DOMESTIC AGRICULTURAL SUPPORT IN SOUTH AFRICA FROM 1988/89 TO 1993/94: A CALCULATION

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"I sit there talking about soybeans, and I don't even know what the miserable things look like." (Giuilo Andreotti, Italian Foreign Minister)

The objective of this paper is to calculate total support received by the South African agricultural sector during the period 1988/89 to 1993/94. In the calculation of the total support to agriculture in South Africa, the Producer Subsidy Equivalent (PSE) was used to determine the internal support received by producers. The PSE was not calculated on a product-specific basis, but for agriculture as a whole. Agricultural support in South Africa has increased steadily during the past few years. With the exception of the drought relief programmes in 1992/93, support amounted to approximately R4 billion a year since 1991/92. Market price support is the largest component of domestic support and has contributed about 48 percent of total support during the previous four years.

1. Introduction

The complexity of agricultural protectionism has for many years served as a barrier to popular understanding. This lack of understanding has been useful to the special interests that benefit from this protection, and has allowed a variety of myths to continue to surround the farm sector (Ford Runge, 1988). Problems created by these protectionist domestic policies have brought agriculture to the forefront of the Uruguay Round of trade negotiations under the General Agreement on Tariffs and Trade (GATT) (Harwood and Bailey, 1990). This debate is part of a larger effort to reform the global trading system. The effort, while difficult and slow moving, has been given new urgency by economic stresses reflected in national debt burdens, large trade deficits and surpluses, as well as stock market instabilities. Much needed reform will be the cornerstone of broader attempts of trade liberalization and reform under GATT. If these attempts fail, the consequences for world markets and global economic growth may be quite serious (Runge, 1988). This also has important implications for South Africa.

Agriculture is heavily subsidised and protected in most of the major industrial countries. Some of the effects are obvious through the heavy costs imposed on national budgets. Other effects, such as those on consumers or on overall economic efficiency, are less obvious but are nonetheless extremely important. One commonly held view is that, if they meet certain standards of efficiency, farmers should be able to earn incomes that are comparable with those of other workers. Usually public intervention is required to achieve governments' income objectives, which are being pursued in different ways in different countries. Agricultural resources are slow in adjusting to changing market conditions because of structural, biological, climatic and other constraints. This implies instability of prices, a low return to resources and claims for support on the part of farmers (Hathaway, 1987). On the other hand is the fact that the effects of protection almost always fall most heavily on the poorest sections of society. It is they who, because of low income, have to spend the highest proportion of their household budget on necessities like clothing and basic food products, and it is exactly in these areas that protection is most common and intense (GATT, 1993).

It was against this background that the Uruguay Round of international trade negotiations under the General Agreement on Tariffs and Trade had agricultural trade liberalisation at the top of its agenda for the first time. A major objective of the Uruguay Round is to eliminate trade distortions created by domestic agricultural policies so as to improve world markets and reduce the necessity for domestic support (Van Heerden, 1992). The problem, however, is how to measure agricultural intervention by way of adequate measuring instruments.

In order to determine the total cost of agricultural support in South Africa, by means of transfers from either the taxpayer or the consumer to producers, it is necessary to identify and quantify the different policy instruments that have been used. Thus, the objective of this paper is to calculate total support received by the South African agricultural sector during the period 1988/89 to 1993/94. In the calculation of the total support to agriculture in South Africa, the Producer Subsidy Equivalent (PSE) was used to determine the internal support received by producers (Van Heerden and Van Zyl, 1992) for the relative merits of using different measures of calculating agricultural protection. The PSE was not calculated on a product-specific basis, but for agriculture as a whole. These indicators, however, do not provide a complete picture of all transfers generated by agricultural policies, since they neither take into account all the output of the agricultural sector, nor all the income transfers due to policies. In order to complete the picture, it is necessary to look at all transfers from consumers and taxpayers in respect of all agricultural commodities. However, the analysis does not take into account input price distortions faced by farmers, but only covers output prices of the farm sector.

2. Government intervention in agriculture

In most countries of the world the production of agricultural products in general and of food specifically

is of great importance - economically and politically. As a result thereof, governments have come to play an increasingly important role in the guidance of agriculture, mainly by means of the influencing of prices.

The rationale for government intervention stems from the belief that uncontrolled market forces would not enhance food security and would lead to hardship - as well as political pressure to both raise and stabilize farm income. In the process of supporting prices, however, guidance policies became involved with side issues of food prices, supply security, trade patterns and the desire for protection against foreign competition. In this regard political rather than economic considerations tend to be the determining factors in decision making. In most cases government intervention results in a complex set of regulations governing commodity marketing - which necessitates a sizable bureaucracy and considerable funding. Both the fund recipients and the administrators of the different programmes develop strong ties to these programmes and tend to inhibit changes (Josling *et al,* 1983).

The purpose of this section is not to judge government intervention as such, but rather to look at why and with what type of policy measures governments intervene. In this regard it should be noted that government involvement in agriculture in a specific country will always be, to a great extent, a function of the degree to which this involvement is accepted or expected by the population of that country. The latter will naturally depend on the extent to which the free market is assumed to be an unsatisfactory medium for the development of a healthy agricultural sector (Josling et al., 1983; Stoeckel, 1988). A study by Laubscher (1986) also concluded that "although market performance appears to be an extremely broad concept, it remains the end result of what society desires from a market".

Internationally, however, the unprecedented pace at which events have occurred on the economic scene since 1970, along with increased government intervention and protectionism, has strained trade relations and complicated agricultural policy decision making. During this period the world has often experienced simultaneous food shortages and surpluses; countries which had traditionally been importers of base commodities became exporters, together with a reduction in the purchasing power of many countries which should be buying more food. In organisations such as the GATT, national agricultural policies are blamed by many as the cause of these imbalances (Strauss, 1989). Stoeckel (1988) goes further by saying that the troubles besetting agricultural trade have little to do with the so-called special nature of agriculture, the problems of climatic conditions, disease, technology and the family farm setup, but are a direct result of the domestic policies of governments.

The increased importance of the interrelationship that exists among agricultural products, between agricultural products and other commodities, among markets and between political and economic considerations, is considered by Groenewald (1986) as a pervading feature in today's agriculture. These interrelationships must be considered during the formulation of agricultural policies.

With regard to South Africa's agricultural policy, it shares a number of features with the agricultural policies of most developed countries. The government played an important part in the development of the present South African agricultural structure and marketing system, and still plays a major role in decisions regarding commodity marketing and import protection. In view of the government's endorsement of a market orientated economic system and trade liberalisation, this intervention is, however, increasingly being questioned.

In South Africa there has never been an attempt to calculate total government intervention in agriculture. However, this has changed due to basically two factors, namely, (i) the positive outcome of the Uruguay Round of multilateral trade negotiations under the auspices of the General Agreement on Tariffs and Trade (GATT), and (ii) the greater importance of the consumer in the designing of agricultural policies.

In the calculation of the total support to agriculture in South Africa, it is necessary to determine the internal or domestic support received by producers by means of a suitable measuring device. This, however, does not provide a complete picture of all transfers generated by agricultural policies, since they neither account for all the output of the agricultural sector, nor all the income transfers due to policies. In order to complete the picture, it is necessary to look at all transfers from consumers and taxpayers in respect of all agricultural commodities.

Estimates of total transfers from consumers and taxpayers associated with the production of all agricultural commodities, are defined as "... the sum of all transfers from taxpayers, plus all transfers from consumers, less budget receipts from tariffs on agricultural imports" (OECD, 1992). According to the OECD (1990) these three components exist of the following: (i) transfers from taxpayers correspond to public expenditure for agriculture under the following items: research, training, extension, inspection services and disease control, rationalisation of production, structural improvement, rural development, processing, marketing, subsidies to consumers and price and income support; (ii) transfers from consumers are estimated as the impact of these policies at the borders of the country (Customs duties or equivalents) on domestic prices, and is calculated per product using the difference between the domestic and foreign prices; and (iii) budget revenues arising from price distortions will only exist for those products in which a country is not self-sufficient. These revenues are estimated by multiplying the tariff by the difference between the consumption and production levels of these products.

With the above in mind, total support will be calculated in three stages, firstly, domestic support received by producers, secondly, budget expenditure on export subsidies and thirdly government revenue through the application of border protection (tariffs).

3. Calculation of domestic support

Through the years a number of instruments were developed by economists in order to measure the level of protection and support to producers. These measures differ widely in design, use and degree of complexity (Van Heerden, 1992), and include the Nominal Rate of Protection (NRP), the Nominal Rate of Assistance (NRA), the Effective Rate of Protection (ERP), the Effective Rate of Assistance (ERA), Domestic Resource Costs (DRC), the Trade Distortion Equivalent (TDE) and also the Producer Subsidy Equivalent (PSE). In their work, Van Heerden and Van Zyl (1992) evaluated all of the above measures and came to the conclusion that the PSE is the most comprehensive and well documented of all the aggregate measures of support. The different measures are either a part of the PSE calculation, or an extension thereof. Although none of these measures are above or immune to criticism, the PSE has become more and more accepted as an indication of the level of agricultural support and is the only measuring device being used by all of the developed countries.

3.1 The PSE concept

The PSE represents an attempt to combine the different forms of government intervention in agriculture into a quantifiable single figure for each major product, the entire agricultural sector, or both (Spec (87)37, 1987; OECD, 1987). In any comparison of PSE indicators, such as between countries, it is, however, important to bear in mind the recognised limits of these indicators with respect to policy coverage, commodity coverage, data availability and methodology applied, as well as the special characteristics of agriculture (OECD, 1993; Van Heerden, 1992).

The PSE is defined by the Secretariat of the GATT in Spec (87)37 (1987) as "... the payment that would have to be made in each country to compensate farmers for the loss of income resulting from the removal of a given set of domestic agricultural policy measures', while the OECD (1990) defines the PSE as "... an indicator of the value of the transfers from domestic consumers and taxpayers to producers resulting from a given set of agricultural policies at a point in time".

3.2 Calculation of the PSE

According to Van Heerden (1992), there are essentially two steps involved in the calculation of the PSE, the choice depending in each case on the nature and particularities of the support measures to be quantified. The first is the calculation of market price support, which involves quantifying the difference between an internal price and a world price. The second step consists of calculating budgetary transfers to producers.

Because the method used in calculating support depends on the type of policy, the OECD (1987 and 1990) and USDA (1990) classified these support into four broad categories of policy measures: (i) market price support; (ii) direct income support; (iii) indirect income support; and (iv) other support. In general it is those measures listed under the heading "Market Price Support" which have a direct impact on producer and consumer prices. These policies are implemented through the establishment of quantitative restrictions, either domestically or at the border. These measures involve government manipulation of the market to improve the welfare of one or more groups of producers. The result of such government intervention is a distortion of market prices. To measure this assistance, a comparison between the supported domestic market price and another unsupported domestic or external reference price is necessary (Van Heerden, 1992; Spec (87) 37, 1987; USDA, 1990). The last three of the above categories of support policies are implemented through the budget and do not necessarily raise or lower the price paid. All of these measures impose demands on the budget, which may ultimately fall on consumers through taxes (OECD, 1990).

The complexity of the various measures implemented in OECD countries, as well as the lack of disaggregated data, do not allow for a simple and unambiguous classification under the four headings shown. The main policies under each of these four categories are shown below (OECD,1987; OECD, 1990; Spec (87) 37, 1987; Van Heerden, 1992) :

i. Market Price Support: two price systems; price premiums; import quotas/voluntary export restraints; tariffs/import levies; export refunds/credits; home consumption schemes; supply management (production/acreage quotas); and monopoly organisations (marketing boards,import control organisations).
ii. Direct Income Support: direct payments (disaster, deficiency, headage/acreage, direct storage payments, etc.); embargo compensation; and levies paid by producers (negative support).
iii. Indirect Income Support: capital grants; concessional credit; input subsidies (fuel, fertilizer, transport); insurance; and storage.
iv. Other Support: research, advisory, training; inspection; rationalisation and structures; processing and marketing; transport concessions; and provincial/state measures.

3.3 The formulation of the PSE in South Africa

In order to determine the total domestic support to farmers in South Africa, the PSE was calculated on a sector wide basis and not on a product-specific basis. Certain policy measures, however, had to be calculated per product and then only could it be brought into the sector wide PSE. When formulating the PSE, there are two components that must be taken into account.

The first component is the income transfers to producers as a result of agricultural policy. These transfers are calculated by means of a comparison between an internal market price and an external world price (Van Heerden, 1992). It is this component, the Market Price Support, which has to be calculated on a product-specific basis.

The second aspect is to bring into calculation the transfers from government sources. These transfers from either direct or indirect budgetary payments are calculated from government financial accounts. These

calculations are done on a sector wide basis with the advantage that no proportionate allocation is necessary. According to Van Heerden (1992), the accuracy of these estimates depends on a reasonably accurate knowledge of the budgetary cost of these measures, which means not only information on budgeted funds, but also on the revenue foregone by governments (tax concessions) or costs not fully recovered (interest subsidies).

4. Evaluating total government intervention domestic support (PSE) 1988/89 to 1993/94

In order to clarify the nature and extent of the monetary transfers induced by agricultural policy, the concept of the Producer Subsidy Equivalent (PSE) was utilised in this regard. The PSE was calculated for the agricultural sector as a whole, while the market price support component was calculated on an individual basis for twenty agricultural products. It is, however, important to bear in mind that there are general guidelines for calculating subsidy equivalent measures, but few set rules. The key imperative is that the calculation methods fit each counrty's policy set as closely as possible, given data availability and information on the policy structure (USDA, 1990).

Table 1 shows the evolution of assistance to agricultural producers (as measured by the PSE) associated with South African support measures for the period 1988/89 to 1993/94, while Figure 1 depicts the evolution graphically (Helm, 1994).

The total PSE was at its lowest during 1988/89 with market price support accounting for only 11 percent of total assistance, the remainder being financed by taxpayers. Of all the agricultural products, producer prices of only sugar, rye, chicory, eggs, beef, sheep and dairy products were higher than the representative world prices. The increase in the total PSE in 1989/90 was due to the higher production

volume which led to a slight decrease in the percentage PSE from 11.70 percent to 11.56 percent in that year. Market price support accounted for about 31 percent of total assistance in 1989/90. The reduction in the indirect income support component was mainly due to the fact that the production input subsidy paid to farmers was substantially reduced and then entirely eliminated the following year. In 1990/91, the total PSE again increased as a result of substantially higher producer prices being paid to certain products, together with a decline in world prices. Market price support accounted for about 46 percent of total assistance in 1990/91. With regard to direct and indirect income support, the amounts of support involved remained the same to a large extend stayed, in comparison with the previous year. The percentage PSE increased to 13.69 percent. Both the increases in producer prices and/or the decrease in world prices of agricultural products, were once again the main reason for the higher market price support together with the subsequent increase in the total PSE in 1991/92. Market price support accounted for about 60 percent of total assistance and was 37 percent higher than the previous year. The huge increase in the total PSE in 1992/93, is explained largely by the very substantial increase in direct payments, as well as, to a lesser extent, indirect payments, which more than offsets the very small increase in market price support. As a result of these payments, market price support accounted for only 33 percent of total assistance. The most pronounced policy change was the drought relief scheme of more than R3 billion appropriated towards assistance to farmers who suffered losses due to the severe drought experienced in some parts of the country. The decrease in the total PSE in 1993/94, was due to a reduction in the total market price support as a result of higher world prices and, in certain cases, a decrease in producer prices. Market price support accounted for about 52 percent of total assistance. Indirect income support, however, remained relatively high compared to the previous years' as a result of certain continuous relief programmes.

Figure 2 illustrates the share of market price support (MPS), direct payments (DP), indirect payments (IP) and general services (GS) in relation to total domestic support from 1988/89 to 1993/94.

Market price support is the largest component of domestic support and has contributed about 48 percent of total support during the previous four years. These policy measures are implemented by means of the establishment of quantitative restrictions and involve government manipulation of the market to improve the welfare of a certain group of producers with a subsequent distortion of market prices. A reduction in these market price support measures necessarily involves a closer correlation between domestic and import parity prices.

5. Conclusion

In South Africa, in contrast to the other developed countries, there has never been an attempt to calculate total government intervention in agriculture. However, this has changed due to basically two factors, namely, (i) the positive outcome of the Uruguay Round of multilateral trade negotiations under the auspices of the General Agreement on Tariffs and Trade (GATT), and (ii) the greater importance of the consumer in the designing of agricultural policies.

Agricultural support in South Africa has increased steadily during the past few years. With the exception of the drought relief programmes in 1992/93, support amounted to approximately R4 billion a year since 1991/92. Market price support is the largest component of domestic support and has contributed about 48 percent of total support during the previous four years. These policy measures are implemented by means of the establishment of quantitative restrictions and involve government manipulation of the market to improve the welfare of a certain group of producers with a subsequent distortion of market prices. The tariffication of agricultural products, with a subsequent closer correlation between domestic and international prices, will have a direct effect on the level of support during the next few years.

Table 1: The calculation of total domestic support (PSE)

	DESCRIPTION	UNIT	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
			R' 000					
a)	Value of production: Products with MPS	Rand	11 321 897	13 454 158	13 784 297	15 736 341	12 872 328	16 467 791
b)	Value of production: Products without MPS	Rand	5 231 386	5 965 538	6 910 111	7 497 910	11 193 516	11 860 609
c)	Direct Payments	Rand	113 549	115 621	119 871	91 674	89 075	79 803
d)	ADJUSTED VALUE OF PRODUCTION (a+b+c)	Rand	16 668 832	19 535 317	20 814 279	23 325 925	24 154 919	28 408 203
	Policy transfers to agriculture:							
e)	Market price support	Rand	216 819	701 428	1 308 831	2 321 722	2 448 684	2 119 873
f)	Direct income support	Rand	367 977	335 768	332 025	250 019	2 616 106	386 477
g)	Indirect income support	Rand	942 692	774 528	703 863	819 426	1 278 611	1 048 097
h)	General services	Rand	422 001	446 259	503 761	512 940	1 155 325	564 305
i)	TOTAL PSE (e+f+g+h)	Rand	1 949 489	2 257 983	2 848 480	3 904 107	7 498 726	4 118 752
	PERCENTAGE PSE (i/d)	%	11.70	11.56	13.69	16.74	31.04	14.50

Figure 1: **Total domestic support (1988/89 - 1993/94)**

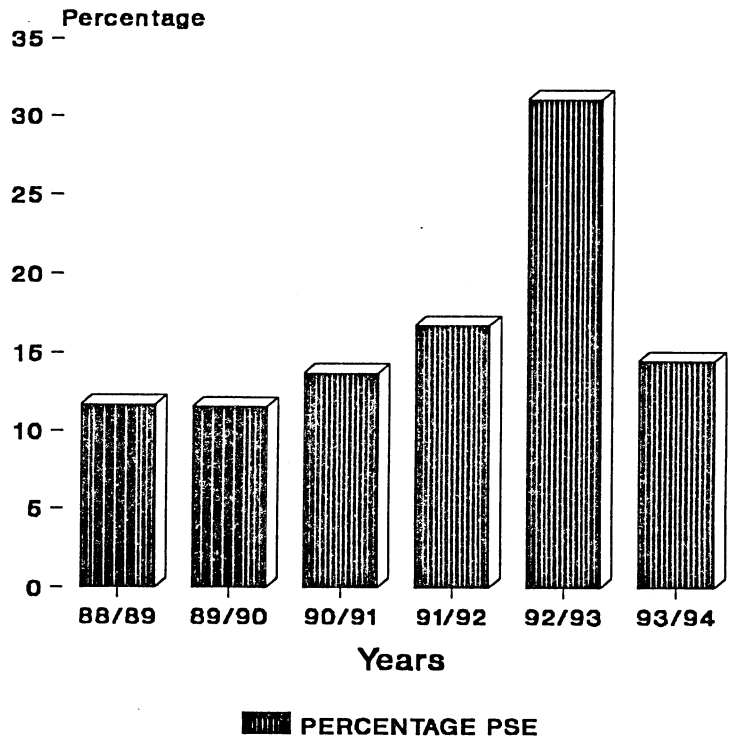
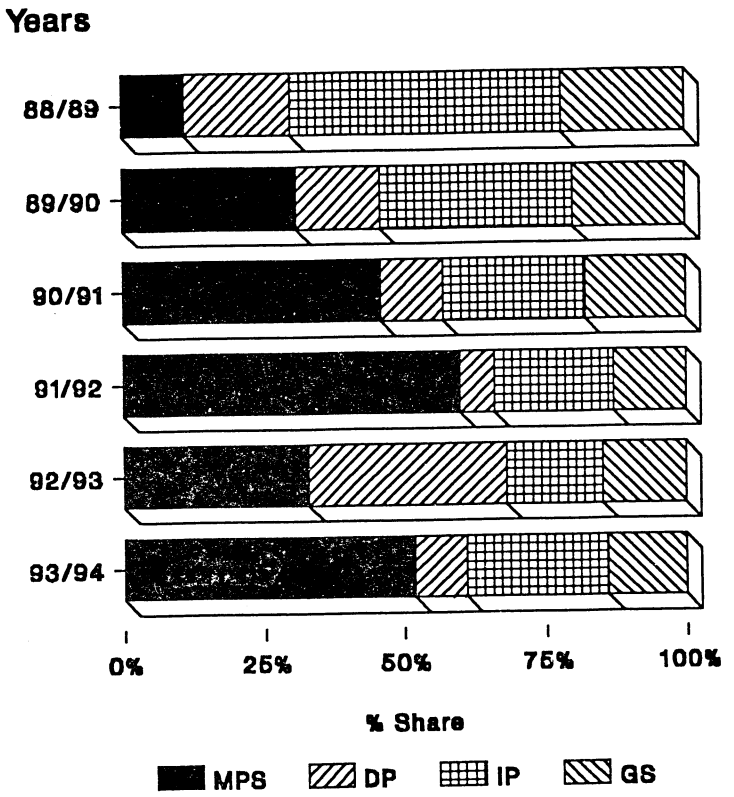


Figure 2: **Domestic support : components' share**



References

GENERAL AGREEMENT ON TARIFFS AND TRADE, (1987). Quantitative Measurement of Support: The PSE, Note by the Secretariat. Spec (87) 37, 8 September 1987.

GENERAL AGREEMENT ON TARIFFS AND TRADE, (1993). Trade Policy Review Mechanism, The Republic of South Africa, Report by the Government, 3 May 1993.

GROENEWALD, JA. (1987). Agriculture: Aperspective on medium term prospects. Development Southern Africa, Vol. 4, No 172.

HARWOOD, JL. AND BAILEY, K.W. (1990). The World Wheat Market - Government Intervention and Multilateral Policy Reform. Economic Research Service, United States Department of Agriculture. Staff Report No. AGES 9007, January 1990.

HATHAWAY DALE, E. (1987). Agriculture and the GATT: Rewriting the Rules. Institute for Economics, Washington, D.C., September 1987.

HELM, WILLIAM (1994). Agricultiral support in South Africa. Unpublished MSc(agric) dissertation, Department of Agricultural Economics, Extension and Rural Development, University of Pretoria, Pretoria.

JOSLING, TE. and PEARSON, S.R. (1983). Developments in the Common Agricultural Policy of the European Community. USDA Foreign Agricultural Economic Report No. 172, Washington D.C.

LAUBSCHER, JM. (1986). Assessing efficiency in marketing: The case for an analysis of the performance of the South African beef and cattle market opened. Agrecon, Vol. 25, No 1, March 1986.

OECD, (1987). National Policies and Agricultural Trade, OECD, Paris.

OECD, (1990). Agriculture and the Consumer, OECD, Paris.

OECD, (1992). Agricultural Policies, Markets and Trade, OECD, Paris.

OECD, (1993). Agricultural Policies, Markets and Trade, OECD, Paris.

RUNGE, FC. (1988). The Assault on Agricultural Protectionism in the Multilateral Trade Negotiations. Department of Agricultural and Applied Economics, University of Minnesota. Staff Paper P88-10, April 1988.

STOECKEL, A. (1988). Macroeconomic consequences of farm support policies, An Overview. Centre for International Economics, Canberra.

STRAUSS, MD. (1989). Policy options for South Africa in the relaxation of quantitative import control on agricultural products. Internal report of the Department of Agriculture, Pretoria.

USDA, (1990). Estimates of Producer and Consumer Subsidy Equivalents, Government Intervention in Agriculture, 1982 - 1987. Economic Research Service, Statistical Bulletin No. 803, Washington, D.C, April 1990.

VAN HEERDEN, WR. (1992). An Economic Analysis of an AMS for Maize in South Africa. University of Pretoria, Pretoria, April 1992.

VAN HEERDEN, WR. and VAN ZYL, J, (1992). Measuring agricultural support: An economic analysis of the AMS for maize. Agrekon, 31(4).