

## **CAP Reform Studies: A Comparison**

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*GATT Research Paper 94-GATT 18*  
April 1994

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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. 92-38812-7261.

Any opinions, findings, conclusions, or recommendations in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

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## **CAP REFORM STUDIES: A COMPARISON**

### **Introduction**

Since the convening of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT), agricultural trade and trade policies have been a prime issue of these negotiations. The European Union (EU) Agricultural Commission responded to the pressures of such focus on agricultural policies as well as to internal budget pressures by submitting the 1992 Common Agricultural Policy (CAP) reform package, a unilateral move by the EU to answer both internal and external concerns. A number of economic studies have examined the 1992 CAP reform package in order to assess its impacts on the EU and world agriculture.

This paper summarizes the results of several studies on the effects of the CAP reform plan. First, a brief summation of the CAP reform scheme is given. Next, descriptions of the models used to derive the results and the processes used to obtain comparable figures are explained. The third section provides a comparison of results from these studies covering cereals, oilseeds, livestock, and dairy markets. In the fourth section, the compatibility of CAP reform and the Dunkel proposals is discussed, using information from the studies. In conclusion, an annex contains the original results from the studies.

### **Summary of CAP Reform Changes**

The policy changes implemented by CAP reform focus on cereals, oilseeds, livestock, and dairy programs. Structural adjustments and environmental provisions were also included, but are not reviewed or analyzed here. For cereals, the EU cereal target price was set at 130 European Currency Units (ECU) per metric ton for 1993-94, and will be lowered by 10 ECU in each of the following

two years. The cereal threshold price started at 175 ECU per metric ton for 1993-94, and will follow the same reduction schedule. Intervention prices fall to 117 ECU per metric ton for 1993-94, and will decline to 108 for 1994-95 and 100 for 1995-96. To compensate farmers for these reductions in prices, the government provided payments of 25 ECU per metric ton in 1993-94. This amount will increase by 10 ECU for the next two years. The compensation plan is based on average regional yield and a base area, and thus, is not directly tied to the farmer's current production. The base area of a region is the average hectare of land cultivated or set aside in the years 1989 to 1991. To receive compensation on land, the land must either be farmed or put in the set-aside program. The set-aside program for 1993-94 required farmers to leave 15 percent of their farmland fallow. The set-aside land is to be rotated from year to year and is available for "nonfood purposes". Farms producing less than 92 metric tons of cereals, based on regional average yields, are exempt from the set-aside requirement. The coresponsibility levies and the stabilizer mechanism for cereals were eliminated.

For oilseeds, a set-aside program with the same guidelines as for cereals was adopted. The EU oilseed reference price was set at 163 ECU per metric ton; and a compensation payment of approximately 359 ECU per hectare planted (depending on regional differences in yields) is given for all oilseeds. If the world oilseed market price varies by more than 8 percent, the reference price will adjust to reflect this variation. Producers can be penalized if they exceed a "maximum guaranteed area" for oilseeds. Also, the oilseed stabilizer system is eliminated.

For livestock, the EU beef intervention price will be cut by 15 percent from 1993 to 1995. To compensate grass-based beef producers, a 90 ECU headage premium is paid for cattle at ten, and again at 22, months of age. A suckler cow premium of 120 ECU is also available. No limits are placed on the suckler cow premium, but the headage premium is restricted to 90 cattle per farm.

Farms must meet a requirement of less than two livestock units per forage hectare by 1996 to receive the above premiums. If producers have less than 1.4 livestock units per forage hectare, their premiums are raised by 30 ECUs. To control beef production, either a calf conversion premium or lightweight animal intervention policies can be employed by each EU member state.

In the dairy industries, few changes are implemented. Milk production quotas are kept at the same levels, although these are subject to annual review with the possibility of reduction in the future. Butter intervention prices are reduced by 2.5 percent in both 1993-94 and 1994-95, but the skim milk powder price remains unchanged.

### Brief Descriptions of the Models

Each paper uses a different approach to derive the implications of CAP reform on the EU and the rest of the world (Table 1). Josling and Mariana create a model of a "cereal-producing farm" to find "before" and "after" profit levels for differing sizes of farms in each of the EU countries. They assume that the cereal hectareage is the same for both instances, but the set-aside requirement is put in place for the "after" scenario. The cereal compensation program is adopted into the model, as is the upper limit on the amount of compensation.

Table 1. Classification of studies, models, and base periods

Code	Authors	Model		Comparison Period
		Name	Type	
RON	Roningen	SWOPSIM	Static	1989
JT	Josling & Tangermann	"Sub-Mods"	Dynamic	1992
CEW	Cahill, Ewing, & Webber	TASS	Static	1986-88 average
GMR	Guyomard, Mahe, & Roe	MISS	Dynamic	1989-90 for crops
JM	Josling & Mariana	"farm"	Static	1990 for livestock
HSE	Helmar, et. al.	FAPRI	Dynamic	baseline projections (1992-2000)
HW	Henrichsmeyer & Weber	SPEL/MFSS	Dynamic	reference run projections (1991-1997)
HMH	Helmar, Meyers, & Hayes	FAPRI	Dynamic	no CAP reform projections (1992-2000)

Roningen employs a Static World Policy Simulation (SWOPSIM) model to find the CAP reform effects. The model is calibrated for 1989 data. It is a static model incorporating eleven regions of the world and 22 commodity groups. The model yields a partial equilibrium analysis of the proposed changes. Roningen's model makes these assumptions: competitive markets, domestic and foreign commodities are perfect substitutes, a 37 percent reduction in "administered" grain prices, and a 10 percent production layoff in all set-aside requirement goods.

Josling and Tangermann attack the problem through six separate "sub-models" for wheat, corn, other coarse grains, beef, milk, and sugar. Cereal yield and hectareage are functions of real producer prices. Set-aside and compensation plans are placed in the models. The milk and sugar models include the existing quota systems. The EU support prices are varied as is stated by the CAP reform system. World price changes in this model are endogenous, being functions of the EU's previous net exports and an assumed outside world import demand elasticity. In addition, a 1 percent reduction in the milk quota is assumed to occur in 1994.

Cahill, Ewing, and Webber apply a Trade Analysis Simulation System (TASS) model based on 1986-88 average data. It is a static model of world trade and the authors update the model for policy changes occurring between the base period and 1990. Assumptions made are that the EU wheat price drops 37.3 percent, the EU feedgrain price falls 37 percent, and oilseed deficiency payments are eliminated. The set-aside program decreases EU wheat and feedgrain production by 6 percent. The compensation scheme is fully decoupled for both cereals and oilseeds. Milk production quotas are reduced 7.8 percent. Prices for fluid milk, butter, and skim milk powder drop by 6.4, 22, and 6 percent, respectively. The EC beef price decreases by 18.4 percent. No adjustments are made to the pork and poultry markets. Also, other countries are assumed to hold their policies fixed.

Guyomard, Mahe, and Roe use a *Modele International Simplifie de Simulation (MISS)* model to project results from CAP reform and the 1990 Food, Agriculture, Conservation and Trade Act (FACTA). The MISS model is a "price-equilibrium projection model, but time shifters in supply and demand equations are used in order to take into account technical change effects." The model includes four regions of the world, eleven outputs, and ten inputs. Matrices of direct- and cross-price elasticities for supply and demand drive the model. The elasticities originate from profit functions which hold the economical theoretical properties of homogeneity, symmetry, and convexity. The shifters are formed to reproduce past data patterns. Two world price scenarios are examined. In the first, 1993 base year prices are formed and the shifters are applied for the years 1994-96. The second scenario modifies the time shifters so that the results of the first case also affect world prices.

Henrichsmeyer and Weber analyze CAP reform impacts on production of agricultural commodities within the European Union using the SPEL/MFSS model system. This approach utilizes activity-based tables of account which serve as a database for the model runs. Medium-term supply is modelled in a two-step process, with the first step being farmer decisions about inputs and the second being decisions about levels of production activities, such as area planted in various crops. Responses of activity levels are determined by changes in gross value added per unit of production. Two runs are presented. The first (run A) is the MacSharry proposal in its original form and the second (run B) is the reform package as adopted by the Commission. These are compared against a reference run where present agricultural policy remains in place from 1990-1997. Cereal and milk prices are different between runs A and B. In run A, cereal prices fall 35.5 percent and milk prices drop 10 percent relative to 1990; whereas in run B, the price reductions are 32.3 percent and 10 percent, respectively. Other differences in run B are elimination of the upper limit on the area eligible for compensated set-aside; reductions in compensatory payments for cereals, oilseeds, and

pulses; a 45 ECU/head increase in the suckler cow premium; and a 30 ECU/head extensification premium for livestock.

Helmar, Stephens, Eswaramoorthy, Brown, Hayes, Young, and Meyers apply models from the Food and Agricultural Policy Research Institute (FAPRI). Models for wheat, barley, corn, soybeans, rapeseed, beef, pork, poultry, and dairy products are employed to simulate two scenarios: a baseline projection based on no policy changes and a CAP reform projection. (No other policy changes for the EU or the rest of the world are assumed.) The dynamic models are formed to reproduce past data records. All projections include the former East Germany. Macroeconomic assumptions are taken from the WEFA Group and Project LINK forecasts. The rate of technical change is taken to be the same as in the recent past. Under the CAP reform scenario, coresponsibility levies are eliminated, and "partially" decoupled compensation plans for cereals and oilseeds are implemented as stated by the reform; as are the price changes and set-aside requirements. The exemption for small farms is included in the estimation of production figures. Beef, pork, and poultry markets are held to maintain "relative competitiveness."

Helmar, Meyers, and Hayes also apply the FAPRI system of models to study CAP reform. Three scenarios are examined. The baseline scenario is the implementation of CAP reform and the Blair House oilseed agreement. A GATT scenario includes the Dunkel proposals to view their effects after CAP reform. The third scenario assumes CAP reform and GATT do not take place, but the Blair House oilseeds agreement is in place, the coresponsibility levies for cereals are brought back, and butter intervention prices rise by 2.5 percent in 1993 and 1994.

#### **Adjustments Made to Achieve Comparable Results**

To form the comparison tables shown later, some manipulation of the original results from the studies is performed to arrive at more easily comparable figures. These manipulations will be



explained here and the actual results from the papers, as well as the computations, are given in the annex. For the Roningen study figures, the actual percentage changes for the production effects and the world price effects are taken directly from the paper. The net export figures are derived by dividing Roningen's change in net trade value by the 1992 total value (in dollars) of EU trade in the market examined. Adjustments to the Helmar, et. al. paper include aggregating individual commodity data to obtain the general classes of goods used in this paper. Also, the net export results are calculated in terms of 1992 prices and values of total trade. The Guyomard, Mahe, and Roe net export figures were left in terms of quantity percentage changes from 1992 levels since their forecasts are aggregated such that they could not be translated into monetary units. For the Helmar, Meyers, and Hayes paper, the changes from the baseline scenario are used to solve back for the no-CAP reform scenario levels. Individual commodity effects are summed to reach group aggregates. All percentage changes are based on the no-CAP reform scenario and the net exports/imports figures are valued at 1992 prices.

The Josling and Tangermann figures are obtained by taking quantity changes in the specified markets from graphs in the paper. These changes are used as the basis to form the percentage changes needed; except for the net export numbers, which are converted to dollar value percentage changes. For cereals, the averages of the wheat, corn, and other coarse grain percentage changes are used as the cereal figures. For the Cahill, Ewing, and Webber paper, the production and consumption figures are the averages of percentage changes for individual goods in each group. The net export/import numbers are the percentage changes of these from the average 1986-88 base to the CAP reform projection valued in 1992 prices. For the Cahill, et. al., Helmar, et. al., and Helmar, Meyers, and Hayes papers, the world price changes are averages of individual products in each

group. The Henrichsmeyer and Weber production impacts are converted to percent changes. Beef and pork are summed to give the impacts for meat before conversion to percent changes.

### Comparison of Results

These changes in the CAP have been examined for both EU and world effects in several studies. A comparison of the compilation of these results can be found in Tables 1 through 5. This section of the paper compares the results of papers by Roningen (RON); Josling and Mariana (JM); Josling and Tangermann (JT); Cahill, Ewing, and Webber (CEW); Guyomard, Mahe, and Roe (GMR); Henrichsmeyer and Weber (HW); Helmar, Stephens, Eswaramoorthy, Brown, Hayes, Young, and Meyers (HSE); and Helmar, Meyers, and Hayes (HMH). The effects are broken down into cereal, oilseed, meat, and dairy market changes in the EU and world price changes in these markets. All figures are given in terms of percentage changes. In the cases of net exports/imports, these are percentage changes in the dollar value of trade (except for Guyomard, Mahe, and Roe). All other market changes are in quantity terms. For each market, production, consumption, and net exports/imports are examined.

There is general agreement about CAP reform effects on the EU cereal and oilseed markets (Tables 2 and 3). Production will decrease, with amounts varying by the assumptions about the amount of set-aside land and the "decoupledness" of the compensatory payments. Cereal consumption increase slightly, in most respects due to its falling relative price as a livestock feed. Net exports will decline rather markedly.

For oilseeds, there is agreement on the direction of changes in the market, but the magnitudes of these changes are very different. These differences are likely to emanate from the modelling of the "decoupledness" of the oilseed compensation scheme and the amount of set-aside land. HMH find opposite, but quite small, effects in production and net imports. This can be

explained by the inclusion of the Blair House oilseed agreement in the CAP reform and no-CAP reform analyses.

Table 2. Results for EU cereals

Study	Percentage Change from Reference Period		
	Production <sup>a</sup>	Consumption <sup>a</sup>	Net Exports <sup>b</sup>
HSE	-12.2	2.4	-73.1
JM	-20.6	n.r.	n.r.
RON	-5.7	n.r.	-62.7
JT	-12.0	6.3	-80.3
CEW	-11.5	0.5	-61.8
GMR (case 1)	n.r.	n.r.	-47.5 <sup>a</sup>
(case 2)	n.r.	n.r.	-63.3 <sup>a</sup>
HW (run A)	-10.1	n.r.	n.r.
(run B)	-4.8	n.r.	n.r.
HMH	-7.9	1.4	-50.6

<sup>a</sup>Quantity percentage changes

<sup>b</sup>Dollar value percentage changes

n.r.: not reported

Table 3. Results for EU oilseeds

Study	Percentage Change from Reference Period		
	Production <sup>a</sup>	Consumption <sup>a</sup>	Net Imports <sup>b</sup>
HSE	-19.5	-0.9	11.0
RON	-4.9	n.r.	19.4
CEW	82.0	-9.5	33.4
HW (run A)	030.7	n.r.	n.r.
(run B)	-38.6	n.r.	n.r.
HMH	0.04	-0.02	-0.03

<sup>a</sup>Quantity percentage changes

<sup>b</sup>Dollar value percentage changes

n.r.: not reported

JM, JT, and GMR did not explicitly cover oilseeds

The studies indicate a slight increase in meat consumption (Table 4). But there are divergent views on the reaction of meat production and net exports to the CAP reform. RON, JT,

and CEW find EU meat production will decrease with the implementation of CAP reform. HSE shows no change in total meat production, while HMH and HW show EU meat production to rise slightly under CAP reform. GMR show net exports of meats growing after CAP reform; in fact, more than doubling past exports for case 2. HSE, JT, and HMH find net exports to be

Table 4. Results for EU meats

Study	Percentage Change from Reference Period		
	Production <sup>a</sup>	Consumption <sup>a</sup>	Net Exports <sup>b</sup>
HSE	0.0	3.0	-59.2
RON	-1.2	n.r.	-138.8
JT	-5.0	0.0	-60.0
CEW	-2.5	4.8	-249.8
GMR (case 1)	n.r.	n.r.	68.7 <sup>a</sup>
(case 2)	n.r.	n.r.	122.0 <sup>a</sup>
HW (run A)	0.4	n.r.	n.r.
(run B)	0.0	n.r.	n.r.
HMH	0.5	2.6	-38.7

decreasing, but the EU is still a net exporter of meat. While RON and CEW find, as a result of CAP reform, the EU will become a net importer of meat. Some of these differences can be attributed to the handling of internal meat price reductions and compensation payments. HSE use a 15 percent reduction in the beef intervention price and a low intervention ceiling in beef. They include the compensation package, assuming 50 percent of the cattle in the EU will qualify for it. Also, they assume pork and poultry prices are reduced in line with beef prices. JT and HW include the 15 percent beef price reduction and the compensation package. HMH includes the 15 percent beef support price reduction, the compensation package, and assume pork and poultry prices also decline due to a fall in feed prices. CEW assume a 18.4 percent fall in beef support prices, have a majority of cattle on the compensation program, and maintain the "sluicagate price" support system for pork and poultry. GMR find explosive growth in pork and poultry exports.

The assumptions used in the dairy analysis could explain some of the variation between studies, especially in production and net exports (Table 5). HSE and HMH assume no milk quota reduction; butter intervention prices will fall 2.5 percent in 1993 and 1994; and cheese and skim milk powder prices will remain at current levels. JT adopt a 5 percent decrease in the butter price and a 1 percent drop in the milk quota in 1994. CEW have the milk quota falling by 7.8 percent and fluid milk, butter, and skim milk powder prices declining by 6.4, 22, and 6 percent, respectively.

Table 5. Results for EU dairy

Study	Percentage Change from Reference Period		
	Production <sup>a</sup>	Consumption <sup>a</sup>	Net Exports <sup>b</sup>
HSE	0.04	0.1	0.4
RON	-0.6	n.r.	-13.6
JT	-0.20	3.0	-44.0
CEW	-22.6	-2.0	-65.4
GMR (case 1)	n.r.	n.r.	-21.1 <sup>a</sup>
HW (run A)	-2.6	n.r.	n.r.
(run B)	-1.8	n.r.	n.r.
HMH	0.02	0.1	2.4

<sup>a</sup>Quantity percentage changes

<sup>b</sup>Dollar value percentage changes

n.r.: not reported

JM did not cover dairy and GMR (case 2) dairy was not reported.

World price impacts can be found on Table 6. These world price effects are dependent upon the results found in Tables 1 through 4. The reaction of the EU markets to the CAP reform package would determine net exports/imports and world price movements. With the exception of the GMR (case 1) dairy figure, all of the studies agree on steady to increasing prices in all areas of agricultural commodities from CAP reform.

Table 6. Results for world price changes

Study	Percentage Change from Reference Period			
	Cereals	Oilseeds	Meats	Dairy
HSE	12.5	14.8	4.4	0.0
RON	3.4	0.4	2.4	3.4
CEW	5.0	8.4	1.9	16.0
GMR (case 1)	1.08	n.r.	3.47	-1.88
(case 2)	7.27	n.r.	7.34	2.87
HMH	8.2	2.0	2.2	0.03

n.r.: not reported

JM, JT, and HW did not cover world price changes.

### CAP Reform under Dunkel or Blair House

Four of the papers examine how the CAP reform fits under the Dunkel proposals. Josling and Tangermann find EU beef and sugar markets to be the only trouble spots for the EU under the Dunkel proposals. The cereal market, even if the compensation program did not go into the "green box", would still meet Dunkel guidelines. Beef would fail under both export subsidy costs and export quantity requirements. Sugar would fall short of Dunkel requirements in import prices and Aggregate Measure of Support (AMS) reductions. (This was changed under Blair House, where AMS is measured across all commodities.) Guyomard, Mahe, and Roe indicate that beef, pork, poultry, cheese, and possibly wheat markets could have problems under the Dunkel proposal. Cheese, pork, and poultry would fail the requirement of minimum access in a market and all of the goods mentioned are projected to exceed export standards set by the Dunkel proposal under the MISS model. Helmar, et. al. show that the CAP reform program would meet the Dunkel requirements, except for the sugar and cheese markets. Again, the failings would be in the amount of exports for these goods. Helmar, Meyers, and Hayes, through their GATT scenario, infer that the EU will meet the Dunkel requirements through CAP reform in most goods. However, the barley, corn, pork, poultry, and cheese markets will fail to meet Dunkel requirements. Barley will fail to meet the export quantity

restriction. Corn will fall below the market access requirement. Pork, poultry, and cheese will fail on both counts.

### Summary

Overall, the papers indicate that CAP reform will have significant impacts on the European Community and the world. EU cereal and oilseed production will fall. Cereal net exports will decrease sharply, while oilseed net imports will rise moderately. Meat and dairy production will remain steady or decrease slightly. The only large disagreements among the projections are the directions and magnitudes of changes in both the meat and dairy net export markets for the EU. World agricultural prices are indicated to increase in all sectors (with one projection exception).

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## Annex

## I. Original Results

Josling and Mariana (JM): Cereal supply -20.6%

Josling and Tangermann (JT): (percent changes taken from graphs)

	Wheat	Corn	Other Grains	Beef	Milk
Production	-16	-8	-12	-5	-2
Consumption	10	4	6	0	3
Net Exports	-63	-400	-105	-60	-44

Helmar et al. (HSE):

1993-97 Ave. Levels

Commodity		Baseline	CAP Reform	World Prices (% change)
Wheat:	Production (Price)	84.817	74.635	17.8
	Consumption	66.650	68.115	
	Net Exports	18.376	6.912	
Barley:	Production (Price)	51.009	45.488	8.6
	Consumption	43.971	44.886	
	Net Exports	7.131	0.990	
Corn:	Production (Price)	26.823	22.620	11.1
	Consumption	28.320	29.251	
	Net Imports	1.548	6.676	
Soybeans:	Production (Price)	1.911	1.894	12.0
	Consumption	12.815	14.203	
	Net Imports	12.698	14.216	
Rapeseed:	Production (Price)	7.065	5.330	17.6
	Crush	6.828	5.265	
	Net Imports	0.222	0.295	
Beef:	Production (Price)	8.234	8.271	3.9
	Consumption	7.665	8.106	
	Net Exports	0.589	0.173	
Pork:	Production	13.769	13.789	4.4
	Consumption	13.276	13.450	
	Net Exports	0.493	0.340	

HSE continued.

Commodity		1993-97 Ave. Levels		
		Baseline	CAP Reform	World Prices (% change)
		(million tons)		
Poultry:	Production (Price)	7.083	7.027	4.8
	Consumption	6.699	6.915	
	Net Exports	0.384	0.112	
Dairy:	Milk Production	114.056	114.097	
	Consumption: Fluid Milk	30.936	30.973	
	Butter	1.460	1.467	
	Cheese	4.711	4.711	
	Nonfat Dry Milk	1.000	0.998	
	Net Exports: Butter	0.244	0.226	1.8
	(Price) Cheese	0.335	0.360	-3.1
	Nonfat Dry Milk	0.432	0.421	1.3

Helmar, Meyers and Hayes (HMH):

Commodity		Year 2000	
		No-CAP Reform Level	CAP Reform Change
Wheat:	Production	9.780	-8.370
	Domestic Use	68.800	1.360
	New Exports	20.950	-9.680
Barley:	Production	52.920	-3.792
	Domestic Use	43.190	1.208
	Net Exports	9.720	-4.885
Corn:	Production	25.440	-1.279
	Domestic Use	27.020	-0.603
	Net Imports	1.580	0.703
Soybeans:	Production	1.536	0.003
	Domestic Use	16.221	-0.030
	Net Imports	14.686	-0.032
Rapeseed:	Production	5.823	0.000
	Domestic Use	6.215	0.026
	Net Imports	0.392	0.026

## HMH continued

Commodity		Year 2000	
		No-CAP Reform Level	CAP Reform Change
Beef:	Production	8.067	0.038
	Domestic Use	7.223	0.671
	Net Exports	0.848	-0.627
Pork:	Production	14.377	0.081
	Domestic Use	13.575	0.106
	Net Exports	0.802	-0.024
Milk:	Production	111.280	-0.040
	Fluid Use	30.828	0.032
Cheese:	Production	5.356	0.029
	Domestic Use	4.974	0.000
	Net Exports	0.380	0.029
Butter:	Production	1.532	-0.018
	Domestic Use	1.394	0.005
	Net Exports	0.134	-0.023

## HMH World Prices for Year 2000: (in dollars per metric ton)

Commodity	Location	No-CAP Reform Level	CAP Reform Change
			(million tons)
Wheat:	FOB US Gulf	133.38	16.97
	CIF Rotterdam	157.06	19.80
Barley:	FOB Pacific NW	114.63	6.72
Corn:	FOB US Gulf	98.02	6.01
	CIF Rotterdam	109.84	6.76
Soybeans:	FOB US Gulf	229.70	3.06
	CIF Rotterdam	245.32	3.01
Rapeseed:	Western Canada	216.55	5.70
Cheese:	FOB N Europe	2083.00	-77.00
Butter:	FOB N Europe	1575.00	37.00
Nonfat Dry Milk:	FOB N Europe	2065.00	30.00
Beef:	Omaha Steer	1758.63	43.37

## HMH World Prices for Year 2000 continued.

Commodity	Location	No-CAP Reform Level	CAP Reform Change
			(million tons)
Pork:	Iowa-Minn. B.G.	1175.28	42.72
Poultry:	12-City Wholesale	1256.41	4.59

## Cahill, Ewing, and Weber (CEW):

Commodity	Supply, Demand and Price			Total Net Exports	
	Production	Demand	World Price	Base Period	CAP Reform
	(in percent changes)			(million tons)	
Wheat	-18.1	4.0	9.2	16.149	-2.438
Coarse Grains	-5.2	-3.0	0.7	4.696	7.673
Rapeseed	-82.3	-18.0	14.8	-0.296	-3.395
Soybeans	n.r.	-1.0	2.0	-12.748	-14.004
Beef	-6.4	8.0	2.6	0.491	-0.643
Pork	-3.8	8.0	3.7	0.357	-1.319
Poultry	-1.6	0.5	1.1	0.283	0.165
Eggs	1.8	2.0	0.3	0.086	0.080
Ind. Milk	-11.1	-11.0	0.0	n.r.	n.r.
Butter	-18.4	10.1	19.2	0.463	-0.059
Skim Milk Pow.	-38.9	-5.0	93.4	0.428	-0.169
Cheese	0.4	n.r.	-0.6	0.095	0.000
Blended Milk	-7.8	n.r.	0.0	n.r.	n.r.
Fluid Milk	0.8	n.r.	0.0	n.r.	n.r.
Evap. Milk	0.4	n.r.	-0.2	n.r.	n.r.

## Roningen (RON):

Commodity	Supply	Net Trade Change
Cereals	-5.7	-2.4 billion dollars
Oilseeds	-4.9%	-0.6 billion dollars
Meat and Eggs	-1.2%	-2.7 billion dollars
Dairy	-0.6%	-0.2 billion dollars
World price changes:		
	Cereals	3.4%
	Oilseeds	0.4%
	Meat and Eggs	2.4%
	Dairy	3.4%

**Guyomard, Mahe, and Roe (GMR):**

Total net exports for 1996 (million tons):

Commodity	Price scenario 1	Price scenario 2
Grains	15.0	10.5
Beef	0.50	0.37
Pork, Poultry, and Eggs	2.03	2.96
Butter	0.122	n.r.
Cheese	0.343	n.r.
Skimmed Milk Powder	0.180	n.r.

World price changes for 1993-96 (in percent changes):

Commodity	Price scenario 1	Price scenario 2
Grains	1.08	7.27
Beef	8.33	11.98
Pork and Poultry	-1.39	2.69
Milk	-1.88	2.87

**Henrichsmeyer and Weber (HW):**

Production for 1997 (million tons)

Commodity	1990 Level	Production for 1997 (million tons)		
		References	Run A	Run B
Cereals	160.7	173.1	155.7	164.8
Wheat	80.8	93.8	79.4	84.1
Maize	23.0	32.6	29.4	33.1
Other	56.9	46.7	46.9	47.6
Oilseeds	12.8	17.6	12.2	10.8
Pulses	5.7	8.0	6.9	7.2
Beef	7.7	7.6	7.4	7.4
Milk	124.9	121.7	118.5	119.5
Pork	13.6	15.3	15.6	15.5

**II. EU Trade 1992**

(figures taken from FAPRI 1993 World Ag. Outlook)

**Grains and Soybeans:**

Wheat:	Total net exports	21.13 million tons
	US Gulf wheat price	\$148.19 per ton
	Total value	\$3.13 billion
Feedgrains:	Total net exports	7.45 million tons
	US Gulf corn price	\$94.26 per ton
	Total value	\$0.702 billion
Cereal Net Exports:	Total	28.58 million tons
	Total value	\$3.83 billion
Soybeans:	Total net imports	14.383 million tons
	US Gulf soybean price	\$215.27 per ton
	Total value	\$3.1 billion

**Meat:**

Beef:	Total net exports	0.653 million tons
	Omaha steer price	\$1,661 per ton
	Total value	\$1.085 billion
Pork:	Total net exports	0.583 million tons
	US barrows and gilts price	\$951 per ton
	Total value	\$0.554 billion
Poultry:	Total net exports	0.264 million tons
	US 12-city price	\$1,159 per ton
	Total value	\$0.306 billion
Total Meat:	Net exports	1.5 million tons
	Total Value	\$1.945 billion

**Dairy Products:**

Butter:	Total net exports	0.136 million tons
	FOB price N. Europe	\$1,501 per ton
	Total value	\$0.204 billion
Cheese:	Total net exports	0.361 million tons
	FOB price N. Europe	\$2,007 per ton
	Total value	\$0.725 billion

Nonfat Dry Milk:	Total net exports	0.321 million tons
	FOB price N. Europe	\$1,681 per ton
	Total value	\$0.540 billion
Total Dairy:	Net Exports	0.818 million tons
	Total Value	\$1.469 billion

### III. Adjustments to Common Measures

#### Roningen (RON): Percentage Change in Value:

Cereal Net Exports	-2.4/3.83 = -62.7%
Oilseed Net Imports	0.6/3.1 = 19.4%
Meat Net Exports	-2.7/1.945 = -138.8%
Dairy Net Exports	-0.2/1.469 = -13.6%

#### Helmar, et al. (HSE):

Change in net exports:	<u>million tons</u>	<u>value at 1992 prices</u>
wheat	-11.5	-\$1.7 billion
coarse grains	-11.3	-\$1.1 billion
oilseeds	-1.6	-\$342 million
beef	-0.416	-\$691 million
pork	-0.153	-\$146 million
poultry	-0.272	-\$315 million
butter	-0.018	-\$27 million
cheese	0.025	\$50 million
nonfat dry milk	-0.010	-\$17 million

#### Percentage Change in:

Cereal Net Exports	-2.8/3.83	= -73.1%
Oilseed Net Imports	0.342/3.1	= 11.0%
Meat Net Exports	-1.15/1.945	= -59.2%
Dairy Net Exports	0.006/1.469	= 0.4%

#### Cahill, Ewing, and Webber (CEW):

	<u>million tons</u>	<u>value at 1992 prices</u>
Change in net exports (from base):		
wheat	-18.5	-\$2.032 billion
coarse grains	3.0	\$0.280 billion
oilseeds	-4.4	-\$0.938 billion
beef	-1.13	-\$1.877 billion
pork	-1.78	-\$1.693 billion
poultry	-0.118	-\$0.137 billion
butter	-0.522	-\$0.784 billion
cheese	0.016	\$0.032 billion
skim milk powder	-0.597	-\$1.004 billion

#### Value of base period trade (in 1992 prices):

wheat	\$2.393 billion
coarse grains	\$0.442 billion
oilseeds	\$2.807 billion
beef	\$0.816 billion
pork	\$0.340 billion
poultry	\$0.328 billion



butter	\$0.695 billion
cheese	\$0.191 billion
skim milk powder	\$0.719 billion

## Percentage Change in:

Cereal Net Exports	-1.752/2.835	=	-61.8%
Oilseed Net Imports	0.938/2.807	=	33.4%
Meat Net Exports	-3.707/1.484	=	-249.8%
Dairy Net Exports	-1.050/1.605	=	-65.4%

**Helmar, Meyers, and Hayes (HMH):**

No-CAP reform level (million tons)	Value at 1992 prices (billion dollars)
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Cereal Net Exports	29.09	3.872
Wheat Net Exports	20.95	3.105
Coarse Grain Net Exports	8.14	0.767
Oilseed Net Imports	15.078	3.246
Meat Net Exports	1.940	2.508
Beef Net Exports	0.848	1.409
Pork Net Exports	0.802	0.763
Poultry Net Exports	0.290	0.336
Dairy Net Exports	0.514	0.964
Cheese Net Exports	0.380	0.763
Butter Net Exports	0.134	0.201

Change from CAP reform (million tons)	Value at 1992 prices (billion dollars)
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Cereal Net Exports	-15.268	-1.961
Wheat Net Exports	-9.68	-1.434
Coarse Grain Net Exports	-5.588	-0.527
Oilseed Net Imports	-0.006	-0.001
Meat Net Exports	-0.571	-0.971
Beef Net Exports	-0.627	-1.041
Pork Net Exports	-0.024	-0.023
Poultry Net Exports	0.080	0.093
Dairy Net Exports	0.006	0.023
Cheese Net Exports	0.029	0.058
Butter Net Exports	-0.023	-0.035

## Percentage Change in:

Cereal Net Exports	-1.961/3.872 = -50.6%
Oilseed Net Imports	-0.001/3.246 = -0.03%
Meat Net Exports:	-0.971/2.508 = -38.7%
Dairy Net Exports:	0.023/0.964 = 2.4%

butter	\$0.695 billion
cheese	\$0.191 billion
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**Guyomard, Mahe, and Roe (GMR):**

Quantity change from 1992 levels

	<u>price scenario 1</u>	<u>price scenario 2</u>
Percentage Change in:		
Cereal Net Exports	-13.5/28.58 = -47.5%	-18.08/28.6 = -63.3%
Meat Net Exports	1.03/1.5 = 68.7%	1.83/1.5 = 122.0%
Dairy Net Exports	-0.173/0.818 = -21.1%	n.r.

**Josling and Tangermann (JT):**

Change in net exports:	<u>million tons</u>	<u>value at 1992 prices</u>
wheat	-14.13	-\$2.09 billion
corn	-10.45	-\$0.985 billion

Percentage Change in:	
Cereal Net Exports	-3.075/3.83 = -80.3%

**Henrichsmeyer and Weber (HW):**

Percentage Change in Production:

	<u>Run A</u>	<u>Run B</u>
Cereals	-17.4/173.1 = -10.1%	-8.3/173.1 = -4.8%
Oilseeds	-5.4/17.6 = -30.7%	-6.8/17.6 = -38.6%
Meats	0.1/22.9 = 0.4%	0.0/22.9 = 0.0%
Milk	-3.2/121.7 = -2.6%	-2.2/121.7 = -1.8%