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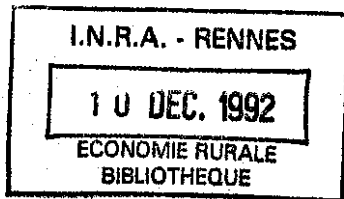


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# **THE EC AND US AGRICULTURAL TRADE CONFLICT AND THE GATT ROUND : PETTY MULTILATERALISM ?**

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## INTRODUCTION

In 1986, the Uruguay Round was launched by the declaration of Punta del Este. Although this declaration expresses a consensus on the need for policy reforms, the contracting parties of the GATT have quickly shown large divergences in their expectations from the Round and in their willingness to make concessions. The economic and political fundamentals of agricultural sectors in the various countries have reappeared in the open and the negotiating positions expressed in the first stages of the Round have proved to be far apart.

The Round has been going on for six years now and lasted longer than any previous Round. This is also the first time that agricultural issues played such an important role, with several crises triggered by the determination of the United States and developing countries to condition any general agreement on a successful solution of pending agricultural disputes.

The United States (US) and the European Community (EC) have been the major actors in this Round and agricultural issues have for most of the time been at the front scene, a place which is out of proportion with respect to the relative share of agriculture in world trade and the importance of emerging issues, like trade in services or intellectual property, which have received less coverage from the medias.

Although at several occasions it was feared that the Round would collapse, it never did and failures to conclude agreements at important stages (Montréal in 1988, Bruxelles in 1990, or Geneva in 1991) were soon followed by initiatives to restart the process. In fact lots of policy changes have occurred since the negotiations started and the wide discrepancies between the early negotiating positions of the major players have narrowed down. The prospects for a final agreement are now within reach after the successful meeting of Washington where the EC Commission and the US have found a bilateral compromise.

The major reforms proposed by the European Community Commission in July 1991 (CCE, 1991) set the stage for this bilateral compromise. These reforms changed drastically the negotiating position of the EC even though the process of adopting these reforms by the Council of Ministers has led to numerous changes, changes that tended to lessen the extent of the reform initially proposed (CCE, 1992). Nevertheless, reform has been initiated and, although it does not cover all sectors, it does introduce a new instrumentation for providing economic support that lessens incentives to distort markets. The most deeply affected are the markets for cereals, the commodity at the core of European agriculture, and the closely related products not controlled by production quotas.

Several other countries have unilaterally accomplished policy reforms involving significant deregulation (Sweden and New-Zealand), or a freeze of price supports with a

decoupling of subsidies and an increased role of market forces (United States FACT of 1990).

Agricultural trade relations have improved between the US and Japan after the limited access concessions made by the latter on beef and citrus imports. The trade conflict between the EC and the US has however become more tense, culminating in the export subsidy war and the soya panels.

Effective progress in trade liberalisation has indeed been made, aside from the Uruguay round itself, but influenced by the general context of the negotiations. However, the last few months brought some uncertainty on the conclusion of a general accord as the EC-US dispute on oilseeds and EC grain export volumes overshadowed all the other issues.

The purpose of this paper is to put the Washington deal into perspective. A first assessment of what has been achieved in the Uruguay Round as it approaches its conclusion is made in the light of research we have carried on the fundamentals of the EC-US conflict and on the nature of the agricultural game in the GATT.

Our main point is that, due to interest group influence in protected sectors in all countries, a full multilateral deregulation is not likely so that the public good of international coordination will be under supplied. However, the political leverage exerted by special interests in a country can induce it to exert strong leverage on other countries to compromise. This explains why the negotiation has cut down on the ambitions and progressively reduced the targets on domestic support reduction because of interior political influence of interest groups. This explains also the increasing focus on trade barriers, and more narrowly on export subsidies. Furthermore, it is consistent with the increased tendency of the negotiations to largely be an EC-US matter with little mention of other parties involved in the negotiations.

Section 1 deals with the economic and political economy framework which is used to explain the developments of the Round. Section 2 gives some empirical evidence based on the compatibility between the Dunkel compromise, the CAP reform and the US FACT. Section 3 looks at the Washington compromise in the light of the sore points in EC and US policies that an agreement strictly based on the Draft Final Act would have revealed. Section 4 concludes that the deal minimizes domestic political costs, but constrains trade policy to alleviate international spillover effects of domestic policies.

## **1. AGRICULTURAL POLICY REFORMS IN THE GATT : BETWEEN RENT SEEKING AND MERCANTILISM**

There is ample evidence that free trade in agriculture is unlikely to result from spontaneous unilateral government actions, even if extensive reforms of agricultural policies have occurred recently in a few countries. In spite of economic gains to the society as a whole, the political balance appears to favour specific group interests as opposed to the long-run general interest. Governments also appear to have a tendency to weight heavily the short-run political costs that trade liberalization would entail relative to the longer run gains that would most surely be obtained. These long-run gains are delayed, dispersed and furthermore difficult to demonstrate. The collective action approach shows why interest groups are able to make their case to the politicians.

They are effective, as Olson (1965) has pointed out, because their small number in proportion to their country's population and the large share of their income from specialization lower their individual costs of lobbying and seeking legislation in their favour. At the same time, since food is a small proportion of total household expenditures, it is not in individual consumer's interest to incur the costs of forming a countervailing lobby body to induce policy reform.

Interest groups can also efficiently influence public opinions because specific income losses are less costly to demonstrate than potential gains of economic growth due to freer trade. Moreover, these gains are also a public good without an organized constituency to lobby for its provision.

The resistance to deregulation is difficult to circumvent for both institutional and economic reasons. The institutional reasons lie in the various channels of political connections, congressional committees, legal statutes and structures and other institutions that support, implement and provide communication mechanisms to the agricultural policies in developed countries. Policy reform entails a substantive dismantling of this structure, not too unlike the dismantling that has been associated with the structural adjustment and stabilization policies pursued by many developing countries following reform.

The first economic feature that facilitates agricultural interests in gathering political support is price instability. Price instability generates an asymmetry in the development of regulation in agriculture. When financial stress occurs as a result of adverse price conditions, policies are often introduced to alleviate income losses. But, these policies are seldom withdrawn when economic conditions improve. Part of the reason is that agriculture is characterized by sector specific resources that cannot be easily reallocated to other sectors.

Consequently, the value of protection becomes embodied in these specific factors. When conditions are better, the rise in the value of these resources is associated with both improved economic conditions and economic policy. Hence, the withdrawal of the previously given economic support will tend to dampen the recovery, or if withdrawn after a recovery, it will tend to induce another albeit modest decline. Producers are aware of this potential decline in value of their sector specific assets and therefore have an incentive to engage in political actions to avert this eventuality. Hence, stabilisation tends to degenerate over time into permanent support.

The second economic force that makes reform difficult is that capital deepening in land improvements, buildings, irrigation or livestock has occurred in US and EC agriculture in anticipation of continued agricultural policies. Moreover, under protection, agriculture in the US and the EC has experienced significant productivity growth during the last two decades. However, capital deepening and economic growth were attained in a economy that, at the margin, was protected and cannot likely be sustained in the presence of free and open world markets. That is, at the margin and in the absence of compensatory payments, policy reform will almost surely lead to a decrease in returns to resources in US and EC agricultures. Since the value of economic policy that protects (subsidizes) a commodity gets embodied in the sector's specific assets (i.e., the very assets that have experienced capital deepening), removal of the subsidy implies a decrease in the value of these assets to the extent that they cannot be reallocated to a more profitable activity. This decline in wealth is well known to US producers as shown by the decline in land values during the 1980's and the relatively high value of land in more protected (sugar) as compared to less protected commodities (grains). Accordingly, they have an economic incentive to even more vigorously engage in collective action to countervail the threat to policy reforms.

Land is also related to space, to environmental amenities, to rural development and to natural resources. The increasing concern about the rural environment has attracted attention to discipline agricultural practices harmful to natural resources, but has also created new support for the country life in general, a support which policy makers have a hard time to provide through instruments decoupled from income and production incentives.

Food being closely associated with health has therefore a clear emotional content. In its early form, this concern was related to food security that further motivated the development of agricultural policies in Europe and Japan after the second world war. Its more recent version is food safety which can easily serve as a justification for non-tariff barriers and extensive regulation.

Together, the institutional and economic forces make reform particularly difficult. Hence, there has been insufficient incentive to deregulate farm policies unilaterally, and instead

an incentive to "free ride" by encouraging other countries to reform.

Free trade is in general a preferable policy for a small country, but it also benefits to other countries so that free trade among nations is a public good, a good which in itself requires collective action to ensure its procurement. When government actions disproportionately reflect the preferences of specific interests, they tend to make protectionism a dominant strategy. Therefore, the political game prevents the society as a whole from capturing the benefits that free trade can provide and the discrepancy between government behaviour and welfare of the society creates an international situation similar to the prisoner's dilemma. In this case, the political incentive is biased toward protection, while welfare gains from liberalization exist but are not attainable given the rules of the game.

Jonhson et al. (1991) have illustrated this gap between the solution of two EC-US trade games. In the first, where the pay-off matrix is classical welfare, the Nash equilibrium is free trade. In the second, where the pay-off matrix is based on political preference functions of governments, the solution is that both countries prefer protection.

Without new policy instruments, trade liberalization is unlikely since game two appears more appropriate than game one in providing insights into the trade-offs underlying the current stage of the negotiations. The apparent influence of special interests casts some uncertainty over the longer run nature of a GATT agreement. If special interests play such an important implicit role in the negotiations, then changes in technology, weather and other conditions may induce a country to accept the penalties that violating a treaty might otherwise impose rather than tackling the political costs of domestic reforms made necessary by these exogeneous changes.

Notice that the results reported in Table 2 suggest that it is in the interest for the US (EC) to induce the other to deregulate because a player can benefit from the resulting change in world prices that in turn alleviates the burden on its tax payers, increases its producer incomes or both. It is therefore politically beneficial for any one country to induce the other to liberalize, but own political costs prevent the country itself to do so. Can policy reform be made easier in a game enlarged to other players in the GATT or by introducing new instruments?

Johnson et al. have shown the existence of these political externalities in the agricultural trade negotiations. One example is that when the rest of OECD countries liberalize their agricultural policies, it becomes feasible - politically - for the US to liberalize partly. The public good nature of economic gains due to agricultural trade deregulation therefore extends to the political gains to be expected from multilateral action. The need for a treaty to ensure that commitments are fulfilled and to give incentive to everybody to move in concert is therefore

Table 1. Game one : pay-off based on equal weights to social groups

US	EC	Protection	Free trade
Protection		(0.0)	(0.3, 8.5)
Free trade		(3.0, 0.9)	(2.7, 8.8)

Source : Johnson et al., 1991

Table 2. Game two : pay-off based on a political preference function with different weights

US	EC	Protection	Free-trade
Protection		(0.0)	(0.6, -5.4)
Free-trade		(-2.1, 1.0)	(-0.9 - 4.4)

Source : Johnson et al., 1991



demonstrated, and the improvement of the rules of dispute settlement as a way to make the enforcement of the GATT treaty more efficient is important in that respect. This also highlights the interest of having the other players participate in a reform agreement and therefore not to limit the negotiation to an EC-US bilateral deal but to make it extendable to other contracting parties.

In the same study, new instruments were introduced in the game where tax payer money saved from trade liberalization is used to compensate the losers according to their decreasing political weights. This new game shows that, with compensation, free trade whereby support is reduced on commodities exported with subsidies is likely but free trade is not.

Eventually it appears that a potential exists for limited multilateral reform particularly if, i) all players join in the move, and ii) governments are allowed to compensate the losers.

Compensation has been easily accepted during the Uruguay Round as illustrated by the decreasing role devoted to the Aggregate Measure of Support (AMS) as a basis for negotiation and the increasing tolerance with respect to measures put in the green box. This has increased the domestic political feasibilities of reform, but has left intact the lack of incentive for collective international action due to the free rider problem.

In a multilateral framework such as the GATT, mutual trade concessions are less likely to occur since the Most Favoured Nation principle extends to all other contracting parties the benefit of the concession made by any country in a bilateral agreement. When a large number of countries is involved, they have less incentives to make reciprocal concessions since the gain one country might "pay for" by a mutual concession must, in a multilateral framework, be shared by all. The sharing of the benefits means, for example, that other countries can also compete for the markets that have been liberalized. Effectively, the sharing of benefits from a concession with other countries implies that a particular country has less incentives to enter into or invest in a multilateral agreement. This is another consequence of the free-rider problem. The proliferation of free trade areas, bilateral trade agreements, and trade blocks is a clear illustration of the attempt to circumvent this externality which is built into the GATT principles.

The collective nature of the benefits from freer trade and the fact that political costs dominate economic benefits in all countries, makes therefore a treaty unlikely. In order to initiate and support the process leading to such a treaty, some players have to take the role of catalysts in a collective action capable to ensure political gains to every country. If all countries were of equal size and small, no one would have the incentive to initiate a costly negotiation process. Olson (1965) suggested that organisation of interest groups is more likely when the

group is heterogeneous with players having high stakes in successful collective action. It seems that big actors provide such a case in the Uruguay Round.

The incentive of big players to get the negotiation moving is enhanced by the existence of trade gains in some sectors and by relatively less drastic political trade-offs between social groups. On the other hand, to the extent that governments have mercantilist motives in trade relations (Siamwalla, 1989), bilateral agreements are more likely to occur between large countries with strong interactions. Agreements are more likely in that case because gains can be obtained to both countries from trading a reduction in protection of import competing sectors for access to markets in which the countries have a comparative advantage. In the case of numerous small countries, agreements are more problematic since these types of gains tend to be dispersed among many parties.

The increased competition faced by producers of grains and feed grains in the US and the Cairns Group from European grain exports provided them with strong incentives to support making agriculture a central part of the Uruguay Round. Producers of grains and feed grains in the US and, to a lesser extent, the Cairns Group faced the possibility of losing domestic support because the costs of providing this support was increasing due to the growing policy induced competition from EC exports. Multilateral liberalization would lead to higher world prices which, together with decoupled income transfers, could sustain returns to resources in grains and feed grains in the US and the Cairns countries. Without multilateral liberalization, these returns could be foregone because rising program costs could give rise to domestic pressures for unilateral liberalization in grains and feed grains. In this case, as game two in Table 2 suggests, world prices would rise only marginally and decoupled transfers alone would likely not sustain historical levels of income transfers to these sectors. Hence, the incentive to support making agriculture a central part of the Uruguay Round, and the incentive for European producers to resist including agriculture in the Round.

This rationale explains also the concentration of the effort on the EC and, to a lesser extent, on Japan. It is less costly to concentrate the pressure on big defensive players than on hundreds of tiny protectionist countries. Moreover, broadening the issues of negotiations into more general methods of deregulation than pure reciprocal concessions will force the minor, follower countries to conform to the agreement cooked up by the big players, thus opening further outlets for exporters, reducing the domestic political cost of reforms, and including bilateral deals into the multilateral framework.

The capability of the US to strongly determine the course of events in agriculture is of course reinforced by its general economic size as well as its political power. The EC is weaker in that respect, and it is more passive in the negotiations because of much less obvious short run trade interests to balance the political costs and also because of diverging agricultural trade

interests between Member States.

In sum, the political balance behind farm policies and the cost of organizing collective action requires the catalyst role of big players, further induced by clear trade interests for international action to take place. It also suggests that a GATT agreement would have a wide margin of manoeuvre in the continuation of income support and would focus on trade measures.

## **2. THE COMPATIBILITY OF THE DUNKEL COMPROMISE WITH THE CAP REFORM AND THE US FACT**

Negotiating positions were far apart at the beginning of the Round when the US issued its zero option (total elimination of farm programmes) and the EC proposed to take short-term measures to stabilize world markets first, and to undertake reduction later on in the Global Measures of Support, later on.

The Ministerial meeting in Montréal in December 1988 failed to reduce the gap between the negotiation approaches. After the Geneva meeting in April 1989, the negotiation were revived when countries accepted to work for an agreement before the end of 1990 on both short-term measures and long-run reforms. More precise proposals were tabled in fall 1989. The US position of October 1989 proposed to give differential treatments to policy measures and to introduce specific commitments in four areas : Domestic support, market access, export competition and sanitary and phytosanitary issues. The cuts in export subsidies were to be the more rapid. The EC rejected this demand and proposed to negotiate a 30 % reduction in global support, considering that border protection would adjust downward as a consequence.

The Cairns Group countries were broadly supportive of the US position on market access and export competition. Canada has however expressed the desire to give special treatment to domestic support in the context of supply control policies. Japan and some Nordic countries expressed concern about food security, but supported the objective of export subsidy reductions.

The concept of differential treatment of policy instruments is a central feature of the 1991 Dunkel compromise (Draft Final Act). This draft of final agreement is more demanding on import access (tariff equivalent cut by 36 %) than on domestic support (AMS reduced by 20 %). It is particularly constraining on export subsidies (36 % reduction on expenditures and 24 % reduction on subsidized exported quantities).

This section is devoted to a quantitative analysis of the Dunkel compromise to uncover the extent to which it will constrain developments of EC and US agricultures under the new CAP and the 1990 FACT. This assessment is based on comparative analysis of AMS, imports and exports of the EC and the US under the CAP reform and the FACT, simulated down to 1999 with the MISS model. A sensitivity test on the trend of world prices is done to qualify the likelihood of the more binding commitments to materialize.

Table 3. CAP reform compatibility with the Dunkel compromise (the case of AMS)

AMS	Base 1986-88		1992/93		1995/96		1998/99	
	mio ECU	% base	mio ECU	% base	mio ECU	% base	mio ECU	% base
<b>- Cereals</b>								
(1) market support	18269	100	15903	87	6962	38	7379	40
(2) market + aids except on set aside	18269	100	---	--	16301	89	16718	92
(3) = (2) + set-aside compensation	18269	100	---	--	17206	94	17623	96
<b>- Oilseeds</b>								
(1) market support	2740	100		0	0	0	0	0
(2) market + aids except on set aside	2740	100		na	2012	73	2012	73
(3) = (2) + set-aside compensation	2740	100		na	2149	78	2149	78
<b>- Dairy(1)</b>								
(1) market support	27373	100	25624	94	24807	90	24807	90
(2) = (1) + aids with silage maize premiums(2)	27373	100	---	--	25563	93	25563	93
<b>- Sugar</b>								
(1) market support	5280	100	5202	98	5461	103	5461	103
(2) = 1 - sugar levy	4486	100	4290	96	4549	101	4549	101
<b>- Beef</b>								
(1) market support	12195	100	9435	77	6026	49	3160	26
(2) = (1) + premiums	12665	100	---	--	7346	58	4480	35

The estimations are based on historical data until 1992/93 and on projections by the MISS model after that date.

(1) Assuming no quota cut.

(2) 75 % allocated to dairy cows.

Table 4. US FACT compatibility with the Dunkel compromise (the case of AMS)

AMS	Base 1986-88		1992/93		1995/96		1998/99	
	mio US \$	% base	mio US \$	% base	mio US \$	% base	mio US \$	% base
- Dairy market support	9177	100	7887	86	8330	91	8850	96
- Sugar market support	1216	100	1335	100	1402	115	1420	116
- Beef market support OECD method USDA approach (1)	11672 3393	100 100	17870	153	19426	166	19343	165

The estimations are based on historical data until 1992/93 and on projections by the MISS model after that date.

(1) AMS (1986-88) = 4.6 % of beef sales income.

## 2.1. THE AMS COMMITMENTS : HARDLY BITING

Tables 3 and 4 exhibit the changes over time of AMS in the EC and the US from the base period (average 1986-88) to 1998/89. The estimations are based on quantities eligible for support and effective guaranteed prices when they exist. Direct subsidies or taxes are accounted for in alternative definitions of AMS, depending on the degree of eligibility of the aids for the green box. EUROSTAT and USDA data were used as far as possible when administered prices were available. OECD data set on PSE's were used in other cases.

These tables illustrate the distribution of adjustment burden resulting from an extensive use of the AMS as a yardstick to discipline policy reforms.

Consider first the case of the EC and total AMS (including aids and premiums) per commodity group. A strict application of the 20 % abatement before 1998/99 would require price and subsidy cuts in all sectors except for oilseeds. The reduction in support would be particularly severe for sugar and to a lesser extent for dairy, beef and grains. Oilseeds support does not need further reduction after the change in market regime implemented by the EC after the first GATT panel on soya. It is worth noting that even an aggregation of AMS's over all sectors and a 20 % reduction of the global AMS would require price cuts in the range of 5 to 15 % depending on the distribution of cuts retained by policy makers after a GATT agreement along these lines.

A first relief to European farmers is allowed by the exclusion of aids granted on land set aside. This provides a credit in the crop sector (save sugar) and would save it from further adjustments than those implied by the CAP reform decided in May 1992. If all subsidies per hectare and per head of cattle are eligible for the green box or a variant of it, then all commodity groups fall within the Dunkel requirements except dairy and sugar which have not been included in the CAP reform package. Interestingly enough, these are the groups which were found to have the highest political weights by Johnson et al.

Now if, as recent developments in the negotiation suggest, the cut in AMS is applied to the global AMS for the whole farm sector and if direct aids are excluded, then this area of commitment should not hurt European farmers in the next six years or so. This drift of the negotiation is in part due to the very firm insistence by the EC that the compensatory payments be included in the green box ever since the reform was decided, but it also reflects the pressure felt by policy makers to minimize income losses of farmers in the process of policy reforms.

In the US, the picture is similar in part but with some specifics. Dairy and sugar AMS's are also markedly above the Dunkel requirements in 1998/99. Even if some assumptions are necessary in these calculations (in both countries), our approach may be seen as rather

conservative. Again, a strict enforcement of the AMS cut would have hurt two US sectors among the harder to reform. The major crop sector has no problem to satisfy the Dunkel requirements, even if deficiency payments are included in the AMS because of the freeze in price support and the land set aside. The eligibility of the deficiency payments for the green box on the argument that they are decoupled from yields and a global approach to the AMS cut requirements make even things better. The grain AMS is now quite small and this provides a credit to the US which lets it free from any further adjustment in the global AMS. In such a case, beef, dairy and sugar producers would escape any adjustment. Beef producers would be made particularly happy by this global approach if the OECD method of AMS calculation had been accepted rather than USDA's which leads to a less than 5 % rate of AMS relative to gross income (and therefore excluded that sector from commitments).

This diverging interpretation in the calculation of the PSE's and AMS is an extra reason to understand why the AMS has not played a role in the negotiation as great as was expected from the PSE's analyses made by many authors in the early stages of the Round. But the main reason for the secondary role of the AMS is that flexibility in this area allows policy makers to sell the reforms to the more powerful producer groups as was expected from the political economy analysis. This is true for most countries since all have some non competitive sectors whereby cuts in income support are politically hard to achieve. The progressive acceptance by the US to exclude from the AMS the post CAP reform compensatory payments is consistent with its own difficulty to reform the dairy and sugar sectors. Hence, the focus on the quantitative constraints on access and subsidized exports to compel the EC to deliver the adjustments expected from the CAP reform. It remains to see how binding are the commitments on trade and border instruments included in the Dunkel draft agreement.

## **2.2. MARKET ACCESS, EXPORT COMPETITION AND TARIFFICATION**

In the Dunkel compromise, the basic disciplines are tariffication, reduction of tariff equivalents and minimum access regarding import barriers and reduction of subsidized exports in value and in volume for export competition.

Minimum access requirements in 1993/94 are 3 % of domestic consumption of the 1986-88 base period and rise to 5 % at the end of the transition period in 1998/99. These minimum access opportunities are implemented on the basis of a tariff quota at a low or minimal rate. When current access opportunities (i.e., during the base period) exceed these minimum levels, they are to be maintained at these higher levels at least. Finally, a safeguard mechanism may be temporarily used to limit imports if, i) the volume of imports exceeds a



Table 5. Compatibility of the CAP reform with Dunkel compromise requirements on subsidized exports (million tons)

	Scenario 1		Scenario 2	
	1995/96	1998/99	1995/96	1998/99
<b>i) Grains</b>				
Gross exports				
- Dunkel requirements	-3.7	+10.8	-8.2	+1.5
<b>ii) Beef</b>				
Gross exports				
- requirements	+0.15	+0.47	+0.02	+0.23
<b>iii) Pork, poultry and eggs</b>				
Gross exports-requirements	+2.05	+3.85	+2.98	+5.85
<b>iv) Sugar</b>				
Gross exports-requirements	+0.1	+0.5	+0.1	+0.5
<b>v) Milk products</b>				
<i>Butter and butteroil</i>				
Gross exports-requirements	-164.8	-102.9		
<i>Cheese</i>				
Gross exports-requirements	+141.1	+219.5		
<i>Skimmed milk powder</i>				
Gross exports-requirements	-32.1	+9.7		
<i>Whole milk powder</i>				
Gross exports-requirements	+47.0	+115.2		
<i>Concentrated milk</i>				
Gross exports-requirements	+8.7	+57.6		

Note. In scenario 1, world price changes as specified in Annex 2, Table A.1. In scenario 2, world price changes as specified in Annex 2, Table A.2. The commitments on gross subsidized exports assume that market access clauses apply strictly as in Annex 1, Table 1.1. Gross exports are net imports derived from the MISS simulations added to market access requirements.

trigger level, or ii) the CIF price of imports falls below a trigger level : in that case, additional duties, limited both in level and duration, are imposed. As regards export competition, budgetary expenditures on export subsidies are to be reduced by 35 % and the volume of subsidized exports by 24 %, both from a 1986-90 base period. These reductions are to be phased over the 1993-99 period.

#### i) European Community

A strict application of these proposals would result in significant increases of EC imports with respect to current levels. These increases would be larger for animal products than for vegetal products. As EC imports have declined from 1986 to 1992, these increases would also be larger with respect to current levels of imports than with respect to base period quantities. The minimum access constraint would be particularly binding for pork, poultry, eggs and some dairy products. For grains in 1998/99, assuming that the commitments apply separately to wheat and coarse grains, wheat imports would have to increase by 12 % only with respect to the base period, but by 119 % with respect to 1991/92 levels (see Annex, Table A.1., panel 1.a).

The proposed 24 % cut in the volume of subsidized exports would imply significant decreases of EC exports for most products with respect to **current levels** (see Annex, Table A.1., panel 1.b). The only exceptions are some dairy products and beefmeat for which reductions are smaller in relative terms. Gross exports of wheat should fall to 22.5 million tons in 1998/99, i.e., 7.1. million tons less than in 1986-88 but more than 11 billion tons below the 1991/92 level. Furthermore, the required cut would be much greater for wheat (-39.7 % with respect to 1991/92) than for coarse grains (-20.0 %). The reduction of subsidized export volumes would be more important for pork, poultry and eggs than for dairy products (except cheese and whole milk powder) and beefmeat.

Table 5 (for more details, see Annex 1, Table A.2.) shows to what extent the outcomes of the CAP reform scenarios is compatible with the Dunkel compromise commitments in market access and export competition area.

For grains, the compatibility is feasible in 1995/96 but subsidized export volumes in 1998/99 are in excess of levels authorized under Dunkel by nearly 11 million tons. Nevertheless, if world price trends are greater than in the last decade as reflected in the second scenario, grain use in European feed rations increases due to their improved price competitiveness with respect to other feed ingredients. The Community is then in a position to fulfil Dunkel commitments in 1998/99, without further adjustments than the CAP reform provisions. This sensitivity shows that the compatibility issue is contingent on future

developments in world markets which may be different from the decade of the 1980's.

For sugar, Dunkel commitments are not met and exports are greater than trigger levels by 0.5 million tons in 1998/99.

Pork, poultry (including eggs) and beefmeat sectors raise clear difficulties, both in 1996 and 1999. For pork, poultry and eggs, exports exceed trigger levels in a range from 2.05 million tons (in 1996, scenario 1) to 5.85 million tons (in 1999, scenario 2). As noted by the Commission (SEC (92) 2267 final), "the problem (may) be only apparent in so far as the reduction in cereals prices would allow the export of a large part of these products without refund". It is interesting to note that the level of protection in that sector is small in our scenarios (1.02 in 1999), and a complete liberalization in that sector appears as the "only" solution to insure the compatibility of the CAP reform with Dunkel commitments which would no longer apply in such a case. This is within reach and would not mean a significant further adjustment than the CAP reform implications. But, of course, market organizations in that sectors would become irrelevant. For beef, the non compatibility is more serious and difficult to solve without additional measures. In the case of dairy products, the compatibility is verified for butter and skimmed milk powder, but is not for other dairy products, especially cheese and whole milk powder.

## ii) United States

The Dunkel commitments on export competition will basically limit the possibilities to subsidize exports of US agricultural products via the Export Enhancement programme (EEP). The most serious constraint is placed on wheat because EEP expenditures on that product represent more than 80 % of total EEP expenditures on average. Budgetary outlays on wheat export subsidies should be reduced by 165 million US \$ in 1999 with respect to base period data. But, the required cut is much larger with respect to current EEP expenditures on wheat (554.2 million US \$ with respect to USDA data). The volume of subsidized wheat exports would be reduced by about 3.8 million tons with respect to 1986-90 quantities, but this requirement represents a cut by more than 8 million tons with respect to current levels. As more than 80 % in average of US barley exports benefit from the EEP (USDA data, see Annex 1, Table A.3.), the US would have to reduce expenditures on that product by nearly 20 million US. In total, EEP expenditures would be limited to about 340 million US \$, i.e., about 200 millions US \$ less than in the base period (see Annex, Table A.3., panel 1.b.).

Minimum access requirements would have little impact on the US, except for some dairy products (butter and nonfat dry milk), cotton and peanuts. Butter imports should increase by 23 million tons with respect to the base period and current levels. For nonfat dry milk, the necessary increase would amount to 15 million tons.

### 2.3. TARIFFICATION

Tariffication has not yet been assessed in quantitative terms, but a qualitative analysis suggests that it should not be a major leverage to induce support cuts.

First, the simple average formula allows for wide possibilities to minimize effective tariff concessions. Second, the 15 % minimum on any tariff line could in principle be more binding on commodities which escape the holes in the net by import access and export subsidy requirements (sugar in both the EC and the US, dairy in the US are potential targets), but larger price reductions are unlikely since significant world price increases, as a result of the very tariffication, should dampen the impact on domestic prices. The multilateralization of the tariffication should strengthen the world price effect.

To summarize, a strict application of AMS reduction per commodity would constrain the EC grain, dairy and sugar sectors, but the globalization of AMS and the eligibility of aids for the blue box relieve the EC from any support cuts further than those implied by the CAP reform. The globalization of AMS also saves the US dairy, beef and dairy sectors from adjustments.

Tariffication could in principle keep some pressures on these sectors, but they are expected to be minimal.

Subsidized export volume requirements are different in the case of the EC. Nearly all sectors hit the ceiling in 1999 and some, by far. The grain case is however contingent on a possible boost in world demand.

Altogether, the decreasing role of the AMS does appear as a necessary tolerance to buy the reform politically. The commitments on trade barriers are more stringent, and particularly on EC subsidized exports.

Table 6. The Dunkel and Washington compromises

Dunkel	Washington
<p><b>i) Internal support</b>  - AMS  base year 1986-88  credit  reduction commitment : -20 %  transition period : 1993-99  - commitments theoretically product by product ?  - compensatory aids and deficiency payments theoretically not in the green box ?</p>	<p><b>i) Internal support</b>  - AMS  base year 1986-88  crédit  reduction commitment : -20 %  transition period : 1994-2000  - commitments for all products together  - compensatory aids and deficiency payments in the green box</p>
<p><b>ii) Import access</b>  * <i>tariffication</i>  base year 1986-88  reduction : -36 % in arithmetic average,  minimum -15 %  transition period : 1993-99  safeguard clause  * <i>market access</i>  - minimum import opportunities : from 3 % to 5 % of internal consumption  base year : 1986-88  transition period : 1993-99  tariff quota : low or minimal  - current access opportunities maintained and increased  - obligation ? possibility ?</p>	<p><b>ii) Import access</b>  * <i>tariffication</i>  base year 1986-88  reduction : -36 % in arithmetic average,  minimum 15 %  transition period : 1994-2000  safeguard clause  * <i>market access</i>  - minimum import opportunities : from 3 % to 5 % of internal consumption  base year : 1986-88  transition period : 1994-2000  tariff quota : -32 % of the basic tariff  - only a maintaining of existing access opportunities  - not an obligation, but only a possibility ?</p>
<p><b>iii) Export competition</b>  base period 1986-90  reduction commitment :  - 36 % expenditures  - 24 % volumes  transition period : 1993-99  reduction product by product</p>	<p><b>iii) Export competition</b>  base period 1986-90  reduction commitment :  - 36 % expenditures  - 21 % volumes  transition period : 1994-2000  reduction product by product</p>
	<p><b>iv) Follow-up to the oilseeds panel</b>  -5.128 mil. hec. trigger for EC oilseeds production  -in 1993/94, set-aside of 15 %, with a minimum of 10 % thereafter  - area for industrial purposes not included, until a level of 1 million tons (in soya meal equivalents)</p>

### 3. THE WASHINGTON COMPROMISE BETWEEN THE EC AND THE US

Following the negotiation position of the US and the logic of the Dunkel paper, the EC-US agreement of November 23, 1992, mainly deals with the three basic topics of the talks, i.e., internal support, import access and export competition. Furthermore, the Washington compromise takes into account the follow-up to the oilseeds panel, includes a peace clause and mentions, in vague and not binding terms, the rebalancing issue which is a diplomatic way to throw this issue out of the negotiation talks.

The basic disciplines proposed in the Washington compromise are summarized in Table 6 according to the EC Commission interpretation (CCE, 1992).

As regards internal support, the Washington compromise follows the Dunkel paper by recommending a 20 % reduction of domestic support over six years. Furthermore, the agreement makes clear that, i) this reduction should be achieved by a cut of the AMS for the whole agricultural sector, and ii) direct payments appropriately linked to production limiting programmes would neither be subject to reduction nor challenged under GATT rules (at least during the six-year of implementation of the compromise according to US sources). In other words, US deficiency payments and EC compensatory aids are eligible for the green box in contrast with a strict application of the Dunkel paper. The two previous dispositions imply that the 20 % reduction in global AMS will not be binding in both the US and the EC in so far as, i) the reduction has already been achieved in the US, and ii) the reduction will be easily achieved in the EC due to the blue box classification of compensatory aids whereas a restrictive interpretation of the Dunkel text (Final Draft Act, Annex 6, paragraph 2) suggests that the reduction of AMS is made per commodity individually, at least for the products subject to "equivalent commitments<sup>1</sup>".

With respect to market access, the basic principle is tariffication which implies a new instrumentation of border protection for both the US (beef, sugar, dairy products, ...) and the EC (variables levies) in order to bring agriculture more in conformity with GATT rules. Nevertheless, effects of tariffication on imports, productions and incomes would probably be modest due to, i) the use of a simple arithmetic and not a weighted average (on the basis of trade volumes for example) to calculate the 36 % reduction commitment, ii) the possibility to limit the cut to 15 % on "sensitive" products, iii) the high tariff equivalent of the base period (low world prices and high domestic prices<sup>2</sup>), iv) the safeguard clause<sup>3</sup>, and v) tariff

<sup>1</sup> "Equivalent commitments" relate to products for which the AMS calculation is "materially impossible".

<sup>2</sup> For example, in the EC, intervention prices increased by 10 % and by the monthly increments (CCE, 1992).

<sup>3</sup> It is interesting to note that this safeguard clause corresponds roughly to the first point of the "modified" tariffication proposed by the EC (see the November 1990 GATT proposal of the EC). Nevertheless, the second

protection at the end of the six year period would be still enough to prevent significant import increases and, more specifically in the EC case, to guarantee a significant Community preference.

With respect to minimum access rules, the Commission states that this clause does not correspond to an obligation but rather only to a possibility (CCE, 1992, p.5). It is worth noting that a rigorous interpretation of the market access commitments defined in the Dunkel paper was not expected by most experts (see, for example, Toepfer, 1992).

Therefore, the market access commitments are unlikely to impose larger increases of imports in the US, the EC and other countries save those who have banned imports. Therefore, the commitments will not result in significant increases in agricultural trade although they may be considered as a first step in the right direction for a freer agricultural trade.

Regarding export competition, the Washington compromise requires a 36 % cut in budgetary expenditures combined with a 21 % reduction in the subsidized export volumes, over a six-year period and with 1986-90 as the base period. It appears that the Washington compromise corresponds to the Dunkel paper except that the volume reduction is alleviated (21% and not 24%) and processed products are not covered by the reduction requirements. Obviously, the export reduction commitments keep being the most serious constraint placed on the EC in both drafts of agreement.

Take grains as an example, and assume that the commitments apply to grains as a whole. In the first scenario, exportable surplus in 1999 would not be within the limits authorized by the EC-US agreement, and therefore the CAP reform would not be compatible with the Washington compromise. Nevertheless, in the second scenario where world price increases of imported ingredients favour the substitution of these items by EC grains in feed rations, the CAP reform appears compatible with the EC-US GATT agreement, even in 1999 (see Table 5). The compatibility of the CAP reform with the Washington compromise obviously depends on the developments of EC and world demand and supply<sup>4</sup>. On the demand side, grain used will depend on the following parameters, i) the effective market price cut of grains, ii) the capability of imported feed ingredients (oil-cakes and grain substitutes) to adapt to this grain price cut, and iii) the supply of animal productions in the EC. Points i) and ii) correspond to substitution effects whereas point iii) correspond to an expansion effect. With

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point of this "modified" tariffication, i.e., the rebalancing obtained by raising some tariffs the Community considers too low (non grain feeds and oilseeds), is not presented in the Washington compromise.

<sup>4</sup> Assuming that the minimum access constraint will not be binding and that imports will remain at current levels.

respect to point i), Guyomard and Mahé (1992) have shown the significant impact on feed ration composition of setting EC grain market price either to the target price level or to the intervention price level. Furthermore, in a modelling framework with an imperfect price transmission of grains, Guyomard et al. (1992) have shown that market prices would be significantly greater than intervention prices, leading to a net exportable surplus equal to 22.5 million tons rather than 15.1 million tons as in the first scenario. With respect to point ii), different scenarios more or less favourable to EC grains may be proposed. EC imports of corn gluten feed could, for example, decrease in larger proportions if the new US price ratio between maize and corn gluten feed, which is likely to make the latter more competitive in the US, induces a strong demand from US compounders.

It should be stressed that the compatibility issue of the CAP reform with the Washington compromise in the grain area is hard to decree a priori because of uncertainties on economic changes over the next six years or so. Scenario 2 reveals that a non dramatic recovery of world price trends due to a boosted demand for grains in developing countries, as foreseen by the World Bank, would likely make the 21 % grain export cut constraint on the EC not effective. Furthermore, the world price increase means that the EC is now in a position to export with hardly any subsidies. Moreover, productivity trends after the CAP reform have been cut by one third with respect to last decade evolutions. This may be the higher limit of a reasonable bracket of forecasts.

The basic features of the Draft Final Act have been kept in the Washington compromise, except for the cuts in AMS which are no longer effective. This is the major concession of the US in view of the result of the first oilseeds panel which had rejected the compensatory payments for the green box. This concession makes life easier for all countries since most have some sore points in their farm policies.

The Washington deal and the tense meetings which preceded have accentuated the drift of the negotiations toward trade issues, and more precisely export competition.

The soya panel and the crucial necessity for the EC to get direct payments tolerated and the peace clause ratified gave leverage to the US to obtain the requirements on trade, nearly as they wanted. As for the rebalancing issue, diverging positions and interests among Member States gave it no chance to go through.

Eventually, the agreement will force the EC and other countries nearly to abandon the practice of export subsidies and to contribute more to world price stability as a result of the tariffication.



The Uruguay Round is going to force the EC Council of Ministers to make decisions on the future CAP more in line with the initial projects of the Commission.

#### 4. SUMMARY AND CONCLUDING COMMENTS

The assessment of the Dunkel and Washington draft agreements suggests the following outcomes :

Minimum access in itself would not be so demanding for the EC, even with a strict interpretation of the Dunkel paper save for the pork and poultry sector and cheese. The EC Commission reading of the Washington deal reduces this constraint to little. The US is hardly affected by minimum access. Tariffication is potentially more binding since sectors little affected by the CAP reform and the FACT should not escape from the 15 % minimum cut in the tariff equivalent. But the simple averaging of the 36 % cut requirement allows for a wide margin of manoeuvre.

Export competition commitments are the most binding commitment in the long run for the EC and the less easy to spread since it applies to individual commodities. Pork and poultry exports overshoot the ceiling by far and have no real alternative than to face full foreign competition. Grains exports, for wheat especially, will hit the 21 % limit not in 1996 but before 1999, unless world market prices of primary products turn upward. Sugar and beef exports pass their limit before 1996. The latter commodities should face lower support prices or reductions in production quotas and cattle headage eligible for premiums. Beef price support in the EC should be under further pressure. The grain sector has two possibilities, i.e., either increase the set aside or play the international competition card by doing away with systematic export subsidies. The restitutions may even not be necessary any more if world market prospects improve a little. The US and other countries are not made uncomfortable by this item of the agreement since the reduced EEP programme could still be used to target some export markets.

Altogether, the real binding constraints which have survived the negotiations down to the Washington deal are the export subsidy cuts, while domestic support and even market access commitments have been more or less fulfilled by recent policy reforms

It is probably too early to draw the lessons of the Uruguay Round as it approaches its end. The apparent break-through that took place in Washington in November still leaves room for interpretation as to what was actually agreed. A few broad points may still be made on the way in which various issues have developed.

The objective to cut agricultural support significantly and to reduce drastically tax payers burden has not been achieved. Domestic policies have proved difficult to reform and even in the EC context further budget outlays have been the economic cost to pay to persuade farmer groups to accept price policy reforms. This development is quite consistent with the

revealed relative political power of producer groups. It appears that economic costs of the dairy and sugar programmes in particular have not yet rocked the political balance which is still in favour of producers. For the major traded commodities and, to a lesser extent, for meat, more progress has been made and direct aids have been designed so as to decouple income support from producer incentives. This is an achievement in itself since efficiency gains in resource costs and pollution abatement are to be expected. The new instrumentation of support with visible transfers will also improve the decision making process, by increasing the cost for the rent seekers to maintain their influence. Payments targeted to reward the positive externalities of agriculture should be seen as legitimate and therefore should last long. The current regressive income support tied to the size of operation will be harder to defend politically, so that budget savings could prevail in the long run.

The two other areas of negotiations which dealt with trade barriers (import access and export competition) have become the really important issues and the driving forces toward a deal. Commitments in these areas required by the US, the Cairns Group and the various compromises have been more stringent than on AMS.

Tax payer and consumer interests are not well defended in the GATT game, and all countries were more or less relieved to be allowed to compensate their farmers. There was an organized constituency however, i.e., countries with trade interests, to support a stricter discipline of trade barriers and particularly export competition along the antidumping philosophy of the GATT.

The GATT deal is becoming lenient on AMS and strict on export competition. This is consistent with the political balance on both the domestic scene and the international arena. Organized collective action within countries forces the negotiators to yield on domestic support to minimize political costs. Organized collective action on the international front was led by clear interests of the more competitive exporters to maximize trade gains.

Both forces explain why freer trade is going to prevail but not free trade and why agriculture is coming under the GATT framework more firmly than in the past, but it keeps most of its status of exception.

Agriculture has made progress in the Uruguay Round toward multilateralism, but a petty multilateralism.

## ANNEX 1.

Table A.1. Implications of the Dunkel compromise on EC trade : minimum access and subsidized exports (in 1000 tons)

## 1.a. Market access (actual for 1986-88 and 1990, requirements for 1996 and 1999)

	M 1986-88	M 1990 <sup>3/</sup>	1996 <sup>1/</sup>	1999 <sup>2/</sup>
Grains	7324	5675	7324	7652
Wheat	2635	1351	2635	2964
Coarse grains	4689	4324	4689	4689
Sugar	1846	1860	1846	1846
Olive oil	39	76	57	72
Milk products				
Butter and butteroil	80	60	80	90
Cheese	111	113	164	205
Skimmed milk powder	2.3	14	57	71
Whole milk powder	2.1	3.4	10	13
Concentrated milk	2.4	2.4	9	12
Beef	492	501	492	492
Pork, poultry and eggs				
Pork	74	78	500	625
Poultry	94	135	218	273
Eggs	39	42	192	241
Sheep	252	287	252	252

1) In 1996, requirement = min (M 1986-88, 4 % of the ratio (M 1986-88/domestic use 1986-88)).

2) In 1999, requirement = min (M 1986-88, 5 % of the ratio (M 1986-88/domestic use 1986-88)).

3) for grains, M 1991/92 (source : ONIC).

## 1.b. Subsidized export volumes

	X 1986-90	X 1990 <sup>3/</sup>	1996 <sup>1/</sup>	1999 <sup>2/</sup>
Grains	29563	33627	26016	22468
Wheat	17795	22436	15660	13524
Coarse grains	11768	11191	10356	8944
Sugar	3514	3310	3092	2776
Olive oil				
Milk products				
Butter and butteroil	415	262	365	315
Cheese	416	456	366	316
Skimmed milk powder	306	207	269	233
Whole milk powder	548	522	482	416
Concentrated milk	388	343	341	295
Beef	940	816	827	714
Pork, poultry and eggs				
Pork	464	580	408	353
Poultry	395	425	347	300
Eggs	132	139	116	100
Sheep				

1) In 1996, requirement = 0.88 x X 1986-90

2) In 1999, requirement = 0.76 x X 1986-90

3) For grains, X 1991/92 (source : ONIC)

Table A.2. Compatibility of the CAP reform with Dunkel compromise requirements on subsidized exports (million tons)

	Scenario 1		Scenario 2	
	1996	1999	1996	1999
<b>i) Grains</b>				
Net exports from Miss	15.0	25.7	10.5	16.4
Import commitments	7.3	7.7	7.3	7.7
Corrections				
Durum wheat exports	2.5	2.5	2.5	2.5
	2.5	2.5	2.5	2.5
Gross exports	22.3	33.3	17.8	24.0
Requirements	26.0	22.5	26.0	22.5
Gross exports - Dunkel requirements	-3.7	+10.8	-8.2	+1.5
<b>ii) Beef</b>				
Net exports from Miss	0.50	0.69	0.37	0.45
Import commitments	0.49	0.49	0.49	0.49
Gross exports	0.99	1.18	0.86	0.94
Requirements	0.84	0.71	0.84	0.71
Gross exports - Dunkel requirements	+0.15	+0.47	+0.02	+0.23
<b>iii) Pork, poultry and eggs</b>				
Net exports from Miss	2.03	3.49	2.96	5.49
Imports commitments	0.91	1.14	0.91	1.14
Gross exports	2.94	4.63	3.87	6.63
Requirements	0.88	0.78	0.88	0.78
Gross exports- Dunkel requirements	+2.05	+3.85	+2.98	+5.85
<b>iv) Sugar</b>				
Gross exports from Miss	3.2	3.2	3.2	3.2
Requirements	3.1	2.7	3.1	2.7
Gross exports- Dunkel requirements	+0.1	+0.5	+0.1	+0.5
<b>v) Milk products</b>				
<i>Butter and butteroil</i>				
Net exports	122.0	122.0		
Import commitments	80.0	90.1		
Gross exports	202.2	212.1		
Requirements	364.8	315.0		
Gross exports- Dunkel requirements	-164.8	-102.9		
<i>Cheese</i>				
Net exports	343	343		
Import commitments	164	205		
Gross exports	507	548		
Requirements	365.9	328.5		
Gross exports- Dunkel requirements	+141.1	+219.5		
<i>Skimmed milk powder</i>				
Net exports	180	180		
Import commitments	57.2	71.5		
Gross exports	237.2	251.5		
Requirements	269.3	241.8		
Gross exports- Dunkel requirements	-32.1	+9.7		

<i>Whole milk powder</i>				
Net exports	519	519		
Import commitments	10.3	12.8		
Gross exports	528.9	531.4		
Requirements	481.9	416.2		
Gross exports - Dunkel requirements	+47.0	+115.2		
<i>Concentrated milk</i>				
Net exports	341	341		
Import commitments	9.2	11.6		
Gross exports	349.8	352.2		
Requirements	341.1	294.6		
Gross exports - Dunkel requirements	+8.7	+57.6		

Note. In scenario 1, world price changes as specified in Annex 2, Table A.1. In scenario 2, world price changes as specified in Annex 2, Table A.2.

Table A.3. Implications of the Dunkel compromise on the US : minimum access and subsidized exports

1.a. Subsidized exports : EEP programme (source : OECD and casual informations for 1992/93)

i) expenditures

	X 1986-90 (million US \$)	X 1992/93 (million US \$)	Requirements 1999
Grains			
Wheat	459.24 (47.86)	523.8 (48.94)	293.91
Barley	41.96 (82.90)	47.1 (86.09)	26.85
Eggs	2.46 (7.49)	4.5 (13.00)	1.57
Poultry	22.74 (8.97)	10.4 (3.12)	14.55

1) In parentheses, percentage of exports under EEP with respect to total exports.

ii) volumes

	X 1986-90 (million tons)	X 1992/93 (million tons)	Requirements 1996 <sup>1</sup>	Requirements 1999 <sup>2</sup>
Grains				
Wheat	16.47	15.65	14.49	12.52
Barley	1.81	1.63	1.59	1.38
Eggs	5.78	14.5	5.09	4.39
Poultry	35.42	19.8	31.17	26.92

1) In 1996, requirement =  $0.88 \times X$  1986-90.

2) In 1999, requirement =  $0.76 \times X$  1986-90.

1.b. Subsidized exports : EEP programme (source : USDA, Foreign Agricultural Service, data compiled by USDA, ERS).

iii) expenditures

	X 1986-90 (million US \$)	X 1992/93 (million US \$)	Requirements 1999
Grains			
Wheat	403.77	813.19	258.42
Flour	40.60	25.43	25.98
Feed grains	54.70	54.31	35.01
Barley malt	4.36	2.09	2.79
Rice	3.19	23.44	2.04
Eggs	2.51	4.89	1.61
Poultry 1)	22.74	14.41	14.55
Vegetable oil	13.42	30.21	8.59

1) Frozen poultry

## ii) volumes

	X 1986-90 (million tons)	X 1992/93 (million tons)	Requirements 1996 <sup>1</sup>	Requirements 1999 <sup>2</sup>
Grains				
Wheat	15.18	19.77	13.35	11.54
Flour	0.48	0.25	0.42	0.36
Feed grains	1.70	1.54	1.50	1.29
Barley malt	0.04	0.03	0.035	0.030
Rice	0.04	0.36	0.035	0.030
Eggs 3)	8.76	24.29	17.71	6.66
Poultry 4))	0.04	0.03	0.035	0.030
Vegetable oil	0.11	0.46	0.10	0.08

1) In 1996, requirement =  $0.88 \times X$  1986-90.

2) In 1999, requirement =  $0.76 \times X$  1986-90.

3) Dozen.

4) Frozen poultry.

## 1.c. Minimum access

	M 1986-88	Domestic use 1986-88	Requirements	
Dairy products			1996	1999
Butter	2.0	505	20.2	25.3
Cheese	122.7	2622	104.9	131.0
Non fat dry milk	1	321	12.84	16.05
Sugar	1563.3	7269	1563.5	1563.5



## ANNEX 2

The simulations used in this paper (scenarios 1 and 2) are carried out with a "trend-augmented" version of the MISS model (Modèle International Simplifié de Simulation). MISS 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 (Guyomard et al., 1991).

The world is divided into four zones : EC, US, Centrally Planned Economies and Rest of World. The agricultural sector is disaggregated into eleven outputs and ten inputs, i.e., six inputs of agricultural origin for animal feed and four inputs not produced by the farm sector. The behaviour of the model is driven by matrices of direct and cross price elasticities of agricultural output supply, derived demand and final demand. The complete system of agricultural output supply and derived demand is derived from a sector restricted profit function which satisfies the theoretical properties of symmetry, linear homogeneity and convexity with respect to prices. Domestic prices can be either exogeneously fixed or linked to world prices by protection rates as in the case of fixed ad-valorem tariffs, subsidies or taxes for example. Shifts of supply and demand due to technical change, set-aside, extensification or income growth can be implemented, as well as production and import quotas. Supply and derived demand shifters were calibrated on the basis of the 1978-88 period by correcting actual trends of production and disappearance volumes for price changes in order to get estimates of pure technical change effects. Final demand trends were also corrected for price effects.

The base period is 1990 for budget costs, protection estimates and animal products ; it is 1989/90 for crop products. Animal feed use is represented by its ingredients and the oil included in supply corresponds to the oil content of oilseeds which are domestically produced. Data and parameters were calibrated so as to approximate budget, income and trade as well as possible. The shifters were calibrated so as to reproduce, in a base-run scenario corresponding to a simulation of past policies ("old" CAP and FACT 1985), the evolutions of world prices observed over the period 1978-88.

These shifters are used in the first scenario, called scenario 1, which corresponds to an simulation of the CAP reform adopted in May, 1992, in the EC (for more details, see Guyomard and Mahé, 1992) and to an application of the FACT 1990 in the US. This scenario is applied from 1993/94 to 1995/96 from a base year "1993" obtained by applying price and quota changes observed on 1990/91 and 1991/92, and price and quota decisions for 1992/93. From 1996/97 to 1998/99, institutional prices and quota volumes are kept constant (in nominal terms for the prices) in both the EC and the US. Scenario 2 corresponds to the same

simulation, but shifters have been modified so that world prices of commodities increase with respect to evolutions obtained in scenario 1. World price changes obtained with the first scenario are detailed in Table A.1. World price changes obtained with the second scenario are presented in Table A.2.

Table A.1. World price changes in scenario 1, in nominal terms and in percent over three years

	1993-96	1996-99
Grains	+1.08	-3.96
Cakes	-10.13	-6.02
Corn-gluten feed	-22.09	-7.81
Manioc	-2.43	-2.41
Other grain substitutes	-8.43	-7.58
Beef	+8.33	+4.15
Pork and poultry	-1.39	-2.96
Milk	-1.88	-1.02
Sugar	+1.76	+1.95

Table A.2. World price changes in scenario 2, in nominal terms and in percent over three years

	1993-96	1996-99
Grains	+7.27	+1.82
Cakes	-0.78	+3.66
Corn-gluten feed	-13.09	+2.95
Manioc	+4.54	+4.57
Other grain substitutes	+0.95	+2.15
Beef	+11.98	+7.48
Pork and poultry	+2.69	+1.13
Milk	+2.87	+3.28
Sugar	+5.86	+5.95

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