The Vital Importance to South Africa of Food Production by the White Agricultural Sector

S. J. DU PLESSIS

SUMMARY

The information presented here is intended to show that the contribution of the White agricultural sector in South Africa has, with some singular exceptions, thus far succeeded remarkably well in the onerous task of producing food in adequate quantities and at reasonable prices for the rapidly increasing population of this country, even while many other countries of the world are experiencing serious setbacks in production.

The value of such contribution can hardly be overestimated and should strengthen the close relationship we know to exist between the urban and rural sections of the population of this country.

S. Afr. Med. J., **48**. 1675 (1974).

THE WORLD FOOD SITUATION

During the first two postwar decades the nations of the world have devoted special attention to ways and means of satisfying hunger throughout the world, and spent considerable time in the drafting and implementation of programmes whereby agricultural production, especially in developing countries, could be enhanced. The goals set for these programmes were the promotion of production of food in a quantity sufficient both to feed the population well enough to sustain good health, and to meet the increasing demands of the growing population. In recent years developed countries have shifted their attention to measures by means of which world supplies of protein could be increased in order to enable developing countries to achieve better balanced dietary patterns. Food production, and therefore agriculture also, has generally been accepted as one of the most powerful weapons to support man, to ensure his well-being and happiness, and to promote peaceful relations between nations.

The food situation and the outlook in South Africa at that time were summarised thus in a statement delivered to the 12th Conference of the Food and Agriculture Organisation of the United Nations: from 1946 to 1961 the population of South Africa increased from 11,4 million to 16,5 million, therefore by 2,7% per annum. The food credit sheet, on the other hand, during the same period shows an increase in physical volume of agricultural production of more than 4% per annum, and the prospects are very good that further increases at the same rate will at least be maintained. We therefore have every reason to be confident that our agricultural food production can keep pace with the growing requirements of a population increasing in number and improving in nutritional habits.[1]

The somewhat bright outlook on world food production prospects has, however, been dimmed by severe setbacks during recent years, several even in some of the most advanced countries. Agricultural production declined particularly during 1971 and/or 1972 in many countries as a result of unusually bad weather.[2,3] Wet weather wreaked havoc with crops in Brazil, Peru, Uruguay and other countries in South America. Dry weather and severe droughts ruined various grain crops in Argentina, Mexico and Central America. Food production was so badly hit by two successive years of drought in West Africa that countries such as Chad, Niger, Upper Volta, Mali, Senegal and Mauritania had to apply for relief supplies from the Food and Agricultural Organisation.

The total production of grain, potatoes, vegetables and sunflower seed in the USSR in 1972 dropped more than 4% below its record of a year earlier, and that country was obliged to purchase additional stocks from the USA.

Severe and widespread drought during the summer of 1972 greatly reduced the production of food, especially rice, in most countries throughout the Far East, including the Peoples' Republic of China. The food situation became so critical in India, also, that relief supplies had to be imported before the end of that year.

Whelan,[4] in his address on agriculture and the future of farming, referred to the fact that some farmers in the Ottawa area lost their entire crop during the previous summer, one of the worst in living memory. To him the recent increases in food prices in Canada are intertwined with concurrent crop shortages in Russia, Australia, South Africa and in other countries, and with the increasing demand for red meat in all the developed countries of the world. Even in Australia severe drought curtailed the crop output and ravaged pasture land.

From these reports it may be concluded that there were few countries which escaped the series of ravages during 1971 and 1972. A relatively favourable outlook for agricultural production in Western Europe was marred by economic uncertainties. Japan, Malaysia, Taiwan and New Zealand were among the few countries of the Far East and Oceania which were fortunate enough to escape setbacks and increase their food production on a *per capita* basis. The USA was apparently even more fortunate. It not only enjoyed markedly favourable cropping seasons, but could recultivate the reserve crop areas and dispose of its considerable surplus food stockpiles. It found itself in an

Ministry of Agriculture, Pretoria
S. J. DU PLESSIS, *Agricultural Policy Adviser*

Paper presented at the Biennial Meeting of the South African Nutrition Society, held in Pretoria on 6 - 8 September 1973.

excellent position to benefit by the distorted trade patterns which resulted from both a clustering of bad years and rising agricultural prices.[6]

However, even in that country concern is being expressed regarding the fate of their feed grains, since widespread unduly wet weather and floods in the central regions of the USA, and scattered fuel and fertiliser shortages threaten to result in a considerable crop shortfall in the affected regions.

THE SOUTH AFRICAN AGRICULTURAL SCENE

The erratic food situation manifested during the past decade, due to a series of setbacks to agricultural production by adverse weather conditions which could not conceivably have been accurately foretold, has manifested itself in numerous countries, developed and developing, and in South Africa also. Such a situation may appear somewhat unusual, but has nevertheless served to stress the indispensability of agriculture and to underline the significance of views expressed earlier: 'Whatever the status of development, whatever conditions may obtain locally, and irrespective of technological advancement and innovations, terrestrial or agricultural food production still has to rely basically on plant and animal products obtainable, directly or indirectly, within local climatic limitations from the natural soil/water resources complex.'[4]

It is therefore considered opportune to review the role played by South African agriculture. Against the background of world events in the sphere of food production, the importance of agriculture as supplier of the daily requirements without which no-one can live, becomes particularly evident.

Production Potential in White and Black Agricultural Areas

The Commission of Inquiry into Agriculture (1970) produced data to show that only 12,27 million ha of a total of 102,40 million ha of agricultural land is cultivated for crop production. When compared with world averages of cultivated and cultivable land per person, the position in South Africa with regard to productive soils therefore appears to be less than favourable.

Furthermore, according to the Commission, areas totalling 13,22 million ha, or approximately 13% of the total area available in South Africa for agriculture, has been reserved for Black development. Smit[7] has indicated that 76% of such Black areas are nevertheless situated in those parts of the country which receive more than 508 mm of rain per annum, and which possess a production potential estimated at 20% of the total potential of the agricultural land in South Africa.

Studies by Hamburger and Waugh[8] led these workers to conclude that on the average the production potential of 85 ha in these Black areas is equal to that of 130 ha in the White agricultural area. From soil surveys and land use studies in several representative Black areas, Grobler[9] concluded that the potential of agricultural land in the Black areas is such that according to modern agricultural standards, plant and animal production thereon could feed the resident population and still allow sufficient scope for diversification to support local secondary industries.

However, it is known that traditional and fairly primitive agricultural practices still persist in practically all the Black areas. Due to this state of affairs the levels of production of maize, grain sorghum, and animal produce still remain very low. As shown in Tables I and II, the contribution of agriculture in the Black areas to the total agricultural production and to the food pool of the country is extremely small and static. On the basis of these data one has reason to doubt whether Black agricultural production at present levels can provide for even the most essential nutritional requirements of the approximately 7 million Blacks residing in the Black homelands.[10]

According to Smit[7] special efforts have been made since the middle of the century to improve agricultural practices and to raise production in Black areas. Although encouraging results have thus far been reported, these have, judging from the data in Tables I and II, not yet resulted in a noticeable rise in agricultural production.

From such factual data one is led to conclude that the 8 033 200 Blacks who, according to statistics,[10] are resident in the White areas, in so far as their total nutritional requirements are concerned, are dependent on food products delivered by the White agricultural sector of South Africa. The same applies to most of the 3 850 000 Coloureds

TABLE I. CROP PRODUCTION ON FARMS OF WHITES AND IN BANTU AREAS FROM 1951 TO 1972*

	Grain production 1 000 tons				Production of leguminous crops 1 000 tons					
	Maize		Grain sorghum		Dry beans		Cowpeas		Dry peas	
Year	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas
1950	2 754	262	106	48	34	9	6,0	3,5	4,6	0,7
1955	3 516	261	77	63	28	9	3,1	7,8	6,8	1,3
1960	4 017	271	183	55	43	8	8,4	3,4	5,8	1,1
1965	4 393	190	384	30	29	9	6,4	3,1	9,9	
1970	5 989	145	365	14	43	6	8,0	3,0	2,4	
1972	9 250	380	500	56	55	11	13,0	6,0		

* Division of Agricultural Marketing Research, 1973 Abstract of Agricultural Statistics.

TABLE II. LIVESTOCK ON FARMS OF WHITES AND IN BANTU AREAS FROM 1951 TO 1972* (IN MILLIONS)

	Cattle		Woolled sheep		Non-woolled sheep		Total sheep		Goats	
Year	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas	Farms of Whites	Bantu areas
1951	8,2	3,4	26,4	3,2	4,7	0,5	31,1	3,7		
1955	8,2	3,5	29,9	3,0	3,6	0,5	33,5	3,5	2 496	2 641
1960	8,8	3,5	31,7	3,2	3,8	0,5	35,5	3,7	2 524	2 522
1965	7,4	3,4	31,8	2,2	4,7	0,6	36,5	2,8	2 990	2 500
1970	7,9		29,5		3,6		33,1		2 546	
1972	8,1		25,9		4,0		29,9		2 296	

* Division of Agricultural Marketing Research, 1973 Abstract of Agricultural Statistics.

and the 640 000 Asians who permanently reside in the Republic of South Africa.[10]

To the overwhelming majority of all races of the South African population the achievements of the approximately 90 000 White farmers and their contribution to the food supply are of vital importance. Special attention will therefore be devoted in the ensuing paragraphs to the progress made with agricultural production on farms of the White agricultural sector.

Natural Resources

Fertile, productive soils are relatively scarce in South Africa, and therefore impose limits on the production of an adequacy of essential commodities required by the rapidly increasing demands of rural and urban activity. Furthermore, we now face the prospect that water may become one of the most decisive limiting factors in the whole South African economy, including agriculture. And without water there can be no food production or life. This situation calls for special measures to improve the conservation of water, and the efficiency of irrigation and other forms of water utilisation. It is therefore of paramount importance that those irrigation projects to be developed under the Orange River and other schemes should be exploited to their maximum capacity.

FOOD PRODUCTION

Volume of Production

The Commission of Inquiry into Agriculture[11] referred in paragraphs 1.2.1 to 1.2.1.2 of its Third Report, to the considerable progress made with agricultural production since World War II. As shown by the data in Table III, the trend of increased production therein referred to, and with regard to most of these commodities, has been maintained. The production of some commodities however, e.g. maize, has shown a tendency in recent years to considerable fluctuation.

The rate of increase of the physical volume of agricultural production since 1947/48 averaged 3,8%, and of food products 4,1%. This progress in agricultural production exceeds that in developing countries, and compares very favourably with the progress made in developed countries. According to the indexes presented in Table III the rates of increase in the production of field and horticultural crops since 1947/48 were significantly higher than the

TABLE III. INDICES OF THE VOLUME OF AGRICULTURAL PRODUCTION IN THE REPUBLIC OF SOUTH AFRICA (1958/59 – 1959/60 = 100)*

Year	Field crops	Horticultural products	Livestock products	Total volume agricultural production	Food products	Non-food products
1947/48	68	53	70	67	65	70
1952/53	74	68	86	78	76	85
1957/58	87	89	95	91	89	98
1962/63	123	118	108	116	115	117
1967/68	135	167	120	133	137	121
1969/70	147	168	132	144	148	129
1971/72†	194	188	129	164	171	143
1972/73†	130	186	130	139	151	102
% increase in 25 years	91	251	86	107	132	46
% annual rate of increase	4,5	5,6	2,4	3,8	4,1	2,5

* Division of Agricultural Marketing Research, 1971 Abstract of Agricultural Statistics.
† Preliminary.

average growth rate (3,01%) of the South African population during the decade 1960/70. Livestock production, however, though on the increase, tends to lag, and indications are that the gap between population requirements and livestock production has shown a tendency to widen in recent years. This has necessitated the importation of increasing quantities of beef to meet consumer demands.

TABLE IV. IMPORTS AND EXPORTS OF FRESH AND PROCESSED FOOD PRODUCTS DURING THE SEASONS 1960/61 AND 1970/71*

	Unit	Imports		Exports	
		1960/61	1970/71	1960/61	1970/71
Food products					
Wheat	1 000 t	104	161	—	—
Maize	1 000 t	—	—	948	1 302
Sugar	1 000 t	—	—	295	809
Potatoes	1 000 t	—	—	11	12
Deciduous fruit	1 000 t	—	—	103	200
Citrus fruit	1 000 t	—	—	296	303
Rice	1 000 t	52	91	—	—
Sunflower seed	t	—	—	2 031	54
Dry beans	t	—	—	9 995	2 120
Groundnuts	t	—	—	50 890	57 034
Livestock products					
Butter	t	2 610	6 229	11 534	8 250
Cheese	t	7	5 100	3 266	224
Condensed milk and powder	t	206	12 159	704	1 094
Eggs	Boxes (30 doz)	—	—	305 208	90 097
Beef†	t	48 299	118 752	—	22 880
Mutton†	t	604	2 502	—	—

* Division of Agricultural Marketing Research, 1973 Abstract of Agricultural Statistics.
† Raad van Beheer oor die Vee- en Vleisnywerhede, Jaarverslag, 1971/72.

The data presented in Table IV concern the imports and exports of fresh and processed food products. Considerable quantities of rice are still being imported, but the country has become practically self-supporting during the past two years with regard to wheat. The production of the other plant products has been maintained at such levels that for many years fresh and processed foodstuffs could be exported in considerable quantities. Through its contribution of these food commodities and of other non-foods, such as wool, mohair, karakul pelts and cotton, the White agricultural sector has become one of the major partners in the export trade, and one of the most important earners of the foreign exchange needed for the imports required by the rest of the population. The value of the exports of agricultural products totalled R453 million in 1971, or 29% of the total exports (gold bullion excluded) of the country. Such contribution by agriculture is of exceptional importance to the national economy. An analysis of the progress made with the production of different commodities reveals the presence of production trends which affect domestic consumption patterns to such an extent that such developments warrant consideration.

Starches and Sugars

The area seeded to maize, the most important staple food in South Africa, has been increased during the past two decades at the rate of 2,1% per annum, and now occupies approximately half of the total cultivated area in South Africa. Maize production has increased at the rate of 5,1% per annum. However, an analysis of production trends in 105 maize-producing districts during the past two decades[12] has revealed uneconomically low yields and excessive fluctuation of harvested yield since 1960, this varying from 4 017 to 9 423 tons. The areas of erratic production, especially, are now being faced with the challenge to establish a symbiosis between cash crop production and livestock farming as a means of enhancing biological and economic stability.

Wheat production experienced severe setbacks in 1965/66 and 1966/67; but since then it has progressed so well that the domestic requirements of the last two seasons could be met comfortably from local stocks. The prospects are promising that, weather permitting, this favourable situation will continue.

Potatoes have been produced in quantities adequate to meet the demand, and it is an accepted fact that the production of this crop can be extended to many areas and the output readily increased, if warranted by consumer needs.

Sugar production has increased more than threefold during the last two decades, and sugar is now being produced in quantities sufficient to enable the export of approximately half of the total annual harvest.

With regard to the other commodities in this category, such as grain sorghum, other cereals, vegetables, deciduous and subtropical fruits and citrus, the South African consumer in most parts of the country is favoured with fresh, adequate supplies of a fair selection, especially of vegetables and fruit throughout the year. Furthermore, the outlook is good that vegetable production could be extended in many parts of the country as and when required, particularly in the new irrigation settlements which are now being developed.

The production of both citrus and deciduous fruits has so far consistently exceeded home consumption and supported a very rewarding export market for many years. Projected trends and development projects envisaged for the main fruit-producing areas leave no doubt that this favourable situation can be maintained into the distant future.

This brief review of the trends of, and outlook for, the production of starches and sugars shows, therefore, that the Republic of South Africa does not at present experience any shortage of these calorie-supplying materials. Scholtz concluded in his review of the projections made by the Division of Agricultural Marketing Research[10] that unless future plant production is affected by adverse climatic conditions, the prospects are favourable for the production by the agricultural sector in this country of adequate quantities of such food products of plant origin as may be required by its population in the year 1980.

Animal Protein

The protein food outlook has been reviewed in several earlier papers.[6,12,13] Grave concern was then expressed regarding recent trends in the production in South Africa of food products of animal origin, and their effect on the protein status of human nutrition.

According to Verbeek[14] the position with regard to animal production has reached a critical stage, which requires special consideration and planning in order to find ways and means whereby production methods could be improved and the livestock branch could be allotted a bigger share in the farming patterns, especially in the more productive regions of the country.

Statistics compiled by the Division of Agricultural Marketing Research[10] indicate that the livestock population has changed very little since 1941, and that prospects for the production of animal products have in some respects even weakened.

Available data show that the rate of increase of the production of food proteins of animal origin, and especially of meat, has not even equalled the population growth rate, and therefore offers very little scope for an increase in *per capita* meat consumption and thereby an improvement of the diet quality. This has necessitated the importation of beef in increasing quantities from adjoining countries. The production of other livestock commodities such as pork, dairy and poultry products has, however, increased consistently and at a moderate rate. It is accepted that if warranted by consumer demand, the production of such commodities can be increased rapidly and almost indefinitely. It is, however, expected that the strong preference of the South African consumer for red meat will persist, and that this will affect the demand for the other types of meat.

The prospects for the expansion in South Africa of the production of food products of animal origin, and of red meat in particular, appear to be so limited that this country will have to rely on the importation of increasing quantities of these commodities. This situation will continue unless farmers in the eastern, higher rainfall areas, such as the summer rainfall cropping areas, can be induced to give considerably more scope to livestock farming than is the case at the present time. Such an adaptation of production has been strongly recommended by the Commission of Inquiry into Agriculture, and has for many years past been advocated by numerous agricultural advisers as a means of enhancing the optimal utilisation of natural resources and to achieve greater stability in agriculture.

It is, however, of significance that South Africa is not the only country which experiences shortages of red meat and in consequence is faced by escalating prices. Similar situations have been reported for several developed countries, including the USA, Western Europe[2,13] and even Australia.

The situation referred to in the foregoing paragraphs has encouraged greater interest in many countries in the expansion and the improvement in the efficiency of livestock farming and in mass beef production procedures.[15,16]

Plant Protein

The developments with regard to both availability and price trends of commodities of animal origin have increasingly stimulated interest in other, more economic alternatives to fill the nutritional gaps which tend to widen, in the dietary patterns of the lower income groups in particular.[17-19]

As the data in Table I show, however, leguminous crops still occupy a minor position in the production programmes of South African agriculture. Lupin culture (not included in this Table) has since the early 1950s rapidly infiltrated the grain areas of the winter rainfall region, and has had a considerable effect on animal production in this region also. In spite of the fact that production and trade in soya beans achieved the billion mark in several countries, this crop makes a tardy entry into South African agriculture. Recent reports indicate nevertheless that improved processing and marketing facilities and the growing shortage of products derived from animal protein are tending to stimulate wide interest in the soya bean in the summer rainfall cropping regions of the Republic.

According to Odendaal,[20] the production of other legumes could be increased if more favourable conditions for marketing and consumption were provided. He describes methods to supplement proteins in cereals and in legumes, especially in respect of amino acid balance. He also urges more attention to the production of reasonably priced, quality proteins of plant origin, and the encouragement of their acceptance, particularly by those sections of the population which can ill afford the more expensive foods. It would appear that some of the proposed dietary changes may yet become acceptable, particularly if such changes were to prove to be profitable and attractive enough to induce consumers to amend the composition of their diet.

FOOD BALANCE TENDENCIES

The data in Table V have been extracted from the food balance sheets of the Division of Agricultural Marketing Research. These data show that the changes in the dietary pattern of the South African population (average of all races) tend to follow the pattern of production and disposal of agricultural produce, as affected by imports and by exports of certain commodities. Briefly summarised, these data show a consistent and significant *per capita* increase in the total consumption of foodstuffs, particularly of fats and those high in caloric value. Although the *per capita* protein consumption increased from 75,54 g/day in 1947/48 to 83,11 g/day in 1971/72, the amount of protein of animal origin consumed varied little during this period, and averaged 29,79 g/day in 1971/72, a level slightly lower than 29,93 g/day recorded for 1947/48. Meanwhile, the protein from plant origin consumed showed a fairly consistent increase from 44,61 g/day in 1947/48 to 52,11 g/day in 1971/72.

From these data the conclusion appears to be warranted that although the quantity and energy value of food consumed has increased since 1947/48, the protein consumption pattern provides little evidence that the nutritional

TABLE V. DATA ON FOOD CONSUMPTION TENDENCIES AND POPULATION SIZE IN SOUTH AFRICA SINCE 1947/48*

Food origin	Year	Food consumption (1 000 metric tons)	Per capita Kg/ year	Gram/ day	Joule/ day	Protein g/day	Fat g/day	Population
Total vegetable origin	1947/48	3 020,29	246,19	674,36	7 851,89	44,61	19,98	
Total animal origin		1 604,86	130,82	358,39	2 265,57	29,93	42,55	12 269 000
Beverages		637,73	51,98	142,41	268,31	1,00	0,28	
Grand total		5 262,88	428,99	1 175,16	10 385,77	75,54	62,79	
Total vegetable origin	1951/52	3 586,81	260,58	713,91	8 487,40	50,28	23,86	
Total animal origin		1 737,39	126,22	345,81	2 207,30	28,67	41,24	13 764 000
Beverages		702,76	51,06	139,89	263,56	0,98	0,28	
Grand total		6 026,96	437,86	1 199,61	10 958,26	79,93	65,38	
Total vegetable origin	1956/57	4 221,25	273,44	748,96	8 471,35	48,04	22,60	
Total animal origin		2 067,99	133,95	367,00	2 336,71	31,52	43,09	15 438 000
Beverages		769,82	49,87	136,63	257,42	0,96	0,27	
Grand total		7 059,06	457,26	1 252,59	11 065,48	80,52	65,96	
Total vegetable origin	1961/62	4 873,81	280,08	767,34	8 503,97	47,85	23,94	
Total animal origin		2 271,04	130,53	337,59	2 215,26	30,04	40,57	17 401 000
Beverages		887,18	50,98	139,67	263,15	0,98	0,28	
Grand total		8 032,03	461,59	1 244,60	10 982,38	78,87	64,79	
Total vegetable origin	1966/67	5 914,63	297,90	815,85	9 043,29	51,59	29,10	
Total animal origin		2 479,10	124,84	342,03	2 411,14	29,22	41,15	19,837 000
Beverages		1 235,74	62,23	170,49	321,21	1,19	0,34	
Grand total		9 629,47	484,97	1 328,37	11 575,64	82,00	70,59	
Total vegetable origin	1971/72	7 091,76	312,51	856,66	9 136,63	52,11	31,43	
Total animal origin		3 013,29	132,79	363,90	2 220,48	29,79	40,61	22 692 000
Beverages		1 436,00	63,28	173,37	326,64	1,21	0,35	
Grand total		11 541,25	508,58	1 393,93	11 683,75	83,11	72,39	

* Compiled by the Division of Agricultural Marketing Research, 1973.

quality of the average South African diet improved to any appreciable extent during this period.

FOOD PRICE SITUATION

According to Ioanes[21] the USA is being called on to produce increased supplies of food. This has been brought about by a number of factors, such as the unusual unfavourable weather in the major agricultural areas of the world, the declining fish catch off the Peruvian coast and heavy purchases by the Soviet Union of agricultural commodities. Brunthaver[22] finds evidence in these developments that 'the revolution in agriculture is being overtaken by a revolution in consumer demand'.

At about the same time Butz[2] referred to the growing concern about food prices and in several contributions offered very valid arguments to defend the higher price levels realised by farmers for agricultural produce. He is of the opinion 'that the chance to operate our agricultural machine at a fuller capacity is now within grasp. We are at a point where strong prices multiplied by increased production can equal more income for farmers and more food for consumers. In the very process of expanding to meet growing demands, farm production will bring down average unit food costs. This is why the goals of high farm income and reasonable food prices for the people of this country are fully consistent.'

In Europe, on 30 April 1973, the Agricultural Ministers of the European Community eventually agreed on farm support prices for 1973/74, after weeks of futile debate.[23] Shortly thereafter, the Minister of Agriculture of the UK denied in an interview that he followed a 'cheap-food' policy at the Luxembourg discussions, and that he put consumer interests before the well-being of the farmers of his country. He nevertheless declared himself in favour of a realistic price for food which would ensure that farmers got a fair return.[24]

The world food price situation has been very aptly summarised as follows in a recent issue of *Foreign Agriculture*: 'Owing to last year's poor world crop harvest, together with rapidly advancing incomes in the major industrial countries, sharply rising food prices have gripped virtually every country of the world. This situation has focused world attention on food problems that can develop in today's increasingly affluent and urban society when crop shortfalls occur. That attention, in turn, has led to a number of far-reaching changes in farm policies and trade patterns . . .'[25]

According to the trend of indexes of producers' prices

TABLE VI. INDICES OF PRODUCERS' PRICES OF AGRICULTURAL PRODUCTS 1958/59 — 1960/61 = 100 PRODUCTS*

Year (July - June)	Field crops	Horticultural products	Livestock products	Combined index
	40	16	44	100
1958/59	**97,0**	**103,0**	**97,4**	**98,1**
1959/60	**100,5**	**93,6**	**102,4**	**100,2**
1960/61	**102,5**	**103,4**	**100,1**	**101,6**
1961/62	**101,1**	**105,9**	**98,9**	**100,9**
1962/63	**100,0**	**99,7**	**104,0**	**101,7**
1963/64	**104,6**	**104,4**	**111,1**	**107,4**
1964/65	**107,3**	**119,1**	**117,6**	**113,7**
1965/66	**110,7**	**120,2**	**122,0**	**117,2**
1966/67	**115,0**	**118,1**	**126,4**	**120,5**
1967/68	**111,2**	**108,6**	**130,5**	**119,3**
1968/69†	**116,6**	**126,6**	**129,8**	**124,0**
1969/70†	**120,5**	**121,0**	**125,9**	**123,0**
1970/71†	**123,6**	**137,7**	**129,1**	**128,3**
1971/72†	**123,1**	**130,5**	**139,4**	**131,5**

* Division of Agricultural Marketing Research.
† Preliminary.

of agricultural products in South Africa, as provided by the Division of Agricultural Marketing Research and reproduced in Table VI, the prices of field crops rose steadily until 1970/71, and tended to flatten out subsequently. The prices of horticultural products, after a decline in 1969/70, rose sharply in 1970/71, thereafter to drop again in 1971/72 almost to the 1968/69 level. From the foregoing it may be concluded that although the prices of products of plant origin (which include all the sources of starch and sugar foods) have shown a tendency to rise since 1958/59, there was little evidence of an escalation of prices of such commodities until 1972. However, price trends of livestock products differ somewhat from those of plant products. Until 1970/71 the prices of animal products changed but little from the 1967/68 level, but rose sharply within a year.

From June 1972 to June 1973 the combined consumers' price index increased by 10,0% and the food price index by 16,5%. Such increases recorded during this year were: 27,8% for meat, 19,8% for vegetables, 20,0% for fruit, 15,0% for cereals, and 12,0% for milk, milk products and eggs. Vegetable prices rose sharply between February 1973 and June 1973 but then tended to stabilise.[10] Nevertheless a comparison of retail prices paid for food in South Africa with current world food prices[24] leads one to conclude that our food prices, even at the latest price levels, are still among the lowest in the world. It is true that South African beef prices have risen sharply since 1971.[25] Indications are that the long-standing lag in the price of red meat did not encourage the expansion of beef production in particular. In consequence the country became increasingly dependent on the importation of this commodity. The production of red meat in South Africa should manifestly be increased, but this requires the incentive of more remunerative prices for these products. There is therefore good reason to accept that the higher meat prices have come to stay. However, this should not give rise to any misapprehension, because, all told, these prices must, when compared with what is paid in other developed countries, be accepted as very reasonable. Virtually, food is still a bargain in South Africa.

Fortunately for those who cannot afford red meat in the quantity they desire, the food spectrum offered by the White South African farmer still allows considerable scope from which less expensive menu selections can be made without appreciably lowering the quality of their diets.

For the future of this country it is considered essential that agricultural production in South Africa should be further intensified and increased through modern technology, that production practices should be diversified and adapted to achieve sound resource utilisation, that the food losses suffered during production, storage and distribution, should be reduced, and that, if necessary, even revolutionary innovations should be introduced with regard to food production. But, when planning for these improvements, it must be borne in mind that such endeavours should remain within the limitations of the potential of our limited natural resources. In this respect it would be expedient to heed the warning note sounded by Paarlberg[3] with reference to the recent series of crop reverses which hit so many of the countries of the world: 'Some ecologists, sociologists and economists say that the most important effect of improved technology is to make us worse off by accelerating imbalances in our economic structure, our social patterns, and our relationships with nature. Fortunately, people of this kind were not calling the shots during the Industrial Revolution or, more recently, the Agricultural Revolution in North America. If they had been, the world food situation would be more precarious than it is now.'

REFERENCES

1. Du Plessis, S. J. (1963): 'South African agriculture in economic development' 12th FAO Conference, Rome, 5 December 1963.
2. Anonymous (1973): *The Farm Index*. Washington, DC: USA Dept of Agriculture.
3. Paarlberg, D. (1973): Statement before the Conquest of Hunger Committee, New York, 29 May 1973.
4. Whelan, E. F. (1973): Address to the Ottawa-Carleton Liberal Association.
5. Butz, E. L. (1973): 'Food, farm programmes, and the future.' Address to National Press Club.
6. Du Plessis, S. J. (1970): Conference of the Royal Society for the Promotion of Health, Port Elizabeth, 27 April 1970.
7. Smit, P. (1969): Referaat: Vierjaarlikse Kongres Ver. Aardrykskunde, Potchefstroom.
8. Hamburger, H. and Waugh, W. F. (1968): *Proceedings of the SA Society of Animal Production*, pp 29 - 40. Pretoria: SA Society of Animal Production.
9. Grobler, J. H. (1968): Referaat Vierjaarlikse Kongres Ver. Aardrykskunde, Potchefstroom.
10. Division of Agricultural Marketing Research (1973): Abstract of Agricultural Statistics. Pretoria: Dept Agricultural Economics and Marketing.
11. Commission of Inquiry into Agriculture (1970): Second Report R. P. 84/1970. Pretoria: Government Printer.
12. Du Plessis, S. J. (1973): 'Die Mieliebedryf.' bl. 6 - 14. Nas. Mieliekonferensie, SA Landbou-unie.
13. *Idem* (1971): Simposium oor Gesinsbeplanning, Johannesburg, 14 Oktober 1971.
14. Verbeek, W. A. (1966): Tydskr. Natuurwet., **6**, 214.
15. Early, K. S. (1973): *Ibid.*, **11**, pp. 3, 16.
16. Stenwick, L. E. (1973): *Ibid.*, **11**, 1.
17. Jones, Sir Emrys (1973): Span, **16**, 4.
18. Walker, J. T. (1973): *Ibid.*, **16**, 7.
19. Rachie, K. O. and Rockwood, W. G. (1973): *Ibid.*, **16**, 9.
20. Odendaal, W. A. (1969): Biennial Congress SA Nutr. Soc., 24 - 26 April 1969.
21. Ioanes, R. A. (1973): Nat. Agric. Outlook Conf., Washington, 10 February 1973.
22. Brunthaver, C. G. (1973): Foreign Agric., **11**, pp 5, 12.
23. Hudson, J. F. (1973): *Ibid.*, **11**, 8, 16.
24. Butcher, F. (1973): 'Farmers' Weekly', 11 May 1973, p. 49.
25. Anonymous (1973): Foreign Agric., **11**, 6.
26. Horsley, B. J. (1973): *Ibid.*, **11**, 2, 20.
27. Van Rensburg, S. J. J. (1973): Rhodesian Farmer, **44**, 19.