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U.S. Environmental Programs and Green Box Provisions under the WTO Agreement on Agriculture

by
David Blandford*

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*David Blandford is a Professor of Agricultural Economics at the Pennsylvania State University

Correspondence regarding this paper should be addressed to the author at:

Department of Agricultural Economics and Rural Sociology
The Pennsylvania State University
103 Armsby Building
University Park, PA 16802
U.S.A.
dblandford@psu.edu

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U.S. Environmental Programs and Green Box Provisions under the WTO Agreement on Agriculture[1]

David Blandford[2]

Abstract

This paper focuses on the compatibility of U.S. agri-environmental programs with the Green Box provisions of the Uruguay Round Agreement on Agriculture (AoA). If a new WTO agreement is concluded under the current Doha round of negotiations, it is likely that the amount of payments that can be provided to farmers under the Amber and Blue box categories will be reduced. As a result, greater attention will be directed to the use of the Green Box, which is unlikely to be subject to such a requirement.

Payments under the Green Box are supposed to generate no or minimal distortions in production or trade. Those made under environmental programs are restricted to providing compensation for the additional costs incurred or income foregone in meeting program standards or conditions. Payments that are designed to provide incentives for producers to participate in environmental programs are not covered and appear potentially subject to legal challenge. More generally, a recent WTO panel ruling appears to imply that a strict interpretation of decoupling will be applied to Green Box payments. Income support payments that can be shown to be linked to production or land use decisions also appear potentially subject to challenge. These two factors imply that it may be difficult to design WTO-compatible programs that result in the appropriate supply of environmental attributes, when that supply is linked to the volume of agricultural production or land use.

If Green Box payments are to be used to achieve environmental objectives, current criteria will have to be modified. The difficulty is how to achieve this without the risk that environmental programs will become the preferred mechanism for providing production and trade distorting subsidies to farmers. Several modifications to existing Green Box criteria may help to avoid this. These include requirements for transparency, explicit (measurable) program criteria, and limits on incentive payments. Enhanced monitoring and surveillance could help to minimize abuse. These changes would impose some constraints on the design of environmental programs in the United States and other countries. However, the clarification of Green Box criteria would be in the long-term interests of those who would like to see the further development of agri-environmental programs, while limiting the potential for international trade distortions.

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[2] Professor in the Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, University Park, PA 16803. dblandford@psu.edu I am grateful to David Abler, Lars Brink and the participants in the National Forum for helpful comments on the earlier draft. I remain responsible for the views expressed and for any errors.

U.S. Environmental Programs and Green Box Provisions under the WTO Agreement on Agriculture

The Uruguay Round Agreement that resulted in the creation of the World Trade Organization (WTO) in 1995 was the first international agreement to place limitations on the amount of government support to agriculture. Under the Agreement on Agriculture (AoA) a cap was imposed on the total value of subsidies considered to be most trade-distorting – the so-called Amber Box measures – and this cap was reduced progressively by an agreed amount. For the United States, an initial Amber Box limit of roughly $23 billion was cut to roughly $19 billion over a six-year period.

Agricultural support is on the agenda of the current Doha round of WTO negotiations launched in 2001. The focus is on the three "pillars" of the AoA – domestic support, market access and export competition. The aim is to reduce trade-distorting domestic support further, increase import access, and eliminate export subsidies. Reductions in allowable domestic support and/or increased access for imports could necessitate changes in current agricultural programs if the United States wished to conform to a new WTO agreement.

The AoA identified a number of types of payments to agriculture exempt from reductions. These Green Box payments are supposed to have a minimal impact on production and international trade. Payments classified as Green Box have become increasingly important for a number of countries, including the United States. They promise to gain greater significance if a new WTO agreement requires significant cuts in other types of payments.

Government expenditures under a range of U.S. environmental programs are currently included under the Green Box category or are likely to be so in the future.[3] In this paper I examine the conformity of those payments with Green Box criteria. My first conclusion is that some of those criteria could make the legality of payments under existing programs subject to challenge. A second conclusion is that the Green Box criteria need to be modified to accommodate effective agri-environmental programs. My final conclusion is that this will prove difficult without opening environmental payments to potential abuse as production-related subsidies. Some suggestions are made on ways in which this possibility might be reduced.

Limitations on domestic support under the Uruguay Round Agreement

The AoA limits the amount of support that can be provided under the Amber Box category, i.e., that considered to be most production and trade distorting. Under the terms of the Agreement, support provided to a given commodity greater than 5 percent of the value of the production of that commodity is counted against the Amber Box limit – the total Aggregate Measure of Support (AMS). If calculated support is less than 5 percent of the production value, it is not included in the total AMS. This is the so-called product specific (PS) *de minimis* exemption. Amber Box support that is not linked to specific

[3] The United States has not notified payments under the 2002 Farm Act to the WTO. I assume that those made under the environmental provisions of the Act would be notified as Green Box by the United States.

commodities must also be included in the total AMS, unless it is less than 5 percent of the total value of agricultural production, in which case it is subject to the non product specific (NPS) *de minimis* exemption.

The history of U.S. Amber Box payments is given in Table 1, derived from U.S. notifications to the WTO. The data terminate in 2001, since the United States has not notified its payments for more recent years. Despite the reduction in the cap (binding) from roughly $23 billion in 1995 to just over $19 billion in 2000, the United States has managed to stay within its total AMS limit. Higher payments to farmers, beginning in 1998 increased the amount of the total AMS "entitlement" used from less than 30 percent in 1995-97 to a maximum of 88 percent in 2000. There was also a significant increase in the NPS *de minimis*, from $1.5 billion or less in 1995-97 to around $7 billion. Most of the product-specific support has been counted in the total AMS, so the PS *de minimis* has not been a significant element for the United States.

Note that if the *de minimis* exemptions are taken into account, payments under Amber Box measures were substantially above the total AMS binding in the more recent years shown in the table. That was a period in which the United States was moving to more generous farm support policies. The increased generosity was reflected in the current farm act, implemented in 2002.

The AoA recognized a set of Blue Box payments under production limiting programs made on the basis of fixed areas, yields or number of livestock or on 85 percent of a base level of production. These were exempt from reductions. This was designed primarily to accommodate U.S. deficiency payments, and the area and headage payments introduced by the European Union in 1992. The United States notified over $7 billion of Blue Box payments in 1995 (Table 1), but the passage of the 1996 Farm Act eliminated deficiency payments and the Blue Box fell to zero.

As noted above, the AoA identified a category of payments that are viewed to be minimally production and trade distorting – the so-called Green Box – exempt from reductions. The Green Box includes a wide range of measures, including certain types of environmental payments and those used to retire resources, including land, from agricultural production. The United States reported $46 - $51 billion in annual Green Box payments to the WTO for the period 1995-2001; the largest component of which was for food and nutrition programs.

Limitations on domestic support under a Doha agreement

The final conditions (modalities) that will apply to domestic support (and to other major components) if agreement is reached in the Doha Round are not yet known. Some of the basic elements were outlined in a Framework Agreement concluded in Geneva in August 2004 (WTO 2004a). Additional proposals have been made by various WTO member countries, including the United States.

In the current negotiations emphasis is being directed to placing restrictions on the overall amount of trade distorting support (OTDS) that countries can provide, and on its components. Overall Trade Distorting Support (OTDS) is defined as follows:

OTDS = Total AMS + PS *de minimis* + NPS *de minimis* + Blue Box Payments.

It seems likely that any final agreement will include the following elements:

- reduction percentages for the OTDS and the total AMS (not necessarily the same percentage for each)
- product-specific AMS caps, in addition to the Total AMS cap
- reduced production value percentages for the two *de minimis* exemptions
- a reduction in allowable Blue Box payments, which are to be capped initially at a level equivalent to 5 percent of the total value of agricultural production.

As in the Uruguay Round Agreement, reductions in allowable support are likely to be phased-in over a number of years. There are several important issues to be addressed, including the choice of the base period for establishing commitments (e.g., for the OTDS and the Blue Box cap). Some of these issues are examined in greater detail in Blandford (2005).

The Blue Box criteria are likely to be broadened to allow the inclusion of payments that vary with prices but not with production volumes (this modification was included in the WTO Framework document). That would permit countercyclical payments (CCPs) under the current U.S. Farm Act to be counted as Blue rather than Amber.

Various proposals have been made for bindings and reductions in allowable levels of support. I shall focus on the U.S. proposal. Figure 1 illustrates the implications for the United States. The first bar of each element denotes the binding or maximum allowable amount for the OTDS and each of its respective components. In calculating these, averages of 1999-2001 have been used as a base, since this includes the most recent U.S. notifications and is one of the proposed base periods in the negotiations. The total AMS value of $19.1 billion is the binding under the Uruguay Round Agreement. The $9.6 billion caps for the PS and NPS *de minimis*, and Blue Box payments are derived from the application of 5 percent of the total value of agricultural production in the base period. The OTDS maximum of $47.8 billion is the sum of these individual components. The second bar in the figure shows the actual values for each of the elements in the base period.

The United States has proposed that its permitted OTDS be reduced by 53 percent. This would cut the allowable amount from $47.8 billion to $22.4 billion. The bound total AMS would be reduced by 60 percent, from $19.1 billion to $7.6 billion. The *de minimis* exemptions and Blue Box allowance would be reduced by 50 percent (from 5 percent to 2.5 percent of the value of production), which would translate into a reduction from $9.6 billion to $4.8 billion using figures for the 1999-2001 base period.

It is difficult to determine the extent to which reductions of these magnitudes would actually constrain expenditures under U.S. farm programs. Figure 2 shows those expenditures in recent years under four categories – price supports, price-related direct payments, decoupled income support payments, and payments under conservation programs. The figures for 2005 and 2006 are estimates. The averages for 1999-2001 provide a point of reference but cannot be compared directly to those in Table 1 or Figure 1 since the latter employ a WTO-agreed methodology on the allocation of expenditures and the way these are calculated. Nevertheless, a comparison of Figures 1 and 2 suggests that the recent pattern of price-related support (price supports and price-related direct payments) might be difficult to sustain, particularly when prices are low, if the United States wished to stay within the Amber and Blue Box bindings that it has proposed in the Doha negotiations.

Figure 3 provides some insight into the commodities that would likely be affected by reductions in the Amber Box. The chart contains a breakdown of the share of the actual total AMS for 1999-2001 by commodity group. Roughly 47 percent of the total was due to price support programs for grains and oilseeds. Roughly 30 percent was contributed by dairy products and most of the rest by cotton and sugar. If the United States were to face effective limitations on the amount of Amber Box support it could provide, it is clear that price support programs for these commodities would have to be modified. Price support levels would have to be reduced in order to keep within the total AMS limit when market prices are low; CCPs might have to be subject to limitations (perhaps through the application of a circuit breaker) to stay within the Blue Box limit.

The ability of the United States to operate some of its farm programs may also be affected by other components of a final agreement, in particular, those dealing with market access. Price support programs for certain commodities, most notably dairy and sugar, rely on the ability to control competing imports. Currently this is done through a combination of quotas and tariffs. If imports were to increase significantly under a new agreement, the ability of the United States to provide historical levels of Amber Box payments might be constrained by import competition, regardless of any separately agreed limits on those payments.

The WTO and Green Box payments

As noted above, the AoA (Annex 2) identifies a set of payments under the Green Box that are exempt from reductions. The fundamental requirement is that such payments have “no, or at most minimal trade-distorting effects or effects on production” (paragraph 1). Two characteristics apply:

1. support should be provided through a publicly-funded government program and should not involve transfers from consumers;
2. the measures should not provide price support to producers.

The major categories of payments defined in the Green Box (Annex 2 of the AoA) and specific criteria that apply to them are summarized in Table 2.

As currently defined, the Green Box encompasses a range of government programs, which can grouped under three major categories:

1. the provision of general services for agriculture, such as research and extension, pest and disease control, product inspection, and technical assistance and training for producers;
2. various types of direct payments to producers, for income support, income insurance and disaster relief, as well as payments designed to promote structural adjustment and the supply of environmental services;
3. expenditures on domestic food security and assistance.

In the current negotiations, some countries (e.g., the G-20 group) have proposed that limitations be placed on the amount of payments that can be provided under the Green Box. Other countries have either not addressed this issue or have explicitly expressed opposition to limiting payments or changing Green Box criteria. The Framework document indicates that Green Box criteria will be "reviewed and clarified" to ensure that measures have "at most minimal, trade-distorting effects or effects on production" (WTO 2004a, p. A-3) but there is no indication that payment limitations will be introduced. It is unclear what exactly the clarification will imply. However, a recent WTO ruling has already provided greater insight into the types of payments that might qualify as Green Box.

The legality of certain Green Box payments (specifically, those declared by countries that fall under the second of the categories identified above) has recently been called into question as a result of a WTO ruling on a dispute between the United States and several other countries over U.S. cotton programs. The essence of the case (referred to subsequently as the cotton case), brought by Brazil in 2003, was that a wide range of U.S. domestic programs, including those currently included under Amber Box support (including marketing loans), some potentially includable in an expanded Blue Box (counter-cyclical payments) and some currently included under the Green Box (including direct payments) are export subsidies that have caused serious prejudice to Brazil by depressing world cotton prices and increasing the U.S. share of world exports. The United States disputed these allegations. It argued that payments it had declared under the Green Box met the fundamental requirement of being minimally trade- or production distorting.

The cotton case is complex, as indicated by the almost 400 pages of the panel report (WTO 2004b). For our purposes, an interesting conclusion was that some of the payments declared to be Green Box by the United States do not satisfy the fundamental requirement, since they are linked to production. In the judgment of the panel this linkage is created by limitations on planting flexibility for land upon which the payments are based. Producers who wished to receive payments cannot plant fruits and vegetables on eligible land. This was interpreted to mean that there is, in fact, a linkage between payments and production and that, consequently, they do not qualify for the Green Box. This judgment is highly significant for the design of programs that countries wish to be exempt from reduction commitments – since it appears to imply that any direct linkage that can be established between payments and production decisions would make their Green Box status potentially open to challenge.

The treatment of environmental payments in the Green Box

It is important to emphasize that the fundamental requirement for Green Box payments is that they should result in no or minimal production or trade distortions. The extent to which this is compatible with underlying program objectives, particularly in the case of environmental programs, is open to question. If there is some degree of jointness between agricultural production and the provision of environmental goods or services it may be technically impossible to design policy measures that satisfy both environmental aims and the fundamental requirement of the Green Box.[4] In such a case, what is determined to constitute "minimal" production and trade distortions could be of considerable importance. However, in this context, it should be noted that in the cotton case the panel chose not to address that particular issue. Rather it based its conclusions on the incompatibility of the payments concerned merely on the basis of their linkage to production. The existence of such a linkage appears to have been the criterion applied, rather than the magnitude of the resulting impact on production or trade. The relevance of this interpretation for income support payments that involve environmental conditions is spelled out below.

Annex 2 of the AoA contains several references to the exemption of government expenditures associated with environmental programs. These are:

1. research connected with environmental programs, under the general services exemption (expenditures on extension or training activities associated with the provision of environmental services would also be exempt under the general exemption for such activities);
2. infrastructural works associated with environmental programs, but only for capital expenditures not the subsidization of on-farm facilities or use of inputs (such as irrigation water);
3. payments under environmental programs that are exempt, providing that they are part of a clearly-defined government environmental or conservation program, dependent on the fulfillment of specific conditions including those relating to production methods or inputs, and subject to the condition that the amount of payment is limited to the extra costs or income foregone involved in complying with these conditions.

There are some other provisions that might apply to certain types of environmental programs and activities. In particular:

1. various payments (decoupled income support, income insurance and income safety-net payments) are permitted only if these are not linked to the volume of production or factors of production employed in any year after the base period;
2. payments to remove land from production must require removal for a minimum period of 3 years and the land involved must not be used for the production of marketable agricultural products;
3. payments made under regional assistance programs (limited to disadvantaged regions) cannot be related to production, other than to reduce the volume of

[4] The extent to which environmental benefits relate to the production of specific commodities or use of specific production practices is a subject of much debate. Blandford *et al*. (2003) argue that weak jointness is likely to apply, but this does not mean that there will be no linkage.

> production, must be available to all producers within a region, where linked to production factors must be made at a degressive rate above a threshold level of the factor concerned, and must be limited to the extra costs or loss of income involved in undertaking agricultural production in the disadvantaged area.

There are three important points to note about these provisions.

First, they are heavily influenced by the aim that payments should not act to increase agricultural production or keep resources employed in agriculture that would otherwise exit the industry.[5] The underlying assumption is that any program that leads to an increase in production or holds resources in production creates an economic distortion. A further assumption appears to be that there are no market failures (missing markets or unpriced outputs) so that the set of prices that would obtain under free trade would lead to a socially optimal allocation of resources. In terms of the design of programs that will qualify as Green Box, the implication is that programs that lead to the maintenance of resources in agriculture or could be interpreted as being linked to production decisions are potentially subject to challenge.

Second, the conditions attached to decoupled income support (paragraph 6 of Annex 2 of the AoA) are quite strict. They indicate that payments should not be linked to either the volume of production in any year after the base year upon which payments are based or the factors of production employed in any year after the base period. Finally they specify that no production shall be required in order to receive the payments. These conditions have implications for the use of cross-compliance – the linkage of environmental conditions to the receipt of income support payments. Cross-compliance can take various forms. A relatively weak requirement might be that land be kept in good agricultural condition. This does not specify that the land be used in a particular way, but it is difficult to envision how the requirement could be satisfied unless the land continues to be used for some agricultural purpose. A stronger cross-compliance requirement might be that land upon which payments are based be kept in a particular use (e.g., pasture). This presumably implies that the land will be used to graze livestock or to produce forage. In either case, as a minimum, it could be argued that eligibility for income support is linked to factor (land) use in years after the base period. If more stringent conditions on land use are attached to the payment, it might be argued that there is a direct linkage to production after the base period or that production is required in order to receive payments. For these reasons, the Green Box compatibility of income support payments that have environmental cross-compliance conditions could be subject to challenge.

Third, to the extent that the rules acknowledge that some non-priced outputs may exist (for example, environmental goods or services associated with agricultural activities) Green Box conditions limit government expenditures to compensating producers solely

[5] The emphasis is on avoiding subsidized competition and its consequent depressing effect on prices in world markets, i.e., protecting the interests of non-subsidizing exporters. Agri-environmental measures that involve explicit or implicit taxes, or encourage the retirement of resources could lead to higher market prices. It is at least a logical possibility that such measures could be challenged by importing countries on that basis.

for the costs they incur, or the income they forego, in complying with a set of environmental standards or conditions. This only allows for payments that offset the private costs of meeting such standards, it does not allow for payments that reflect the social value of an agricultural activity (when social benefits and private costs differ). The implication appears to be that in designing Green Box programs, the government cannot correct for a missing market by offering a payment that reflects the valuation society would place on an environmental output. Only in the special case where it is possible to set a standard that leads to a socially optimal output of an unpriced attribute will a payment that compensates producers for the costs of meeting the standard be consistent with both optimal supply and Green Box criteria. The implication is that Green Box rules place strict limits on what governments can do to ensure the supply of environmental services from agriculture.

Current U.S. programs and the Green Box

As noted earlier, the adoption of significant reduction commitments in the cap on Amber and Blue Box support could mean that the Green Box could become a major avenue for support for U.S. agriculture in the future. The cotton case has cast doubt upon the conformity of some of the measures that form part of current U.S. agricultural legislation with international law, particularly income support payments. One solution could be to eliminate any conditions on the use of land upon which payments are based. Farmers who receive direct payments would be free to plant that land to any crop, including fruit and vegetables. This might make it possible for the United States to continue to provide direct income support to farmers that is not linked to current prices or production. As noted above, the need to avoid a linkage to production or factor use may make it difficult to use direct income support payments to achieve environmental objectives. For this reason, it is appropriate to examine the Green Box status of specific U.S. agri-environmental programs.

The United States has a number of such programs that are included in the Green Box. The principal approaches, and their relationship to Green Box requirements, can be illustrated by two examples – the Conservation Reserve Program (CRP) and the Environmental Quality Incentives Program (EQIP).

The CRP provides annual payments and cost-share assistance to producers who establish long-term, resource conserving cover on cropland that is considered to be environmentally sensitive. Under the general sign-up provisions, producers offer land for inclusion in the program through a competitive bidding process during designated sign-up periods. Offers are ranked according to an Environmental Benefits Index (EBI). The index takes into account likely benefits in terms of wildlife habitat, air and water quality, on-farm reduction of erosion, the likely duration of benefits, and costs. There is also a continuous sign-up provision that does not involve competitive bidding. The cost-share component is set at a maximum of 50 percent of the total costs of establishing approved practices. Maximum rental rates are established in advance of the sign-up period and are based on the relative productivity of soils in a given county and the average dryland cash rent or cash rent equivalent. Producers may offer to enroll their land at less than the maximum rental rate in order to increase the likelihood that their bids will be accepted.

The annual rental payment can be augmented by up to 20 percent to provide a financial incentive for the establishment of certain practices (e.g., creation of field windbreaks or riparian buffers) and by an additional 10 percent for land located in wellhead protection areas. A per acre payment may also be added for the maintenance of eligible practices.

From the perspective of the Green Box, a significant modification to the CRP was introduced with the 2002 Farm Act. Prior to the new legislation, land in the CRP could not be hayed or grazed except under emergency authority. The 2002 Act added a permanent exception for managed harvesting and grazing, including the managed harvesting of biomass (USDA 2003).

EQIP, originally introduced under the 1996 Farm Act, provides for technical assistance, cost-sharing of investments for conservation practices and financial incentives to encourage producers to undertake certain management practices. The legislation lists a number of criteria to be applied in determining cost share and incentive payments. The criteria are primarily benefit related, for example, the contribution that a particular practice will make to improving air and water quality or to the habitat of an at-risk species. While the cost share payments will inevitably be linked to the costs incurred by producers in adopting a particular practice (and the share is limited to a maximum of 90 percent), there is no explicit requirement that the level of incentive payments should be linked to the income foregone by adopting a practice. The emphasis is on providing remuneration for the provision of services that would not otherwise be provided. The legislation specifically states that "incentive payments will be made in an amount and level necessary to encourage a participant to perform a land management practice or develop a Comprehensive Nutrient Management Plan that would not otherwise be initiated without assistance." (NCRS Conservation Programs Manual, section 515.101).

These U.S. programs have several noteworthy characteristics in relation to Green Box conditions. They are:

1. The Green Box status of certain programs, in particular the CRP, could be judged with respect to either the environmental program provisions or the resource retirement provisions of the Green Box.
2. The cost-sharing conditions of U.S. environmental programs (less than 100 percent of the total cost of any investment in an environmental practice) appear to be consistent with Green Box criteria for environmental payments.
3. The use of a competitive bidding process for the CRP could be interpreted as being consistent with the Green Box requirement that the payment level under environmental programs should equal income foregone. The rationale would be that producers would be expected to base their bids on the opportunity cost of the land offered to the program, e.g., the net revenue foregone from taking the land out of production.
4. The use of a land rental rate to establish the maximum base payment for the CRP strengthens the argument that the level of the payment is linked directly to the opportunity cost of achieving environmental objectives, since this reflects the revenue foregone by not renting the land out for production. The economic assumption would be that the rental rate would approximate the net returns to land

and that the maximum bid price is therefore limited to the opportunity costs of the land concerned.

5. The grazing (or biomass production) provisions under the current version of the CRP appear to remove its eligibility for consideration under the resource removal (land retirement) provisions of the Green Box. They make the program potentially subject to legal challenge through the linkage between the use of the land and marketable production. If exemption is claimed under the environmental program provisions, it would presumably need to be demonstrated that grazing or biomass production is indispensable to the supply of the environmental benefits for which CRP payments are made. Otherwise the payments could be interpreted as production-enhancing subsidies (for livestock or other marketable products, such as biofuels).[6]
6. The legality of additional payments that provide a financial incentive to participate in programs (as in the CRP or EQIP as noted above) could be challenged since the Green Box conditions do not appear to allow for additional remuneration linked to the social value of an environmental practice. In the case of the additional payment of 20 percent under the CRP for the adoption of certain practices, the Green Box compatibility of the payment might be challenged unless it could be demonstrated that that the size of the payment is equivalent to the additional costs incurred or income foregone through the adoption of a given practice required to achieve an environmental objective.

In addition to programs like the CRP and EQIP there has been an expansion of programs that focus on land preservation in the United States. The aim is to keep land in agriculture rather than converting it to other uses. In many other countries, to the extent that an increased return to farming activities associated with price and income supports has not been sufficient to keep land in agriculture, the land retention issue has primarily been addressed through legal restrictions on the uses of land. The United States has tended to avoid a regulatory approach, adopting other mechanisms to try to keep land in farming. These mechanisms are not covered explicitly in the Green Box but their consistency with Green Box criteria merits examination.

Farmland preservation is addressed through the purchase of development rights or easements. Thus land which might otherwise have exited agriculture is kept in production. The funding of farmland preservation can be achieved through a variety of financial mechanisms, including transfers at the federal, state and local levels. It can be achieved through the use of current taxation revenue or bond issues. However, programs are ultimately funded by taxpayers and potentially fall under the Green Box. Farmland preservation programs typically involve payments of limited duration (lump-sum or time-limited), rather than a continuous stream. However, such payments could be interpreted as affecting agricultural production if the payment is conditional on keeping land in

[6] Although outside the scope of this paper, it should be noted that the WTO status of various types of programs that seek to promote the production of bio-fuels in agriculture is unclear. To the extent that these provide subsidies to encourage the domestic production of tradable commodities or substitutes for these, they might be judged to be Amber Box.

agriculture (rather than simply as open space); Green Box compatibility could be open to challenge on that basis.

Other U.S. agri-environmental programs have aspects that may be inconsistent with Green Box criteria. A brief review is provided in Table 3. For the most part, the critical issue appears to be the compatibility of incentive components of programs with current Green Box criteria. It is that component of payments that seems to pose the greatest risk of opening programs to challenge on the grounds of their consistency with current international law.

The expansion of US environmental programs

There has been a gradual expansion in the number and scope of U.S. agri-environmental programs since the mid-1980s. The current legislation (2002 Farm Act) reflects an important development in the evolution of such programs in at least two important respects. First, greater emphasis is placed on reducing environmental damage (increasing environmental benefits) associated with working land, rather than on simply retiring environmentally sensitive land from production. Second, greater emphasis is placed on land protection or preservation (keeping land in agriculture). Given the current conditions that apply to Green Box payments, and the recent ruling in the cotton case, a further shift of emphasis in these directions could prove to be problematic for Green Box compatibility.

As noted, the fundamental aim of the Green Box is to discipline payments that might increase agricultural production. Although the implications of the cotton case ruling are open to debate, it would seem that linkage to production is being interpreted broadly. It is not necessary to establish that production has increased significantly as a result of a payment, simply that there is a linkage between the payment and production decisions.

In recognition of the fact that payments under environmental programs are likely to be linked to production to some degree, the Green Box attempts to place limits on the size of those payments. It does this by restricting them to compensating for costs incurred or income foregone through compliance.

From the point of view of designing effective environmental programs there is a serious weakness with such limitations. If the maximum that can be offered to producers is an amount equivalent to additional costs or income foregone, what inducement (apart from altruism) is there for producers to participate voluntarily in programs? Given the transactions costs involved, it is unlikely that individuals who base their decisions solely on economic rationality would ever choose to participate in a program if the additional returns from participation are negative.[7] Furthermore, if no additional remuneration for the supply of environmental services is provided, producers may choose not to participate in programs. As a result, current WTO rules, if they are strictly applied, severely limit the ability of countries to develop and use environmental programs based on incentives. For

[7] Transactions costs might be includable as a cost of compliance with environmental programs. However, a generous interpretation of the components or magnitude of such costs would probably increase the likelihood that payments under those environmental programs would be challenged.

this reason, it seems that some changes in the Green Box criteria are needed if countries are to design environmental programs that are not based on a regulatory approach and will be cost-effective in achieving desired outcomes.

One approach would simply be to relax (or ignore) WTO conditionality on environmental payments. This would be extremely attractive to those who simply want to use payments under environmental programs as an alternative mechanism for providing income support to producers. While this might have some attractions from a domestic political perspective in the United States by garnering support for program expansion, the same freedom would also be extended to other countries, many of which compete with the United States in global agricultural markets. The payment principles of the AoA have clearly been aimed at preventing countries from using environmental programs or environmental provisions attached to other programs to maintain or increase agricultural production above the level that would otherwise obtain. The AoA is founded on the principle of promoting necessary adjustments under freer trade and avoiding unfair (subsidized) competition. If these principles are to continue to apply, the challenge is to design a set of criteria for environmental payments that would allow countries to implement programs that yield the "right" level of environmental benefits, but limit their ability to provide subsidies that create an unfair competitive advantage.

Current U.S. agri-environmental programs, particularly the CRP, provide three key pointers in this regard. These are:

1. The use of a competitive bidding process that provides a <u>transparent mechanism</u> for matching private costs to public payments.
2. The establishment and use of <u>explicit (measurable) program criteria</u> in the form of an Environmental Benefits Index that can be used to evaluate the worth of different parcels of land relative to the costs of including these in a program.
3. The use of <u>explicit limits on the incentive component</u> of payments, where dollar amounts are largely linked to private opportunity costs.

One possibility would be to enshrine principals such as these in a revised set of Green Box criteria for environmental payments. A further improvement would be to strengthen the monitoring and surveillance of environmental programs. Currently, countries are supposed to notify programs under the Green Box to the WTO but there is no requirement to demonstrate that these satisfy Green Box criteria. The introduction of an *ex ante* program review mechanism and the associated development of a set of principles to be applied in the design of new programs, rather than reliance on an *ex post* dispute settlement procedure, could go a long way to improving both the design of agri-environmental programs and the efficiency with which the WTO functions.

Conclusions

With the likelihood of stricter limitations on the expenditures associated with many traditional types of agricultural programs under a new WTO agreement, attention is shifting to the use of less trade-distorting forms of support. Measures that are included under the Green Box category are currently exempt from reduction requirements. Such payments are supposed to be minimally production and trade-distorting.

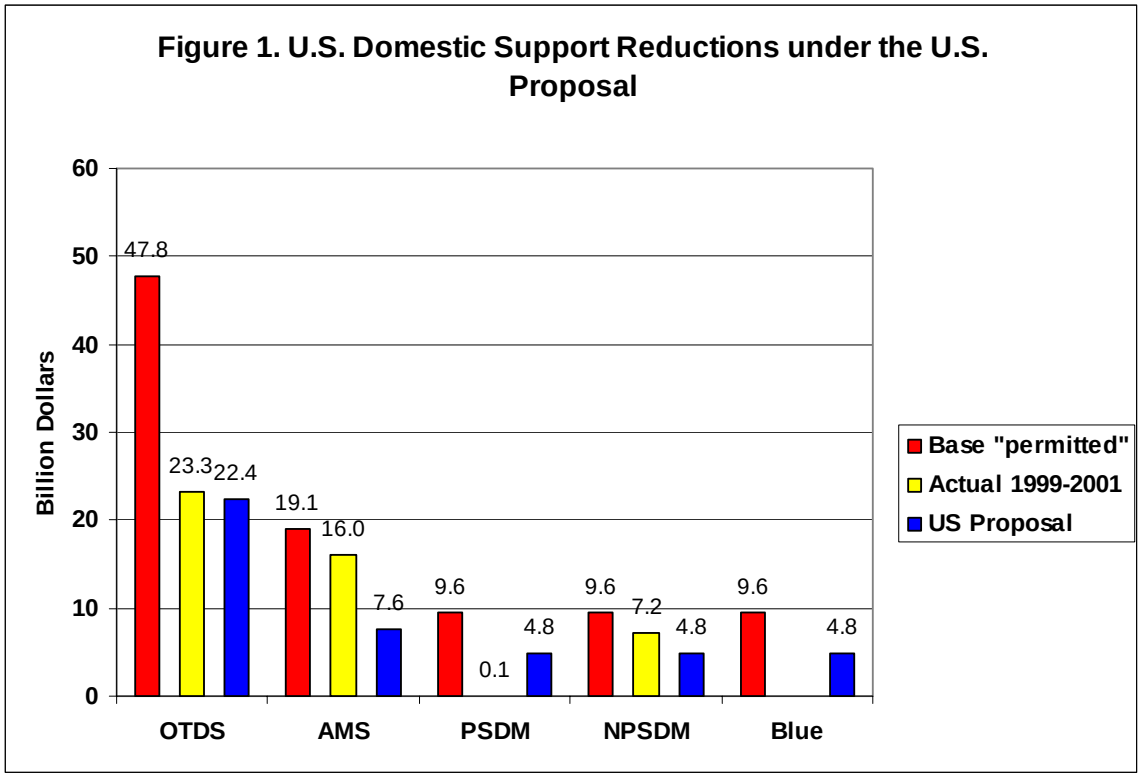
The United States and other countries include expenditures under environmental programs for agriculture in the Green Box. However, the conditions applying to these payments in the WTO Agreement on Agriculture are quite restrictive. They appear to limit severely the ability of countries to provide incentives for farmers to participate in environmental programs. The limitations are made more important by recent interpretations of the incompatibility of certain types of direct payments with the Green Box because of their linkage to production. Some of the payments made under current environmental programs by the United States (and by other countries) or income support payments that involve environmental cross-compliance may not qualify for inclusion under the Green Box.

In order to allow the development of cost-effective environmental programs that rely on incentives and voluntary participation (the essence of the approach adopted by the United States), some modification of the basic criteria for environmental payments in the Green Box is required. The difficulty will be to achieve this in such a way that environmental programs are minimally distorting and do not become merely an alternative device for providing production-related subsidies to agricultural producers.

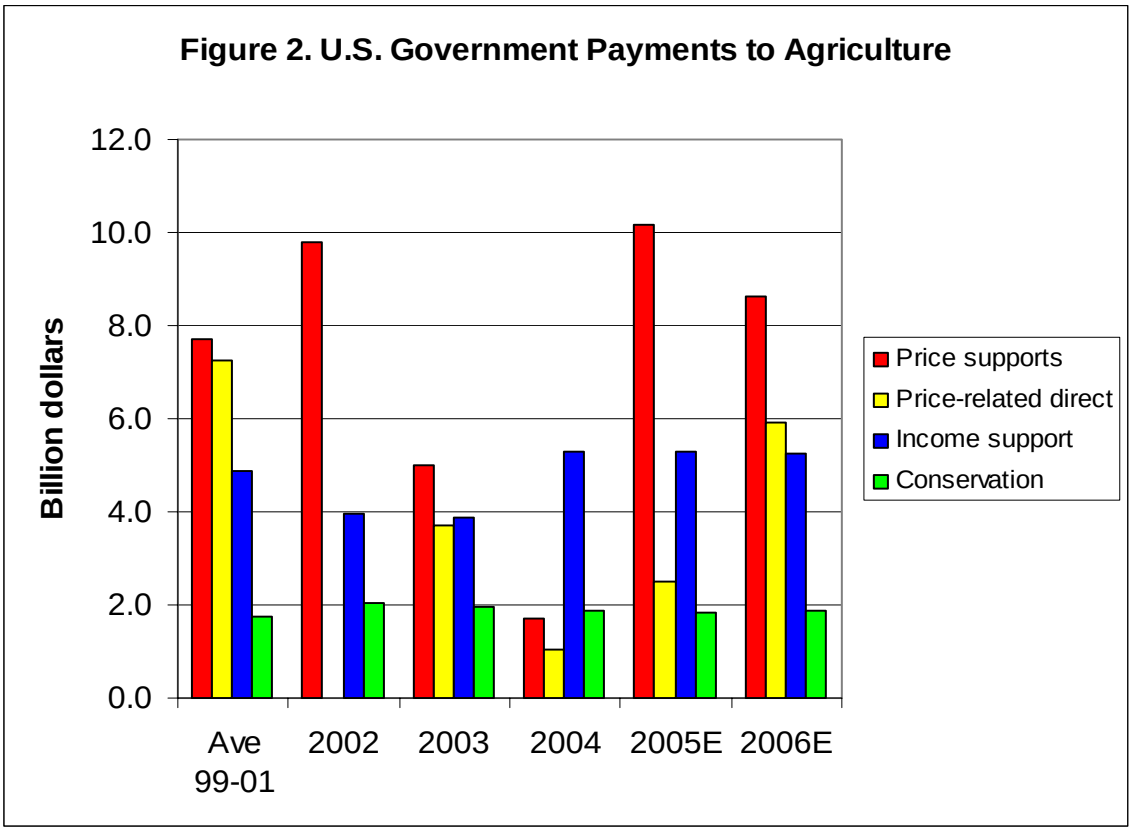
Table 1. U.S. Domestic Support Commitments (billion dollars)

	1995	1996	1997	1998	1999	2000	2001
AMS binding	23.083	22.287	21.491	20.695	19.899	19.103	19.103
Actual AMS	6.214	5.898	6.238	10.392	16.862	16.803	14.413
Percentage	27%	26%	29%	50%	85%	88%	75%
PS *de minimis*	0.099	0.061	0.244	0.166	0.029	0.063	0.216
NPS *de minimis*	1.543	1.113	0.242	4.584	7.406	7.278	6.828
Total Amber	7.856	7.072	6.726	15.142	24.297	24.144	21.457
% of AMS binding	34%	32%	31%	73%	122%	126%	112%
Blue	7.030	0	0	0	0	0	0
Green	46.041	51.825	51.249	49.82	49.749	50.057	50.672
Environmental	0.234	0.279	0.266	0.256	0.332	0.309	0.291
% of total Green	0.5%	0.5%	0.5%	0.5%	0.7%	0.6%	0.6%

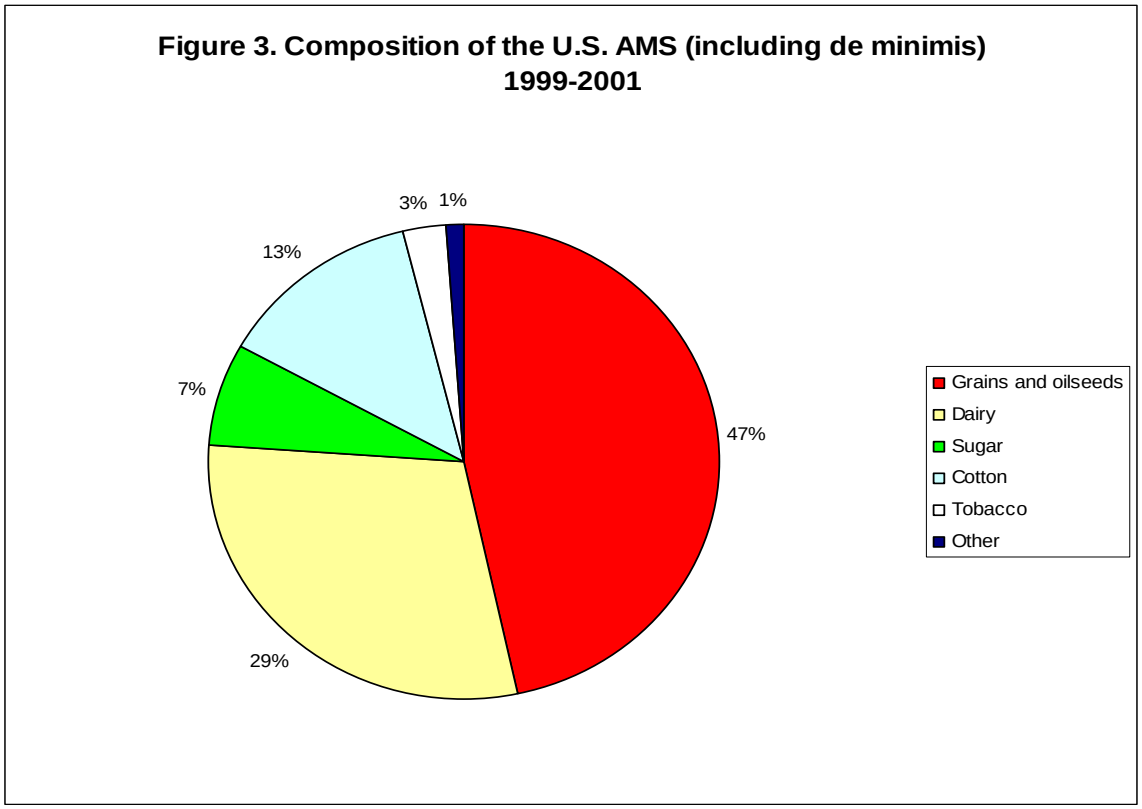
Source: Calculated from WTO notifications.



Source: Calculated from WTO notifications.



Source: Calculated from data provided by the Economic Research Service of the U.S. Department of Agriculture.



Source: Calculated from WTO notifications.

Table 2. Summary of Types of Allowable Green Box Measures	
Type of Measure	Characteristics
General Services	Must not involve direct payments to producers or processors
Public stockholding	Volumes governed by legislated food security targets, financial transparency, purchase and sale at current market prices
Domestic food aid	Clearly defined eligibility criteria based on nutritional objectives, financial transparency, purchase and sale at current market prices
Decoupled income support	Clearly defined eligibility criteria for a fixed base period, payments not related to the volume of production, prices, or factors of production in any year after the base period, no requirement to produce to receive payments
Income insurance and income safety nets	Eligibility based on income loss >30 percent of average gross income for the previous three year period or three year average excluding high/low from a five year period, compensation less than 70 percent of the income loss, no linkage to production, prices or factors of production
Disaster payments	Production loss >30 percent of the average for the previous three year period or three year average excluding high/low from a five year period, only for loss of income, livestock, land and other production factors, no more than replacement cost and not linked to requirements for future production, if during a disaster no more than that required to alleviate further loss
Producer retirement schemes	Clearly defined eligibility criteria to facilitate retirement or switch to non-agricultural activities, conditional upon total and permanent retirement from marketable agricultural production
Resource retirement schemes	Clearly defined eligibility criteria to remove land or other resources from marketable agricultural production, land retirement for a minimum of three years, slaughter or definitive permanent disposal of livestock, no required alternative use for marketable agricultural production, payments not related to volume of production or other resources remaining in production
Investment aids	Clearly defined eligibility criteria to assist financial or physical restructuring for objectively demonstrated structural disadvantages, payments not based on production or prices in any year after a base period, provided for a fixed period of time, no mandate for future production (except no production), and limited to the amount to compensate for structural disadvantage
Environmental payments	Part of clearly defined environmental or conservation program linked to production methods or inputs, payment limited to extra costs or loss of income caused by compliance
Regional assistance	Limited to producers in objectively identified disadvantaged regions, payments not based on production in any year after a base period (other than to reduce production) or prices, available to all producers in eligible regions, limited to extra costs of loss of income related to undertaking agricultural production in the prescribed area

Table 3. Green Box Compatibility Issues Associated with U.S. Environmental Policies and Programs	
Program	**Issues**
Conservation Reserve Program	Ability to graze or produce biomass on land placed under the program could be challenged in terms of compatibility with the provisions for land retirement. Payments that are designed to provide a financial incentive to adopt specific practices and additional payments for land located in wellhead areas could be challenged under the conditions applying to environmental payments.
Conservation Security Program	Contract payments made on the basis of stewardship, or the introduction and maintenance of practices could be challenged if these have a production effect and payments do not equal additional costs incurred or income foregone.
Environmental Quality Improvement Program	Incentive payments to encourage land management practices or develop a Comprehensive Nutrient Management Plan could be challenged under the conditions applicable to environmental payments.
Farmland Protection Program and Related State and Local Programs	Purchase of easements to keep land in agricultural production (limit non-agricultural uses) could be challenged on the basis of a production linkage.
Wetlands Reserve Program	Payments linked to the retirement of marginal land from agriculture should qualify under the resource retirement provisions. Cost-sharing on restoration should qualify under the environmental program provisions.
Wildlife Habitat Incentives Program	Program only has a cost-share component and should be Green Box compatible.
Regulatory Programs (e.g., Clean Water Act)	Typically impose additional costs on producers rather than provide subsidies and should not be subject to challenge.

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