CAP-REFORM AND THE EC-US GATT COMPROMISE: COMPATIBLE OR NOT?

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ABSTRACT

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    Since the EC and the US have agreed on a modified form of the Dunkel Pro-
posal, the prospect of a successful ending of the Uruguay Round of multilateral
trade negotiations has increased. In this paper the consequences of the bilateral
agreement have been assessed. This is done in two steps. First, the development of
EC-agriculture in the absence of a trade agreement is simulated. The simulation is
carried out with ECAM, a general equilibrium model of the EC with the emphasis
on agriculture. The fact that the CAP will be reformed in the coming years is of
much relevance for the future of EC-agriculture. In the second step the model-out-
comes and the commitments of the bilateral agreement are compared with each
other. Proceeding from reasonable assumptions with respect to exogenous varia-
bles, the paper concludes that the commitments of the bilateral agreement are, for
the term of the agreement, not very demanding.
    For the longer term things are different. By the agreement, if at all reached,
border protection measures are changed into customs tariffs (tariffication). With
this the tariffication machinery is put in place for rounds of negotiations in the fu-
ture when Community preference will have been eroded by inflation. Then nego-
tiations can start on the basis of tariffs which are effective and reductions will
(finally) have a visible impact on the EC-markets.

Agricultural Policy/ EC/ Trade liberalization

CONTENTS

PREFACE

The trade agreement reached in November 1992 between the EC and the US has raised debate about its compatibility with the reform of the CAP decided upon in May 1992 by the Council of Ministers of Agriculture. This study addresses the question whether or not the bilateral agreement is likely to have additional impacts on EC-agriculture. First, the future development is assessed of EC-agriculture under the reformed CAP and then the commitments of the trade agreement are analyzed for possible additional consequences.

The assessment of the consequences of CAP-reform for EC-agriculture is based upon simulation outcomes of the *European Community Agricultural Model* (ECAM), an applied general equilibrium model of the EC with the emphasis on agriculture. The ECAM-project is a cooperative venture of the Agricultural Economics Research Institute (LEI-DLO), the Central Planning Bureau (CPB) and the Centre for World Food Studies (SOW-VU).
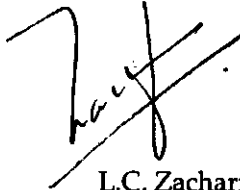
Research underlying this paper was carried out by C. Folmer (CPB), M.A. Keyzer (SOW-VU), M.D. Merbis (SOW-VU), H.J.J. Stolwijk (CPB) and P.J.J. Veenendaal (LEI-DLO). The study is simultaneously published by the three cooperating institutes, which are jointly responsible for its findings.

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1. INTRODUCTION

The Uruguay Round of multilateral trade negotiations which is currently conducted under the auspices of the General Agreement on Tariffs and Trade (GATT), was scheduled for completion by the end of 1990. However, as of March 1993, there is still no GATT-agreement. This does not mean that no progress has been made. On the contrary, step by step, negotiating parties have come closer to each other, and, although many obstacles still remain, it can safely be said that an agreement is within reach by now.

The ambitious aims must, by hindsight, probably be pointed to as the main reason for the delay. For instance, for the first time in history it was agreed to consider agriculture within the GATT, a decision which would appear as a source of many quarrels mainly between the United States and the EC. On 20 December 1991 the Director-General of GATT, Mr. Dunkel, presented a Draft Final Act covering all issues under discussion. With respect to agricultural trade matters this draft will be referred to in this paper as the 'Dunkel Proposal'.

Although some parties had serious reservations with respect to some sections of the proposal, it has been accepted as a base for further discussions. In the course of these discussions it became clear that the disagreement between the EC and the US was a major obstacle for any overall agreement. In the course of 1992 the EC and the US decided to start bilateral talks on the basis of the Dunkel proposal, and in November the two parties reached an agreement.

However, this bilateral agreement is controversial within the EC, and it has triggered many, often negative, reactions within the agricultural organizations. According to farm organizations, some food industries and other critics the agreement between the EC and the US is not consistent with the reform of the Common Agricultural Policy (CAP) as decided in 1992 (the Mac Sharry-reform). The commitments following from the bilateral discussions will result in a loss of markets and, consequently, in lower farm-gate prices. The European Commission does not endorse this view. In its opinion the outcome of the bilateral discussions is consistent with the Mac Sharry-reform. Moreover, according to the Commission, if

the bilateral agreement will result in a multilateral agreement, 'the CAP is 'safe' under the legal rules of GATT because of the adoption of the 'peace clause" (see CEC, 1992, p.10).

In this paper the consequences of the Mac Sharry-reforms and the bilateral agreement will be investigated and compared in more detail. The question which the paper tries to address is to what extent the bilateral agreement is compatible with the Mac Sharry- reform. To answer this question, we first evaluate the Mac Sharry reform package. We assess the consequences of the CAP-reforms for the period until 2000 in the absence of a GATT-agreement, making use of ECAM 1), an applied general equilibrium model designed to evaluate changes of the CAP. Thereafter it will be checked whether additional measures are needed in order to meet the commitments of the agreement with the US. A second question to be addressed is which incentive structure the GATT is likely to induce and how the EC and EC-farmers will react to it. Finally, we will discuss to what extent the present bilateral agreement can be seen as a step toward liberalisation.

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1)   ECAM is an acronym for European Community Agricultural Model. A short description of ECAM can be found in the Annex. It must be noted that ECAM implements the Mac Sharry reform for 1993-1996 and makes various assumption on CAP policies after 1996.

2. THE REFORM OF THE CAP: EC-AGRICULTURE IN THE ABSENCE OF A GATT-AGREEMENT

2.1 Summary of the reform

Over the last decades several proposals for reforming the CAP have been formulated. The debate culminated in 1992 with the acceptance of a plan for fundamental reform. This so-called Mac Sharry plan modifies existing market regulations and extends current measures in the field of social and structural policy. We only study modifications of rules for market intervention. Market regulations change for cereals, oilseeds, tobacco, milk, beef and sheepmeat.

In a nutshell these changes amount to the following. For some important commodities price guarantees are reduced considerably, for example nominal prices for cereals, bovine meat and butter are decreased by about 35, 15 and 5 per cent respectively. Thereby protection against outside competition is diminished, although the system of variable levies and refunds at the Community's border remains in place. Measures aimed at directly constraining or reducing production, such as set-aside obligations and production quota accompany the price changes. Farmers are compensated for the loss of income by product-specific subsidies. The total value of these subsidies is constrained by the amounts that would be payable in some historical reference year.

2.2 Scenario assumptions

The reform package has been simulated with ECAM. A scenario has been formulated for the period 1992-2000, thus including the term of the GATT-agreement. The Mac Sharry-reforms are introduced in 1993 and gradually implemented in 1994 and 1995 in accordance with the Commis-

sion's decisions. The scenario shows the future of EC-agriculture under the reform assumptions 1).

It is conditioned by a set of assumptions on exogenous variables relating to world market prices and the handling of inflation.

First, with respect to world market prices we take the view that the evolution during the eighties has been an atypical one. World market prices of agricultural products have fallen much faster than their long-term trend of 1-1.5 per cent per year in real terms (Grilli and Yang, 1988), and internal prices have increased compared to the world market, in spite of the stabilizer for cereals. Hence, it seems plausible to restore this imbalance. World market prices for products which are not much affected by the Mac Sharry-reforms are therefore assumed to fall only very modestly.

Table 2.1 World market prices in real terms (ecu per ton and average annual change rates)

	1992	2000	Average annual change 1992-2000
Wheat	96	101	+0.54
Coarse grains	87	93	+0.54
Rice	220	211	0.50
Sugar	283	271	0.50
Fats and oils	327	314	-0.50
Protein feed	375	334	-1.26
Carbohydrates	82	73	1.26
Butter	2010	1990	0.20
Dairy	432	425	0.26
Bovine meat	1635	1642	0.00
Ovine meat	1582	1556	0.26
Pork	2928	2812	0.50
Poultry, eggs	10425	10015	0.50
Non-agric. tradeable *(1981=100)*	*151.2*	*151.2*	0.00

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1) A detailed analysis of the Mac Sharry reforms with ECAM can be found in Folmer et al. (1993).

World market prices for products for which, due to the reform, the EC-position on the world market will change drastically have been treated in a different way. In order to determine the magnitude of this change, use has been made of outcomes from the MISS model which has endogenous world market prices (Guyomard and Mahé, 1992). The results are summarized in table 2.1.

Secondly, one needs assumptions on inflation. The reform regulations suggest that the subsidies are fixed in nominal terms, but that they may be adjusted when circumstances become pressing. Here we have assumed that the compensations will be fixed in nominal terms and that an annual inflation rate of 3 per cent will prevail. Hence, real compensations decrease by 3 per cent per year. Intervention prices are assumed to be partly compensated for inflation. Depending on the product, intervention prices in ECAM decrease by 1 (quota products) to 3.0 per cent per year.

2.3 EC-agriculture under Mac Sharry: production, demand and external trade

Production

Under the Mac Sharry-reform three instruments are deployed to constrain (the growth of) production: the set-aside obligation for basic arable crops, production quota and quota on the amounts of subsidies payable to the crop and beef producing sectors. The development of supply is also influenced by the reduced intervention prices and the accompanying compensations.

Table 2.2 summarizes the production figures for a selected number of commodities. To place the figures in some historical perspective, growth-rates for the same commodities are also given for the period 1982-1992. According to ECAM the rate of growth in cereals production will be less than 1 per cent. Oilseeds production will also be heavily affected by the reform measures. One part of the decrease in cereals and oilseeds production is caused by the set-aside obligation and the constraint on arable land. An (assumed) reduction of physical yields due to lower prices is responsible for the other part. Altogether it appears from simulations with the ECAM model that 2.9 million hectares of land will be set aside in the EC-9 under the Mac Sharry-reform.

The Mac Sharry-reform reduces milk quota and introduces a quota for sheep. However, it is found that in the longer term some room for expansion of milk quota is created through an increase of EC-demand. Therefore, in ECAM it is assumed that in the long run quota can be relaxed

Table 2.2 Average yearly production growth-rates (per cent) for selected commodities

Product	1982-1992	1992-2000
Wheat	2.9	0.7
Coarse grains	0.2	0.4
Sugarbeet	1.2	0.1
Oilseeds	11.4	0.6
Consumable potatoes	0.6	1.8
Dairy	0.4	0.3
Eggs	1.1	1.2
Bovine meat	0.4	2.2
Sheep- and goat meat	3.7	0.2
Pig meat	2.0	1.8
Poultry meat	3.3	2.3

somewhat. In spite of the imposition of quota, sheep meat production shows a modest increase because of the assumed improvement of yields with almost one per cent per year. Beef production increases also. This happens in almost all member states (except Belgium and Denmark), and becomes especially manifest after 1996. Cattle production is the only outlet for livestock capacity, because milk production is under tight quotas and pork/poultry production are constrained by internal EC-demand.

Consumption and intermediate demand

The demand for agricultural products is characterized by low price and income elasticities. Combined with a barely growing population, this results, at most, in a marginal increase of overall consumer demand, even under falling (real) prices and moderate economic growth. Although model outcomes are in line with this general picture, growth differences among products are still remarkable. Consumption of wine and butter decreases somewhat, while consumer demand for vegetable oil and non-bovine meat increases at more than the average rate.

Because intermediate demand is much more price elastic than consumer demand, shifts in the sector's own demand are more pronounced. Especially the usage of cereals increases. This can partly be explained by the small increase of intensive livestock production, but the replacement

of grains substitutes for feed grains appears to be the most important cause. Intermediate usage of grains increases until the year 2000 by about 28 million metric tons. Over the period 1992-2000 the share of feed grains in total compound feeds increases by 12 per cent to 67 per cent. The reduction of cereals protection therefore clearly rehabilitates the position of grains in the compound feed package.

External trade

The Mac Sharry-reform contributes to an alleviation of trade disputes with third countries about the EC's exports of cereals. Already in 1996 net exports of cereals are about 25 million tons less than in 1992 (table 2.3). A combination of various effects explains the vanishing of the cereals exports: the set-aside obligation, the strong increase of intermediate demand, and an extensification effect in 1993.

Compared with 1992, imports of grains substitutes are almost 25 per cent lower in 2000. For other commodities, the differences in net trade flows are, except for bovine meat, relatively minor. Sheep meat imports from third countries increase. This is caused by the quota on sheep.

Table 2.3   External trade: net imports (+) and net exports (-) in million tons (EC-9)

Product	1992	2000
Wheat	16.6	0.2
Coarse grains	9.2	+2.4
Sugar	3.7	2.4
Fats and oils	+3.5	+5.3
Protein feed	+11.8	+8.0
Carbohydrates	+23.1	+18.5
Butter	0.1	-0.0
Other dairy	3.1	1.1
Bovine meat	0.1	0.6
Ovine meat	+0.1	+0.4

2.4   EC-agriculture under Mac Sharry: prices, budget and value added

Prices

The Mac Sharry simulations reveal that protection at the EC's border, measured as the ratio of internal border prices and world market prices, will decrease significantly through time (see table 2.4).

Table 2.4   Ratio of internal border prices and world market prices

Product	1992	2000
Wheat	2.33	1.40
Coarse grains	1.88	1.01
Sugar	1.87	1.80
Butter	1.83	1.55
Other dairy	1.33	1.30
Bovine meat	1.35	1.00

Under the Mac Sharry-reform, wheat protection decreases from about 133 per cent in 1992 to 40 per cent in 2000. For coarse grains these percentages are 88 and 1 respectively. The outcome for bovine meat is also remarkable: at the end of the simulation period border prices for bovine meat will equal world market price levels. The decrease in protection rates is, apart from slight changes in trade and transport margins, the result of the Mac Sharry measures and of the drop in real prices due to inflation on the one hand and hardly falling or even rising (cereals) world market prices on the other.

EAGGF-outlays

Guarantee outlays of the European Agricultural Guidance and Guarantee Fund (EAGGF) for the Mac Sharry-reform are assessed in table 2.5. Outlays for refunds on exports will decrease significantly while, on the other hand, producer subsidies due to the compensations per hectare and per animal show a drastic increase. The significant increase of outlays on *Other EAGGF guarantee* is especially due to the increase of producer subsidies in the member states not covered by ECAM (Spain, Greece and Portugal).

Table 2.5 EAGGF-guarantee outlays EC-12 (billion ecu and average yearly growth rates)

	1992	2000	Average yearly growth rates	
			1982-1992 a)	1992-2000 b)
Exports refunds	6.4	3.1	3.2	8.7
Producer subsidies	7.5	14.7	14.0	8.8
Consumer subsidies	1.6	1.6	3.7	0.0
Input subsidies	2.9	2.8	3.2	0.4
Storage costs	3.5	3.2	10.3	1.1
Other guarantee	9.7	12.6	23.6	3.3
Total	32.2	38.0	10.3	2.1

a) In nominal ecu; b) In real ecu.

Total EAGGF-guarantee-outlays for the EC-12 are nearly 6 billion ecu higher in 2000 than in 1992. The growth of these outlays, 2.1 per cent per year, is of about the same order of magnitude as the spending guideline. Therefore, ECAM's simulation results suggest that it may be possible under the Mac Sharry-reform to satisfy the spending guideline of 1988. This result is sensitive to the assumption that intervention prices and compensations are nominally fixed and that three per cent inflation has been assumed. Of course, the budgetary outlays will be higher if farmers receive fully indexed compensation. In previous runs, where the full indexation assumption was implemened (and higher cereal yields were assumed), the additional budget costs under the Mac Sharry-reform rose to 10 billion ecu.

This increase is not really surprising. If income support is decoupled from price support, the amount of support becomes visible on the EC-budget; consumers no longer pay the support indirectly through high food prices but directly through higher taxes which finance the EC-budget.

Value added

According to ECAM real value added per person in agriculture in the period 1992-2000 is expected to decrease by about 0.5 per cent per year which is less than the yearly average of the preceding 10 years. The reduction in real value added should not be interpreted as a corresponding re-

duction in income. Value added is only a very rough indicator for farm income as depreciation, rent, interest, wages paid to employees are, among others, part of it. Moreover, because agriculture is characterized by a steady outflow of labour, the available income has to be shared among an ever smaller number of people. ECAM projects an average labour outflow of 2.6 per cent per year.

2.5   EC-agriculture and the Mac Sharry-reform

ECAM's simulation results show that under the Mac Sharry regime the development of agricultural incomes is rather stable with a slight shift from value added generated in the crop sector to that in the livestock sector. Under the Mac Sharry-reform real budgetary outlays will develop at the pace of 2.0 per cent per year and exports to the world market vanish for cereals but rise for beef.

While price distortions are reduced, the regulations introduce quotas and rents on sheep and cereals, oilseeds, protein crops, fodder maize and cattle. These rents favour existing farmers, but create an additional financial burden for young farmers. On the other hand the restriction of agricultural supply may have environmental benefits.

Finally it must be emphasized that the nature of protection of the EC market does not change under the reform: the system of variable levies and export refunds remains in place. Criticism on the CAP by third countries, referring to lack of access to the EC market and unfair competition on the world market, will probably not come to an end under Mac Sharry, albeit that there is a clear tendency to withdraw from the world market. It will be investigated in the next section whether this is sufficient to meet the requirements following from the bilateral agreement with the US.

3. THE BILATERAL EC-US AGREEMENT AND THE CAP-REFORM

3.1 Main elements of the agreement

The bilateral agreement between the EC and the US relates mainly to market access, internal support and commitments on exports (CEC, 1992).

Market access

With respect to market access for third countries, two elements are of major importance.

First, it has been agreed to change all non tariff border protection measures into customs tariffs (tariffication) and to reduce these tariffs by 36 per cent over a period of 6 years. The 36 per cent must be calculated as a simple mathematical average. Each individual tariff must be reduced by at least 15 per cent. The base period for calculating the tariffs is 1986-1988. Of relevance is that in case of excessive downward fluctuations on world markets, a variable element called 'special safeguard clause' is added automatically to the tariff.

Secondly, it has been agreed that import opportunities will be opened in 1994 equalling 3 per cent of internal consumption of the reference period and rising to 5 per cent in 2000.

Internal support

Internal support has to be reduced by 20 per cent in comparison with the base period 1986-1988. Internal support is expressed by an Aggregate Measurement of Support (AMS). Roughly speaking the AMS is calculated as:

$$AMS = \Sigma_i\ Q_i * (P_{int,i} - P_{wm,i})$$

where:

Q_i = Volume of production, product i
$P_{int,i}$ = Internal EC-price, product i
$P_{wm,i}$ = World market price, product i

For those products where market price support exists but for which calculation of the AMS is, according to the original Dunkel text, unpractical, equivalent commitments will be undertaken. These equivalent commitments are defined in Annex 6 of the Dunkel Proposal.

Commitments on exports

With respect to export two commitments have been foreseen. First, it has been agreed that direct export subsidies will be reduced by 36 per cent. Secondly, both the US and the EC have committed themselves to reduce the volume of subsidized exports by 21 per cent. The agreement refers to a six year period and applies to individual products. The base period used for the calculations is 1986-1990.

3.2 Preliminary assessment of the agreement

Before we discuss the compatibility between the agreement and the evolution of EC-agriculture under the Mac Sharry-reform, some general remarks are in order.

i) The AMS reduction is a central element in the agreement. By definition it is a sum total. Hence, an increase in protection for one commodity could be compensated by a reduction for an other.

ii) Reduction of the AMS can also be obtained by reducing supply. Therefore, reduction of milk or sugar quotas is looked at as a reduction in support.

iii) The tariffication contains a variable element to protect the EC-market from excessive fluctuations on world markets. This so-called 'special safeguard clause' may automatically be added to the tariff when the *import price for the EC* falls by more than 10 per cent below the average of 1986-1988. Actual world market prices are much lower than the import prices for the EC in the base period, as calculated by the Commission. This means that, in practice, the clause will become effective very soon (see CEC, 1992, table 2).

iv) The average tariff reduction of 36 per cent is an *unweighed* average. Thus, a large reduction for an economically minor product can compensate for a small reduction of an economically important product.

v) As it appears, the agreement is in nominal terms. It is completely silent *about inflation compensation*, albeit that the original Dunkel Proposal does contain a suggestion for adjustment in case of excessive inflation rates. The effect of inflation can easily surpass the effect of the reduction rates of the agreement.

vi) Direct producer subsidies are not subject to any reduction commitment. They fall within the so-called 'green box'. The implication is that a fall in farmers' income due to a decrease in border protection can be compensated by 'decoupled' subsidies.

vii) It must be stressed also that the GATT should in principle cover processed agricultural products as well and not just raw commodities. However, the tariffication of processed commodities, e.g. alcohol beverages, processed meat products, is extremely cumbersome. The constituents of the processed products must be known for each product traded, the corresponding tariffs must be attached and aggregated to obtain the tariff of the final product. If world market prices of the constituents change, tariffs change. This would become a great administrative burden, as it is now for the EC refunds, unless a flat tariff is agreed upon. The apparent solution is to let tariffication apply to food products which consist of one dominant constituent (cereals, beef, cheese etc.) only.

viii) Within the EC green rates apply which are member-state specific. Since the border price is based upon the (green) intervention price for a number of products, it is impossible to define one central border price for the EC unless green rates are fully harmonized over member states. The present volatility of the exchange-rate mechanism makes full harmonization in the near future unlikely. If the MCA's, which have been abolished in 1992, would return, border prices could even be country and product specific. The GATT rules are not completely clear how to deal with the green rates of the EC [or they are imprecise because they assume an approximate central green rate]. In our analysis we proceed from one central border price.

ix) Finally, we want to stress that if the bilateral agreement is accepted by other GATT-parties, the resulting multilateral agreement is only a small step towards free trade in agricultural products. The agreement is still far away from the initial proposal of the US to cut all farm subsidies within ten years.

In the remainder of this section we will investigate to what extent EC-agriculture will be affected by the bilateral agreement.

3.3 The effect of the AMS-commitment

In section 2 it was explained why CAP-reform and developments on the world market will, for most products, result in a decrease in the ratio of internal border prices and world market prices in the coming years. It was also shown that production of most products will increase in the pe-

riod 1993-2000. These two developments have opposite effects on the AMS. However, the figures of tables 2 and 4 suggest that, on balance, a net decrease of the aggregated measure of support is likely. A detailed calculation confirms this. Compared with the base period, ECAM forecasts a fall in the AMS by 62 per cent in the period until 2000. To the extent that a multilateral GATT-agreement will result in higher world market prices than the ones quoted in table 2.1, this outcome would even be an underestimation of the foreseeable reduction.

According to the bilateral agreement, the AMS should have fallen by 20 per cent in the year 2000 relative to the base period. Because the 20 per cent refers to a nominal amount, a correction for inflation has to be made. At an average yearly inflation rate of 3 per cent, the AMS commitment amounts to about 37 per cent $(1-((1-0.2)/1.03^8))$ of the AMS in the base period. This correction does not change the conclusion according to which realization of the AMS-part of the agreement will not be a problem for the EC. Others (e.g. Guyomard et al., 1992) arrive at the same conclusion.

The ease with which the AMS commitment can be realised is above all caused by (i) the possibility of summation over products, (ii) the fact that all subsidies per hectare and per animal are in the green box and (iii) the very low world market prices in the base period.

3.4   The effect of the import and export commitments

The agreements with respect to minimum access opportunities and volumes of subsidized exports apply for individual products (or commodity groups). Therefore, an assessment of the effects of the commitments has to be performed on a product by product base. The discussion will be limited to the main surplus products only.

Cereals

Relative to the reference period, the estimated net effect of the agreement on the EC-cereal balance amounts to 13 million tons (Van Berkum, 1993). At the end of the term of the GATT-agreement the EC is allowed to export 23.4 million tons of cereals (CEC, 1992). The ECAM-outcomes show that meeting this will not pose any problem. Lower internal prices combined with the set-aside regulations will result in a drastic reduction of the growth rates for cereals. Moreover, the Mac Sharry-reforms will lead to a sharp increase in the usage of cereals by the EC-feed sector. Together these developments will by the year 2000 result in a vanishing of cereals exports (table 2.3). Although Blom (1992) and Roningen (1992) are less optimistic with respect to the Mac Sharry effect on the increase in in-

ternal demand for feed grains, they also conclude that the effect will be large enough to meet the GATT-requirement.

Sugar

Table 2.3 shows that sugar exports are predicted to fall by about 1.5 million tons or 40 per cent in the period 1992-2000. This gives a crude indication that meeting the requirement of the bilateral agreement with respect to market access and export reduction for sugar will cause no problems for the Community either. However, for a more precise conclusion one has to take into account that part of the sugar exports of the EC consists of so-called C-sugar which is exported without subsidy and that the EC has committed itself to import 1.3 million tons of sugar from the ACP-countries every year. Part of the latter is re-exported. Exports of C-sugar and re-exports of ACP-sugar are not subject to reduction. Therefore, the export reduction is less than the base period export statistics suggest. According to the Commission the export commitment implies a reduction in sugar exports of 153,000 tons in the six year period only (CEC, 1992). Because sugar consumption in the EC has increased by some 80,000 tons a year in recent years, the export requirement can be satisfied if this trend continues. This is even more so if one considers that, because of the imports from ACP-countries, no additional imports are necessary.

Dairy products

ECAM distinguishes only two dairy products: butter and other dairy. GATT-commitments have been made for four dairy products, as summarized in table 3.1. The import and export commitments amount to

Table 3.1 Quantity commitments on imports and (subsidized) exports, 2000 relative to 1991, in 1,000 ton milkequivalents

	Export change	Import change	Net export change
Butter and butter oil	564	207	357
Skimmed milk powder	291	376	-85
Cheese	-1414	837	-2251
Other	-1460	1843	-3303
Total	-2019	3263	-5282

Source: Van Berkum (1993).

slightly more than 5 million metric tonnes of milkequivalents, or 4.8 per cent of total milk production in the EC. Under the Mac Sharry regime it is possible to reduce milkquota by two per cent. Moreover, due to growing consumer demand, the offtake of most dairy products within the EC increases at a rate around of 0.75 per cent per year. On the basis of a straightforward calculation it can be concluded that meeting the commitments will not pose a problem.

This conclusion is corroborated by the ECAM-simulation. The ECAM-outcomes even show that milk production can be expanded by the end of the nineties. There are three additional reasons why expansion is a serious possibility indeed. First, the GATT-commitments refer to the EC of 1992. The Canary Islands and the EFTA countries are considered as third countries. However, since January 1993 the Canary Islands are fully integrated in the Community. Consequently exports to these Islands are, by definition, not counted as exports to third countries anymore. A same kind of administrative reduction in exports to third countries will appear once EFTA countries become members of the EC.

Secondly, the import commitment is not an obligation to buy but rather an obligation to offer third countries the opportunity to sell. As can be seen from table 3.1 the commitment has above all consequences for cheese and other dairy products (e.g. fresh milk products). It is not at all self-evident that third countries will want to use the additional export opportunity. A significant part of the additional imports must come from countries where internal milk prices are even higher than in the EC. Exports at world market prices will not be attractive for these countries.

Finally, it is important to emphasize that due to the drastic decrease of subsidized exports, world market prices for dairy products will, in case of a multilateral agreement, definitely increase. Hence it will become more attractive for the EC-dairy sector to increase its unsubsidized exports, particularly because demand for unsubsidized product will certainly increase.

Although there are no problems to be expected for the total dairy sector, there might be some for cheese. The growth of EC cheese production in recent years may need temporary suspension in order to fulfil the export commitment (see Van Berkum, 1993).

Bovine meat

The EC is both a large exporter and a large importer of bovine meat. As long as imports do not fall below the level of the base period, the import commitment will be met. With respect to exports, matters seem more complicated. The ECAM run foresees a rapid increase in bovine meat produc-

tion and a relatively slow growth in consumption. In the year 2000 the gross surplus (net exports + imports) amounts to about 1.4 million tons. According to the commitment, the EC is allowed to export 0.8 million tons bovine meat with subsidy only. Still ECAM outcomes suggest that there is no problem. If we assume a rapid deterioration of intervention conditions, as done in ECAM, then at the end of the GATT-term the border prices will be more or less equal to world market prices. In that situation subsidization of exports is not necessary anymore.

3.5 The effect of reduced border protection

Protection has been defined as the difference between the internal border price and the world market price. Therefore, prior to a discussion on the effect of the commitments directed at reducing existing border protection, the effects of a GATT-agreement on world market prices have to be assessed.

World market prices

A multilateral GATT-agreement will have a positive effect on world market prices which means that, ceteris paribus, a GATT-agreement will automatically result in a decrease of border protection. Although there is not much dispute on this, it is difficult to assess the precise effect on world market prices.

To avoid the risk of being overly optimistic, in analyzing the consequences of tariffication and the reduction of export subsidies for the EC, we proceed from the conservative position that world market prices for cereals and sugar will not be affected by a multilateral agreement. On the other hand we assume a real price rise of 0.5 per cent per year for beef. This increase is motivated by the fact that beef exports to Japan and the NIC's will probably be stimulated by an agreement. On the heavily protected dairy markets larger price increases can be expected. Following van Berkum (1993) we proceed for all dairy products (except butter) on the assumption of a real price rise of 3 per cent per year. These rates are additional to the price developments quoted in table 2.1.

Tariffication

According to the bilateral agreement the EC farmer will in 2000 be protected against outside competition by (nominal) tariffs which are, on average, 36 per cent below the tariff in the base period. Table 3.2 summarizes the effect of this part of the commitment on the competitiveness of the EC

*Table 3.2 Customs tariffs and border prices in 2000 for some important com-
modities (ecu per ton)*

Product	Tariff		Import price b)	Border price c)
	nominal a) (1)	real (2)	(3)	(4)
Wheat	95	77	178	154
Coarse grains	94	76	169	114
Sugar	419	339	610	547
Butter	1896	1531	3521	3387
Dairy	187 d)	151	658	568
Bovine meat	1608	1299	2991	1967

*a) Nominal tariffs taken from CEC (1992); b) World market price + real tariff; c) Border prices ac-
cording to ECAM; d) Tariff derived from tariff on skimmed milk powder (1 kg smp = 5.09 units of
dairy).*

at the border. The first column of the table lists the (nominal) tariffs allo-
wed in 1999 according to the EC (CEC, 1992). In the second column these
tariffs have been deflated by 3 per cent per year. The sum of these and the
world market price (table 2.1, corrected for GATT-price effects of dairy
and beef) equals the net import price at the EC-border. The last column
shows the EC-border prices according to ECAM. The outcomes of the cal-
culation do not justify any fear for a pressure on internal prices due to ta-
riffication and a subsequent reduction of tariffs. This 'optimistic'
conclusion rests mainly on the height of the tariffs in the base year. In the
agreement these tariffs are determined as the differences between the EC
intervention prices raised by ten per cent and the world market prices in
the base period. EC-intervention prices were relatively high in the base
period while world market prices for most products were low.

Also of relevance is the fact that the agreement contains a special
safeguard provision which becomes effective in case the EC import price
falls below a pre specified price. It is not unimportant to note that these
'pre specified prices', are much higher than the average world market
prices in the base period (see CEC, 1992).

Reduced export subsidies

Although the Mac Sharry-reforms will, among other things, result in
a tendency of EC-agriculture to withdraw from world markets, for some

Table 3.3 Maximum export subsidies and border prices in 2000 for some important commodities (ecu per ton)

Product	Maximum export subsidy		World market price	Border price b)
	Nominal a) (1)	Real (2)	(3)	(4)
Wheat	85	69	101	85
Coarse grains	88	71	93	43
Sugar	389	314	271	233
Butter	2317	1872	1990	1515
Dairy	192 c)	155	507	413
Bovine meat	1542	1245	1692	722

a) Nominal export subsidies calculated from CEC (1992, GATT concession list, supporting table 11); b) Border prices according to ECAM; c) Tariff derived from tariff on skimmed milk powder (1 kg smp = 5.09 units of dairy).

products the EC will remain a net exporter. Because internal EC-prices for most products are expected to stay above corresponding prices on the world market, export subsidies to bridge internal and external prices will still be necessary in the future. Table 3.3 summarizes the results of a calculation which seeks to determine whether the competitiveness of the EC on the world market is affected by the bilateral agreement. The maximum amount of subsidy per ton of product i in 2000 (column (1) is calculated as:

$$s_{i,f} = (1-\alpha) S_{i,b} / (1-\beta) Q_{i,b}$$

where:

$s_{i,f}$	=	Maximum export-subsidy per ton in 2000, product i
$S_{i,b}$	=	Total export-subsidy in the base period, product i
$Q_{i,b}$	=	Volume of subsidized exports in the base period
α	=	Reduction-factor of total export-subsidy ($\alpha = 0.36$)
β	=	Reduction-factor of volume of subsidized exports ($\beta = 0.21$)

In column (2) of table 3.3 the deflated subsidy amounts are shown. Column (3) lists the product prices on the world market. The minimum supply prices of the EC are shown in column (4). They have been calculated as the differences between EC border prices and the maximum export subsidies (column (2)).

A comparison between columns (3) and (4) reveals that the subsidies per ton that are still allowed under the GATT will be more than sufficient to bridge the gap between internal and external prices. It must be stressed that the assumptions underlying the calculations are very conservative. For example, it has been assumed that volumes of subsidized exports will decrease by 21 per cent only. As was discussed above, ECAM outcomes indicate much larger reductions (see table 2.3). Consequently maximum subsidies per ton can even be higher than the amounts quoted in table 3.3.

3.6   Incentives to implement the commitments

The commitments made during the negotiations are intentions only. It is not indicated how to implement them. In the discussion so far we have attempted to show that these commitments do not require much adjustment in the present CAP after the Mac Sharry-reform. Nevertheless, substantial uncertainty remains as to how the farmers will react to the Mac Sharry-reform. The present discussion is only in terms of model forecasts. In practice there may be unexpected future developments. In that case the commitments on EC exports will be the first to be violated. A small difference in intra-EC supply or demand leads to a large variation in net exports and this creates a wide margin of uncertainty.

When unanticipated developments occur and commitments become binding, the EC could in the short-term restrict exports through stock adjustments and then, in the medium term, raise set asides for crops and reduce production quota for livestock. For beef, where no quota exist another mechanism like quota on subsidized exports could be introduced.

However, because of the 'volatility' of net exports, such adjustments could lead to problems in fine-tuning the policies and the resulting permanent interference with the farmer's decision process through new regulations is bound to be distortionary. Moreover, farmers would suffer.

We argue that a way out is to make use of the fact that unsubsidized exports fall outside the committed volumes. Any relabelling of previously subsidized exports as unsubsidized exports reduces subsidized exports. This suggests two ways to avoid the pressures from the export commitments.

First, the EC could increase acreage subsidies (which are not counted as protection) and simultaneously reduce the intervention price. This would however affect demand and, more importantly, increase the budgetary expenditures of the Community.

Second, producer's organizations could recur to practices of market segmentation, producing 'C-crops' and 'C-livestock' like C-sugar. Whenever a significant part of the farmer's costs are of the nature of set-up

costs, an overall reduction in producer prices compensated by increased subsidies per unit within an A-quotum would hardly affect output levels.

If this type of practices becomes pervasive (and the possibility of exporting unsubsidized production is granted explicitly in the current agreement), the disciplining role of the GATT-agreement will be severely reduced, at least in the short-run, when the Community preference is maintained. One could put it like this. As long as imports are being protected a significant rent is created not just on import but on domestic demand as well, which can accrue to the farmers. The schemes with 'C-crops' only give up a subsidy on exports which is relatively insignificant when compared to the total rent (as measured, say by the AMS).

However, what remains is the long-run effect of tariffication. As soon as tariffication eliminates the prevailing Community preference, it will undermine the basic principles of the CAP. Consumers and the feed industry will become linked to world prices. In that case the second option of market segmentation is ruled out. Because the option of direct support is costly for the tax payer, this option will be hard to maintain either.

Hence it seems that the upcoming GATT-agreement, if at all reached, will for agriculture serve to put the (tariffication) machinery into place for rounds of negotiation in the future when Community preference will have been eroded by inflation. Then negotiations can start on the basis of tariffs which are effective, so that tariff reductions will (finally) have visible impact on the EC markets.

4. SUMMARY AND MAIN CONCLUSIONS

For the first time in history it is tried to integrate agriculture into the rules of the GATT, the periodic multilateral negotiations aiming at more liberalised international trade. Reasons of food security combined with vested interests in the agricultural sector of many industrial countries successfully resisted earlier initiatives to decrease existing high levels of domestic support for agricultural products. Although these vested interests have again shown their strength during the Uruguay round, it is unlikely that a multilateral agreement will be blocked by agricultural policies. The recent bilateral agreement between the EC and the US is a clear indication that countervailing forces have gained significant strength. The EC-US agreement, which is a modified version of the Dunkel Proposal, has a good chance to be accepted by the other negotiating parties as well.

In this paper we have analyzed the consequences of the agreement for the agricultural sector of the EC. Such an analysis is hampered by the fact that the CAP is on the eve of the most drastic reform since its existence. An analysis of the bilateral agreement has to be preceded by an analysis of the CAP-reform.

The consequences of the CAP-reform have been traced with ECAM, a general equilibrium model of EC-agriculture. The model outcomes suggest that the reform will, among others, result in (i) a withdrawal of the EC from the international grain market; (ii) much lower (real) internal prices; (iii) a sharp increase in the amount of producer subsidies; and (iv) in lower outlays on export refunds.

In the second part of the paper, the results of the simulations have been compared with the commitments of the bilateral trade-agreement. It appears that the agreement is, in broad terms, compatible with the CAP-reform; thus incomes of EC farmers will be hardly affected by it. Because of the CAP-reform the AMS-commitment as defined in the bilateral agreement, i.e. excluding producer subsidies, will be easily met. Moreover, because of the choice for the base period, the height of the initial tariffs and the 'special safeguard clause', the effect of tariffication will probably be negligible as well. Because of developments in internal demand and

supply net surplus of many products will decrease significantly anyhow. Hence commitments on minimum access and subsidized exports will not be very demanding either. It must be stressed also that by the full integration of the Canary Islands and an eventual EC-membership of the EFTA countries, the definition of 'third countries' changes. Commitments on import access and export reduction are favourably affected by this.

These conclusions refer to the term of the agreement. In the longer run the consequences of the agreement will probably become more visible. Community preference will, step by step, erode by inflation. And negotiated tariff reductions, in a second round, will (finally) become effective.

The main point on which the results of our analysis have to be qualified relates to the fact that the commitments of the agreement are (partly) expressed in nominal amounts. In the analysis we have proceeded from an average inflation rate of 3 per cent per year and no indexation. If inflation rates are significantly higher, the absence of indexation will cause a rapid decrease in border protection. Because the original Dunkel Proposal contains a (rather vague) safety clause in case border protection is eroded by excessive inflation rates, it is not very likely that such a situation will occur.

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ANNEX

ANNEX 1.   AN OUTLINE OF ECAM

ECAM is a recursively dynamic, applied general equilibrium (AGE-) model. It follows the approach to AGE-modelling with inequality constraints and price rigidities described in Fischer et al. (op.cit., ch. 2). Further details on ECAM are given in Folmer et al. (1989). Here we only list characteristic features of this model.

ECAM describes the intra-EC market clearing at given international prices and policy interventions. It covers the EC excluding Greece, Portugal and Spain and distinguishes 19 agricultural commodities, one nontradeable, national non-agricultural and one tradeable non-agricultural commodity. It operates at national level with a consumer demand and an agricultural supply module as basic elements, the parameters of which have been obtained via time series estimation.

(a) *Consumer demand* follows expenditure minimization according to a two-level demand system: at the lower level a linear expenditure system (LES) with trends on commitments for food demand; at upper level an AIDS-system for food, beverages and tobacco and non-food.

(b) Agricultural supply is modeled via a one-period, revenue maximizing nonlinear program with a land constraint, a livestock-feed energy constraint and a livestock operating-capacity constraint. Milk quota are imposed as upper bound on milk supplies. The constraint set is completed with commodity balances including a greenfodder balance. Yields of crops and animals follow exogenously specified trends which reflect technical progress. Nonlinearity enters via production and transformation functions, which because of the decomposable structure of the program, can be dealt with via separate cost and revenue functions. Details can be found in Keyzer (1989 a, b).

(c) Resources. The resource availabilities of labour, land and operating capacity are adjusted prior to (i.e. recursively on) the nonlinear program.

(d) Non-agricultural supply. Tradeable non-agricultural production is treated as an exogenous variable. Nontradeable non-agricultural production (mainly construction and services) is endogenously produced under constant returns to scale with fixed mark-up rate over variable costs.

(e) *Exchange component*. The problem of obtaining an equilibrium solution for the EC-economy in a given year is solved in the model's exchange component. Equilibrium is established through an iterative process at EC-market level. On the EC-market the sellers of production compete with traders with the outside world and possibly the public stock authorities to satisfy total EC-demand. EC-clearing prices adjust until EC-commodity balances are cleared and national consumers are at maximum utility. During the adjustment process the feed demand structure adjusts to achieve cost minimization but the livestock numbers are kept fixed.
When an equilibrium solution for the model is obtained, all information is available to print detailed and integrated accounts, both in value and in volume terms, which together depict the complete economy, at national level as well as at EC-level.

(f) The community budget. The budgetary rules in ECAM, which reflect actual CAP regulations as closely as possible, are the following:

(i)   The Community-budget balances through adjustment of contributions by member states, called VAT-transfers.

(ii)   These transfers are distributed over member states in proportion to their respective value-added at factor cost.

(iii) The national governments may incur a budget-deficit which is financed through private and/or foreign savings.

(iv) Levies, tariffs and refunds on trade with non-members accrue directly to the Community.

(v)   National governments are compensated by the Community for payment of EC-subsidies on supply and demand and of Monetary Compensatory Amounts.

(vi) Buffer stocks are held by member states in exogenously set, commodity-specific proportions. National governments finance these stocks through government bonds. The Community repays interest and storage costs as well as losses on stock.

(g) Recursively dynamic simulation. ECAM is solved under a recursively dynamic mode. For given levels of supply by agriculture and tradeable non-agriculture, given international prices and CAP-policies, the exchange component is solved, starting in the base-year 1982. Then, using the various equilibrium prices, resource adjustments take place, the agricultural supply decision is solved and non-agricultural supply adjusts. Finally, policy updates are introduced setting the stage for a next year of simulation and so on until the end of the simulation period. This is more or less a descriptive mode of simulation as opposed to a normative one where one would expect agents behaviour to be time consistent and intertemporally efficient, at least over the horizon of simulation.