

Agricultural negotiations in the WTO: history, backgrounds and implications

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1. Introduction

Since 1999 negotiations have been taking place in the World Trade Organisation (WTO) as a follow up of the agricultural agreement of the Uruguay Round. Ostensibly, the main issues are ‘trade liberalisation’ and ‘multifunctionality’, and the main antagonists, the United States and the European Union. The US acts as the self-appointed champion of liberalisation: all trade distorting support should be eliminated. A competitive farm sector should be able to develop in a free market. The European Union accepts this argument, but upholds its right to give targeted subsidies to agriculture to protect the environment, animal welfare and rural societies. Both the US and the EU argue that liberalisation is favourable for developing countries because it would open western markets for farm exports from these countries. Developing countries themselves are sceptical. Dissatisfaction about agricultural trade liberalisation played a large part in their walking out of the ministerial conference in Seattle in 1999. They have now accepted the launching of a new general trade round in Doha, but their antagonism has hardly subsided.

Developing countries have good reason for being suspicious. Moreover, there are other reasons for being sceptical about the agricultural negotiations in the WTO. In this paper, I discuss the following issues:

- the origins of agricultural protection;
- could agriculture have developed in a free market?
- agriculture and the regulation of international trade;
- the Uruguay Round and its aftermath;
- the new negotiations;
- implications for farm incomes, the environment, developing countries, and long-term global food supply.

Finally, I briefly describe a proposal that I think is more helpful for reducing trade distortions, stimulating developing countries, protecting the environment, and securing sufficient global supply of food in the future.

2. Origins of agricultural protection

Agriculture is based on cultivation of plants on the thin layer of biologically-transformed weathered rocks that we call soil. This is true for all farming systems, from the slash-and-burn systems still being used in some developing countries to ultramodern systems with biotechnology and ICT-aided precision techniques. This biotic base, which distinguishes agriculture from modern industry, has various important consequences.

- Soils can be degraded, so that unfavourable circumstances can initiate vicious downward spirals of soil degradation and impoverishment.
- Agricultural production is bound to biophysical potentials based on such things as available land, water and sunlight. Increasing output runs more easily against diminishing returns than in industry. New technologies can tap remaining potentials, but these are not infinite.
- Agriculture's dependence on biological processes, its spatial extensiveness, and its openness to environmental turbulence complicate the technical control of farm production and its organisation as a continuous process. Technical progress has more difficulty boosting economies of size and other advantages of large-scaled production than it has in industry.

In spite of limited economies of size, in Europe and America from the mid-18th century, market developments temporarily tipped the balance toward large farms. Demographic upswing and an Industrial Revolution based on farm-produced materials stimulated the demand for agricultural products. Lack of fertiliser and high international transport cost hampered the increase in supply, leading to high prices of agricultural products (see Figures 1a and 1b). Population growth and the limited industrial competition for labour led to low agricultural wages that followed the fluctuations in agricultural prices. Together, these developments stimulated the profitability of agriculture, and thereby investment and innovation in large farms. While low wages limited the labour price advantage that small farmers derived from their self-exploitation, large farmers increased their technical lead. As a consequence, the latter gained ground in many places. In western Europe and northeastern US, the number of large tenant and yeomen farmers increased. In southeastern Europe this was enterprising landlords, and in the southern US, large planters. This capitalist entrepreneurship secured agricultural progress and growth, and explains the liberalising tendency in farm policies in this period, which extended to trade policies. In particular, the repeal of the corn laws in Britain in 1846 inaugurated a general movement toward agricultural free trade.

However, from the closing decades of the 19th century, the situation of international agricultural markets changed drastically (Koning 1994; Schultz 1945). The coming of steamships and railways and the rise of the chemical industry allowed an increased exploitation of the global potential for farm production. The fall in long-distance transport costs induced a rapid expansion of commercial agriculture, and industrial fertilisers boosted increase in yields. Meanwhile, European population growth levelled off, and the rise of the use of electricity, internal combustion and industrial chemistry entailed a massive substitution of minerals for farm products. As a consequence, the relation between the supply and demand trends of agricultural products was reversed. Global supply now tended to increase more quickly than demand. After 1875, and again after the First World War, international agricultural prices fell to much lower levels (see Figures 1a and 1b). After the Second World War, nominal agricultural prices remained more stable, but this hid a considerable fall in real prices caused by inflation. Meanwhile, industrial competition in rural labour markets had strongly increased, so that farm wages no longer adjusted to agricultural prices. Falling prices and inflexible or rising wages caused a squeeze on farm profits. This hampered investment and innovation in large farms, eroding their technical lead over small farms. Conversely, rising wages reinforced the labour price advantage that the latter derived from the self-exploitation of family labour. Large farms now stagnated or declined, while family farms multiplied. This made a spontaneous adjustment in agricultural markets even more difficult. Family labour was less mobile than hired labour, so that the tendency of the global supply of farm products to outgrow the demand was not corrected by a sufficient outflow of agricultural labour. Thousands of small farmers and farm workers left the land, but this was not enough to restore the balance in agricultural markets.

The resulting malaise provoked calls for government support from both large and small farmers. In many countries, they were backed by non-farm interests which saw their markets threatened by the drop in agricultural investment and innovation. From the late 19th century, the liberalising tendency in farm policies gave way to increasing government intervention, one aspect of

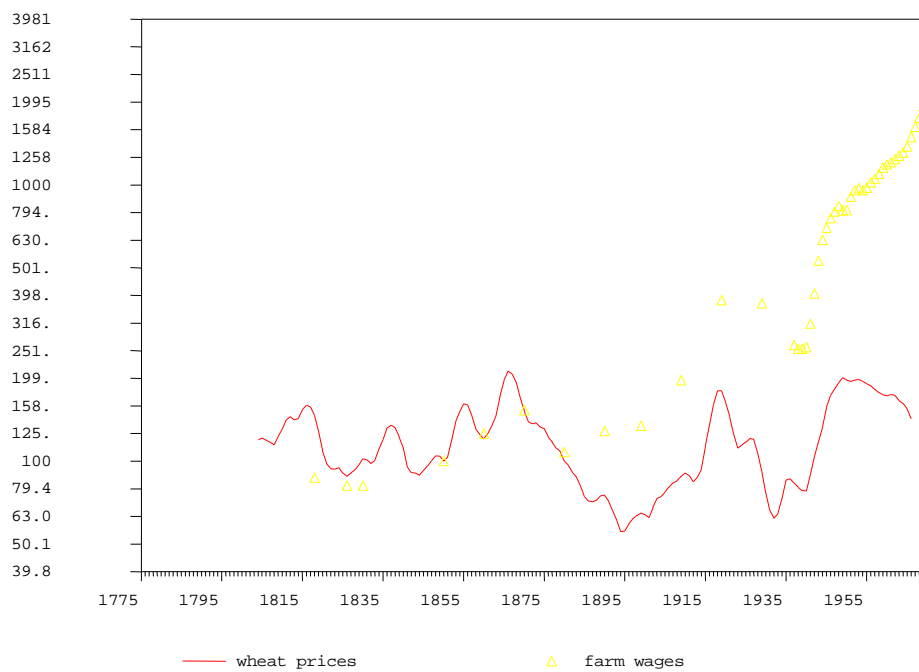
which was government support of agricultural research and education. This compensated the drawbacks of small farms for innovation and paved the way for farm progress based on the modernisation of family farms rather than large farms with outside labour. Another aspect was the support of agricultural prices and incomes. In the late 19th century, most countries in western Europe began to protect their farmers. All other western countries followed in the 1930s, when there was a new and disastrous fall in agricultural prices.

Figure 1
Nominal wheat prices (5-year moving average) and farm wages (1850 = 100)

(a) England and Wales



(b) United States



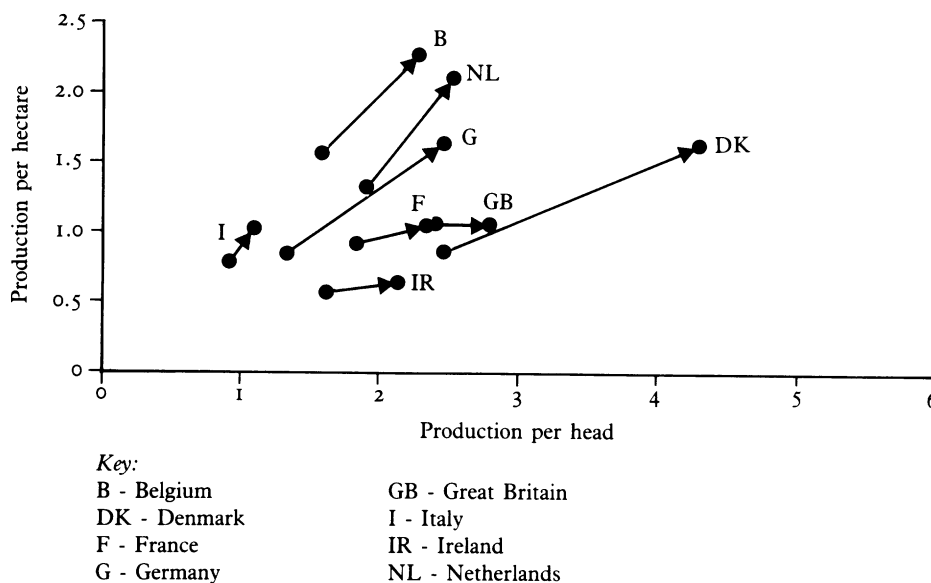
Sources: See Koning (1994).

3. Could agriculture have developed in a free market?

Many economists think that this protectionist response was caused entirely by political factors. In their view, the fall in farm prices in the late 19th century was due, not to a global reversal of supply and demand tendencies, but to a shift in comparative advantage in grains from Europe to North America, Argentina and Oceania. They believe that European agriculture should have shifted to livestock or released labour to the growing industrial sector, and that protection was unnecessary, and only led to distortions and welfare losses. In a free market, agriculture might have gone through some difficult years of adjustment, but afterwards farm profits and productivity growth would have recovered (Tracy 1989).

One way to test this view is to look at the historical experiences of developed countries that resisted or abandoned agricultural protection. Between 1875-1930, Denmark, the Netherlands, and the white settler countries across the ocean still stuck to free trade. These countries had special advantages in agriculture. They more or less adjusted in accordance with the standard view, but real recovery had to wait until world market prices temporarily rallied at the beginning of the 20th century. The UK also stuck to free trade. It had the most technically advanced agriculture in the world, but because industrial competition for labour had raised farm wages, it no longer had a comparative advantage in agriculture. According to the standard economic view, adjustment would have involved a reduction in the share of agriculture in the economy, but nevertheless should have led to a recovery of profits and productivity growth in the farm sector. In reality, farm profits remained low, and productivity stagnated throughout this period (see Koning 1994 and literature it refers to). By the eve of the First World War, Britain had fallen far behind the European productivity frontier (see Figure 2). Conversely, Germany, the textbook case of agricultural protection, rapidly increased its farm productivity and took Britain's place at the frontier.

Figure 2
The growth of agricultural productivity per head and per hectare
in eight countries of western Europe, 1870-1910
(in wheat units and prices of 1870)



Source: Van Zanden (1991).

The record becomes scantier after the Second World War, because most countries stuck to protection. In the 1950s, the US and Denmark tried to return to free market policies. In the latter there were signs that productivity growth was being affected, and model studies suggested that the same would have happened in the former had the experiment been continued (Cochrane and Ryan 1976; Koning 1986). However, because political reactions to falling farm incomes led to a return to protection after a few years, these cases are inconclusive. After 1984, New Zealand abandoned protection, while currency revaluations hampered farm exports. This country had a clear competitive advantage in livestock and horticulture. Also, the impact on farm incomes was alleviated by massive debt remission and a simultaneous liberalisation of labour markets and industrial trade. Nevertheless, the area under agriculture decreased by 20%. The output of horticulture and dairy increased, but that of beef and sheep declined. The labour volume remained stable, but family workers took the place of hired workers (Johnston and Frengley 1992). In horticulture, productivity growth increased, but this was probably due to investments made before 1984. In the livestock sector, which makes up two-thirds of New Zealand's agriculture, productivity growth remained unaltered, in spite of the massive release of marginal lands and other production factors (Philpott 1994). In fact, this means that productivity growth decreased. Investments in agriculture have considerably decreased (Cloke 1996; Gibson *et al.* 1992). The long-term effects on innovation and productivity are still unknown. One might suggest that, to some extent, agricultural adjustment in New Zealand was saved by the lucky coincidence of an economic boom in land-lacking East Asia, which stimulated the demand for New Zealand's livestock products. In the late 1990s, the East Asian boom was broken by crisis, and New Zealand farmers suffered badly.

New Zealand is the only case of real farm policy liberalisation in developed countries after the Second World War. Apart from it, there is only indirect evidence. For example, it is possible to compare the rates of productivity growth in agriculture in countries with different levels of agricultural protection. Countries with moderate protection appear to have a higher productivity growth than countries with high protection. But it is also true that countries with low protection have less productivity growth than those with moderate protection (Van der Meer 1989).

It can be concluded that empirical history does not clearly support the liberal-economic view on agricultural protection. This view is based on a theoretical model in which a smooth reallocation of labour is ensured by perfect information and rationality, fixed preferences, homogeneous labour and well-functioning labour markets. In reality, rather than leaving agriculture, many farmers reacted to low incomes by tightening their belts, increasing their labour efforts, and seizing the opportunities that new techniques offered to raise production. Technical change became a treadmill that generated overproduction. Because reallocation was slow, a balance between supply and demand growth was achieved, not by the outflow of farm labour, but by a chronic profit squeeze which reduced investment and innovation. One could say, the treadmill only stopped accelerating when its speed squeezed its own fuel supply. This is the pattern that is suggested by Britain in 1880-1930, and which is not satisfactorily contradicted by New Zealand today.

4. Agriculture and the regulation of international trade

Before the 1930s, most countries that protected their farmers were net-importers of agricultural products. Protection caused increases in domestic production that sometimes displaced farm imports, but it did not entail surpluses that had to be exported. In the 1930s, agricultural protection was also introduced by several net-farm exporting countries. Here protection involved the support of exports (*i.e.*, dumping). This could occur directly by export subsidisation, or indirectly, by providing farmers with other forms of support that allowed them to accept export prices below their costs of production. Because of its effect on production, protection could cause a gradual increase in the size of this open or disguised dumping. This either raised government protection costs or reduced the effective protection per unit of product. The shrinking of agricultural world markets in the 1930s depression exacerbated these effects, and induced various countries to introduce production controls. Thus France introduced controls for grain, the Netherlands for cows, pigs and vegetables, and the US for cotton and

tobacco. Some farmers or agro-industrial managers who wanted protection resisted such controls. In the US, director Peek of the Agricultural Adjustment Administration supported the agro-industrial viewpoint. He could not enforce this viewpoint, however, and in 1934, he resigned (Benedict 1953; Henningson 1981).

The question of production controls soon became mixed up with trade policy negotiations. In 1934, the US State Department put forward a Reciprocal Trade Agreements Act that envisaged bilateral negotiations between the US and its trading partners on mutual tariff reductions. It soon appeared that such bilateral liberalisation could seriously affect farm incomes. Therefore, the US Department of Agriculture (USDA) decided that international agricultural trade should be restored, not by liberalisation, but by international commodity agreements between the main importing and exporting countries. These agreements should lay down minimum and maximum volumes of exports and imports as well as minimum and maximum prices that should be maintained in the world market. During the 1930s, a number of international commodity agreements was concluded, but they were not very effective. The USDA concluded that they failed because they did not involve production controls. Uncontrolled increases in production displaced imports or led to export surpluses that forced governments to break their commitments. After the Second World War, therefore, the USDA advocated commodity agreements which included production controls (Henningson 1981). This position was at odds with the belief of the State Department that international trade should be restored by returning to a free trade regime. This disagreement divided the American delegation to the negotiations on the General Agreement on Tariffs and Trade (1947). Farm and non-farm representatives from other countries aligned around similar opposing views, and the result was a compromise: in the GATT, some clauses were introduced that allowed agricultural protection if trade distorting effects were avoided. Article 11 allowed import quotas for farm products for which domestic production controls existed, and article 16 allowed export subsidies, provided that this would not lead to more than a fair share in the world market. Many agrarian representatives saw these clauses as a framework for a commodity agreements approach to the regulation of international agricultural markets.

However, an orderly organisation of agricultural world markets failed to evolve. After 1947, agro-industrial expansionism in the US revived. It maintained import quotas for dairy and sugar, but without establishing domestic production controls as required by the GATT. The other GATT members protested in vain, and had to accept the formalisation of this situation by a 'waiver'. Also, the US subsidised its export of grain and other staples, without regard to what constituted a 'fair share' in world markets. After the Eisenhower administration's attempt to return to a free market had failed (see Section 2), in 1961, the Kennedy administration proposed a more principled policy of production controls. This was rejected by a farmer referendum, partly because of agro-industrial propaganda, partly because farmers deemed the proposed prices too low, and a compromise was introduced. Agricultural prices were supported and farm exports subsidised, but an acreage reduction programme was implemented to moderate the cost to the government (Cochrane and Ryan 1976). Although subsidised exports pushed international prices further below the American cost of production, acreage reduction still allowed the US, as the world's largest grain exporter, to avoid total ruin of its export markets (Noort 1995).

Meanwhile, the European Union was forging its common agricultural policy out of the existing policies of its founding members. The EU adopted a system of protection with almost no production controls. A price quota system was introduced for sugar, but under pressure from part of the sugar industry, member states were allowed to opt out by converting quota prices into average prices for farmers. This seriously reduced the effectiveness of the system. In the absence of effective production controls, the effect of protection was that the self-sufficiency rate of the EU began to rise. Existing export surpluses of sugar and dairy increased, and new surpluses of other products appeared. This led to rising government costs in those cases (unlike sugar) where surpluses were dumped by government subsidisation. In the 1980s, non-farm resistance against further rises in government costs forced the EU to make a hard choice between yet introducing production controls and reducing the support level of agricultural prices (Meester and Strijker 1985). In 1984, a milk quota system was introduced despite fierce resistance from the dairy industry (but not dairy farmers), especially in the Netherlands. This quota system made it possible to maintain reasonably remunerating milk prices. In

the grains sector, the balance tilted the other way. No effective production control was introduced, and between 1983 and 1993, grain prices were reduced by one quarter.

Other developed countries followed these poor examples that were given by the US and the EU. Agricultural world markets changed into dumping markets, and international agricultural prices fell even lower than they would have under a free trade regime. In such a situation, a commodity agreements approach stood little chance of success. As commodity agreements were already complicated by a prisoners' dilemma situation between countries and by divisions between established and new producers, the farm policies of the US and the EU made successful commodity agreements virtually impossible. Although the EU officially endorsed the commodity agreements approach, in practice, its growing sugar surpluses frustrated the renewal of the sugar agreement.

The farm policies of the US and the EU harmed agricultural exporting countries like Australia, New Zealand and Canada. New Zealand's inability to sustain a dairy export subsidisation race with the European Union forced it to abandon its farmers to the world market after 1984 (see Section 2). These policies also hampered agricultural growth in many developing countries that did not protect their farmers. Cheap imports of American grains damaged farmers in many countries, while the dumping of European beef disastrously affected livestock farmers in the Sahel (Quarles van Ufford and Klaasse Bos 1995). Nevertheless, such effects played little part in causing the reforms that were to follow in the 1990s. As I will explain below, these were prompted rather by tensions between the EU and the US themselves.

5. The Uruguay Round and its aftermath

By 1980, growing trade balance deficits in the US had added a national economic interest to the agro-industrial desire for expanding farm exports. Around the same time, unrestrained growth of grain production turned the EU from a net-importer into a net-exporter of grain, and increasing amounts of subsidies were used for dumping European grain surpluses on the world market. This damaged the interests of the US as the world's leading grain exporter. Besides, the EU was freeriding on the American acreage reduction programme that sought to limit the glutting of international grain markets (Noort 1995).

In this situation, the US changed its strategy. It reduced the protection of domestic prices for farm export commodities. Instead, farmers were supported by direct allowances from the exchequer (deficiency payments). Farm incomes were still supported, but prices now approached world market levels. On this basis, the US formed a coalition with the 'Cairns group' of agricultural exporting countries and set 'liberalisation' of agricultural trade high on the agenda of the Uruguay round of GATT negotiations (1986-93). The idea was that all countries should eliminate their export subsidies and import restrictions. However, the US declared that 'non-distortionary' allowances should be exempted.

Agro-industrial interests in the EU silently welcomed part of the American pressure, hoping that they could use it to avoid further production controls. Faced with a domestic blockade of further rises in the costs of farm policies, European agro-industries wanted price supports to be reduced. In this way, the costs of export subsidies per unit of product would decrease, so that the volumes of subsidised exports could increase without raising the total outlay on subsidies. However, European agro-industries fiercely rejected a reduction in the volumes of subsidised exports. Moreover, in exchange for concessions to the US, European grain farmers and grain traders wanted a taxation of the growing imports of feed products that, through an agreement in an earlier GATT round, could enter the EU free of restrictions. In line with these interests, the EU refused to negotiate any reduction in the volumes of subsidised exports and demanded a 'rebalancing' of agricultural tariffs. The EU-US conflict over these points deadlocked the agricultural negotiations for 6 years and threatened the successful conclusion of the entire Uruguay Round (Hoogh *et al.* 1990). The stalemate was finally broken in 1992 by the informal 'Blair House agreement' between the EU and the US, which paved the way for the Agreement on Agriculture of 1993. This laid down that all import restrictions were to be transformed into tariffs, which should subsequently be reduced by 36%. Export subsidies should also

be reduced by 36%, and the volume of subsidised exports by 21%. 'Domestic support' was to be reduced by 20%. However, under certain conditions, direct payments were exempted from these reductions. Besides, the base years for the reductions were chosen so that the effects for the EU were minimised.

The exemption of direct payments was used by the EU in its 'MacSharry reform' in 1993. Price supports for grain were reduced to world market levels and grain farmers were compensated by payments per hectare. In this way, the EU killed two birds with one stone. The reduction of domestic grain prices strengthened the competitive position of European feed grains against imported feeds, while at the same time the EU could continue to export large volumes of grain, which would otherwise have been reduced because of the obliged reduction in export subsidisation.

In 1996, the US passed the Federal Agricultural Improvement and Reform Act ('freedom-to-farm act'). This ended the acreage reduction programme and substituted 'decoupled allowances' (payments unrelated to current production) for deficiency payments. In this way, exports of grain and other commodities were increased while farmers were still supported. Decoupled allowances froze the total government cost of this support, which made the elimination of acreage reduction acceptable to politicians who opposed increases in government spending (Parzner 1997). The increase in American farm exports deepened the fall in world market prices that had been caused by the Asia crisis. In a reaction to this fall, Congress passed emergency measures in 1997-99 that involved additional payments to farmers. Altogether, direct payments amounted to about one-third of American farm incomes. Nevertheless, the price fall was only partly made up by this, and farm incomes suffered.

While the US and the EU supported their farm exports by direct allowances, the Agreement on Agriculture obliged other countries to reduce their protection against cheap imports. These countries also included a number of developing countries, especially in Asia. Developing countries were allowed smaller and more gradual reductions, but they still had to cut back their import restrictions. Only the least developed countries were exempted, but most of them did not protect their farmers.

The US and the EU maintain that direct payments are, at most, minimally trade distorting. However, this is not true, because the US and the EU use these payments to abandon production controls or to avoid those which the agreed reduction in export subsidisation would otherwise force them to introduce. Moreover, although the effect of direct payments on the growth of farm production is hard to quantify, such an effect certainly exists. Experience has taught farmers that government policies are constantly changing, and that these always allow only larger farmers to continue farming. Rational expectations therefore encourage farmers to invest in increasing their production capacities, and to use direct payments for such investment if needed.

6. The new negotiations

As prescribed by the Agreement on Agriculture, new negotiations on agricultural trade started to take place in 1999 in the newly-formed World Trade Organization (WTO). An attempt to widen these negotiations (and parallel negotiations on services) into a new general trade round failed in Seattle in 1999, but succeeded in Doha in 2001.

In the new negotiations, a number of food importing countries with high agricultural protection (Japan, South Korea, Norway and Switzerland) emphasise that their farm sectors are important for their national food security, environment, landscapes, and rural societies. Because of these domestic 'positive external effects' of agriculture, they want to continue to protect their farmers. Against the plea for trade liberalisation put forward by other countries, they oppose the idea of a 'multifunctional agriculture' that deserves protection because of 'non-trade concerns'.

The above countries look to the EU for support. The EU also emphasises the multifunctional role of its agriculture. Its new Agenda 2000 reform plan envisages a further substitution of direct payments for the support of beef, dairy and grain prices. Like the above countries, the EU emphasises that direct payments will be used for remunerating farmers for external effects on animal welfare, landscapes, and rural societies. But the EU has several ulterior motives. The European Commission is aware that its remaining export subsidies are not acceptable to the rest of the world, and is ready to

trade a phasing out of these subsidies for concessions in other sectors. (For this reason, the EU strongly advocated a widening of the agricultural negotiations into a general trade round.) By substituting direct payments for price supports, the EU hopes to increase its farm exports and avoid production controls, in spite of the expected elimination of export subsidies. In particular, it hopes to avoid a limitation of its beef production, and to abandon the fallow measure in grains that was introduced in 1993 as part of the MacSharry Reform. A relaxation of the milk quota system has also been proposed, but has been postponed because of the high budget cost of compensatory allowances and because of the resistance of dairy farmers to a fall in the milk price. However, agricultural ministers of a number of EU countries have formed a pressure group ('club of London') for abolishing the milk quotas. If they have their way, EU dairy exports may increase considerably. Another ulterior motive is related to the accession of central and eastern European countries to the EU. If farmers in these countries were to receive the agricultural prices that currently prevail in the EU, they would considerably increase their production. This would force the Union either to restrict farm production in the current member countries, or to renegotiate the farm export rights of the members in the WTO, which will come at a price. To avoid the dilemma, the EU wants to reduce its farm prices *before* the accession. Farmers of existing member states will be compensated, but farmers of the new member states will not, because they never had the higher prices.

The 'multifunctionality' block is opposed by the Cairns Group (Australia, New Zealand, Canada, South Africa and a number of agricultural exporting countries in South America and Southeast Asia). At first sight the position of the Cairns group seems to be clear: protection is unfair competition, multifunctionality is a thin excuse for avoiding liberalisation. Nevertheless, there are tensions under the surface. Farmers in these countries suffer from low world market prices, and demand protection if other countries fail to liberalise their policies. Australia and Canada support their farmers by marketing boards and 'non-distorting' support measures, even though their levels of support are lower than those of the EU or the US. In the Asian Cairns group countries, small producers of rice and maize for the domestic market resist the liberalisation policy that is supported by lobbies of big Bangkok rice traders and coconut or oil palm plantations. Shortly before the Doha conference, the developing countries of the Cairns group met separately, and declared that they wanted to protect their domestic agricultural markets against imports from those countries that support their farm exports (Pruzin 2001).

The Cairns group looks to the US for support. The US poses as a champion of liberalisation, but wants to continue to support its farmers by direct payments and cheap export credits. Apparently, the US strongly opposes the 'multifunctionality' argument of the EU, but under the surface, there is a convergence in the positions of the US and the EU. US secretary of agriculture Veneman is opposing a House bill that aims at a massive use of direct payments in a way that would one-sidedly benefit large farmers and insulate them from fluctuations in world market prices. Instead, she has put forward a more cautious and redistributive approach, in which payments should also benefit other farmers and 'conservation', and the total outlay on payments not become too large (Becker 2001). In fact, this position seems not very different from the Agenda 2000 plan of the EU.

There is no unanimity in developing countries. Many demand a wider access to western markets, but others fear that their existing preferential access to the market of the EU will be eroded. While many developing countries would welcome a rise in world market prices of their export crops, several net-food importing poor countries want to be compensated for possible rises in food prices. In general, developing countries are dissatisfied and are raising their voices more loudly than they did during the Uruguay Round. An increasing number is criticising the way in which the US and the EU are using direct payments, and claims the right to protect their own farmers against cheap imports. Against the 'green' and 'blue boxes' that in WTO language contain the exemptions of direct payments, a group of countries has proposed a 'development box', that would allow them to protect certain staples ('food security crops') that are vital for their food security and rural employment (Green and Priyadarshi 2001).

7. Implications for farm incomes, the environment, developing countries, and long-term global supply

Farm incomes

In Section 3, I have pointed to historical experiences in the UK and other countries, which suggest that liberal farm policies led to low farm incomes and stagnation. Of course, today's EU is different from the UK around 1900. Farm and non-farm labour markets have become more integrated. In many regions in North-western Europe, with suburbanised rural areas, it is hard to imagine that farmers would adjust to price reductions by withdrawing into an isolationist agrarian culture and voluntarily accepting earnings far below those in other sectors. On the other hand, the inflexibility of non-farm wages has increased, and new skill requirements may also hamper a rapid outflow of farm labour. Moreover, there are large differences within the EU. In some member countries, agriculture's share in employment is still higher than in Britain around 1900.

Suppose that farm incomes were left to the free market. What would happen, assuming that reallocation is still slow, so that the agricultural response would still resemble that in Britain in the early 20th century? As in Britain at the time, not all of agriculture would become stagnant. However, the dynamic would withdraw to the most favoured regions and sectors; for example, arable farming in Northern France and Eastern England, livestock in Denmark, or horticulture in the Netherlands. Outside these pockets of continued dynamism, agricultural progress would slacken. Some relief might be found in the partial transformation of farming into a green services sector. European green parties have high hopes for such a development (*e.g.*, GroenLinks 2002), but the scope for it should not be exaggerated. Markets for farm tourism or organic foods are limited even if they are growing. A niche market strategy for selling high value-added artisanal foods will not compensate for a sector-wide decrease in protection. There are some successful cases, but their results cannot be generalised: the margins earned by some early adopters of this approach will be eroded by competitive niche formation among those who try to emulate the success. Generally speaking, therefore, one can say that, without support, farm incomes would fall, farm progress would slow down and, in many places, agriculture languish. A similar, though less drastic, development would occur if price supports were replaced by lower supports by direct payments.

Environment

Real farm policy liberalisation would lead to the abandonment of marginal lands and to strongly reduced land prices. More land for nature conservation would become available and at a lower cost. Besides, liberalisation would induce an extensification of agriculture, and fewer inputs would be used per hectare, though not per unit of product. However, rural societies would suffer, and certain regions might be depopulated. Increase in international trade would involve the use of more energy in transport and agricultural production techniques would certainly not evolve in a more 'ecological' direction. Organic agriculture might still show some growth in limited niche markets of motivated consumers, but for the rest, low prices would push agricultural development in a large-scale low-cost direction.

As I have argued above, however, farm policies in the main western countries do not evolve toward real liberalisation, but to a substitution of direct payments for traditional price supports. Direct payments are presented as an instrument to support viable rural societies, animal welfare and sustainable agriculture. On this basis, the European Commission, and recently, US Secretary Veneman, have tried to co-opt the environmental movement in a broad coalition of interests that support their farm policy reforms. Direct payments can moderate the decline of rural societies and the shrinking of the agricultural area. Moreover, a targeted use of direct payments could be used to strengthen the ecological niche in the agricultural sector. Many environmentalists in the EU and the US are sensitive to these arguments. Within the European green parties, there is a tendency to endorse this line of reasoning. It should be noted, however, that a substitution of direct payments for price supports cannot achieve a sector-wide change to ecological agriculture. Such a change inevitably involves a rise in the cost price of agricultural products, because negative external effects on the environment have to be internalised. Therefore, a sector-wide change to ecological agriculture is only

feasible if the remuneration of agricultural production rises. This requires a new deal between farmers and the society in which a sector wide change in production methods is traded for an increase in the support given to farmers. A substitution of direct payments for price supports has the opposite effect. A support system based on direct payments involves higher government costs than traditional price supports, which are largely paid by consumers. To moderate the rise in government cost, the change to direct payments needs to be coupled to a reduction in the level of the support given to farmers. This has already happened with the freedom-to-farm act in the US, and is also envisaged in the EU Agenda 2000 reform plan.

Ecological niche markets are dependent on consumers who voluntarily pay higher prices for ecological products. Even if the growth of the niches can be stimulated by a targeted use of direct payments, this growth will be contained within a market segment of consumers with certain income and lifestyle characteristics. By supporting an Agenda 2000-type policy reform, the environmental movement may gain some advantages for its organic 'home industry', but it will pay a high price for it. It will sacrifice the chance of a sectorwide change to ecological agriculture and it will lend its support to a policy that also aims at using direct payments for disguised dumping.

Developing countries

It is often argued that agricultural trade liberalisation will stimulate agriculture in developing countries, because it will improve world market prices for farm products and widen the access for developing countries' farm exports to western markets. However, an international 'liberalisation' that really means the continuation of western dumping in disguised forms will hardly improve world market prices. Besides, most of the least developed countries already have preferential access to the European market under the Cotonou (formerly Lomé) convention. In this market, they now get supported European prices. The value of their access will be eroded if the EU substitutes direct payments for price supports (Meijl and Tongeren 2001).

Wider access to western markets is certainly important for the agriculture of developing countries. However, domestic markets in these countries, which are rapidly growing because of population growth and urbanisation are even more important. Some ninety percent of the agricultural product of developing countries is consumed in the countries themselves. If agricultural prices in domestic markets are too low, farmers cannot make sufficient investment in sustainable land management to accommodate the growing population pressure on the land. This will lead to downward vicious spirals of rural impoverishment and soil degradation (Vosti and Reardon 1997). The kind of 'liberalisation' that is currently envisaged in the WTO will not improve agricultural prices in developed countries. Even a – purely theoretical – real liberalisation would only cause a once-only rise of world market prices in a continuing downward trend. This would cause balance-of-payments problems in several food importing poor countries, but it might not be enough to break agricultural stagnation in many developing countries. It should also be noted that, in many cases, agricultural cost prices in many developing countries are not below those in developed countries, which have much higher labour and land prices, but also a much higher productivity (Mazoyer 2001).

As long as world market prices are too low, it is important that developing countries can follow the historical example of western countries and protect their domestic agricultural markets against cheap imports (Koning *et al.* 2001). Such protection is especially warranted in a first phase, because of the infant industry problems (such as learning problems or low initial recovery rates of fertiliser on poor or degraded soils) that must be overcome to get agricultural development going. After such an initial phase, continued support may be called for if agricultural growth is needed for national development but is threatened by low world market prices. It is not accidental that successful economic development has occurred precisely in those countries like South Korea and Taiwan that have supported their farmers. 'Liberalisation' only makes the protection of agricultural markets in developing countries more difficult. The Uruguay Round agreement has forced several developing countries (especially in Asia) to reduce their agricultural protection. Other developing countries still have room for introducing or raising protective tariffs under WTO rules, but have been pressured by the IMF or the World Bank not to use this. Pleas (*e.g.*, by India and Nigeria) to give developing countries a structural right to protecting their agricultural markets have been brushed aside by developed countries, including the EU (Inside US trade, 2001). The proposal by several developing countries to allow protection of 'food security crops' under a 'development box' is not even alluded to

in the ministerial declaration of Doha. In this way, developing countries are kept down or disarmed of trade policy weapons, while direct payments as a *rich men's* instrument for disguised dumping are exempted. As a consequence, in spite of all promises to the contrary, many developing countries see that 'liberalisation' increases farm imports rather than their exports (FAO 1999).

Global food supply in the long term

Between now and 2025, the world population is expected to increase by 2 billion. Meanwhile, in successful developing countries (especially in East Asia), rising consumer incomes will induce a shift in dietary patterns to those with more animal products, which will require a larger input of plant biomass. Both developments will cause a great increase in the global demand for farm products (FAO 2000). The fact that international agricultural markets have generally been glutted since the late 19th century does not guarantee that this increased demand can be met without problems. The ample space for reclaiming fertile lands, using water for irrigation, and boosting yields by agro-chemicals and growth-resistant varieties, which allowed for the past century's abundance, is gradually being exhausted. Unlike what has been asserted by certain eco-pessimist studies (e.g., Brown and Kane 1994), on the global level, the biophysical potentials for increasing production are still sufficient (Table 1). However, more than four-fifths are in Latin America, Sub-Saharan Africa and former Soviet Union countries, where their adequate exploitation is hampered by institutional problems. In those parts of Asia which are expected to have the highest absolute and relative increase in demand, potentials are quite limited. Moreover, the way in which agro-chemicals are being used goes against environmental constraints.

Table 1. Ratio of potential food supply and projected food demand in 2040, for selected regions. (For demand, two extreme combinations of population and diet and an average combination are used. Potential food supply is shown for high external input (HEI) and low external input (LEI) farming systems.)

Region	HEI system			LEI System		
	Vegetarian diet, low population	Moderate diet, medium population	Affluent diet, high population	Vegetarian diet, low population	Moderate diet, medium population	Affluent diet, high population
South America	89.2	41.7	20.0	30.1	14.1	6.8
Central America	15.6	7.2	3.5	6.8	3.1	1.5
North America	49.3	22.3	10.5	25.0	11.3	5.3
West Africa	16.0	6.4	2.9	6.8	2.7	1.2
Southern Africa	31.0	14.8	6.9	14.6	7.0	3.3
South-East Asia	11.8	5.1	2.4	3.8	1.7	0.8
South Asia	3.7	1.6	0.8	2.0	0.9	0.4
Europe	13.5	6.4	6.4	6.5	3.1	1.6
World Total	19.7	8.8	4.2	8.4	3.7	1.8

Source: Penning de Vries *et al.* (1995)

As a consequence, sufficient increase in global supply will at least partly depend on new technologies. Unlike current ecological techniques that reduce emissions while minimising the loss in production, these technologies should reduce emissions while at the same time increasing production per hectare. An example is 'precision agriculture', where ICT and global positioning allow a precise adaptation of doses for the heterogeneous needs of plants (Doorman 1998). Research investment in such technologies involves long gestation periods. The same is true for other long-term investments that can determine future production capacities, like investment in human capital or the regeneration of degraded soils. To avoid unnecessary scarcity in the future, such investments should be taken in plenty of time. However, with myopic expectations (or time horizons restricted by low farmer incomes), the size of these investments may be reduced by the current low prices of agricultural products. If, after

some time, it were to become more difficult for the global supply of food to follow demand (Tweeten 1998), this could lead to soaring food prices that would cause havoc in net food-importing poor countries. Such global ‘pig cycle’ effects are not reckoned with in the optimistic studies of long-term global food security that some established institutions have made (FAO 2000; Mitchell *et al.* 1997; Rosegrant *et al.* 1995). The shortfall of investments might be exacerbated if government support for agriculture were to be strongly reduced in the final phase of international over-abundance. In this sense, the present cutting down of farm income supports with continuance of disguised dumping by direct allowances in developed countries, the phasing out of fertiliser subsidies in developed countries, and the world-wide reductions in the support for farm research might pose a serious risk.

The EU has sufficient biophysical potentials to feed its own population in the future if it needs to. This does not mean that the EU should strive after food autarchy. Regional food self-sufficiency is not a viable solution for long-term global food security. Food demand and biophysical potentials are very unevenly distributed over the world’s regions. In particular, East and South Asia will not be able to feed their populations without considerable imports, whereas South America has a huge potential for food exports (Penning de Vries *et al.* 1995). Besides, the pursuit of food self-sufficiency by western countries might prevent developing countries from specialising in export crops in which they have a comparative advantage. However, all this does not relieve the EU from the responsibility of feeding its own population if the situation of world markets require it to. At present, the EU is a net-importer of food in spite of its surpluses in some staples. It has no need to become self-sufficient for food in the short term. Nevertheless, the EU should not become so dependent on food imports that it would need to continue to import large quantities if international food prices were to greatly increase. In that case, European imports would exacerbate the rise of food prices, to the detriment of net-food importing poor countries. Therefore, the EU should always maintain its capability to become food self-supporting within a few years if needed. For this reason, it should not neglect its farm research or the development of agricultural skills, and should avoid large reductions in agricultural area that cannot be reversed within a few years. This contradicts certain ideas about a large-scale conversion of agricultural lands into nature reserves.

8. Is there an alternative?

Environmental considerations in developed countries ask for a sector-wide change in production methods made possible by a sector-wide increase in the support of farm incomes. Sustainable rural development in developing countries asks for protection against cheap imports. Securing sufficient supply of food in the future asks for the maintenance of adequate prices globally. The ‘liberalisation’ that is currently being discussed in the WTO will not achieve these conditions. But neither will unregulated protectionism or regional autarchy.

What is needed is an international arrangement that allows sufficient international trade, while allowing countries to give adequate support to their agriculture, but that effectively curtails western dumping. Such an arrangement could be inspired by what was certainly the most positive aspect of the Uruguay Round agreement: the prescription that the subsidisation of agricultural exports should be reduced by certain percentages. As neither the US nor the EU were able to export without support to their farmers, this meant, in fact, an allotment of the room for farm exports (even though direct payments were used to escape it). This approach could be further developed by subjecting the agricultural trade of developed countries to a quota system, under which each developed country would be allowed to export maximally what it exports today, and would be obliged to minimally import what it imports today. Developing countries would be exempted so that their share in farm exports could increase. The total amount of quotas would be adjusted to the development of global demand and supply. If global demand increased more than the additional supply by developing countries (as will probably occur), the export quotas of developed countries would be increased (or their import quotas decreased). Countries with a lower protection would receive a proportionally larger share of the room for additional quotas, as it may be assumed that they have a comparative advantage in the activity. The total amount of quotas would be so managed that world market prices would

remain between a pre-established minimum and maximum. In this way, an adequate supply and remunerating prices would be simultaneously maintained. To make the system more flexible, quotas already assigned could be made saleable. Countries that want to expand their production at a faster rate than allowed by the difference between the increase in global demand and the growth of the supply of developing countries could try to buy quotas from other countries. This is only possible if other developed countries reduce their production volumes. This would encourage countries that are less efficient producers to decrease their production. In this way, they would not only save on public means for subsidising exports, but they would also make money from the sale of their quotas.

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