Vol. 25 No. 3
OCTOBER 1986

Price R2,00
(R1,79 + 21c GST)

Agrekon

FOUR-MONTHLY JOURNAL ON AGRICULTURAL ECONOMICS

Issued by the Department of Agricultural Economics and Marketing

THE COMPETITIVE POSITION OF SOUTH AFRICAN AGRICULTURE: AN ANALYSIS OF SUPPLY AND DEMAND

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ABSTRACT

The competitive position of South African agriculture has been well researched in recent papers by the South African Agricultural Union "Die Mededingendheid van die Landbou...", in the paper "Ekonomiese Knelpunte in die Landbou..." and research by Groenewald, "Veranderings in die pariteitsposisie van die Suid-Afrikaanse Landbou".

In these papers the worsening competitive position was discussed and it was shown that input prices have increased more than product prices, producer prices have increased more than export prices, interest on farm debt is choking farmers because of more market related interest rates and import tariff protection has escalated input costs. These factors, coupled with the crippling drought, have magnified the farmers financial and cash flow problems.

This paper focuses on some possible short-term changes. It will be shown that the rand exchange rate has fallen more than can be explained by inflation rates, leading to a corresponding increase in export prices since 1983. The theme of this paper is also that food production in South Africa is profitable, that agriculture is basically efficient and that farmers should be allowed to feel market forces. South African farmers are also assured of a steady growth in local demand because the South African population growth rate is a high 2,9% compared to less than 1% in the USA. The income elasticity of demand for food is also much higher in South Africa than in the USA, indicating higher potential growth in local food demand.

INTERNATIONAL COMPETITION

International competition of a country depends on the relative cost price inflation in the home country and its trading partners and movements in exchange rates between corresponding countries. The rand exchange rate has fallen since 1983, improving South African agriculture's competitive position in the international market. To retain this export incentive, authorities need to show monetary restraint, otherwise local inflation rates will be fuelled by the weaker rand.

Schuh (1984) contends that the American agricultural export boom of the 1970s was closely tied to the fall of the dollar and the decline in exports since 1980 is closely associated with the rise in the value of the dollar.

The fall in the price of gold has been a mixed blessing for agriculture in South African since it was partly responsible for a weaker rand. The price of gold depends on world political stability, oil prices, US interest rates and the expectations of speculators. A reasonable medium term outlook is that gold prices in dollars will not increase substantially and that the correspondingly weaker rand would favour agriculture. Financial markets are, however, volatile and uncertain.

The cost of imported farm requisites increases in direct proportion to the fall in the exchange rate. It has been estimated that 13c of imports are required to produce R1 of agricultural production, against 73c for textiles and 64c for mechanical sectors (Brand and Tomlinson). Total farm costs are therefore less affected by a weaker rand than other industries and, on balance, agriculture may gain. This is also an opportune time to reassess and remove import protection on farm inputs since the weaker rand protects local manufacturers against outside competition.

The rand/yen exchange rate has fallen from R1 = 213 yen in 1983 to R1 = 140 yen in November 1984. Inflation rates during 1983 were 12,3% for South Africa and 1,8% for Japan. If the effect of inflation is eliminated, then the price of South African exports to Japan has increased by 38% since 1983. South African export prices have increased since 1983 as follows: to Australia 44%, West Germany 22%, Japan 38%, United Kingdom 19% and the USA 43%.

The index of producer prices increased more than that of farm requisites from 1982 to June 1984, confirming the above results. The Laspeyres price index used by the Directorate Agricultural Economic Trends may overstate cost increases and underestimate product price increases since it does not allow for resource and product substitution between base periods and also does not capture quality improvement in inputs. Labour cost is also not included in the farm requisite index, making it a less reliable indicator of cost movement.

If it is assumed that present conditions prevail then the wool industry may be more favourably

*Paper presented at Agricultural Outlook, Conference, Pretoria, January 1985. Comments from Prof. J.A. Groenewald are gratefully acknowledged

TABLE 1 - Percentage increase in SA export prices after allowing for relative inflation rates

Country	1981-1982	1982-1983	1983 to Nov. 1984	1982 to 14 Nov. 1984
Australia	+ 5	-12	+44	+32
West Germany	+ 7	-10	+22	+12
Japan	0	- 4	+38	+34
United Kingdom	+13	-15	+19	+ 4
USA	+19	- 6	+43	+37

influenced, since it relies less on imported inputs, than, for instance, crop farming. Conditions may have changed by the time the maize crop is harvested, but farmers in the traditional export industries should explore export opportunities.

It has been said that since South Africa's maize yields are lower than those of the USA we cannot compete with the USA on the export market. South African maize yields are about 1/3 of the USA yield owing to climatic differences in the two countries. This, however, does not make us less competitive in an economic sense and it is no reason by itself why our maize exports should be subsidised. The carrying capacity of sheep on veld is higher in the higher rainfall areas of the Transvaal and Orange Free State than in the Karoo and Namaqualand, but mutton prices are the same in both areas. In the less productive areas, land prices are lower and if a USA and a South African farmer each invested R500 000 in their respective agricultural industries, then each could expect a return of about 5% on his investment or R25 000 pure profit (see Nieuwoudt, Pasour, Fraumeni and Jorgenson).

An industry is not competitive only in so far as the industry has been prevented from competing on the world market. For certain livestock products, in particular, international prices are so distorted by dumping practices, for instance by the EEC, that export prices have no relation to the cost of production.

We are competitive on the export market in the products that we have exported in the past without state support, such as wool, hides and skins, deciduous fruit, preserved fruit and citrus. The maize industry has received more support than probably any other industry either directly from the State or from consumers in the sense that consumer prices were kept above export realisation prices (price discrimination). However, local maize prices have over time followed international prices reasonably closely. The sugar industry has always been competitive, but owing to expanded world production and the change to corn sweeteners, this industry has lost its competitiveness and local sugar prices (raw) are R500 per ton while export prices are R100.

PROFITABILITY AND COMPETITIVENESS

Groenewald (1982) has shown that input prices increased faster than product prices, putting pressure on agriculture. In the USA the relation of output prices to input prices fell from 1910-1914 = 100 to 57 in 1982 (Tweeten). Bullock (1984) shows that in the USA 70% of farmers produce at a loss, but that only 13% of output is produced at a loss. Off farm income in the USA accounted for 99% of farmers' income on 72% of farms. It is expected that the price-cost squeeze will continue and that some farmers will inevitably have to leave agriculture.

Competitiveness in SA agriculture is partly reflected in the profitability of agriculture. Cost data are often used to demonstrate that costs exceed income for a given product and therefore that producers need protection or higher prices to cover costs.

It is suggested that a more objective picture of agriculture's profitability can be gleaned from more indirect information. For instance, in egg production the quota value of a laying hen is R12 and fresh milk quotas sold in the past in Natal for R40 a gallon. Quota values are monopoly profits and reflect the extent by which actual profits exceed normal profits.

High land values and, more important, high land rents refute statements that losses are being made on the average. Sugarcane land sells for R2 000 per ha and rents for R100-R120, showing pure profits are being made. Ricardian land rents are expected profits and as such do not reflect profits in a given year, which could be negative, as during a drought.

Land rents are the purest form of profit, being the difference between income per ha and all costs per ha, including variable cost, fixed cost, managerial return and cost attached to risk perceived. De Jong (1984) did not find that farmers pay more rent for land adjacent to theirs. In the long run all costs are variable and farmers would not pay rents over a sustained period if it did not cover all costs.

Research indicates that land rent in South Africa is about 5% of land value. This compares with similar rates reported for the USA by Pasour (4,1%) and Fraumeni and Jorgenson (3,5%). It compares with the dividend percentage on shares, for instance the dividend yield on the growth fund NGF during November 1984 was 4,95%.

The nominal rate of return in agriculture (r_1) can be derived from the rental rate of return (r) and the growth rate of nominal farm profits (d) as follows (Nieuwoudt, 1980):

$$r_1 = (1 + r)(1 + d) - 1$$

This calculation shows that the rate of return in South African agriculture exceeded the bank overdraft rate during 1947-1979 and it compared favourably with investments in unit trust funds. For instance, rate of return of NGF was 15,5% (1965-1980), SATS 14,2% and agricultural land 17,5% (1965-1979).

Although the rate of return in agriculture is high, the largest portion of this return is realised only in future years and farmers have cash flow problems. The root cause of this cash flow problem is high inflation rates, which push up nominal interest rates.

With a 12,3% inflation rate (1983) and a 20% interest rate, the real interest rate is only 7,1%. If the

TABLE 2 - Annual growth rates in physical volume of production and population 1948/49-1979/80

Field crops	Horticultural crops	Animal products	Food crops	Non food crops	Population
4,5	5,0	2,8	4,3	1,7	2,9

Source: Division of Agricultural Marketing Research: Abstract of Agricultural Statistics, Pretoria

bank interest is 7,1% and the inflation rate is zero, then the real interest rate is also 7,1%. The rate of return in farming is the same in both cases, but in the first case the farmer has a serious cash flow problem. High inflation and interest rates are not making agriculture less profitable, but push returns further into the future.

With a return in agriculture of 5% (profit ÷ land value) and a borrowing rate of say 20%, a farmer has problems paying his interest if his debt is more than 25%. Although agriculture is productive and competitive, many farmers will go into further debt with high interest rates (refer Van Wyk).

Since land rents reflect profitability the relative competitiveness of different farming enterprises can be studied. During 1982/83 rent on arable land was five times that on grazing land, showing that maize was five times as profitable as livestock. Data also show that the comparative advantage of maize versus livestock was the same in the three main maize producing areas (de Jong).

LOCAL DEMAND AND SUPPLY

South African agriculture is fortunate that local demand at least increases by the rate of population growth, which is a high 2,9%. During the post World War II period, growth rates in the volume of production in field crops (4,5%) and horticultural crops (5,0%) exceeded population growth, but livestock products had slightly slower growth (Table 2).

Rising and falling incomes, however, prove a much more powerful force than population growth in shaping the demand for food (Falcon and McCalla). In order to stimulate local demand and fight poverty, employment creation and economic growth must be high priorities in South Africa.

Meat consumption

In 1970 Whites consumed 70% of poultry meat in SA, but by 1975 this had declined to 35%. The White consumption of beef fell from 59% of all consumption to 48% during this short period. Blacks replaced Whites as the major consumers of meat.

The per capita consumption of beef and veal in South Africa declined from 35,5 kg in 1948/49 to 22,3 kg in 1980/81 and the per capita consumption of poultry increased from 2,2 kg to 12,1 kg over the same period. During this period the per capita consumption of mutton and pork also declined. Poultry consumption currently exceeds mutton and pork taken together.

Figure 1 shows that the fall in the consumption of beef was associated with an increase in the real price of beef and Figure 2 indicates that the increase in consumption of chicken was associated with a decline in its real price. According to Figures 3 and 4 declines in per capita consumption of mutton and pork can also be attributed to increases in real prices.

Hancock (1983) using econometric models confirmed these relationships. He further captured

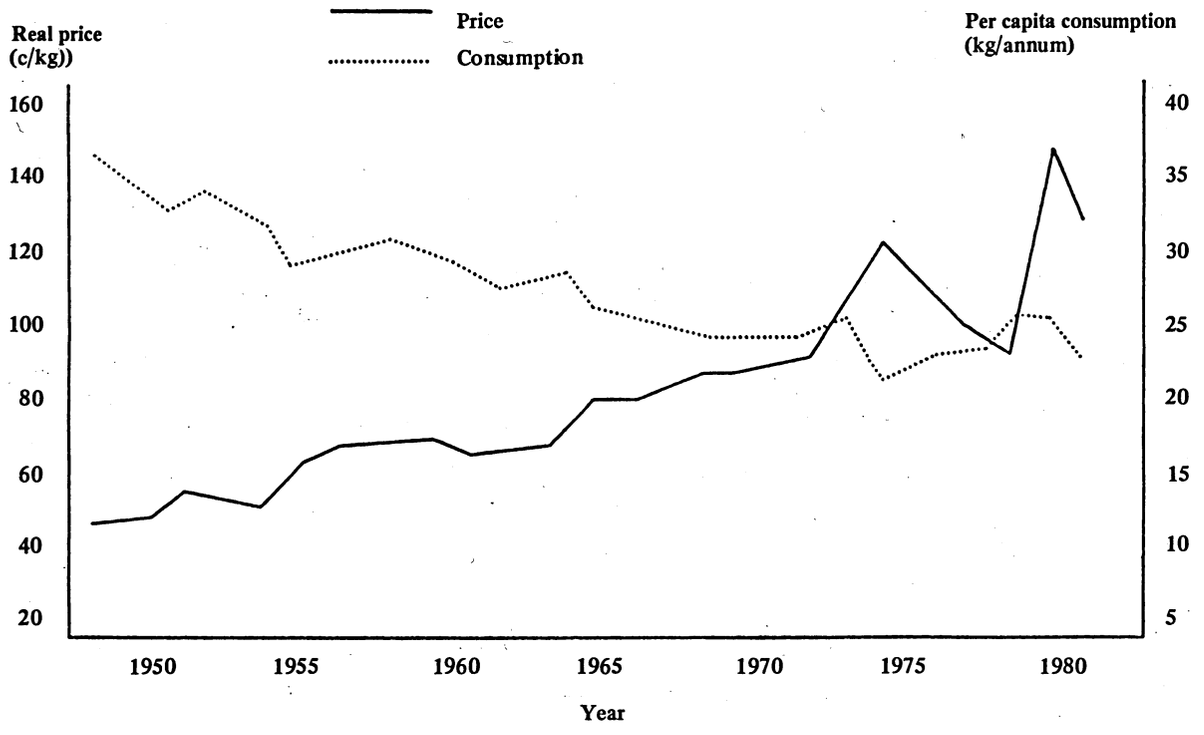

FIG. 1 - Real beef prices and per capita consumption for 1949 to 1982

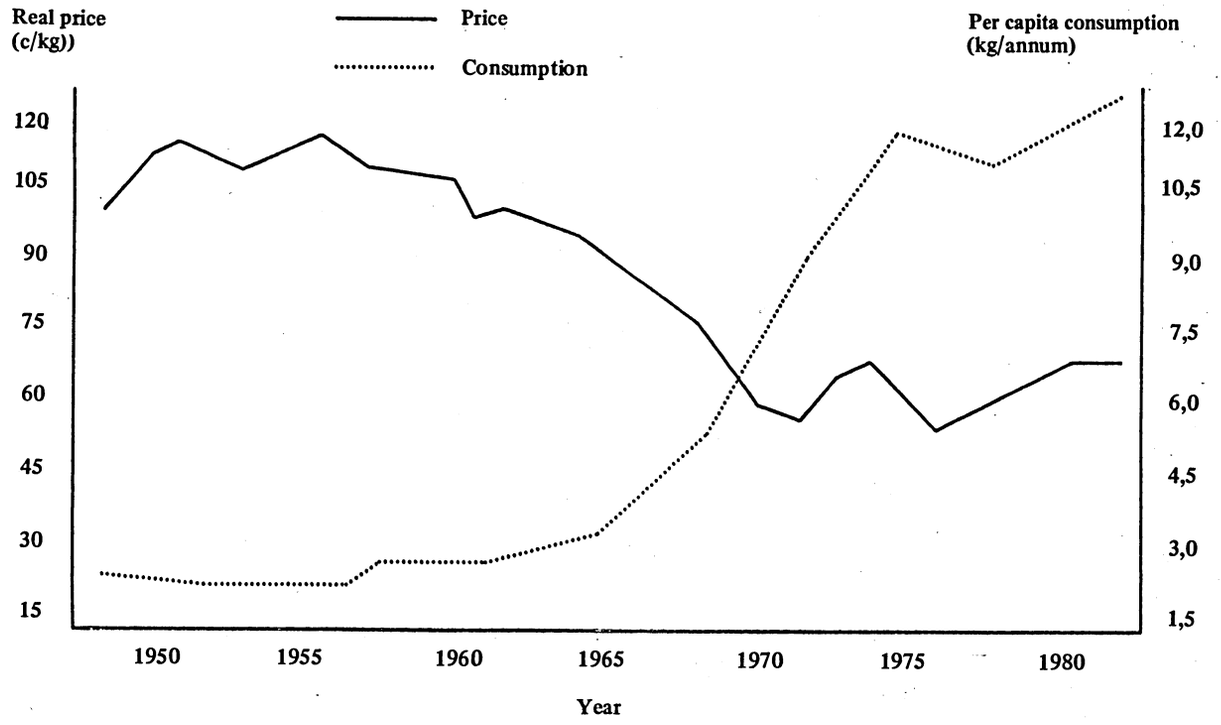

FIG. 2 - Real poultry prices and per capita consumption for 1949 to 1982

the cross effects, for instance that of a fall in poultry meat price on beef, mutton and pork consumption.

McCalla attributed the major shift from beef and pork to poultry in the USA in 1972 to a rapid increase in pork and beef prices at that time.

The shift towards poultry in South Africa is also attributed by Hancock (1983) to a fall in poultry prices relative to other meats. The decline in the real price of poultry meat can be attributed to technological advances in poultry production. The question arises whether policies such as beef permits accelerate the shift towards poultry meat. Consumers learn new recipes for preparing poultry meat and they may not return to beef if its price becomes more competitive.

I have a high regard for the wisdom of our farm leaders and believe that efficiency in South African agriculture compares well with that of other major food producers. In this spirit certain comments are made. Research indicates that the current permit/quota system for beef harms the consumer and the farmer who cannot obtain a quota

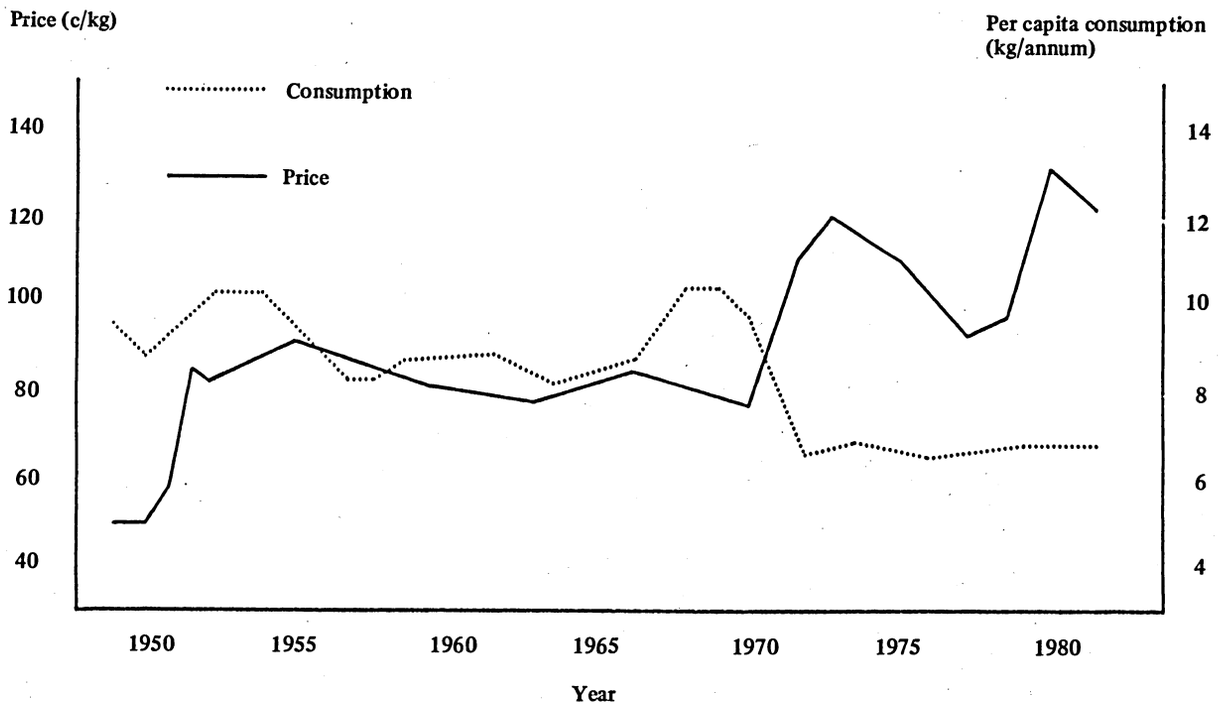

FIG. 3 - Real mutton prices and per capital consumption for 1949 to 1982

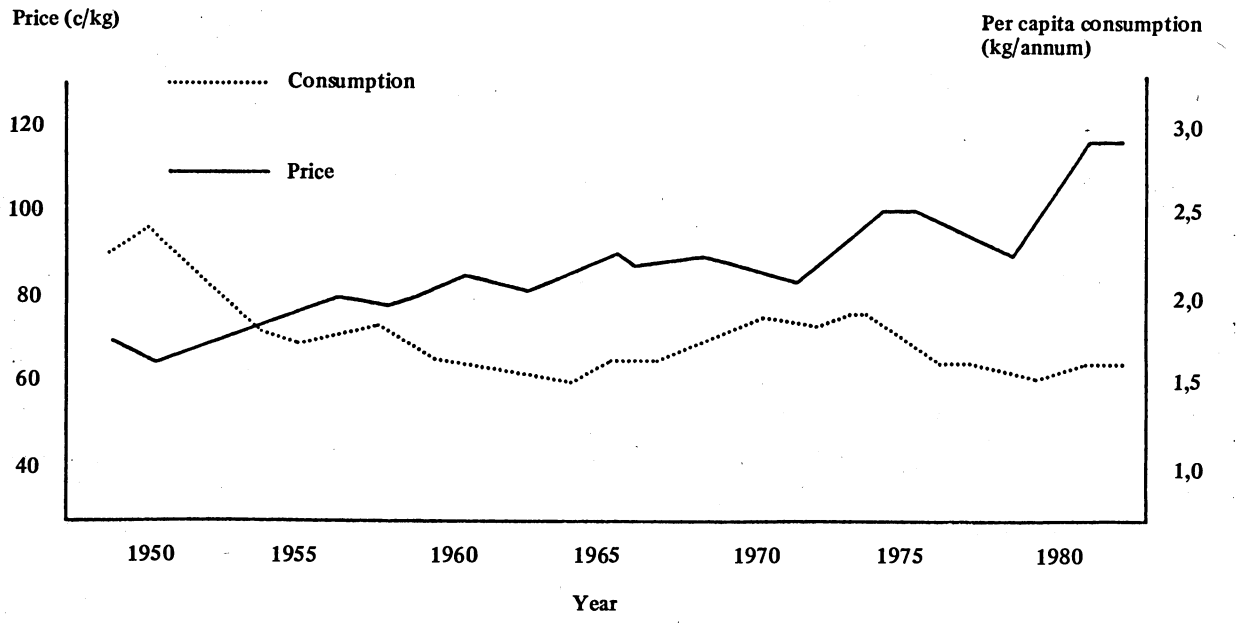

FIG. 4 - Real pork prices and per capita consumption for 1949 to 1982

while it benefits the speculator. In Figure 5[1)] it is shown that without control the price of beef would be P_0 and consumption Q_0. If Q_1 permits are allocated, consumption and production fall to Q_1 and the price in controlled markets increases to P_1 while the country auction price falls to a level lower than P_0 (Nieuwoudt, 1985)[1]. The farmer who cannot get a permit receives this lower price. The value of the permit is the difference between this lower price and P_2.

During May 1983 to April 1984 permits/quotas were granted for 39,8% of the cattle for which they were applied for. It can, however, be expected that farmers apply for more permits if they expect not to receive the full quantity. It has been estimated that if permits reduce sales of beef by as little as 5% on the nine main markets, the value of permits would be

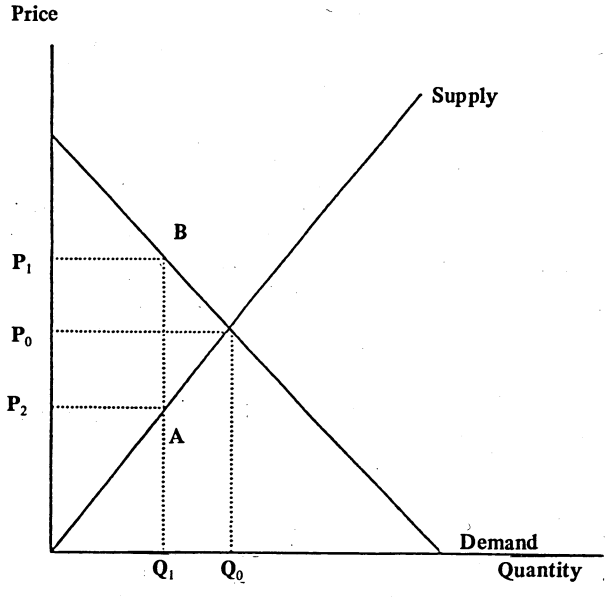

FIG. 5 - Demand for and supply of beef

R80 million or R52 per animal. It is no wonder that Paarlberg states that the value of tobacco quotas exceeds the value of tobacco land in the USA. The permit value for beef is not known because these permits/quotas are not transferable as in the case of eggs, where a quota sells for R12 per laying hen.

If the Meat Board through its agents allocates 2 000 permits/quotas to a large speculator and *if* the supply is restricted by 5%, then effectively this speculator receives a handout of 2 000 x R52 = R104 000. The permit value depends upon market pressure, for instance, during a drought market pressure may be high and permit value would be high, aggravating the position of the farmer. After good rains permits may have no value as they may not be restricting supply. In the latter case a speculator may in fact lose money, but he will sell just to retain his permits/quotas. According to a spokesman at Stockowners', Pietermaritzburg, during March to July speculators make up to R80-R90 per animal. However, during the rest of the year speculators make little or lose.

Permits derive value from the fact that a restricted supply increases the price at city abattoirs while depressing the country auction price. Restricting the supply of beef is contrary to research efforts promoting productivity in agriculture. If slaughtering facilities are limiting then providing these facilities is a sure way of promoting productivity in livestock production. Health requirements in country abattoirs also need re-examination. *The policy recommendation is that the permits/quotas should gradually be phased out by making more permits available and adjusting floor prices if surpluses arise.*

Milk consumption

Per capita fresh milk consumption in South Africa has fallen from 64,0 kg in 1955/56 to 34,7 kg

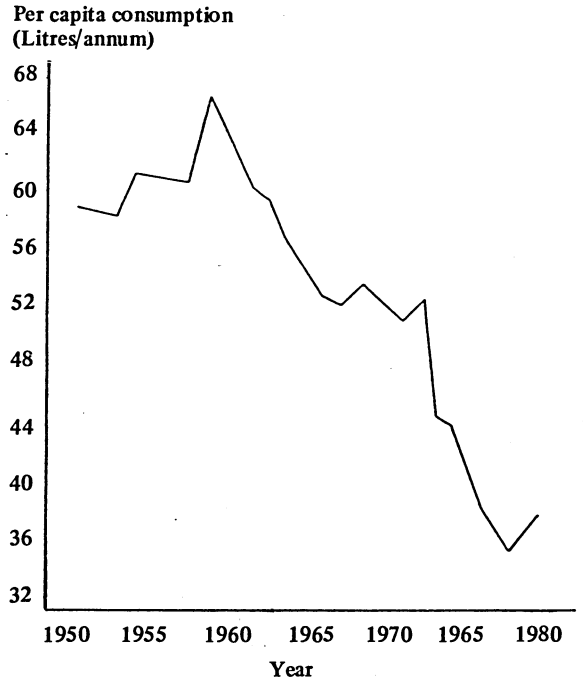

FIG. 6 - Consumption of fresh milk for 1951 to 1981

Source: Abstract of Agricultural Statistics 1978, 1983

in 1981/82 (Figure 6). Econometric research indicated that the increasing ratio of Non-Whites in the population and increasing consumption of substitutes have been significant factors accounting for this trend (McKenzie 1985). It was also found that the latter factors increased the elasticity of demand for fresh milk.

This implies that consumption has become more sensitive to price increases and that price will become a more important feature in the selling of milk. Concern has been expressed about Blacks consuming substitutes with relatively little nutritional value.

With the serious over-production problems milk prices should be allowed to fluctuate more, in sympathy with demand and supply. It was stated at a meeting of the Natal Fresh Milk Producers' Union that price must be related to what the market can pay rather than to cost of production.

The present (1984) system of milk marketing through price discrimination, where entry is free, raises the fresh milk price above the freer market level, but depresses the industrial milk price below the freer market level. Because the farmer receives an average or pool price the scheme encourages supply of industrial milk and leads to its over-production if industrial milk prices cannot move downward.

The current (1984) scheme, whereby the fresh milk price is kept high, but industrial milk prices are low, does not hurt the poor because they can still buy milk powder at close to market-related prices. *If industrial milk quotas are introduced, as proposed, these quotas will have a value and the price of milk powder will increase*, which will hurt the poor. *The latter impact could be serious in South Africa's dualistic society where many would not be able to afford to buy milk powder at increased prices.*

Wheat (bread)

During the period 1947/48 until 1980/81 the annual per capita consumption of bread increased from 21 kg to 47 kg, which is significant. Research shows that the increased bread consumption can largely be attributed to a fall in the real price of bread of 20,7% and an increase in per capita income of 50%, during this period.

Maize consumption

Research indicates that the animal use of maize in South Africa is price responsive, but that the human consumption is not. The substantial increase in animal consumption of maize in the post World War II period was attributed to a fall in the price of maize relative to livestock products.

Using distributed lag models it was estimated that a lowering in the maize price could lead to a greater than proportional increase in animal consumption of maize. In the past maize prices in South Africa have been kept above freer market levels through price discrimination. This has affected the livestock feeder and consumer of maize. Maize production is profitable in South Africa, for instance, maize land sells for R2 000 per ha and rents for R100 per ha. Farmers therefore expect an *average* pure profit of R100 per ha on good maize land.

The animal demand for maize is derived from the demand for livestock products. The demand for meat is expected to grow substantially because meat is a more luxury product with a high income elasticity of demand. This promises substantial growth in the animal use of maize.

A proposed quota for maize is not seen as a viable solution in the maize industry. It will hurt feeders and consumers and it will be difficult to control the animal consumption of maize through quotas. A major impact of a quota is to raise the cost structure of an industry and it would make other industries (livestock) less competitive.

Sugarcane

The export price for raw sugar is R150 per ton and the local price is R500 per ton. The import price is R250 per ton, implying that the local consumer pays for high producer prices.

The sugar industry has now proposed to cut quotas to 70% of current levels with an even higher producer price on the smaller quota acreage.

In the USA the per capita consumption of corn sweeteners increased from 9 kg to 27 kg during 1970 to 1983 and the per capita consumption of centrifugal sugar declined from 45 kg in 1970 to 32 kg in 1983 and is expected to fall to 29 kg in 1985 (Efferson).

World sugar prices are depressed owing to expanding sugar production and the increase in consumption of corn sweeteners in the world's most important market (USA). Corn sweeteners can

replace cane sugar on the local market and further price increases present a greater incentive to do so.

The South African sugar industry has to make a painful adjustment. The current quota scheme has protected the industry from market forces. Cane land currently rents for R150 per ha and sells for R2 000 per ha, indicating that at present prices production is profitable.

The agricultural industries that have successfully made adjustments during adverse times are those with limited control, i.e. wool and fruit. These industries may also gain the most from the present fall in exchange rates. The wool industry has successfully adjusted since 1955 when world prices slumped because of competition from synthetic fibres and the fruit industry was severely affected when Britain joined the Common Market.

CONCLUSION

The competitive position of South African agriculture has improved since 1983 as the rand exchange rate has fallen more than the inflation rate in South Africa relative to its trading partners. It is possible that the glut in oil and the accompanying weaker gold price may at least in the medium term lead to a realigning of the rand exchange rate at a lower level, increasing South African agricultural export prices.

South African agriculture is basically efficient, but it will remain competitive only if policy makers allow it to be, that is by exposing farmers to international market forces.

An industry can be competitive only if exposed to foreign competition. In the USA quotas on peanuts kept acreage to 1,6 million acres while soyabean acreage was free to expand. Currently soyabeans are overtaking maize as the most important crop in the USA.

Farmers are fortunate that we have an expanding local market because local population growth is high. In the post World War II period food production in South Africa increased at about 3,9% while the population growth was 2,9%, which is a credit to the efficiency of agriculture. In contrast, per capita food production declined in Black Africa.

With the increase in the proportion of Blacks, the consumption of individual foods becomes more price sensitive and a competitive price will be a greater sales feature. The price must be related more to what the market will pay rather than to the cost of production. Some policies, such as a quota on industrial milk, adopted to achieve stability, will be capitalised in quota values. This will increase the price of milk powder which is a basic commodity of the poor. The consequences may be serious in South Africa with its dualistic society.

The best strategy may be to keep prices at a competitive level, otherwise producers will lose their market shares. Beef farmers may lose their market share to poultry farmers, sugar farmers to corn sweeteners, fresh milk farmers to consumers of milk powder and so on.

REFERENCE

[1]) Figure 5 is a simplification of Figure 3 appearing in a paper by the same author, titled "An Economic Analysis of Demand and Policies in the Beef Industry", Agrekon 1985. There is justification for presenting the quota situation in this way (Figure 5) as no uncontrolled marketing areas really exist. The country auction market is directly derived from the city abattoir market as depicted in Figure 5, whereas slaughterings in the smaller towns are regulated through health requirements and limits on the number of animals that are allowed to be slaughtered.

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