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## CONTENT

1	General review.....	4
1.1	Major agricultural market developments in 2005.....	4
1.2	Agricultural and rural policy developments.....	4
1.3	Issues related to the enlargement.....	5
2	Assessment and outlook: market integration in the cereal sector.....	7
2.1	Structural Changes within Agriculture.....	7
2.2	Market development.....	8
2.3	Input use.....	8
2.4	Outlook for Cereals.....	10

## **1 General review**

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### **1.1 Major agricultural market developments in 2005**

Cereal sector is a good approximation of the Turkish agricultural market. Turkish Grain Board (TMO) is the leading institute in cereal marketing. TMO's policies have a major influence in the sector. A certified seed supply programme was developed by Ministry of Agriculture and Rural Affairs (MARA), with a combined effort of Agricultural Enterprises (TIGEM), 238 000 tons of certified cereal seeds were provided to farmers in 2004 sowing season.

The objective of this policy initiative was to increase the quality of the cereals, mainly wheat, in Turkey since the cereal quality is low. That has two major consequences: 1) Certified seed use increased the yield which had a positive contribution to producers' income through increased yield. 2) The quality of cereals increased which in fact increased the prices and contributed to the producers' income.

This effort was supported by a deficiency payment mechanism in 2005. Cereals were in this support scheme. However, this received criticism in that such support increased low quality production since the rate was flat and all the production was awarded.

This policy implementation has some positive consequences as indicated by TMO which purchased less crops than it would be otherwise. This approach suppressed the cereal prices and producers sold the crop in the market. Only excess production which was not absorbed in the market was purchased by TMO.

In addition, production was brought under registration and government tax collection increased. Prices were kept low and the difference between domestic and world prices was lower than it could be otherwise. Combined with that of certified seed policy, enough high quality cereal was produced in Turkey and the cereal import decreased.

Certified seed and deficiency payment resulted in an adequate quantity of high quality cereal supply in Turkey. Import demand of food industry reduced. Prices suppressed. Consumers are provided high quality and low price food. Overall, outcome of these policies in economy and the sector was positive.

### **1.2 Agricultural and rural policy developments**

Policy programmes or measures implemented in 2005 can broadly be defined in four categories; direct income support scheme, deficiency payments, farmer transition programme, and livestock policies. The government introduced a unified national programme of direct income support in 2001 after a pilot implementation in four provinces in 2000. Payment is on per hectare and at a flat rate. However, payment was linked with the land condition in 2005. Farmers also received area based payment for fertilizer and gasoline in 2005.

Deficiency payments are implemented for oilseeds, mainly sunflower, soybean, cotton, kanola, maize, and olive oil in 2005. Basically the difference between the world price and the

domestic price per kg is set as the payment amount. Wheat was included to this list in only for 2005. Farmer transition programme originally designed to reduce the excess supply of hazelnut and tobacco was in place in 2005 for these crops.

Livestock sector support policies include the following measures: certified breeding programme, artificial insemination and calf born, bee keeping and honey production, angora production, poultry support including bird flue, milk premium, disease free farms, area based fodder crops including certificated seed support, milk quality and milking hygiene, livestock gene resources, livestock registration system (heard book), disease control system, food security, small ruminants breeding programmes, aquaculture production support. These measures were complimented with import restriction (control of meat and meat products, dairy products, livestock and animal feed sources), veterinary service and animal disease control, and agricultural credit support.

A law was passed the parliament on Agricultural Insurance on which no payment was reported in 2005.

### **1.3 Issues related to the enlargement**

Turkey's Agricultural Reform Implementation Programme (ARIP) was designed to assist accession to the EU by increasing the efficiency of the sector and the economy at large, thereby helping it meet one of the most basic pre-conditions set down by the EU: that the applicant states have economies that are efficient enough to be competitive in the unified market.

The principle and tools of agricultural policies to be implemented between 2006 and 2010 are set in Agricultural Policy Paper. This was also enforced by the law of Agriculture in 2006. However, the budget share of the support tools determined in the paper received criticism from the experts in EU commission. EU has been reforming the CAP and will implement a Single Farm Payment scheme which is basically a direct income support mechanism. Budget in Turkey policy paper indicates that the Direct Income Support share will be reduced and deficiency payment will be implemented by 2010. This policy contradicts with that of EU policy.

Turkey will adapt the EU agricultural policy *acquis* over the period 2005-2015 which is the possible accession date. CAP, in broad headlines, includes single farm payment, cross compliance measures, and rural development.

There are currently no cross compliance rules in Turkey, which have to be accepted under CAP. A significant part of the agricultural *acquis* concerns sanitary and phyto-sanitary measures, animal welfare, hygiene standards and food safety. Turkey has already made a good start with passing necessary legislation. However, there may stand several issues in the implementation of the regulation.

In addition, Turkey has to strengthen existing programmes for disease eradication and control. Turkey also has to adopt a strong and proactive programme where necessary. These programmes have to be implemented with increased border controls for illegal animal movements.

EU Membership would imply that Turkey's position on international trade issues to become closely aligned with that of the EU. This means that, whilst remaining an individual WTO member, Turkey no longer negotiates independently in WTO multilateral negotiations, and its import and export regimes. In addition, Turkey is required to implement all EU measures for goods that cross its frontiers. Developing the infrastructure, administrative capacity and commitment for effective border control will be challenging elements in Turkey's adoption of the *acquis*.

Turkish rural development strategy paper in line with EU rural development programme has been prepared. The aim is to increase the capacity in rural development projects and implement projects to be funded by IPARD in Turkey. In the pre-accession period, Turkey will also establish a paying agency and a rural development agency. This initiative would strengthen the farming community and increase specialization via increased relationship between the institutions and producers.

## **2 Assessment and outlook: market integration in the cereal sector**

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### **2.1 Structural Changes within Agriculture**

Cereals occupy 61 % of Turkey's cultivated area of about 22.5 million hectares, of which five million is fallow. Cereals account for the 53 % of the value of field crops and 23 % of the value of the total crops. The relative importance of cereals measured as a %age of the total cultivated area has remained quite stable over the last five decades, compared to the period of 1920-1960 until 2000. However, as seen in Table 1, there has been a downward trend in the cereal area since 2000, partly due to a major policy change in Turkey in 2000. All price and trade distorting support policies were abolished and a nationwide Direct Income Support (DIS) scheme was adopted. Payments were on a per hectare bases. Farmers receiving this support did not have to devote all the land to crops. They left some part of their land aside. Since 2004, payment was based not only on land but also on the declaration by farmers that the land is under cultivation. As a result, a further decrease in cereal area is not expected (TURKSTAT, 2004a).

Family owned farm is the basic unit of agricultural production, and family members provide most of the farm labour. The information on the number and size of holdings are inferred from agricultural censuses (Togan et al, 2005). The picture that emerges from these censuses is the existence of large number of small farms. Agricultural census in 2001 recorded 3 million agricultural holdings. The pattern of land ownership is highly skewed and varies regionally due to differences in incomes and the crops grown. A large number of farmers own and cultivate a small area of the land. About 65 % of the farms are less than 5 hectares land and 83 % are less than 10 hectares in size. About 6 % of the holdings have a size larger than 20 hectares. In the last 15 years, the total number of agricultural holdings decreased by about 20 %. This is in line with the fall in the agricultural employment. National average size of farm holdings is 6.1 hectares, with an average number of 6 plots.

Cereals, especially wheat, are produced by almost all farmers. Considering that the most of the farms are small in size in Turkey, a considerable amount of cereals is produced by small farms, but mainly for home consumption. The smallest farms, especially in coastal regions, concentrate on fruit and vegetable production, the large farms concentrate on cereal production. Cereals are not a substitute for most of the other crops and they do not have close substitute. Some crops such as sugar beet and sunflower are grown in rotation with cereals. Therefore, cereal cultivated areas will not change much based on their substitutes. However, if more land is brought under irrigation, the cereal area would decline somewhat.

A large number of farmers only own and cultivate a small portion of the land. The quality of land owned by small farms is lower than the quality of large farms as large farms cultivate a higher proportion of the irrigated land. Furthermore, the yields on large farms are higher than that in small farms. This implies that large farms operated by a small proportion of the farmers produce most of the value of production and hence receive most of the benefits of the market price support component of agricultural support. The large farmers, with relatively better access to and intensive use of subsidised resources such as water, machinery and agricultural chemicals, also benefit more from the support policies than the smaller farmers.

## 2.2 Market development

Wheat is the most important agricultural commodity in Turkey, both politically and economically. It is estimated that about three million farmers in Turkey produce wheat. Wheat is the major cereal crop for farmers and is the staple food item for Turkish consumers, with a marketing ratio of about 70 %. The rest is used on the farm of origin. Wheat accounts for 67 % of the value of total cereal production and 16 % of the value of total crop production. The share of wheat in the total cultivated cereal area and total cereal area is 41 % and 66 %, respectively. (TURKSTAT, 2004a).

Turkey is a durum wheat producing country. Until recently, data on durum and soft wheat are not reported in Turkey. Durum wheat accounts for slightly above 20 % of the total wheat production. Meanwhile, the share of soft wheat has been increasing.

The second most important and cultivated cereal is barley, with an area of about 3.5 million hectares. Barley occupies some 16 % of the total cultivated area, and 26 % of the total cereal area respectively. Barley accounts for 20 % of the total cereal value and 5 % of the total crop value. As with wheat, the area of barley decreased in 2000-2004, and started to increase again in 2005.

Maize production, on the other hand, is highly sensitive to prices. A favourable maize price in 2004 increased the production by about 25 % in 2005. Maize is also grown as a second crop in the Mediterranean region, and as a result, there is a high potential for the maize area to increase further. Changes in prices in one year can dramatically influence the behaviour of producers in the following year. However projections for maize production in 2006 indicate some lowering of the area planted as prices in 2005 were not as high as expected.

Turkey is a net rice importing country, with imports supplying about half of the consumption. The rice producing area could increase if farmers received a higher price, but the cost of production is high hence the rice area is not expected to increase.

## 2.3 Input use

### Machinery

There has been a rapid mechanisation in Turkish agriculture. The number of tractors, a good proxy for farm machinery, rose from 42000 to slightly more than one million between 1960 and 2005. Likewise, other machinery and equipment have also increased in number (Table 1). This allowed new agricultural land to be brought under cultivation (TURKSTAT, 2004b).

Table 1. Machinery park (2004)

Machinery	
Combines	12000
Mouldboard type ploughs	95 000
Cultivators,	450000
Combined seed drills	170000
Fertilizer broadcasters	320000
Knapsack sprayers	600000
Electrical and engine driven pumps	350000

Source: TURKSTAT, 2004b

This rapid mechanization in agriculture has resulted in a couple of consequences. Employment in agriculture has declined over time, with a million fewer in 2005 than in 2004. This was also a result of economic development facilitating new job creation in other sectors of the economy. Average area per machine has also declined considerably. Average area is 18 hectares per tractor, 19 hectares per plough, 30 hectares per knapsack, 40 hectares per cultivator, 51 hectares per pump, 56 hectares per fertilizer distributor, 105 hectares per seed drill, and 1166 hectares per combine. When considering the cereals areas, these averages decline even further. This indicates that Turkey's machinery bank is highly advanced and in essence the number of machines is more than necessary. Turkey's high rate of mechanisation is mostly due to the social status that ownership of tractors and other machines gives farmers. Real tractor prices (tractor prices divided by the index of prices received by farmers) increased until the year 2002, the recovery period of the economy (Figure 1). After 2002, the real tractor prices started to decline. In last four years, 95425 new tractors have been added to the industry's machinery bank, perhaps influenced by the recovery and expansion of the economy as a whole.

### **Seeds**

For wheat and barley some farmers use traditional varieties and save their seeds from the current harvest. The rate of certified seed use is 38 % in wheat and 10 % in barley. However, the certified varieties that have been registered in Turkey tend to be old varieties. For maize, the use of certified seed is high because most e varieties are hybrids. Therefore farmers buy the seeds. However, one variety (Osmancik 97) accounts for approximately 90 % of the certified rice seed used (MARA, 2005).

There are several public research institutions with complete breeding programmes for cereals. There are private companies but they usually carry out adaptation trials of varieties developed mainly in OECD countries. Turkey is a major partner in International Winter Wheat Improvement Program (IWWIP) together with International Maize and Wheat Research Institute (CIMMYT) of CGIAR.

### **Fertilisers**

There was a huge and continuous expansion in fertiliser use in Turkey between 1960 and 1990, usage rising to five million tons in 1990 from 0.425 million tons in 1963. In recent years, usage has fluctuated somewhat being influenced by the general economic crisis (MARA, 2006). It is expected that as the economy continues to expand the fertiliser use will increase (see Figures 2 & 3).

Relative fertiliser prices to cereal prices are shown in Figure 4. Cereal prices fell relative to fertiliser prices in 2001, with the largest reduction in rice. As seen in the figure, the pattern of relative prices is almost the same, indicating that the cereal prices move together.

### **Pesticides**

Pesticide use does not appear to have changed in last five years. Turkish agriculture currently consumes roughly 10000 tonnes of insecticides, 10000 of pesticides, and 5000 tonnes of herbicides (Lundell et al, 2004). Cereal crops used to be sprayed by air but this was costly as well as harmful to the environment. For several years, cereals have been sprayed in the field by engine driven sprayers which reduced both damage to the environment and cost to the farmers.

### **Cereal Sales**

About 30 % of the cereals, especially wheat, is consumed on farm and the rest is marketed at farm gate, local markets and via the Turkish Grain Board (TMO). The wholesale sector was dominated by state or parastatal enterprises and quasi-state organisations for many years until the economic reforms of 2001. In the cereal sector TMO remains the key player, acting as a buffer stock agency to stabilise producer and consumer prices. It carries out support purchases for wheat, coarse grain and other commodities, sells commodities on the domestic markets and imports and exports whenever authorised. TMO usually purchases 20 to 30 % of the total cereals produced and in some years more than 40 %. Most of the cereals marketed are purchased by local merchants and the milling and feed industries. TMO provides cereals to bakeries, the milling and flour industry and the feed industry as well as to merchants. The marketing channels are shown in Figure 5.

Many pasta producers contract durum wheat production, but farmers do not normally make pre-harvest contracts for other cereals.

### **Storage of cereals**

TMO is the principal market participant in Turkey, especially in the years when it fixes high prices. TMO is the main cereals purchaser and has the storage capacity of approximately 4.5 million metric tons (12.5 to 15% of the annual production) (TMO, 2006). At times, it rents its storage to farmers and gives them the option to sell their grains whenever they choose, either directly to the TMO or via commodity exchanges. The millers and the feed industry have storage but as the cost of the storage is high, and they can purchase from TMO, they prefer not to hold stock for long periods.

Farmers' own storage capacity is low and are not well developed. Some of the Agricultural Credit Cooperatives (ACCs) carry stock for a short period, though they account for a very small share of total output.

## **2.4 Outlook for Cereals**

### **Short Term**

TMO provides signals to merchants about the future direction of the market by announcing purchasing prices as TMO prices are expected to be linked to the world price. Thus the state procurement functions as a "buyer of last resort" (Oskam et al, 2004). Nonetheless, Turkish cereal production is highly responsive to the TMO's actions and prices. Therefore, unless there is a dramatic policy change by TMO, cereal production in 2006 is expected to be around the same level of 2005.

### **Long Term**

As part of the economic reforms, the Agricultural Reform and Implemented Program (ARIP) has been implemented since 2001. Strategic objectives, principles, and priorities of agricultural policies to be implemented after the ARIP are set forth in the Government's Agricultural Policy Paper 2006-2010. The objective of this paper is to help make decisions to develop the sector in accordance with the development plans and strategies, taking into account eventual EU Accession.

Tools of agricultural support to be used until 2010 are Direct Income Support (DIS) Payments, Deficiency Payments, Compensatory Payments (Farmer Transition), Livestock Support (fodder crops, artificial insemination, breeder incentive, milk premium, risk-free livestock region, bee-keeping, fisheries), Crop Insurance Support, Rural Development

Support, Environmental set-aside. In addition, funds will be allocated to selected credit supports and research and development aids within a competitive grants scheme.

As the support instruments change, the budget share of the instruments will change. The share of DIS will be reduced and that of rural development will increase but the total amount of transfer will not be very great. Therefore, it is anticipated that the cereal production will not vary much by 2010. However, it is expected that Turkey's accession to EU will have considerable impact on the cereals sector.

The retail and food processing industry will require safe and high quality food from the farming sector. This may push many small farms out of the market since it will be hard for them to comply with the requirements (Berdegue et al, 2003). Small farmers lack the financial resources to make the necessary investment and have difficulty in obtaining loans. In addition, high transaction costs make retailers reluctant to deal with many small farmers rather than with a few large suppliers, especially in the case of unprocessed and perishable products. Small and medium sized farms that want a part in the modern retail chain need to form a producer marketing and procurement organisation to access inputs and enhance the quality and quantity of their output. Turkey has enacted legislation on farmers' organisations as an alternative marketing structure to reduce transaction costs and increase small farmers' bargaining power within the food chain.

EU membership would require Turkey to adopt the EU's position on international trade issues and no longer operate its own import and export regimes. Developing the infrastructure, administrative capacity and commitment for effective border control will be challenging elements in Turkey's adoption of the *acquis* (Oskam et al, 2004).

Turkish agriculture is characterized by a dual structure: traditional and modern. Regional differences in agricultural technology use (land, labour, and capital saving technology) are also a distinct characteristic of the Turkish agriculture. The impact of the CAP therefore may also differ across both regions and types of the farming and studies indicate that cereals would be one of the sectors that suffer from EU market integration. . The dual structure of Turkish agriculture would be sustainable with traditional farms continuing to produce for their own consumption selling any surplus production locally.

(Cakmak, 2004) and Grethe (2004) indicated under the CAP, wheat and maize production would decline but barley and rice production expand.

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Annex

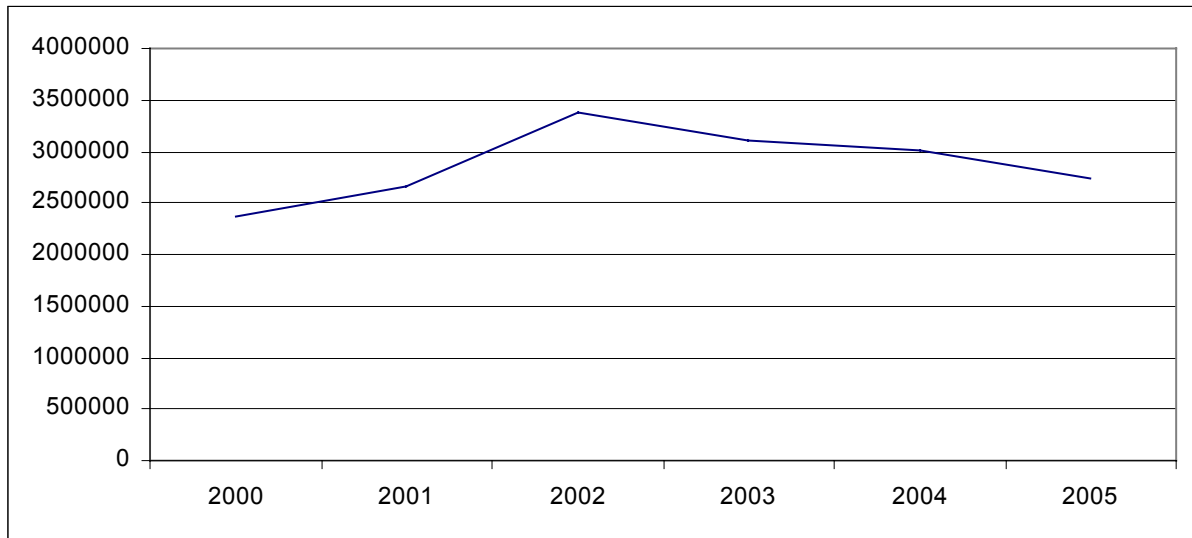


Figure 1. Real Tractor Prices (Tractor Prices / Index of Price Received by Farmers)

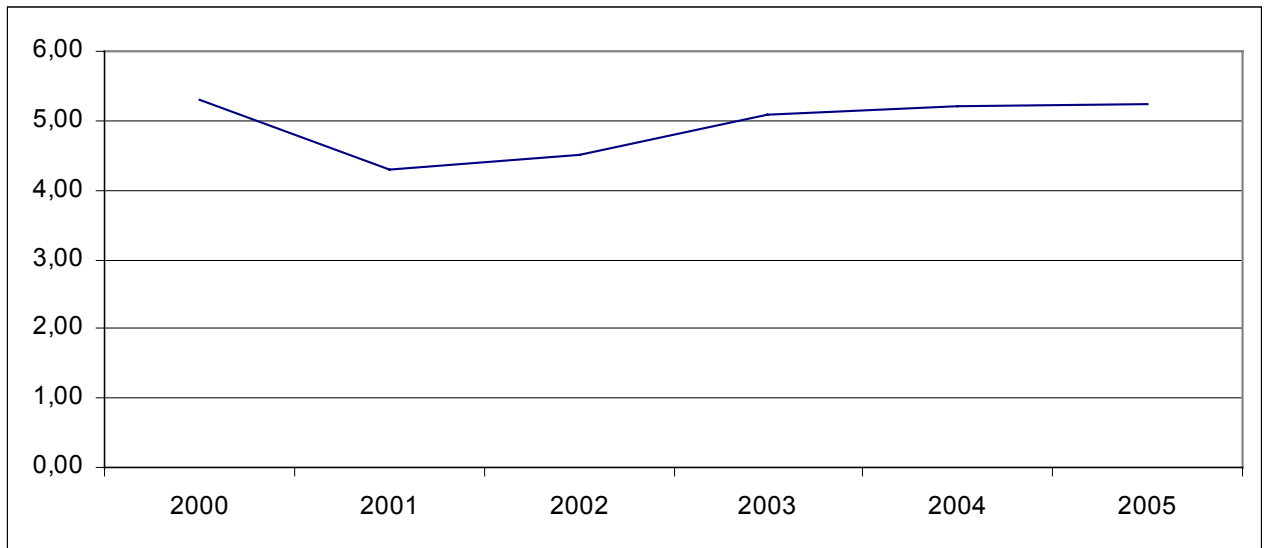


Figure 2. Total Fertiliser Use (Million Tons)

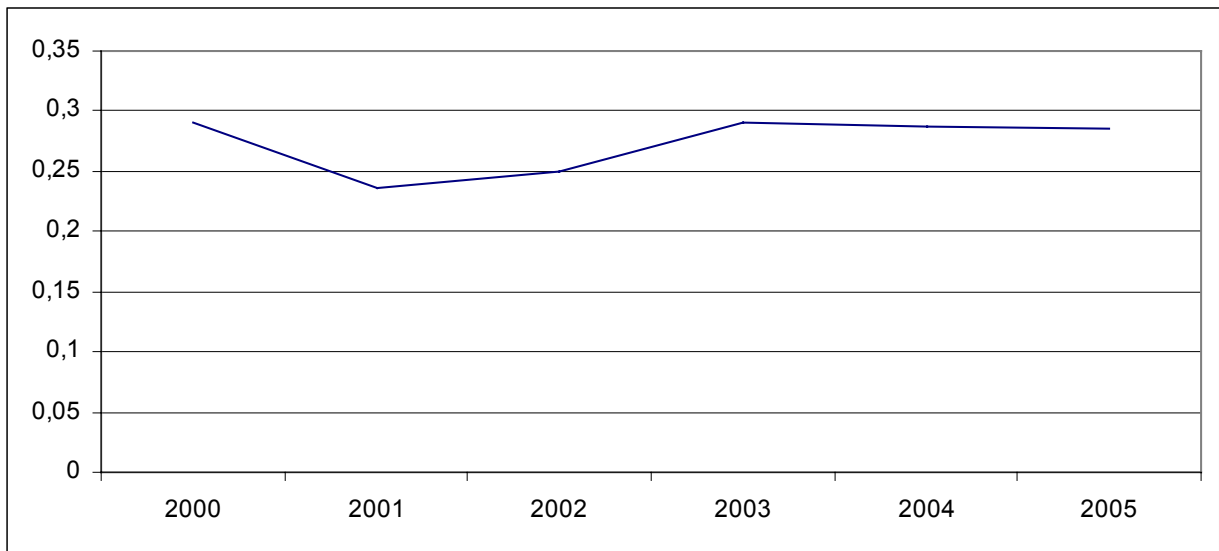


Figure 3. Fertiliser Use per Hectare (000 Tons)

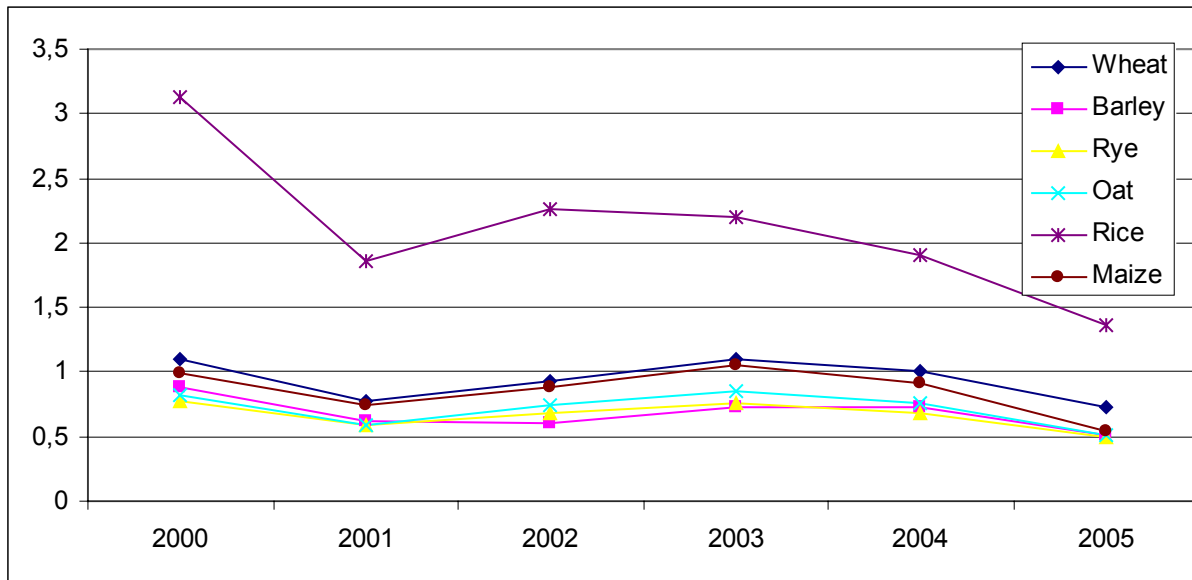


Figure 4. Cereal/Fertiliser Relative Prices

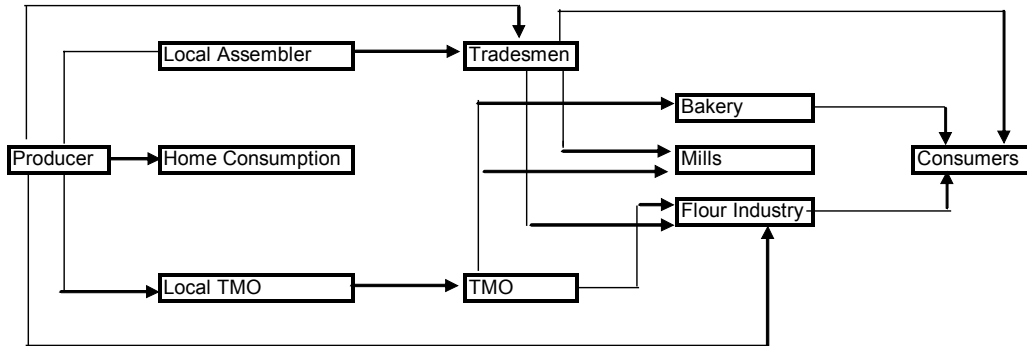


Figure 5 Cereal marketing Channels