metric tons relative to the baseline.

Cereal market prices fall by an average of 20 percent to 26 percent from baseline levels, with the largest proportional declines in the mid-1990s. Lower cereal prices make it more attractive to use relatively more cereals and less cereal substitutes in livestock rations. Even though total livestock numbers change little in the CAP reform scenario, the lower cereal prices increase domestic EC cereal use by an average of 3.9 million metric tons (2.8 percent) from baseline levels. The proportional decline in barley prices is smaller than that for wheat and corn, so the absolute and proportional increase in barley consumption is smaller than those for the other cereals. For cereal substitutes, reduced EC demand and upward-sloping supply curves are assumed to result in price reductions that are 50 percent as great as the reductions in cereal prices in the CAP reform scenario.

Total EC oilseed crush is essentially unchanged in the CAP reform scenario relative to the baseline because a reduction in domestically produced rapeseed crush is offset by an increase in imported soybean crush. Net oilseed imports increase by approximately 500,000 metric tons, comparable to the change in oilseed production. Consumption of soybean and rapeseed meal falls by 2.3 percent as the decline in cereal prices induces an increase in feed use of cereals and a reduction in cereal substitute and protein meal use. The reduction in meal imports in the CAP reform scenario is approximately the same as the increase in soybean and rapeseed imports.

Compared to the changes in net trade of oilseeds and oilseed products, the changes in net cereal trade are quite large. Net exports of wheat, barley, and corn fall from an average of 25.5 million metric tons in the baseline to just 3.3 million metric tons in the CAP reform scenario. Although the government costs associated with the two scenarios were not estimated, it is clear that the European Community would sharply reduce its expenditures on cereal export subsidies in the CAP reform scenario relative to the baseline. Offsetting this cost savings, of course, would be the cost of the compensation payments to producers.

EC Livestock, Poultry, and Dairy Sectors

As with the cereal and oilseed sectors, results for the EC dairy sector are dominated by the effects of changes in supply control measures in the CAP reform scenario. In the livestock and poultry sectors, however, supply is essentially unchanged but changes in consumption levels significantly change EC net trade. Results for the EC livestock, poultry, and dairy sectors are reported in Table 3 and Appendix B.

The 3 percent reduction in milk marketing quotas results in a corresponding reduction in milk production. Because of the extensification premia, however, the estimated average reduction in dairy cow numbers from baseline levels is only 0.6 percent in the CAP reform scenario. The net effect of the reduction in beef prices, the reduction in feed prices, and the extensification premia is estimated to be a small increase in beef cow numbers and in total cattle inventories. On average, EC beef production is estimated to be unchanged from baseline levels in the CAP reform scenario.

Average pork and poultry production levels in the CAP reform scenario slightly exceed baseline levels, largely because the assumed reduction in meat prices is slightly smaller than the decline in feed prices in the mid-1990s. Reduced EC pork prices and increased world pork prices in the CAP reform scenario actually allow the European Community to export pork without export subsidies in 1995 and 1996, so EC pork prices in these years are supported by world market levels rather than by government subsidies in those years. EC domestic pork prices exceed world levels in later years, primarily because of the assumed decline in the value of the dollar against European currencies. EC domestic prices for poultry and beef consistently exceed world price levels, even under the CAP reform scenario, so any EC exports require export subsidies.

The reduction in meat prices increases meat consumption per capita by 4.0 percent in the CAP reform scenario relative to the baseline. Per capita meat expenditures (measured by producer prices) fall by an estimated 8.2 percent, so consumers are spending less to obtain more. The largest consumption change, in both absolute and proportional terms, is for beef, the meat with the greatest absolute price change. The 6.7 percent increase in beef consumption is sufficient to make the

Table 3. EC livestock, poultry, and dairy sectors under the baseline and CAP reform scenarios

	1993-2000 Average Levels			
	Baseline	CAP Reform	Change from Baseline Level	
Inventories	(Million Head)			(Percent)
Dairy Cows	23.31	23.16	-0.15	-0.6
All Cattle and Calves	82.44	82.73	0.29	0.4
Hogs	114.27	115.09	0.82	0.7
Beef	(1,000 Metric Tons)			
Production	8,020	8,019	-1	0.0
Consumption	7,670	8,182	511	6.7
Net Exports	348	-166	-514	-147.7
Pork				
Production	14,515	14,636	121	0.8
Consumption	13,759	14,159	400	2.9
Net Exports	756	477	-279	-36.9
Poultry				
Production	7,245	7,314	68	0.9
Consumption	6,847	7,066	220	3.2
Net Exports	399	247	-151	-38.0
Dairy Products				
Milk Production	115,399	112,375	-3,024	-2.6
Fluid Consumption	30,855	31,104	249	0.8
Butter Consumption	1,483	1,489	6	0.4
Cheese Consumption	4,740	4,781	41	0.9
Skim Powder Consumption	1,078	1,068	-11	-1.0
Butter Net Exports	278	151	-127	-45.6
Cheese Net Exports	369	278	-91	-24.7
Skim Powder Net Exports	416	301	-115	-27.6
Prices	(ECUs per Metric Ton)			
Beef Unit Value	2,875	2,498	-377	-13.1
Pork Unit Value	1,625	1,421	-204	-12.5
Poultry Unit Value	1,400	1,216	-184	-13.1
Milk Producer	310	293	-18	-5.7
Concentrate Feed	243	207	-36	-14.7
Per Capita Consumption	(Kilograms, Carcass Weight Basis)			
Meat and Poultry	85.19	88.62	3.43	4.0
Per Capita Expenditures	(ECUs, at Producer Prices)			
Meat and Poultry	170.39	156.37	-14.02	-8.2
Dairy Products	92.60	87.83	-4.77	-5.1

European Community a net importer of beef in the CAP reform scenario as EC beef consumption and net trade each change by approximately 500,000 metric tons from baseline levels. Net pork and poultry meat exports also decline in the CAP reform scenario as the increase in consumption exceeds the increase in production.

In the dairy sector, the reduction in the marketing quota in the CAP reform scenario translates into a reduction in milk, butter, skim milk powder, and cheese production. Modest price reductions result in small increases in dairy product consumption relative to baseline levels, except in the case of skim milk powder, for which consumption falls slightly because of an assumed reduction in subsidized sales. EC net exports of dairy products fall sharply below baseline levels, with the largest change being in EC net exports of butter, the commodity with the largest price decline. Producer milk prices fall by less than the 10 percent reduction in the milk target price as the reduction in quota and in net exports results in some tightening of EC dairy markets.

Implications for Possible GATT Disciplines

CAP reform has important implications for the GATT negotiations on agriculture. The CAP reform scenario results in a significant reduction in EC exports of cereals, meats, and dairy products. If a GATT agreement requires moderate (30 percent to 50 percent) reductions in quantities exported with subsidy, the results indicate that the European Community would be able to comply with GATT export subsidy disciplines by implementing the proposed CAP reform. By reducing the level of border protection, the CAP reform proposal would also address some concerns about market access (although internal EC prices for most commodities would remain insulated from world price changes, contrary to the U.S. tariffication proposal).

A GATT agreement is likely to require countries to make moderate reductions in an Aggregate Measure of Support (AMS). Whether or not CAP reform would be sufficient to bring the European Community into compliance with an AMS reduction discipline would depend on the particular

provisions of a GATT agreement. Important factors include the level of cuts required, the base period from which cuts must be made, and the precise definition of the AMS.

Suppose, for example, that a GATT agreement requires countries to reduce their total AMS by 30 percent from a 1986-88 base period. The 1997 AMS for the nine commodities included in this analysis is estimated to be 29.6 percent less than the base period AMS (Table 4), even if compensation payments are included in the CAP reform scenario AMS. Thus, the European Community may be able to comply with a GATT agreement simply by implementing the proposed CAP reform. If a GATT agreement requires a 30 percent AMS reduction for each commodity or a larger total AMS reduction, the European Community may not be able to satisfy the requirements of a GATT agreement without additional support reductions. In the beef and dairy sectors in particular, the CAP reform proposal seems unlikely to result in a 30 percent AMS reduction if compensation payments are included in the AMS calculation.

For cereals and oilseeds, AMS reductions are actually larger in the baseline than under the CAP reform scenario. In the baseline, application of the stabilizer programs results in annual reductions in cereal support levels and maintains oilseed support at significantly lower levels than the level that prevailed between 1986 and 1988. In the CAP reform scenario, cereal price supports are reduced dramatically between 1992 and 1995, but compensation payments restore producer income to 1994 or 1995 levels and are assumed to remain constant after 1995. Including compensation payments in the AMS calculation results in a greater 1997 AMS under CAP reform than in the baseline, even though the CAP reform AMS would be much less than the baseline AMS if compensation payments were excluded.

World Price

The reductions in EC net exports of cereals, meats, and dairy products in the CAP reform scenario increase world prices for those commodities. Table 5 reports annual percentage changes in world prices in the CAP reform scenario relative to baseline levels.

Table 4. Aggregate Measure of Support (AMS) for selected EC commodities under the baseline and CAP reform scenarios

	1986-88 Average	1997	Change from 1986-88
	(Billion ECUs)		(Percent)
Wheat, Barley, and Corn			
Baseline	10.2	4.8	-53.4
CAP Reform	–	5.9	-42.6
Soybeans and Rapeseed			
Baseline	1.5	0.7	-51.7
CAP Reform	–	1.0	-29.5
Beef			
Baseline	5.0	5.6	11.9
CAP Reform	–	4.1	-17.3
Pork and Poultry			
Baseline	2.1	2.8	31.0
CAP Reform	–	0.8	-60.4
Milk			
Baseline	20.6	18.6	-10.0
CAP Reform	–	15.9	-23.0
Nine-Commodity Total			
Baseline	39.4	32.4	-17.8
CAP Reform	–	27.7	-29.6

Note: The Aggregate Measure of Support (AMS) is calculated as follows: (institutionally supported price minus 1986-88 average border price) multiplied by production, plus direct government payments. Compensation payments are included in the CAP reform scenario estimates.

Table 5. World agricultural commodity prices under the CAP reform scenario

	1993	1994	1995	1996	1997	1998	1999	2000	93-00 Avg.
				(Percent Change from Baseline)					
Wheat (U.S. Gulf FOB)	34.3	32.4	14.0	10.8	14.1	14.7	11.7	10.5	17.8
Barley (U.S. Pacific FOB)	17.3	10.5	9.0	6.6	6.3	6.9	3.3	7.5	8.4
Corn (U.S. Gulf FOB)	13.1	7.4	10.6	8.7	7.2	6.5	4.9	6.7	8.1
Soybeans (U.S. Gulf FOB)	1.8	6.6	9.2	9.1	5.2	3.8	4.9	5.7	5.8
Soybean Meal (U.S. Decatur)	-3.6	-0.4	2.5	3.3	1.2	1.0	2.5	3.3	1.2
Soybean Oil (U.S. Decatur)	8.8	15.2	17.0	15.0	9.7	5.9	5.2	5.6	10.3
Beef (Omaha Steers)	3.2	-0.1	1.4	2.7	4.5	8.0	11.0	13.6	5.8
Pork (U.S. Barrows & Gilts)	3.6	2.6	3.9	5.8	5.9	6.5	5.3	4.7	4.8
Broilers (U.S. Wholesale)	1.9	1.4	3.1	4.0	4.7	5.9	6.7	7.8	4.5
Butter (N. Europe FOB)	7.4	14.5	21.9	21.2	20.9	21.0	21.7	22.6	18.9
Cheese (N. Europe FOB)	5.4	12.1	19.1	20.7	20.3	19.8	19.6	19.5	17.3
Skim Powder (N. Eur. FOB)	5.5	11.5	15.1	13.7	11.9	11.4	11.1	10.3	11.4

World wheat prices increase sharply in the CAP reform scenario, with the largest increases relative to the baseline occurring in 1993 and 1994. EC wheat exports are reduced by more than 12 million metric tons from baseline levels in 1993 and 1994, so world prices increase dramatically to ration available supplies and induce increased production. As wheat production in the United States, Canada, and other countries increases, world wheat prices moderate. For the 1993-2000 period as a whole, world wheat prices increase by an average of 17.8 percent in the CAP reform scenario relative to the baseline. Despite the large increase in world prices and reductions in EC market prices, internal EC prices continue to exceed world levels. If the United States suspended use of the EEP or the dollar did not fall in value against European currencies, the European Community would be competitive in world wheat markets without export subsidies in some years under the CAP reform scenario.

World barley and corn prices follow a pattern similar to that for wheat, but CAP reform scenario changes from the baseline level are smaller. The absolute change in EC net exports of coarse grains is smaller than that for wheat, and the United States has greater capacity to expand coarse grain

production than to expand wheat production to meet increased export demand. EC coarse grain prices remain substantially greater than world price levels in the CAP reform scenario.

Average soybean and soybean product prices increase in the CAP reform scenario relative to the baseline. Net EC imports of soybeans and soybean meal change little in the CAP reform scenario. World oilseed prices increase because higher world grain prices increase competition for land and because reduced EC meat exports allow an expansion in U.S. livestock production that increases demand for soybean meal in the United States. Soybean prices increase more than do soybean meal prices because EC soybean imports increase, whereas EC soybean meal imports fall.

World meat prices increase both because of reduced exports by the European Community and because of increased feed costs. The 5.8 percent average increase in beef prices is greater than that for pork and broilers, in part because the change in the EC net trade position is greater for beef than for pork and poultry meat. The dynamics of the price changes are very different across meats. Beef prices change little between 1993 and 1996 because the effect of increased export demand is offset by liquidations resulting from increased feed prices. This reduction in breeding herd reduces U.S. production in the late 1990s, so high prices cause rationing of available supplies. If the analysis were extended past the year 2000, the percentage changes from baseline levels in Omaha steer prices would again decline because the high prices of the late 1990s would induce more beef supply. The production cycles for pork and poultry are shorter, so these cyclical effects are less pronounced. Substitution effects in consumer demand mean the high beef prices of the late 1990s make pork and poultry meat prices higher than they otherwise would be.

World dairy product prices increase dramatically in the CAP reform scenario relative to the baseline by an average of 11 percent to 19 percent. The decline in EC net exports of dairy products, while small relative to EC supply and demand, is very large relative to the amounts traded on world markets. Policies insulate dairy prices in most countries, so the increase in world prices is felt immediately only in the relatively unprotected markets of New Zealand, Australia, and some importing countries. World prices increase sufficiently that the United States becomes a commercial net exporter

of nonfat dry milk, but U.S. butter and cheese prices remain greater than world levels. Internal EC prices far exceed even U.S. levels, so the European Community must continue to subsidize dairy product exports in the CAP reform scenario, although the size of the subsidy and the quantity subsidized are both sharply reduced.

Livestock, Poultry, and Dairy Supply in Selected EC Countries

Estimates of beef, pork, poultry meat, and milk supply for four EC countries under the baseline and CAP reform scenarios are reported in Table 6. The model used to obtain the country results is separate from the aggregate EC model used for the results just reported, but the results are generally consistent.

The reduction in milk quotas reduces milk production and milk cow numbers in the United Kingdom, France, Italy, and western Germany. The reduction in milk cow numbers is largest in the United Kingdom because most dairy cows in the United Kingdom are on farms with herds too large for all cows to be eligible for extensification premia. Corresponding to the greater reduction in dairy cow numbers, beef production declines more in the United Kingdom than in the other three countries under the CAP reform scenario. In all cases, however, the change in beef production is small, which is consistent with the aggregate EC results.

The country models do not take into account the possibility of commercial meat exports, so the percentage changes in beef, pork, and poultry meat prices are identical by assumption. Pork and poultry meat production in all four countries are essentially unchanged in the CAP reform scenario because the effects of reductions in feed costs and meat prices approximately offset one another. Slight differences in production effects across countries can be explained by differences in underlying supply elasticities.

Summary and Conclusions

It now seems likely that the European Community will eventually accept some version of the MacSharry restructuring proposal. This package could form the basis of any new GATT proposal

Table 6. Livestock, poultry, and dairy sectors under the baseline and CAP reform scenarios for selected EC member countries

	1993-2000 Average Levels			
	Baseline	CAP Reform	Change from Baseline Level	
Dairy Cow Inventories	(Million Head)			(Percent)
United Kingdom	2.62	2.56	-0.06	-2.2
France	4.81	4.78	-0.03	-0.7
Italy	2.69	2.67	-0.03	-0.9
Western Germany	4.35	4.32	-0.03	-0.6
Beef Production	(1,000 Metric Tons)			
United Kingdom	999	992	-7	-0.7
France	1,956	1,949	-6	-0.3
Italy	885	881	-4	-0.4
Western Germany	1,635	1,627	-8	-0.5
Beef Unit Value[a]	–	–	–	-13.1
Pork Production				
United Kingdom	1,023	1,027	4	0.4
France	1,801	1,804	2	0.1
Italy	1,066	1,067	1	0.1
Western Germany	2,765	2,766	1	0.0
Pork Unit Value[a]	–	–	–	-13.1
Poultry Production				
United Kingdom	1,318	1,311	-6	-0.5
France	1,937	1,937	-1	0.0
Italy	1,316	1,317	1	0.1
Western Germany	459	456	-3	-0.7
Poultry Unit Value[a]	–	–	–	-13.1
Milk Production				
United Kingdom	14,755	14,368	-387	-2.6
France	26,100	25,469	-631	-2.4
Italy	10,500	10,265	-235	-2.2
Western Germany	23,500	22,941	-559	-2.4
Milk Unit Value[a]	–	–	–	-8.7

[a]Same percentage change in unit values applied to all four countries.

from the European Community or could be a major means by which the European Community would comply with a GATT agreement. This paper presents an econometric analysis of how the July 22 version of the proposal would affect prices, production, consumption, and exports of the principal temperate commodities. The methods and assumptions used to analyze these effects were conservative; nevertheless, they indicate that the European Community would achieve cuts in export subsidies and import protection that could form the basis of an agreement between the European Community and other GATT negotiators.

Concerning the third major area of contention in the GATT negotiations, internal supports, the compensation payments included as part of the CAP reform proposal may make it difficult for the European Community to meet a GATT reduction commitment. Using a 1986-88 base period, the estimated AMS reduction by 1997 for nine commodities is nearly 30 percent, but reductions for beef and milk are significantly lower. The European Community may argue that compensation payments should be exempt from reduction because the payments are, at least in certain respects, decoupled from production decisions. Other countries are likely to point out that the payments are not entirely decoupled because they depend on actual acreage planted and animal numbers.

In summary, the July 22 version of the MacSharry restructuring proposal may go a long way toward satisfying U.S. concerns about EC agricultural policy. The elements of the proposal may not satisfy other GATT parties, but, if accepted, the proposal will at least introduce new life into and a possible reconfiguration of the stalled GATT negotiations. The new proposal could also form the basis for an earlier GATT agreement by providing the European Community with more policy options to reach compliance with new GATT disciplines.

Appendix A. Annual estimates for the EC grain and oilseed sectors

	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	93-00 Avg.
Grain Area					(1,000 Hectares)					
Baseline	32,334	32,159	32,148	32,144	32,144	32,143	32,143	32,144	32,149	32,147
Scenario Harvested	32,334	28,871	29,039	29,138	29,184	29,253	29,327	29,384	29,436	29,204
Set-Aside	0	3,070	3,091	3,090	3,106	3,112	3,106	3,120	3,134	3,104
Total	32,334	31,941	32,130	32,228	32,290	32,365	32,433	32,504	32,570	32,308
Soybean and Rapeseed Area										
Baseline	2,958	2,862	2,809	2,743	2,687	2,631	2,577	2,524	2,472	2,663
Scenario Harvested	2,958	2,639	2,604	2,566	2,525	2,481	2,433	2,385	2,335	2,496
Set-Aside	0	279	276	272	268	263	258	253	247	265
Total	2,958	2,918	2,880	2,838	2,793	2,744	2,691	2,638	2,582	2,761
Wheat Production					(1,000 Metric Tons)					
Baseline	82,230	82,360	83,330	84,390	85,490	86,620	87,790	88,990	90,230	86,150
Scenario	82,230	71,290	73,000	73,840	74,750	75,980	77,230	78,490	79,770	75,544
Wheat Consumption										
Baseline	63,430	64,090	64,750	65,400	66,010	66,610	67,190	67,760	68,320	66,266
Scenario	63,430	66,020	66,900	67,540	67,890	68,250	68,590	68,940	69,290	67,928
Wheat Net Exports										
Baseline	21,330	19,550	18,650	18,920	19,390	19,920	20,500	21,130	21,810	19,984
Scenario	21,330	7,390	6,200	6,250	6,790	7,630	8,530	9,440	10,360	7,824
Barley Production										
Baseline	50,323	50,737	51,296	51,808	52,292	52,768	53,244	53,723	54,205	52,509
Scenario	50,323	45,131	45,914	46,614	46,967	47,543	48,100	48,640	49,167	47,260
Barley Consumption										
Baseline	43,262	43,492	43,732	43,982	44,227	44,461	44,697	44,938	45,172	44,338
Scenario	43,262	44,502	44,953	45,318	45,466	45,571	45,658	45,747	45,830	45,381
Barley Net Exports										
Baseline	7,002	7,249	7,577	7,852	8,097	8,340	8,578	8,813	9,057	8,195
Scenario	7,002	1,755	1,038	1,368	1,638	2,066	2,540	2,993	3,441	2,105
Corn Production										
Baseline	26,658	26,866	27,069	27,268	27,471	27,684	27,912	28,156	28,418	27,606
Scenario	26,658	23,425	23,922	24,141	24,538	25,045	25,551	26,051	26,542	24,902
Corn Consumption										
Baseline	29,183	29,413	29,644	29,887	30,108	30,294	30,475	30,665	30,832	30,165
Scenario	29,187	30,529	30,983	31,403	31,581	31,647	31,674	31,704	31,705	31,403
Corn Net Imports										
Baseline	2,803	2,829	2,750	2,690	2,705	2,674	2,625	2,568	2,472	2,664
Scenario	2,807	7,540	7,297	7,350	7,085	6,649	6,169	5,698	5,206	6,624

Appendix A. Continued

	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	93-00 Avg.
Soybean Production					(1,000 Metric Tons)					
Baseline	1,928	1,801	1,791	1,726	1,682	1,627	1,575	1,520	1,464	1,648
Scenario	1,928	1,642	1,579	1,515	1,450	1,384	1,312	1,247	1,180	1,414
Soybean Crush										
Baseline	12,435	12,395	12,438	12,499	12,580	12,678	12,764	12,833	12,858	12,631
Scenario	12,441	12,798	12,724	12,717	12,753	12,842	12,915	12,964	12,979	12,837
Soybean Net Imports										
Baseline	12,322	12,357	12,414	12,543	12,673	12,832	12,974	13,102	13,182	12,760
Scenario	12,330	12,965	12,929	12,986	13,089	13,252	13,399	13,515	13,596	13,216
Soybean Meal Production										
Baseline	9,950	9,919	9,954	10,003	10,068	10,147	10,216	10,272	10,292	10,109
Scenario	9,955	10,241	10,182	10,177	10,206	10,278	10,337	10,376	10,389	10,273
Soybean Meal Consumption										
Baseline	20,002	20,172	20,287	20,371	20,421	20,501	20,581	20,612	20,643	20,449
Scenario	19,962	19,818	19,806	19,871	20,000	20,166	20,265	20,276	20,283	20,061
Soybean Meal Net Imports										
Baseline	10,048	10,256	10,338	10,373	10,358	10,360	10,371	10,344	10,354	10,344
Scenario	10,002	9,589	9,628	9,697	9,797	9,893	9,933	9,903	9,896	9,792
Rapeseed Production										
Baseline	7,020	6,984	6,964	6,952	6,944	6,940	6,937	6,935	6,933	6,949
Scenario	7,020	6,456	6,532	6,593	6,646	6,686	6,713	6,730	6,738	6,637
Rapeseed Crush										
Baseline	6,787	6,755	6,736	6,725	6,719	6,715	6,712	6,711	6,709	6,723
Scenario	6,787	6,279	6,347	6,402	6,450	6,486	6,510	6,525	6,533	6,442
Rapeseed Net Imports										
Baseline	317	321	322	323	325	325	325	326	326	324
Scenario	317	373	365	359	354	350	347	345	345	355
Rapeseed Meal Production										
Baseline	4,004	3,985	3,974	3,968	3,964	3,962	3,960	3,959	3,958	3,966
Scenario	4,004	3,705	3,745	3,777	3,806	3,827	3,841	3,850	3,854	3,801
Rapeseed Meal Consumption										
Baseline	4,540	4,518	4,506	4,499	4,495	4,492	4,490	4,489	4,488	4,497
Scenario	4,540	4,203	4,248	4,285	4,316	4,340	4,356	4,366	4,371	4,311
Rapeseed Meal Net Imports										
Baseline	536	533	532	531	531	530	530	530	530	531
Scenario	536	498	503	508	510	513	515	516	517	510

Appendix A. Continued

	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	93-00 Avg.
Wheat Market Price					(ECUs per Metric Ton)					
Baseline	158	153	148	144	140	135	131	127	123	138
Scenario	158	116	106	100	100	100	100	100	100	102
Barley Market Price										
Baseline	150	145	140	136	131	127	123	119	115	130
Scenario	150	116	106	100	100	100	100	100	100	103
Corn Market Price										
Baseline	159	154	150	145	141	137	133	129	125	139
Scenario	159	118	108	102	102	102	102	101	101	104
Soybean Market Price										
Baseline	183	165	155	150	151	147	142	142	146	150
Scenario	184	168	165	164	165	154	147	149	154	158

Appendix B. Annual estimates for the EC livestock, poultry, and dairy sectors

	1992	1993	1994	1995	1996	1997	1998	1999	2000	93-00 Avg.
Dairy Cow Inventories					(Million Head)					
Baseline	24.64	24.33	24.02	23.72	23.43	23.15	22.87	22.60	22.34	23.31
Scenario	24.64	24.32	23.90	23.56	23.26	22.98	22.70	22.42	22.16	23.16
Cattle Inventories										
Baseline	83.17	82.85	82.63	82.50	82.41	82.35	82.30	82.26	82.22	82.44
Scenario	83.17	82.84	82.73	82.73	82.82	82.80	82.74	82.66	82.55	82.73
Hog Inventories										
Baseline	112.02	112.60	113.16	113.61	114.08	114.53	114.97	115.40	115.84	114.27
Scenario	112.02	112.60	113.19	113.96	114.91	115.80	116.45	116.79	117.05	115.09
Beef Production					(1,000 Metric Tons)					
Baseline	8,063	8,000	7,983	7,981	7,996	8,013	8,034	8,062	8,093	8,020
Scenario	8,065	7,971	7,945	7,935	7,999	8,035	8,065	8,091	8,112	8,019
Beef Consumption										
Baseline	7,603	7,632	7,652	7,671	7,680	7,688	7,689	7,683	7,668	7,670
Scenario	7,603	7,803	8,017	8,242	8,270	8,284	8,288	8,283	8,267	8,182
Beef Net Exports										
Baseline	478	383	343	315	314	319	335	365	409	348
Scenario	480	192	-53	-295	-284	-266	-241	-210	-170	-166
Pork Production										
Baseline	13,953	14,081	14,216	14,337	14,458	14,578	14,697	14,817	14,937	14,515
Scenario	13,953	14,078	14,228	14,402	14,594	14,770	14,906	15,011	15,102	14,636
Pork Consumption										
Baseline	13,172	13,316	13,454	13,588	13,713	13,835	13,951	14,059	14,158	13,759
Scenario	13,172	13,455	13,751	13,890	14,178	14,327	14,448	14,561	14,664	14,159
Pork Net Exports										
Baseline	781	765	763	748	745	743	746	758	779	756
Scenario	781	624	478	512	416	443	458	449	438	477
Poultry Meat Production										
Baseline	6,757	6,849	6,955	7,066	7,180	7,298	7,418	7,539	7,657	7,245
Scenario	6,756	6,882	7,043	7,177	7,288	7,391	7,488	7,579	7,660	7,314
Poultry Meat Consumption										
Baseline	6,452	6,549	6,641	6,730	6,814	6,897	6,975	7,050	7,119	6,847
Scenario	6,452	6,619	6,791	6,974	7,063	7,151	7,234	7,313	7,386	7,066
Poultry Meat Net Exports										
Baseline	305	301	315	337	366	401	443	489	538	399
Scenario	304	264	252	203	225	240	254	266	274	247

Appendix B. Continued

	1992	1993	1994	1995	1996	1997	1998	1999	2000	93-00 Avg.
Milk Production					(1,000 Metric Tons)					
Baseline	115,610	115,515	115,479	115,447	115,414	115,376	115,347	115,322	115,290	115,399
Scenario	115,610	114,360	113,238	112,012	111,948	111,900	111,873	111,850	111,819	112,375
Fluid Milk Consumption										
Baseline	30,752	30,803	30,827	30,843	30,861	30,871	30,876	30,878	30,877	30,855
Scenario	30,752	30,911	31,038	31,148	31,155	31,154	31,150	31,142	31,131	31,104
Butter Consumption										
Baseline	1,556	1,539	1,523	1,508	1,492	1,477	1,460	1,443	1,424	1,483
Scenario	1,556	1,549	1,536	1,522	1,498	1,479	1,461	1,443	1,424	1,489
Cheese Consumption										
Baseline	4,506	4,563	4,615	4,666	4,717	4,767	4,816	4,864	4,911	4,740
Scenario	4,506	4,581	4,650	4,717	4,766	4,814	4,861	4,908	4,954	4,781
Skim Powder Consumption										
Baseline	1,078	1,073	1,073	1,076	1,078	1,080	1,081	1,082	1,082	1,078
Scenario	1,078	1,076	1,072	1,069	1,062	1,064	1,065	1,066	1,066	1,068
Butter Net Exports										
Baseline	300	289	280	273	272	273	276	279	283	278
Scenario	300	255	200	142	123	118	120	124	128	151
Cheese Net Exports										
Baseline	370	355	344	344	354	368	382	396	409	369
Scenario	370	337	294	254	240	249	266	283	298	278
Skim Powder Net Exports										
Baseline	522	489	462	439	421	404	387	371	357	416
Scenario	522	460	392	318	284	263	247	231	216	301
Beef Unit Value					(ECUs per Metric Ton)					
Baseline	2,875	2,875	2,875	2,875	2,875	2,875	2,875	2,875	2,875	2,875
Scenario	2,875	2,731	2,588	2,444	2,444	2,444	2,444	2,444	2,444	2,498
Pork Unit Value										
Baseline	1,625	1,625	1,625	1,625	1,625	1,625	1,625	1,625	1,625	1,625
Scenario	1,625	1,544	1,463	1,450	1,389	1,381	1,381	1,381	1,381	1,421
Poultry Meat Unit Value										
Baseline	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Scenario	1,400	1,330	1,260	1,190	1,190	1,190	1,190	1,190	1,190	1,216
Milk Producer Price										
Baseline	302.35	304.13	305.76	307.46	309.20	311.05	313.01	315.06	317.20	310.36
Scenario	302.35	297.49	292.28	287.24	289.00	290.83	292.77	294.80	296.92	292.67

Appendix B. Continued

	1992	1993	1994	1995	1996	1997	1998	1999	2000	93-00 Avg.
Concentrate Feed Price					(ECUs per Metric Ton)					
Baseline	258.00	253.56	249.94	246.89	244.25	240.74	237.24	234.95	232.57	242.52
Scenario	258.27	222.97	210.47	202.62	203.49	203.14	203.05	204.24	205.22	206.90
Meat, Poultry Consumption					(Kilograms per Capita, Carcass Weight Basis)					
Baseline	82.97	83.57	84.11	84.65	85.10	85.53	85.90	86.21	86.45	85.19
Scenario	82.97	84.73	86.59	88.05	89.06	89.59	90.01	90.34	90.60	88.62
Meat, Poultry Expenditures					(ECUs per Capita, at Producer Prices)					
Baseline	167.15	168.10	168.91	169.74	170.36	170.94	171.41	171.74	171.91	170.39
Scenario	167.15	162.69	158.08	155.31	154.26	154.63	155.08	155.39	155.54	156.37
Dairy Expenditures										
Baseline	89.55	90.22	90.85	91.54	92.23	92.93	93.63	94.34	95.04	92.60
Scenario	89.55	88.61	87.43	86.25	86.77	87.40	88.06	88.73	89.41	87.83

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