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Bringing Agriculture into the GATT:

***DESIGNING ACCEPTABLE
AGRICULTURAL POLICIES***

Commissioned Paper No. 3

**BRINGING AGRICULTURE INTO THE
GATT**

***DESIGNING ACCEPTABLE
AGRICULTURAL POLICIES***

SUMMARY REPORT

Prepared by

**THE INTERNATIONAL AGRICULTURAL
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Background Papers Prepared

David Blandford, and Anthony Zwart, 'Domestic Policies and Market Stability.'

Harry de Gorter, 'Analyzing Agricultural Policies and Trade Distortions.'

David Blandford, Harry de Gorter, and David Harvey, 'Production Entitlement Guarantees (PEGs): A Minimally Distorting Method of Farm Income Support.'

Bruce Gardner, 'Domestic Policies to Make Trade Liberalization Politically Possible: The U.S. Case.'

David Harvey, 'Decoupling and the European Common Agricultural Policy.'

Thomas Hertel, 'Factor Market Implications of Trade and Policy Liberalization in U.S. Agriculture.'

Susan Offutt, 'Living with Trade Liberalization: Commodity Market Stability and Stabilization Policy.'

John Sutton and Barry Krisoff, 'Agricultural Resource Policy Issues and the GATT Negotiations.'

Alan Webb, 'A Trade Adjustment Program for Agriculture.'

Shu-Eng Webb and Alan Webb, 'The Role of Environmental and Natural Resource Policies in Trade Liberalization.'

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Preface

The IATRC is a group of more than 80 economists interested in agricultural trade, drawn from the academic community, government, and private institutions in North America and seven other countries. Founded in 1980, the Consortium has the following objectives:

- (1) to facilitate and stimulate improvement in the quality and relevance of international agricultural trade research and policy analysis;
- (2) to facilitate collaborative research among its members;
- (3) to facilitate interaction among researchers and analysts in different countries, universities, and governments engaged in and/or interested in trade research; and
- (4) to improve the general understanding of international trade and trade policy issues among the public at large.

In order to further these objectives, the Consortium established three task force groups early in 1988 to examine the issues involved in dealing with agricultural trade problems through the current round of international negotiations under the General Agreement on Tariffs and Trade (GATT). Funding for the three groups was provided by the U.S. and Canadian governments. Summaries of the work and conclusions of the three task forces were presented at the Symposium in Annapolis, Maryland on August 19-20, 1988. The summaries are titled as follows:

- (1) Assessing the Benefits of Trade Liberalization
- (2) Designing Acceptable Agricultural Policies
- (3) Negotiating a Framework for Action.

The more detailed set of papers, upon which these summaries are based, will be published in book form during 1989.

For further copies of these reports or information on the IATRC and its activities, contact:

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DESIGNING ACCEPTABLE AGRICULTURAL POLICIES

This report analyzes the types of agricultural policies that can achieve domestic objectives and be consistent with liberal and nondiscriminatory trade. Several objectives underlie the agricultural policies of countries which are signatories to the General Agreement on Tariffs and Trade (GATT). **Farm income support** is provided by industrial countries to ensure the viability of their agricultural and rural economies. **Economic stability** is a major objective, particularly in developing countries which seek to promote 'food security' by ensuring an adequate domestic supply of food at 'reasonable' prices. **Environmental objectives** are also important, as reflected in agricultural programs for conserving land and water resources, wildlife habitats, and the scenic beauty of rural areas. Finally, the provision of **public goods**, such as research and development (R&D), information, food inspection, and extension services is a feature of agricultural policy in many countries.

The legitimacy of domestic policy objectives is not debated as they are deemed to be outside the realm of the GATT negotiations. However, the measures used to achieve objectives must be brought under the GATT if they create international market distortions. In order to contribute to this process, this report assesses the types of policy measures that can be used to achieve domestic objectives and yet promote liberal and nondiscriminatory trade in agricultural products.

Farm Income Support

A key policy objective in industrial countries is to support farm incomes. Many income support measures also distort international trade. The challenge is to devise measures which both provide support and are minimally trade distorting.

Current Income Support Policies and Trade Distortions

A listing of the major types of income support measures is given in the table on page 2. The categories identified are based on the relative impact of policies on world markets. Emphasis is placed on traditional agricultural programs which are commodity specific, and support producer incomes through explicit taxes or higher consumer prices.

Ranking Agricultural Support Policies By Trade Distortions

1. **Production Subsidies** (incl. price supports with deficiency payments, 'stabilization' payments and government procurement) and **Taxes** (incl. co-responsibility levies, super-levies, etc.).
 2. **Input Subsidies** (for credit, fertilizer, irrigation, crop insurance, interest rates, etc.) and **Taxes** (e.g., land).
 3. **Production/Marketing Quotas** (incl. two-price schemes, 'maximum guaranteed quantities,' etc.) and **Input Controls** (e.g., acreage set-asides, etc.).
 4. **Consumption Taxes, Quotas** (rationing) or **Subsidies** (incl. domestic price ceilings with consumer deficiency payments and domestic food aid).
 5. **Marketing Taxes** (e.g., value-added tax) and **Subsidies** (e.g., trans. subsidies).
 6. **Imperfect Market Structure** (producer/consumer monopolies, parastatal marketing boards, etc.).
 7. **Import/Export Taxes and Subsidies** (ad valorem and specific) and under/over valued exchange rates.
 8. **Import/Export Quotas** (incl. 'voluntary' export restraints, state trading and orderly marketing arrangements).
 9. **Contingent Export/Import Subsidies and Taxes** (incl. export enhancement programs, domestic price supports with variable import levies/export restitutions, and countervailing and anti-dumping duties).
-

International trade is affected by changes in domestic production and consumption. The degree to which income support measures distort trade is determined by how much the policies affect production or consumption. For a given level of income support, border measures are more trade distorting than most domestic policy measures because they affect both production and consumption directly. Domestic measures, such as production or input subsidies, are less trade distorting. They affect production, but do not have a major impact on consumption. Such subsidies can be targeted directly to farmers, rather than indirectly, as with policies which change output prices or with other types of subsidies. They are therefore both a more efficient means of supporting farm incomes, and less trade distorting.

Among border measures, tariffs and subsidies are less trade distorting because they allow changes in international prices to be reflected domestically. Production and consumption will vary in response to changes in world market conditions. Quantitative restrictions, variable levies, and price fixing schemes do not allow such response and are likely to be more trade distorting. Other types of

quantitative restrictions, such as output or marketing quotas, are inferior to production subsidies because they affect domestic prices and consumption. They can be less trade distorting than border measures, but this depends on the relative size of their effects on prices and trade. The difficulty of monitoring the international effects of domestic quantitative restrictions makes them a problematic method of income support in the context of the GATT.

A combination of support measures is typically found in most countries. Often it is difficult to determine the amount of trade distortion due to a single instrument. The level of distortion can change as the combination of policy measures or their settings are altered. There exists a continuum of distortions under each 'package' of policy measures employed by governments. Current programs, such as those involving acreage controls and deficiency payments in the United States and price supports with co-responsibility levies and 'maximum guarantee quantities' in the European Community, are examples of complex combinations of policy measures which can create different levels of trade distortion depending on the particular combination of measures in place and their settings.

Reforming Income Support Policies

The least distorting way to support farm incomes is to make payments to farmers independent of the level of production. Such payments would not affect production or consumption and would therefore not affect international trade. In practice, a distortion-free method for making direct payments is extremely difficult to design since most transfers have some effect on output. These effects result from the impact of payments on the decisions of individuals whether to enter or leave an industry, their work or leisure choices, and their saving, investment and consumption decisions. Hence, the challenge becomes one of finding an income transfer mechanism which is less distorting than those currently used.

Less-distorting transfer mechanisms could include negative income taxes, adjustment assistance payments, and welfare payments. These options would be compatible with the GATT because they are minimally trade distorting, if they are implemented correctly. Adjustment assistance, for example, has a role to play in this regard and is discussed later in this report. However, for the most part direct payments unrelated to production represent a radical change from current commodity-based support policies in agriculture and are unlikely to be an attractive option to policymakers and farmers. Hence, the problem becomes one of finding a traditional commodity-based approach that both provides income support and minimizes trade distortions.

Four criteria are used in designing an alternative policy that meets these requirements:

- (1) minimize trade distortions, i.e., generate production and consumption as close to free trade levels as possible;
- (2) achieve national objectives, particularly in maintaining farm incomes;
- (3) be politically acceptable to national governments;
- (4) be administratively feasible.

Many current policies do not meet the first criterion and are very inefficient in meeting the second. They depress world prices, rather than leading to a real increase in farm incomes, they create substantial 'leakages' to input-supplying and output-using industries and to foreign consumers, and they generate inefficiency in the allocation of resources due to overproduction and underconsumption. The alternative approach proposed does not suffer from these deficiencies.

Income Support - the PEG Alternative

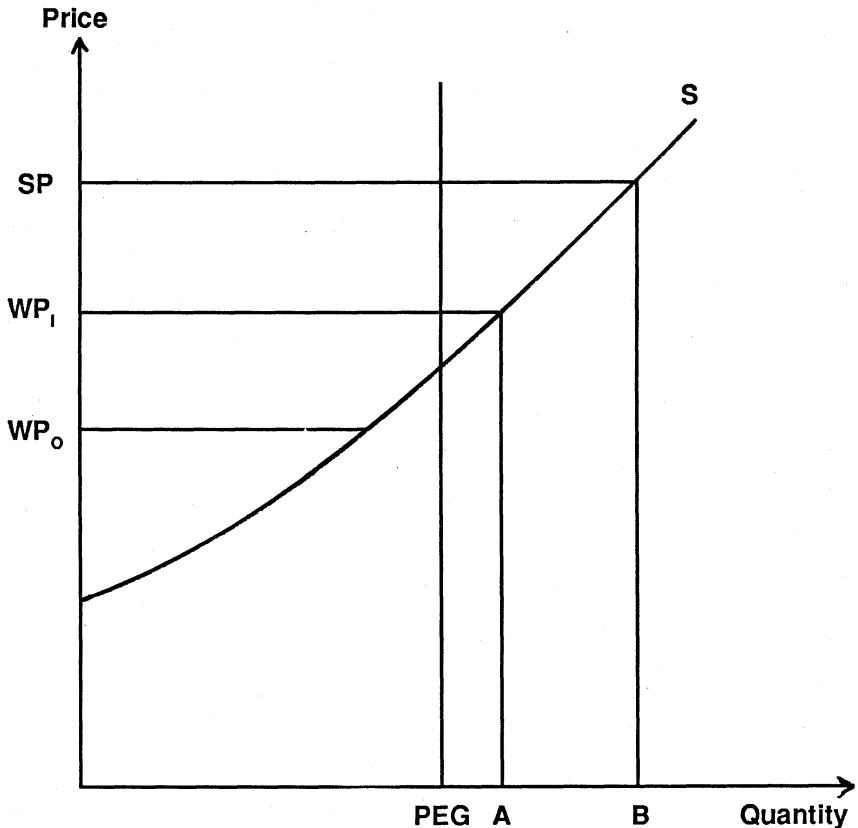
To overcome the shortcomings of current support policies, we propose that national governments adopt a device called **Production Entitlement Guarantees (PEGs)**. A PEG is a pre-specified **limit** on the **quantity** of production eligible to receive support payments. The actual production of each farmer is unconstrained and is ideally based on world market prices. Consumer prices under the PEG scheme are equal to world market prices, requiring the elimination of all other border and internal support measures **except** for payments on the specified PEG quantity. This is equivalent to setting all 'consumer subsidy equivalents' (CSEs) and 'producer subsidy equivalents' (PSEs) to zero except for payments to farmers on the PEG quantity.

The diagram on page 5 depicts the outcome under a PEG scheme for a commodity in a single country. World prices before and after multilateral trade liberalization are given by WP_0 and WP_1 , respectively. Output at the free trade price WP_1 is at A, as determined by the supply curve S. The domestic support price SP exceeds the world price WP_1 but payments to farmers are limited by the level of the PEG. The PEG can be issued to each farmer on the basis of some fraction of historical level of production. Support payments with no restrictions would result in an output level of B. However, the PEG places a **fixed limit** on the quantity of production on which support payments are made such that output occurs at the market price. The support price has no impact on production decisions **provided the PEG is to the left of A** in the diagram. The following steps are required for each country to achieve the desired results under a PEG scheme:

- eliminate all border and domestic support measures such that consumer prices equal world market prices;
- determine the level of income transfers to farmers by specifying a fixed domestic support price (or level of PEG payments);

- establish a PEG quantity that is less than the output that would be produced under multilateral free trade prices.

Non-distorting PEG for a Commodity Sector and Country



Setting the PEG

The most difficult aspect in implementing PEG is to determine whether or not the production quantity eligible for support in each country is such that the world price determines production decisions by farmers. If the PEG quantity is set too high it can distort trade. In the diagram, output would be at B if a commodity's historical production were supported at SP (assuming there are no production quotas). Fixing the PEG quantity at this production level would distort production and trade, since world prices would not rise above SP . If prices rise above SP , a PEG based on historical production will not be trade distorting.

The quantity of production eligible for support under a PEG scheme must be determined in the GATT negotiations. As an illustration, however, the table below gives the percent adjustment in world prices towards free trade levels for selected commodities with PEGs established at either 100 percent of 1986 production (PEG₁₀₀) or at 80 percent (PEG₈₀) of production. In both cases, the actual level of support per unit is kept at that actually estimated for 1986 through the PSE. The results show that all sectors would have had at least 80 percent of the desired change in world prices under PEG₁₀₀. On average, 90 percent of the desired world price change would have occurred. In the case of a PEG₈₀ scheme, over 90 percent of the desired world price adjustment would have taken place in all cases, with an overall average of 98 percent. Hence, a PEG of 80 percent of 1986 production levels provides a rough indication of the appropriate goal for a negotiated PEG quantity if historical levels of support are maintained.

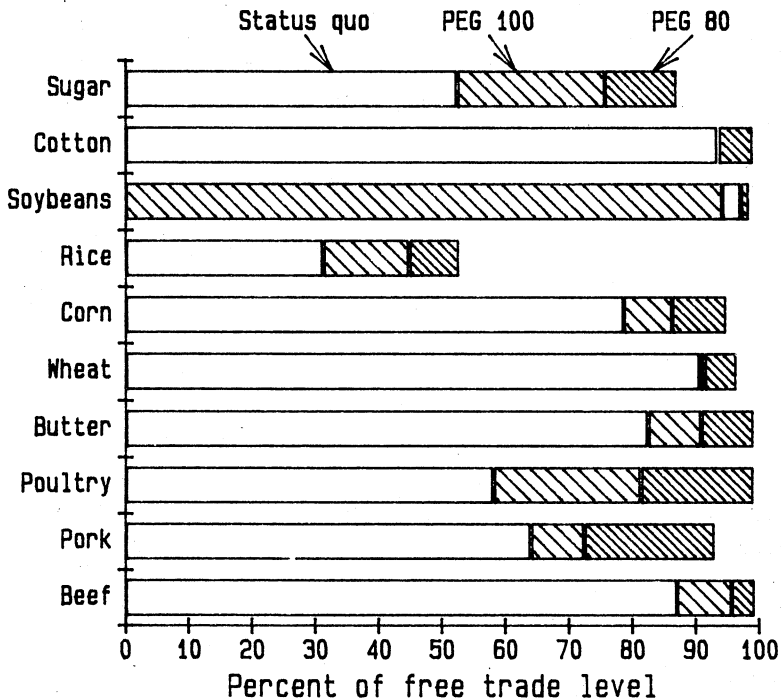
Percent Adjustment of World Prices Towards Free Trade Levels With PEGS

	PEG ₁₀₀	PEG ₈₀
Beef	92.6	99.6
Pork	93.0	99.1
Poultry meat	93.0	99.5
Butter	93.5	99.5
Wheat	83.1	97.3
Corn	82.4	98.2
Rice	84.5	90.0
Soybeans	94.4	99.1
Cotton	92.0	99.0
Sugar	87.4	94.5
Average	89.6	97.6

Note: estimated using 1986 data.

The accompanying diagram on page 7 shows the percentage of the free trade value of world trade in 1986 for selected commodities under the status quo (actual policies), PEG₁₀₀ and PEG₈₀. For example, the value of trade in sugar under actual policies was only 50 percent of the free trade level in 1986, while a PEG₁₀₀ and PEG₈₀ scheme would have increased trade values to 75 and 88 percent of the free trade level, respectively. The results show that a PEG₈₀ or PEG₁₀₀ scheme would have increased the value of trade substantially (with the exception of rice). For the most part, the value of trade under PEG would have been within 90 percent of free trade levels.

Impact of PEG on the Value of World Trade (1986)



Issuing and Transferring PEGs

Full discretion would be given to national governments over how and to whom the initial PEGs are issued. However, PEG quantities and the maximum payment associated with them would be bound within the GATT. An argument can be made that PEGs should be transferable among farmers or farms on efficiency grounds. This may unduly limit domestic flexibility in meeting support objectives. To prevent an increase in enterprises (farms or farmers and commodity sectors) receiving support payments, countries would agree to bind the maximum level of support in each sector (using, for example, historical PSEs) and bind the number of commodity sectors receiving support. This would limit potential trade distortions due to the effects of PEG payments on farmers' entry/exit, work/leisure, and consumption/investment decisions. Individual PEGs could be issued to existing farmers on the basis of production quotas currently held in Canada and the European Community or land 'base' and 'program' yields in the United States. New entrants to farming would have to either purchase (lease) PEGs from other farmers or obtain them directly from the government, otherwise they would produce at world market prices and receive no PEG payments. PEGs could be

issued by the government on the basis of the farm (in which case the value of PEGs will be reflected in the value of land) or for an individual farmer (in which case the value of PEGs will be reflected in the value of a certificate of eligibility). If governments wish to have a pool of PEGs available for new entrants, then a fixed percentage of all private PEG transactions (farm-to-farm sales, parents to son/daughter, etc.) would be automatically reclaimed by the government to pass on to these entrants. Indeed, such reclaimed PEGs could be used to reduce the aggregate level of PEGs to the left of A in the diagram on page 5. Government purchases of PEGs could also be used to transfer PEGs to new entrants, to reduce the aggregate PEG level to ensure it is to the left of A, or to eliminate ('buy out') high cost production which causes trade distortions. PEG buy-outs provide a mechanism to facilitate the exit of uncompetitive farmers and the rationalization of the farming sector in the face of competitive pressures.

A rental market would be an ideal method of transfer from an international perspective since this would permit the monitoring of whether a particular PEG results in a trade distortion. If the annual rental value of the PEG per unit is greater than the government's PEG payment, then production will be to the left of point A in the diagram on page 5 and no trade distortion will exist. If PEGs are not transferable, over-production can still occur even if the aggregate PEG is set below A. High-cost producers will remain in production if more efficient farmers are not allowed to bid for PEGs. Trade distortions will occur. However, governments need not require that producers must supply the PEG quantity in order to receive PEG payments. In this case, the PEG scheme will not be trade distorting regardless of whether PEGs are transferable.

Consumer and Taxpayer Implications of PEG

The implementation of a PEG involves the elimination of all other policy interventions identified in the table on page 2. It is critical that the only **potential** source of distortion be on the supply side because the world price is the only available indicator for monitoring the degree of supply distortion due to PEG payments. However, a major political disadvantage is that all transfers under PEG are paid by taxpayers and hence are more visible. Maintaining a desired level of producer income by switching the entire cost of support to taxpayers could increase government expenditures substantially for some commodities, especially in Japan and the European Community. However, there are several features of a PEG scheme that reduce the potential political problems:

- **world prices rise:** with multilateral free trade and decreased domestic consumer prices, world prices rise. The resulting taxpayer savings can be used to replace traditional transfers from consumers in order to maintain producer income (indeed, total taxpayer costs could decline).

- **efficiency of transfers improves:** much of the current transfers, especially under E.C. and U.S. programs are wasted (given to importers or are 'deadweight losses') and never reach domestic farmers. With a PEG scheme, **all** the taxpayer support is transferred directly to farmers as income with little loss due to 'overproduction' and transfers to the rest of the world (see Box on next page). Furthermore, a PEG scheme will benefit livestock, poultry and dairy farmers in many countries by reducing cereal prices.
- **taxpayers are consumers:** for the most part, taxpayers are consumers. All that a PEG scheme does is alter the method by which income transfers to farmers are made. Using high consumer prices to support agricultural incomes is also generally more regressive than using tax revenues, since it tends to place the burden of paying for support on the poor rather than the rich.
- **target all farmers and limit per farm payments:** if traditional levels of producer income cannot be maintained without unacceptable increases in taxpayer costs, then governments can limit the per farm transfer to keep within budget constraints. Such targeting could be used to assist small or family farms, and disadvantaged areas, rather than providing support for larger or richer farmers.

PEGs and the United States

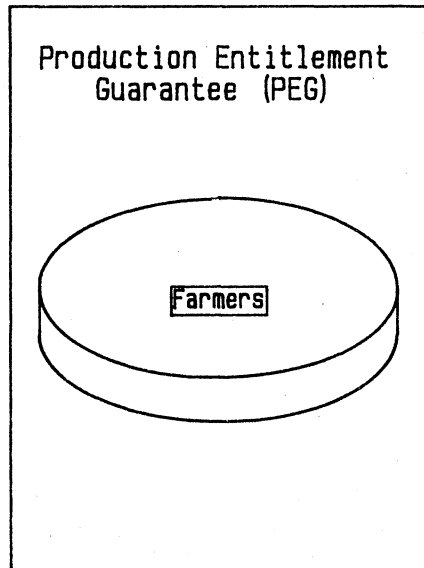
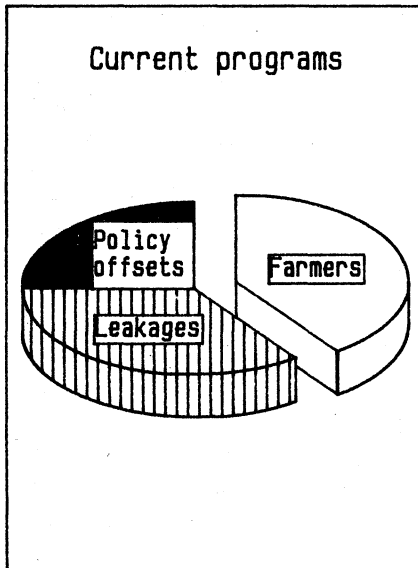
For grains, rice and cotton, U.S. target price/deficiency payment programs have evolved substantially in recent years towards a PEG model. Under the 1985 Farm Bill, each farm has an established base acreage and program yield upon which a farmer's payments are based. To make current programs PEG-compatible, all acreage reduction provisions and CCC loans would be eliminated. Farm-level base acreage and program yields would be reduced and unconditionally frozen. Related policies such as export subsidies and CCC surplus-disposal activities would be eliminated. For other commodities, notably sugar, dairy, tobacco and peanuts, a scheme similar to the one described above for the target-price crops would be implemented. Existing measures, such as import quotas that distort consumer prices, would be phased out.

One proposal currently under consideration for program crops is conceptually consistent with the PEG. The Boschwitz/Boren bill is a close approximation to a PEG scheme. It freezes payment bases at or near current program levels and makes future payments at a declining rate, independent of output or input decisions. The Boschwitz approach has so far failed to be enacted, but its time may come as part of multilateral agricultural policy reform. Although a PEG scheme does not necessarily require a phase-down of the level of support, it does require the extension of the Boschwitz approach to other commodities currently receiving support in the United States.

THE ADVANTAGES OF PEGs TO FARMERS

PEG provides a means for governments to continue to protect the incomes of domestic farmers. World market prices of major agricultural commodities are expected to rise by an average of 25 percent with the reform of agricultural policies worldwide. This means that one-quarter of current farm income 'subsidies' are needed just to offset the price-depressing effect of existing farm programs. Of the remaining 'subsidy', farmers only receive a fraction. On average, 35 percent of the total transfer from domestic consumers and taxpayers is lost because of inefficiencies created by distorted production and consumption, and through transfer 'leakages' to input-supplying and output-using industries and to foreign consumers. When all the inefficiencies of current programs are taken into account, farmers probably receive on average 40 percent of the total subsidy paid by taxpayers and consumers. PEG eliminates virtually all the inefficiencies of current transfer policies. Farmers receive 100 percent of the PEG payment. Farmers should support PEG because it is more effective in protecting farm incomes than existing programs. Consumers and taxpayers should support PEG because it is a less expensive way to support farm incomes.

Farmers' Share of Agricultural Income Support



PEGs and the European Community

PEGs provide a flexible and straightforward method for providing income support for Community farmers under the now accepted principle of limiting the quantity eligible for support through 'maximum guarantee quantities'. Production quotas already exist for sugar and milk, and have been discussed for cereals. The transition to a PEG program in the European Community would require the replacement of production quotas by limitations on the quantity of production eligible for support payments.

In the case of milk, the existing quota mechanism would be changed to a right to support rather than a right to produce. This right would be tradeable between farmers within countries. Reductions in the amount of milk production eligible for support could be achieved by the intervention authorities buying in quota rights, rather than surplus milk products. Limits on the quantity eligible for support could be used to target aid to smaller milk producers without seriously distorting the pattern of production. Achieving the necessary changes on the demand side is straightforward in principle, but presents more problems for the political acceptability of the policy. In order to ensure that the incentive price for E.C. consumers is the world price, intervention purchases of dairy products, export subsidies, and import levies would need to be eliminated gradually. This would shift the burden of the support from the consumer to the taxpayer and would increase the budgetary cost of the program. However, the change could be phased in as the production quotas were phased out. Budgetary savings from the reduction in surplus disposal costs would be used to pay producer subsidies (on the PEG quantity).

PEG also provides a realistic and practical policy alternative for the cereals sector. Intervention and market prices of cereals would be allowed to fall towards competitive world levels, with the resulting budget savings being used to provide support payments. These would be limited per farm, enabling the benefits of the policy to be targeted rather than determined by level of production, as at present. Since PEG allows for a degree of national flexibility, it offers the negotiating room necessary for the scheme to be politically acceptable within the Community.

The E.C. sugar regime already involves the concept of limitations on the volume of production eligible for support. 'A' quota receives the full Community support price, 'B' quota is taxed with a co-responsibility levy, while 'C' quota sugar receives the world sugar price. Converting this system to the PEG involves elimination of border protection measures and the payment of a limited subsidy for 'A' quota to make up the difference between the domestic support price and the world price. Again, this shift would involve some increase in budgetary expenditure, but the increase would be reduced by the rise in world sugar prices following multilateral deregulation of the sugar market. Current proposals for the reform of the beef market within the Community envisage replacement of the

intervention mechanisms by a payment per head for breeding cows, on a limited basis per farm. Providing border protection is also eliminated and the production levels eligible for support are kept within nondistorting bounds, this proposal is also consistent with PEG. Similar arrangements are possible for other E.C. products.

Adjustment Assistance and Compensation

The PEG is a type of scheme which can be used to provide income support to farmers over the long term. It can also be used to provide compensation or adjustment assistance to farmers with a change in trade policies. For example, the government could 'buy in' PEGs from farmers through a bid system like that used recently in the U.S. dairy herd buy-out scheme. A one-time cash payment to farmers could be used to **compensate** farmers for the change in trade policies and to **promote adjustment** to freer trade. However, governments may wish to use additional transitory measures to compensate those affected by trade liberalization, and to promote adjustment in industries affected by liberalization. Such measures may be important for firms and labor in upstream (output using) and downstream (input supplying) industries affected by agricultural trade liberalization. The problem is one of determining adjustment assistance measures which are minimally trade distorting.

Trade adjustment assistance (TAA) programs have existed in the United States since the early 1960s. U.S. programs have generally had both a compensation component and an adjustment component. Compensation is typically made through a one-time payment (or flow of payments) to workers or firms who suffer a loss of income as a result of a change in trade policy. The adjustment component of TAA programs has included payments to facilitate job search, relocation and retraining. These measures are designed to aid the movement of labor resources out of an industry suffering dislocation as the result of international competition.

The current U.S. trade adjustment program, which applies to only the industrial and services sectors of the economy, has been heavily weighted towards compensation. More than 97 percent of the \$4.5 billion which has been paid out in worker benefits has been used for income maintenance. Only in the last five years has more emphasis been given to training and relocation assistance. Adjustment assistance to firms has primarily been in the form of loans and loan guarantees, with some technical assistance. Instead of facilitating the movement of resources out of declining industries, these measures have largely attempted to enable firms to remain viable by making them more competitive internationally. Many such firms have defaulted on their loans.

Agricultural producers would not qualify for any of the benefits from the existing U.S. trade adjustment assistance program for two reasons. First, current legislation only recognizes injury from the removal of import barriers. All of the major U.S. agricultural crops are exported. Trade liberalization implies a change in government programs which have permitted the current level of exports. Second, most of the family farm owner-operators — who, with their families, contribute more than 75 percent of the labor hours in the sector — would not qualify for the worker portion of the program since they are self-employed and do not have enough hired labor to qualify for the firm assistance provisions.

An agricultural trade adjustment assistance program, which is compatible with the goals of trade liberalization, would have to be structured much differently from the current program. It would contain an adjustment component for farmers and a compensation component for the owners of land and capital. Benefits to farmers would be triggered by a change in U.S. policy which causes agricultural exports to decline or imports to increase. Once triggered, the benefits would become available to all producers with a specified minimum base acreage in the affected commodity. Producers would then have a limited time period — say, one year — to decide whether to participate in one of two benefit options. The first option would be to accept one year of temporary income payments, training and relocation assistance in return for finding employment outside of agriculture. The second option would provide additional social security benefits to farmers 55 years or older who are willing to accept early retirement.

The cost of this program would not be large in comparison to current farm programs. Of the estimated million worker-years of labor in the agricultural labor force, a maximum of 60 thousand would leave agriculture under the most pessimistic assumptions about the effects of trade liberalization. Even if benefits are five times the \$5,000 per worker paid out at the peak of the present TAA program, the cost of relocating these farmers would be a one-time payment of only \$1.5 billion — far less than the annual cost of \$20 to \$30 billion of current farm programs.

The compensation component would be triggered by the same mechanism as the adjustment component and could apply to the agricultural production sector as well as to input suppliers and processors. Compensation could be in the form of a one-time discounted payment for the estimated income that would have been realized from the affected assets over time if these had continued to be fully employed. The estimated present value of adjustment costs for 11 major agricultural commodities is \$284 million under the most pessimistic assumptions about the effect of trade liberalization (assuming an interest rate of 6 percent and a useful life of farm capital of 10 years). Compensation costs would be greater if input and processing industries were included but, in comparison to current farm programs, they are small.

Stability and Food Security

Current farm support policies have important implications for the **stability** of both domestic and international markets. Some policies are justified primarily on the grounds that they ensure domestic stability. There are several types of variability in agricultural markets, but the instability created by random and largely unpredictable factors such as weather and disease produce the greatest problems. Agricultural stabilization policies try to control the effects of these factors. Unfortunately, many policies which **reduce** domestic instability **increase** international instability. There are two ways in which this occurs. First, some policies alter the extent to which fluctuations in domestic supply and demand are passed onto world markets through variations in the volume of trade. Second, some policies affect national absorption of international variability by modifying the responsiveness of trade to fluctuations in international prices.

The scope for short-run adjustments in production to offset domestic or international variability is limited for most agricultural commodities because of biological rigidities. Adjustments must be made in consumption, stocks, or trade. Many domestic agricultural policies affect the extent to which these adjustments take place. Some policies discourage private stockholding. Some policies prevent stocks and consumption from responding to changes in international prices, while others cause a country to 'export' domestic instability through trade. A country which maintains domestic stability by exporting its own domestic instability and insulating itself from international markets will create domestic stability at the expense of greater instability in other countries. The problem is to design policies that meet domestic stability objectives without introducing such international distortions.

The Reform of Domestic Agricultural Policies

Many domestic agricultural policies are internationally destabilizing. Import quotas and variable levies prevent domestic adjustments in response to changes in international prices. Tariffs are a less-distorting form of protection from the point of view of stability. Government management of domestic stocks or trade which allows response to fluctuations in domestic production and international prices are preferable to stable stocks or trade.

Only a few countries absorb domestic market fluctuations by using public stocks. Many countries keep domestic prices stable by changing the volume of trade to offset domestic fluctuations in supply or demand. These measures destabilize world markets. Few countries allow public stocks to respond to changes in world prices. U.S. public grain stocks are a rare example.

If countries were to allow stocks or trade to vary inversely with changes in international prices, this would help to offset the effects of domestic agricultural

policies on world market stability. Domestic stabilization policies are not always internationally destabilizing, particularly if a country has highly unstable production. Changes in the rules for managing public stocks, pricing policies, or trade controls can help to promote stability at the same time as promoting freer trade. The destabilizing effects of existing forms of agricultural support could be reduced either by changing the form of support (for example, to the PEG scheme discussed above), or by using additional measures to offset the destabilizing effects of existing policies. Both of these should be considered as options in the GATT negotiations.

Policies for Producer Income Stability

The reform of agricultural support policies and the introduction of direct income support measures such as the PEG described above breaks the link between income transfers and production decisions. However, a direct income support scheme may not necessarily stabilize net farm income because world prices and input costs will still be variable. The challenge is to design a program that stabilizes net income without raising it. A number of alternatives can be considered, depending on the degree of stability to be provided to an individual producer. At one end of the continuum would be income insurance, which could be designed to assure a producer up to 100 percent of average, market-determined income. At the other end of the continuum would be a scheme which is based on stabilization of sectoral price or income (see Box on following page). In these schemes, an individual producer's income is stabilized only to the extent that it is correlated with sectoral performance, and to the extent that an individual's share of the sectoral stabilization pool is adequate to cover a loss when one occurs. The level of government participation also could vary along the continuum, from extensive contribution to income insurance, to no contribution to a producer-financed partial stabilization scheme.

Some level of government participation in farm income stabilization programs must be accepted within the GATT because income loss in agriculture does not have the characteristics of a privately insurable risk. Agricultural income risks arise from variability in prices and yields. A barrier to private insurance is the lack of independence among prices received by commodity producers. Moreover, prices are related from one year to the next by carryover from previous harvests. Some yield risks, such as drought, may also affect large numbers of producers. Because of these factors, 'actuarially fair' insurance would either be prohibitively expensive or its coverage too limited.

To be compatible with GATT, a stabilization program could not involve an open-ended commitment to transfer income to producers. In other words it would have to be 'PEG compatible'. An open-ended funding commitment would increase output above market-determined levels, and distort trade. Maximum government contributions to producer income stabilization schemes would

THE WESTERN GRAIN STABILIZATION PROGRAM (WGSA)

The Canadian Western Grain Stabilization Act (WGSA) is one of the most sophisticated farm income stabilization schemes in the world. It is jointly funded by producers and the government. Producers normally pay 2 percent of their gross receipts per year into the fund; the Canadian government pays an amount equal to 4 percent of gross receipts. Income stabilization payments are made to participating farmers when net receipts fall below a pre-specified level, based on the industry average for the previous five years. Because of the government's contribution, there is an element of income support in the WGSA. Such support is likely to increase grain production above free trade levels and create a trade distortion. There is an upper limit on payments in any given year, but there is an incentive for producers to expand production in order to increase their entitlement to payments. In order to reduce the possible trade-distorting effect of the WGSA, the element of government support must be capped. One way to do this would be to place a maximum limit on the quantity of production on which stabilization payments can be made. This would remove the incentive to expand output in order to capture government payments. The limit on the public contribution to the scheme could be offset by allowing farmers to buy additional stabilization protection through increased personal contributions. Additional protection would be priced at the full rate, and would not be subsidized at the 4/2 formula of the current scheme. With these modifications, the possible trade-distorting effect of the WGSA would be reduced and the scheme would still provide publicly-supported income stabilization to farmers.

therefore have to be bound under GATT, and the rules for payouts agreed. A similar requirement would apply to schemes for 'disaster' payments and crop insurance. Stabilization payment rules could include the targeting of payouts to each producer rather than on the basis of sector returns. They could be based on a means test for eligibility. It would also be possible to institute a requirement that a premium be paid by the producer for the benefit of stabilization (essentially the provision of insurance). This premium could then be subsidized if lower-income producers were to be singled out for special assistance.

Policies for Consumer Price Stability and Food Security

The removal of existing protective policies for national markets is likely to lead to greater stability in international agricultural markets. Trade liberalization

would improve the functioning of international markets substantially and make them less sensitive to the effects of external shocks. The incentive for private individuals to hold stocks would increase if many of the existing domestic support policies were removed. Mechanisms for spreading risk and reducing price variability such as futures markets could operate more efficiently within an expanded market. Nevertheless, some governments may consider that liberalization alone is not sufficient to produce an acceptable level of price stability or security of supply.

One necessary step to meet these concerns is to ensure that internationally agreed rules through GATT prevent countries from unilaterally imposing trade restrictions to stabilize domestic markets during periods of pronounced uncertainty or variability. Thus, the arbitrary imposition of export embargoes to stabilize domestic markets would be prohibited within GATT. Mechanisms to exchange information on the supply, demand and stocks situation in trading countries would be improved. Governments would be permitted to purchase commodities in order to maintain a stabilization reserve either for their own use or to meet the needs of poorer countries. Such reserves could only be purchased and sold at market prices. They may not be destroyed or disposed of on international markets by using export subsidies. This would preserve the stabilizing/food security role of stocks and prevent them from being used as a disguised method to transfer income to producers. Countries would also be permitted to enter into bilateral or multilateral arrangements to guarantee market access or to establish supply/purchase commitments at market prices. Such arrangements would provide a guarantee of availability/market access for some quantity of a commodity but without a restriction on prices. Through these measures, food security and stability concerns could be met without distorting world prices.

Environmental Policies

All countries have policies that restrict or promote the use of agricultural resources — land, water, fertilizers, and agricultural chemicals — which may have **environmental** consequences. Industrial countries place a relatively high public value on environmental quality and natural resource conservation. The public perception in such countries is that factor markets may fail to price resources at their true social value. Concerns over the resource degradation that can result from the intensification of land and water use in agriculture are reflected in a variety of policies. In some cases measures can be used to regulate, restrict, or tax the use of resources in order to maintain environmental quality. In other cases, subsidies may be paid to promote a reduction in resource use or changes in production practices to meet environmental objectives. Such policies often affect production and trade. (See box on next page.)

Many countries also have policies that provide explicit input subsidies (like tax credits for forestland clearing; subsidies for fertilizers and pesticides; subsidized production credit; provision of irrigation water at less than full economic cost; publicly financed land improvements for drainage and flood control) to producers. These may also have environmental and trade consequences.

THE U.S. CONSERVATION RESERVE

The 1985 Food Security Act established a Conservation Reserve Program (CRP) to place environmentally vulnerable land into cover crops. Under the program, the U.S. Department of Agriculture enters into annual rental contracts with farmers for a ten-year period. Unlike earlier land retirement programs which were designed to reduce crop surpluses, environmental objectives are the primary focus of the CRP. Nevertheless, the program contains elements of supply control. Land eligible for the program is determined by a set of physical characteristics but the amount of vulnerable land to be taken out of each crop is determined by the extent to which that crop is in surplus. This requirement may be trade distorting and would not be consistent with the GATT. Furthermore, the requirement does not result in the greatest environmental benefits. Analysis shows that with free trade a CRP of the type used in 1986-87 would generate environmental benefits valued at \$126 million per year through reduced soil erosion. A more environmentally-specific conservation reserve targeted to removal of the 32 million acres of the most erodible land, rather than to supply control, would increase the amount of land removed and would result in benefits valued at \$227 million per year. The removal of highly erodible land would reduce U.S. production of some crops and would raise their prices on world markets. Although trade is affected, the program would not be trade distorting. The CRP merely internalizes the environmental effects of production and generates crop prices which reflect their social costs.

Environmental Policies Under the GATT

Resource policies whose sole objective is to increase domestic commodity production should be considered 'trade distorting' from the perspective of the GATT and be subject to reform. Such policies would include the explicit input subsidies cited above. Resource policies whose objective is the protection of the nation's natural resource base for current or future generations should not be considered trade distorting although they may have trade effects. If soil erosion or other environmental damage is taking place as the result of commodity production, the payment of incentives or imposition of regulations to remove environmentally sensitive land from crop production are legitimate ways of dealing with the social costs of such production. While the land would not have to be removed from production permanently, the removal should be long term. Environmental programs should not be used to provide short-term income support to producers, but rather to promote long-run adjustments in land use. Similarly, a tax imposed on the source of environmental damage (on purchases of fertilizers or pesticides, for example) might be another way to correct for effects of the difference between private and social valuations of the environment. Taxes on inputs could be rebated to the producer but only as part of an income support program of the type discussed under PEG above.

Resource policies that restrict the use of inputs other than land for environmental protection may also tend to reduce commodity supply and hence have 'trade effects'. Clear guidelines need to be established in the GATT that will distinguish legitimate sets of policies to reduce socially recognized environmental costs of private production decisions from those that primarily reduce commodity supply.

Provision of Public Goods

A number of agricultural policies relate to the provision of 'public goods'. These are goods or services whose supply is judged to be insufficient without government provision. Public goods policies currently in place include noncommodity specific research and development expenditures, extension (education) activities, the provision of information, inspection and grading facilities, infrastructural development, resource adjustment assistance (retraining, etc.) and taxes and restrictions to protect food quality and safety. Many of these policies have a direct or indirect effect on trade and could be trade distorting.

Public Good Policies Under the GATT

A number of trade measures are used by governments to protect crops and animals from disease, as well as protecting food safety and human health. In order

to minimize the trade-distorting effects of such policies, it is necessary that a set of principles be agreed to prevent health and safety standards from being used as a device to protect the incomes of domestic producers. In enforcing standards, these must be applied equally to domestic and imported products. For example, if an inspection requirement is imposed on imported products to monitor chemical residues, a parallel requirement must be adopted for domestic products. Standards should be applied to the product itself rather than to the production or processing practices. Regulations for pesticide use on fruit imports, for example, should be based on evidence of pesticide residue on the imported product — not on whether the pesticide is banned or restricted in the exporting country. Countries will differ in the extent to which they value such things as food quality and safety. Codes will be needed to establish the guidelines for such standards in the GATT to ensure the maximum degree of harmonization, and to prevent the use of standards to distort international competition and international trade.

The provision of public goods such as extension services and R & D increases the productive capacity of agriculture, involves direct government expenditure, and will indirectly affect international trade. The basic issues are whether these services would have been provided by the private sector in the absence of government involvement and whether there are mechanisms for cost recovery by governments. Unlike the establishment of regulations and standards which force producers or processors to internalize the costs of more wholesome food, taxpayers generally pay for the costs of these programs. In this sense, they represent a transfer of production costs to the taxpayer. However, R & D and extension activities have helped to lower the costs of food for consumers. They have provided benefits which have not been captured by producers, but by the public at large. Where the costs or the benefits of a particular undertaking or practice are borne by society, it is frequently more efficient for the public to bear these expenses directly rather than to try to force the private sector to absorb them. Government expenditures of this type should be monitored by the GATT for possible trade-distorting effects and general principles agreed on admissible public good activities.

Conclusions

- Governments intervene in agricultural markets to achieve domestic political objectives, including farm income support, stability and food security, environmental goals and the provision of various 'public goods'.
- The role of the GATT negotiations is to minimize the international trade distortions resulting from the measures used to achieve domestic policy objectives.
- In order to achieve less-distorting farm income support, a measure called 'Production Entitlement Guarantees' (PEGs) is proposed. This limits the quantity of production eligible for support at the farm level and replaces all other forms of direct or indirect income support to farmers. The advantages of PEG are that it:
 - (1) provides a means for governments to reduce trade distortions while maintaining farm income support;
 - (2) allows countries to realize mutual gains from freer trade through increased world prices, reduced consumer prices, and involves a known and, therefore, limited level of budgetary expenditures;
 - (3) is consistent with the concept of traditional commodity programs which provide support based on production;
 - (4) is a more cost-efficient mechanism for transferring income to farmers than current agricultural programs;
 - (5) provides substantial national flexibility in the targeting of support in terms of commodities, farms, farmers, or regions;
 - (6) is consistent with recent trends in limiting support payments in many countries.
- A PEG-type program could also be used to provide transitory compensation to farmers for any loss of income resulting from trade liberalization, and to facilitate adjustment to freer trade. Additional measures may be required for up-stream and down-stream industries affected by trade liberalization. Assistance should be directed towards the retraining and relocation of displaced labor and the provision of compensation for losses in the asset values of firms in agriculturally-related industries.

- The reform of existing agricultural policies would contribute to greater stability in international markets. Domestic stability and food security objectives could be further enhanced through a number of minimally trade-distorting measures:
 - (1) the stabilization of producer incomes could be achieved through individual or sector-specific insurance or stabilization funds. Maximum government contributions to these funds would be bound under the GATT as would their operating rules.
 - (2) consumer stability and food security would be enhanced by prohibiting the use of internationally destabilizing policies, e.g. export embargoes; by improving the functioning and coordination of public storage policies (with stabilization rather than income support functions); and through bilateral or multilateral arrangements to guarantee market access for exporters and access to supplies at market prices for importers.
- Environmental programs which use subsidies, taxes, or regulation to influence resource use should be permitted under the GATT if they promote the long-term resource adjustments consistent with environmental objectives. Resource policies whose aim is to increase domestic production, e.g. subsidies for irrigation, production credit, land clearing or drainage, and for agricultural chemicals are trade distorting and should not be permitted.
- Government policies which provide public goods, such as the protection of health and safety, should be applied in a nondiscriminatory way on both domestic production and imports in order to minimize trade distortions. Taxpayer supported research and development and extension programs may have an impact on trade but frequently create benefits for consumers through lower food costs. Such activities should be monitored by the GATT for possible trade-distorting effects and general principles agreed on their use.