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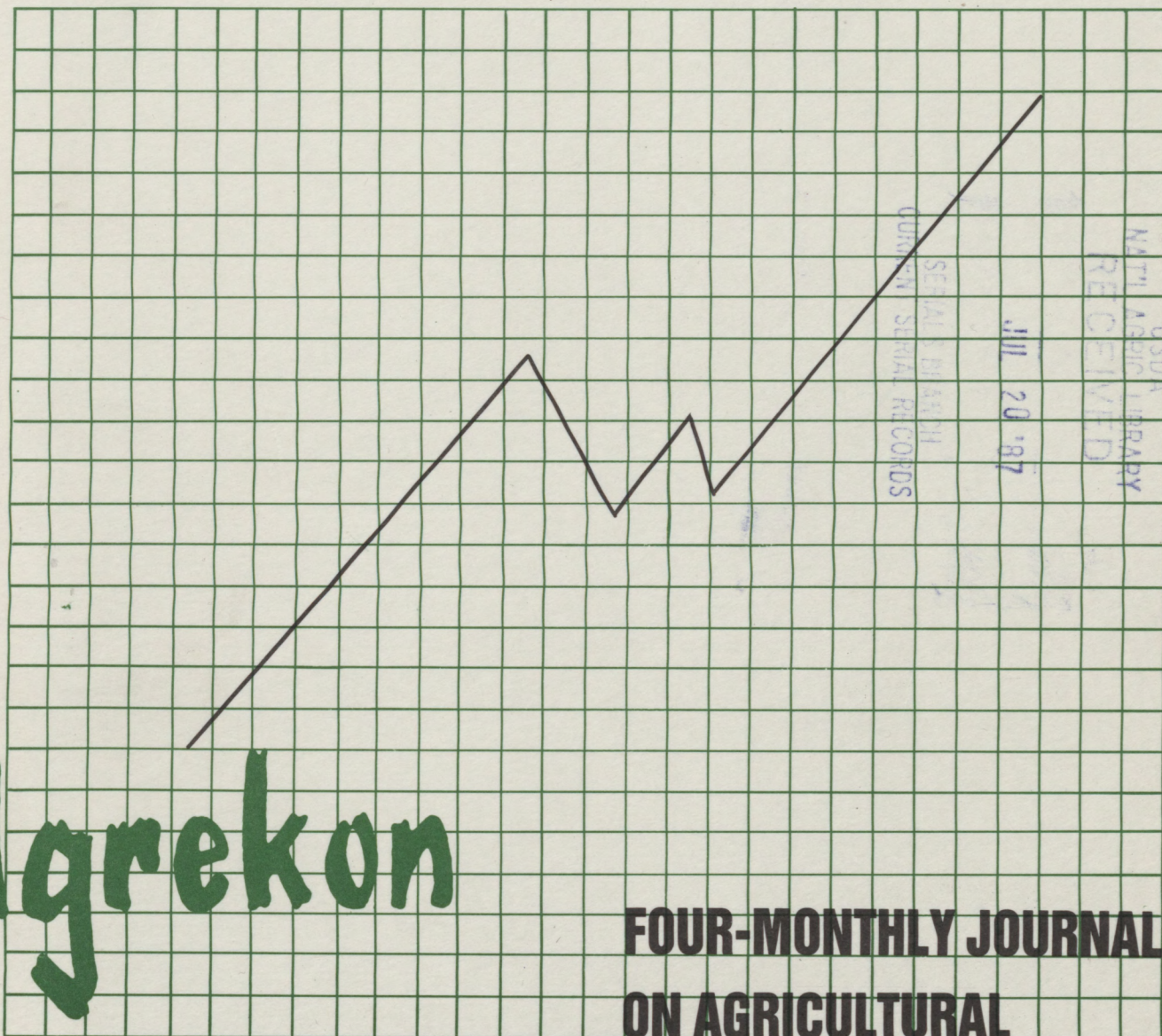
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# THE EFFECT OF INFLATION ON AGRICULTURAL PRODUCTION UNDER CONDITIONS OF RISK

by J. VAN ZYL\*

## ABSTRACT

From 1973 South Africa experienced double digit inflation with slower increases in agricultural producers' prices than for inputs. This resulted in declining profitability and purchasing power parity of agricultural products, increasing debts and risk, and the weakening of agriculture's competitive position on international markets.

Input price inflation creates cash flow problems for farmers and increases the necessity of a high level of operational management and conservative financial strategies. Individual farmers can possibly counteract the effect of input price inflation through increases in productivity and economizing on costs. Present competitive structures may however possibly result in accelerated input price inflation if increases in productivity and economizing on costs occur for agriculture in aggregate.

Solutions will be dictated by general economic policy. More effective competition and the enlargement of effective demand through accelerated urbanization have, at least theoretically, potential possibilities.

## INTRODUCTION

Concern about the condition and future of agriculture is no new phenomenon. Trends should therefore regularly be observed and analysed in order to forecast and understand crises. Only then is proper and timely remedial action possible.

The agricultural sector is presently struggling with problems that have their origin in the structure of the South African economic system. South Africa has undergone a structural transition that is part of normal economic development in which the industrial sector overtook the agricultural sector in its contribution to income. Agriculture nevertheless supported the ailing South African economy throughout the business downswing of the seventies (Haasbroek, 1985). With the prevailing good rains of that decade, farmers who, even in normal years produce in excess of domestic needs, improved their export performances substantially.

The comparative advantage of the agricultural sector relatively to some other sectors in the South African economy, was however eroded by inflation during the seventies (Haasbroek, 1985). The Jacobs Committee (1979) concluded that the financial

position of farmers deteriorated due to increasing costs and higher risks in farming, and that this resulted in liquidity problems for farmers.

Table 1 shows that inflation, as measured by the general consumer price index, has been higher than 10% since 1973. During this period prices of agricultural inputs and outputs did not increase proportionally. Before 1968 inflation rates were lower than has been the case since then. The period 1968/69 to 1972/73 was characterised by moderate inflation with larger increases in product than input prices. Since 1973/74 highly inflationary conditions prevailed. Input prices have risen faster than product prices and a cost-price squeeze has been experienced.

This cost-price squeeze obviously exerts considerable pressure on the income and hence, also on the purchasing power of producers (Tomlinson, 1979; Le Clus, 1982; Groenewald, 1980). Louw (1981) showed that the period needed for net income of farm businesses to become negative, is a function of differences in rates of increase between input and output prices, as well as the original margin of income above cost. With an original margin of 20% and a 7,5% faster increase in input than in output prices, it will take only four years.

Haasbroek (1985: 3-6) is of the opinion that the structural dimensions of the inflation process in the South African economy are basic to the above mentioned problems of the agricultural sector. All imported intermediate inputs and capital goods became more expensive due to inflation, but so also wages and domestic administered prices of transport and electricity. These changed the pattern of South African secondary industries. Their growth used to be mainly extensive, and was based on the utilization of more inputs rather than on increased productivity. Import substitutable growth could thus be sustained only at a higher cost. The disruptive result of increasing costs was reinforced by the restriction of a small domestic market (Haasbroek, 1985) and the strong trend towards monopolisation that is characteristic of the South African economy (Groenewald, 1982a; 1982b; 1985). The success of the new conservative governments in the USA and England in their battle against inflation also resulted in the loss of the competitiveness of South African products.

The higher gold price in the seventies together with cost disadvantages to other traditional export sectors increased South Africa's dependence on foreign gold earnings. Economic activity was also stimulated, and in 1980 a record gold price coincided with a general economic growth rate of 7,3% (Haasbroek, 1985). Increases in the supply of money

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TABLE 1 - Annual growth rates (percentages) in certain prices and quantities, Republic of South Africa, 1960-1985

Period	Consumer prices		Producer prices of agricultural products	Farming requisites	Land prices	Farming debt
	All items	Food				
1960-61	2,0	2,0	1,4	-0,2	4,7	*
1961-62	1,4	0,0	-1,9	1,9	4,5	*
1962-63	1,2	0,4	4,0	1,0	8,7	*
1963-64	2,5	4,6	6,6	1,6	12,0	*
1964-65	3,6	5,9	3,2	1,4	3,6	*
1965-66	3,5	3,8	4,5	2,2	-3,6	*
1966-67	3,4	3,4	1,2	0,8	17,9	*
1967-68	1,7	1,7	0,4	0,8	0,0	*
1968-69	2,9	1,6	2,5	1,7	9,1	*
1969-70	5,3	4,5	1,5	2,8	-9,1	*
1970-71	6,1	4,8	3,2	5,4	12,1	5,8
1971-72	6,5	7,0	16,1	7,5	5,4	3,8
1972-73	9,4	15,4	28,7	10,7	12,8	13,8
1973-74	11,7	14,9	10,8	18,3	15,9	3,4
1974-75	13,5	14,9	9,4	21,8	27,5	11,9
1975-76	11,1	7,4	8,6	15,6	3,1	14,7
1976-77	11,3	10,2	8,8	12,7	14,9	13,5
1977-78	10,9	12,9	6,2	13,5	-5,5	10,1
1978-79	13,2	15,7	18,7	20,6	6,8	12,1
1979-80	13,8	18,9	18,0	16,3	28,2	19,3
1980-81	15,2	22,1	13,8	11,0	25,0	26,1
1981-82	14,7	11,2	10,4	17,6	14,4	19,6
1982-83	12,3	11,7	11,8	14,0	11,9	28,1
1983-84	11,8	11,0	11,0	18,9	15,0	28,2
1960-84	7,9	8,6	8,2	9,1	9,8	*
1960-68	2,4	2,7	2,4	1,2	5,9	*
1968-73	6,0	6,7	10,4	5,6	6,1	7,8
1973-84	12,7	13,7	11,6	16,4	14,3	17,0

\*Not available

Source: Figures processed from the *Abstract of Agricultural Statistics* (1986)

followed. Because little has been done to control the growth in expenditure, the inflationary effect of a high gold price continued even after the price of gold dropped. Inflation increased the prices of industrial inputs. Prices were increased according to the cost/plus principle, thereby increasing the competitiveness of imported manufactured articles. Tariff protection against this competition resulted in additional costs for the agricultural sector and farmers' profit margins between revenue and costs decreased drastically. The structural change that accompanied the movement in comparative advantage towards gold and coal mines thus had an important negative influence on especially agriculture. For example, under conditions of tariff-free free trade, agriculture would have been able to save R221 million in 1982 (BEPA, 1983).

Against this background, the potential effect of inflation on the individual farmer, as well as on the farming sector as a whole, is of the utmost importance for the survival and continued existence of both. This is further illustrated by the accelerated nature of farming debt. During the period 1973-1984 the average annual rate of increase was 17,0% - even higher than the inflation rate (Table 1). Drought conditions obviously aggravated the situation, but, everything taken into consideration, agriculture is in difficulties.

In this article the effect of inflation on agricultural production under risk conditions is analysed. Attention is also given to certain policy aspects which may arise in consequence.

## A MODEL TO DETERMINE EFFECTS OF INFLATION ON FARMING PROFIT

A representative farm in the Western Transvaal was synthesised for this purpose. The influence of inflation on farming profit was determined by simulating general characteristics of the farm. Parts of a simulation model developed by Eisgrüber (1965, according to Louw, 1979 and adapted by Van Zyl & Groenewald, 1986) were used to simulate effects of different combinations of inflation and interest rates (3), management levels (2) and initial asset/liability ratios (2).

Two management levels, above-average and average, were taken into consideration. Yields for the above-average operator were equalised with cultivar trial yields at optimal fertilization levels as calculated by Van Zyl, Geerthsen & Groenewald (1986). For average management, 20% lower mean maize yields were assumed. The optimum cultivar combination of strategy (Van Zyl & Groenewald, 1986) was used. Stochastic variance in maize yields occurs randomly.

- Three types of inflation are assumed, namely:
- No real inflation, as experienced in the period before 1968. This is analogous to a period during which all prices increase at the same rate.
  - Output price inflation as experienced during the period 1968-1973, when product prices increased more rapidly than input prices.
  - Input price inflation as experienced since 1974 with input prices rising faster than product prices.

TABLE 2 - Inflation and interest rates regarding the different inflation conditions and terms

Item		No inflation	Inflation condition	
			Output price inflation	Input price inflation
Inflation rate (%)	Group 1	0,0	5,1	14,9
	Group 2	0,0	7,6	10,7
Interest rate (%)	Long-term	4,0	7,0	11,0
	Medium-term	5,0	8,0	12,0
	Short-term	5,5	8,5	15,5

\*Group 1 = Labour costs, costs of machinery and buildings, variable costs, land rent and consumption

Group 2 = Livestock inventory, livestock and products sold, and land prices

Every inflation condition was associated with different interest rates. A constant rate of inflation is assumed to occur during the simulation period. The situation is depicted by Table 2.

The model starts with initial assets of R985 259. Two types of situations with differences in liabilities and thus also net worth were hypothesised. The initial net worth of the high and low asset/liability

ratio respectively were R591 843 and R303 618.

The effect of inflation on the farming unit was determined by simulating the situations over a planning horizon of 15 years. Every situation was repeated 100 times in order to ensure a distribution of results. This was done by using randomly chosen yield variables for every year.

## RESULTS

The means, standard deviations and coefficients of variation of net disposable income and change of net worth for the different situations in year one respectively are shown in Tables 3 and 4.

From Tables 3 and 4 it appears that output price inflation consistently produces the highest mean net disposable income and change in net worth in one year. Net disposable income and change in net worth under output inflation also have the lowest coefficients of variation (CV), and this situation can thus be said to be the most stable of all situations with a positive mean ( $\bar{x}$ ). The input price inflation condition consistently produces the smallest and most unstable mean net disposable income and

TABLE 3 - Mean ( $\bar{x}$ ), standard deviation (Sx) and coefficient of variation (CV) of net disposable income in year one

Management	Asset/liability ratio	Item		No inflation	Inflation condition Output price inflation	Input price inflation
Above average	High	$\bar{x}$	R	38 025	46 310	29 740
		Sx	R	92 823	98 999	105 011
		CV	%	244,1	213,8	353,1
	Low	$\bar{x}$	R	17 486	25 610	1 629
		Sx	R	95 523	101 475	110 519
		CV	%	546,3	396,2	6784,5
Average	High	$\bar{x}$	R	4 414	10 250	(8 300)
		Sx	R	76 756	81 252	88 399
		CV	%	1738,9	792,7	*
	Low	$\bar{x}$	R	(17 326)	(11 397)	(38 146)
		Sx	R	81 217	85 386	96 700
		CV	%	*	*	*

\*Not comparable

TABLE 4 - Mean ( $\bar{x}$ ), standard deviation (Sx) and coefficient of the change in net worth in year one

Management	Asset/liability ratio	Item		No inflation	Inflation condition Output price inflation	Input price inflation
Above average	High	$\bar{x}$	R	55 025	63 310	46 740
		Sx	R	92 823	98 999	105 011
		CV	%	168,7	156,4	224,7
	Low	$\bar{x}$	R	45 486	53 610	29 628
		Sx	R	95 524	101 475	110 529
		CV	%	210,0	189,3	373,0
Average	High	$\bar{x}$	R	21 414	10 674	27 250
		Sx	R	76 756	81 217	81 252
		CV	%	358,4	760,9	298,2
	Low	$\bar{x}$	R	16 603	8 700	(10 146)
		Sx	R	85 386	88 399	96 701
		CV	%	514,3	1016,1	*

\*Not comparable

TABLE 5 - Probability of a positive net disposable income and change in net worth in year one

Management	Asset/liability ratio	Item*	No inflation	Inflation condition Output price inflation	Input price inflation
Average	High	NDI	0,80	0,81	0,78
		CNW	0,84	0,85	0,81
	Low	NDI	0,74	0,75	0,64
		CNW	0,81	0,82	0,77
Above average	High	NDI	0,69	0,74	0,61
		CNW	0,77	0,79	0,71
	Low	NDI	0,54	0,58	0,51
		CNW	0,71	0,75	0,58

\*NDI = Net disposable income

CNW = Change in net worth

TABLE 6 - Mean ( $\bar{x}$ ), standard deviation (Sx) and coefficient of variation (CV) of the present value of the net worth after 5, 10 and 15 years

Inflation	Initial situation*	Item	Year 0	Above average management			Average management		
				Year 5	Year 10	Year 15	Year 5	Year 10	Year 15
None	1	$\bar{x}$	591 843	591 932	696 645	705 741	505 215	500 500	464 635
		Sx	-	115 798	249 537	182 446	127 870	191 687	150 858
		CV	-	26,00	35,82	25,85	25,13	38,30	32,47
	2	$\bar{x}$	303 618	263 773	376 605	406 977	176 986	184 544	171 470
		Sx	-	158 646	251 925	191 415	134 720	199 167	167 111
		CV	-	60,14	66,89	47,03	76,12	107,92	97,46
Output price	1	$\bar{x}$	591 843	844 457	1 251 366	1 550 726	749 859	1 031 904	1 256 273
		Sx	-	158 301	286 018	181 464	127 845	219 856	141 291
		CV	-	18,75	22,86	11,70	17,05	21,31	11,25
	2	$\bar{x}$	303 618	548 460	996 674	1 330 265	455 325	773 734	1 036 776
		Sx	-	160 991	281 239	182 545	133 949	219 820	147 101
		CV	-	29,35	28,22	13,72	29,42	28,41	14,19
Input price	1	$\bar{x}$	591 843	744 466	828 740	659 897	659 688	651 773	421 277
		Sx	-	150 310	248 034	181 716	128 938	208 073	155 817
		CV	-	20,19	29,93	27,54	19,55	31,92	36,99
	2	$\bar{x}$	303 618	454 664	577 764	417 290	368 667	396 239	164 472
		Sx	-	159 093	256 845	189 791	136 126	214 517	159 412
		CV	-	34,99	44,46	45,48	36,92	54,14	96,92

\*Initial situation = High asset/liability ratio

Initial situation = Low asset/liability ratio

change in net worth in all the situations with positive means. It also appears that changes in net worth and stability thereof (Table 4) are higher than net disposable income and stability thereof (Table 3) in all situations analysed.

According to Table 5, output price inflation produces the highest and input price inflation the lowest probability of a positive (greater than zero) net disposable income and change in net worth in year one. In this first year, the probability of a positive net disposable income (NDI) is smaller than that of a positive change in net worth (CNW). This indicates that cash flow problems are likely to arise before solvency problems. These potential cash flow problems are more likely to occur in the case of average managers with low asset/liability ratios in all the inflation conditions (when the probability of a negative cash flow is greater than 0,40). With input price inflation even the above-average manager with a low asset/liability ratio and the average manager with a high asset/liability ratio can expect cash flow problems. Over the longer term chronic liquidity problems will

probably eventually also influence the solvency position.

The mean, standard deviation and coefficient of variation of the present value of net worth after 5, 10 and 15 years are shown in Table 6. Present values were calculated by discounting end net worth with the long term cost of capital (Table 2).

Table 6 reveals similar trends regarding the size and stability of net worth in every inflation condition as those observed in Tables 3 and 4. The probability of bankruptcy is, however, of special importance. Table 7 shows this probability after 5, 10 and 15 years.

Appearance of bankruptcies in the output price condition, as well as no inflation and a high asset/liability ratio are minimal. However, problems can be expected with input price inflation in all the situations, and no inflation with a low asset/liability ratio. These problems become worse with a longer planning horizon. The relatively lower probability of bankruptcy in the input price inflation condition after five years is caused by the increase in the value of assets, and particularly land. As production losses

TABLE 7 - Probability of bankruptcy after 5, 10 and 15 years

Management	Asset/ liability ratio	Year	Inflation condition		
			No in- flation	Output price inflation	Input price inflation
Above average	High	5	0,00	0,00	0,00
		10	0,00	0,00	0,02
		15	0,00	0,00	0,06
	Low	5	0,16	0,00	0,05
		10	0,19	0,00	0,25
		15	0,20	0,00	0,28
Average	High	5	0,00	0,00	0,06
		10	0,00	0,00	0,14
		15	0,02	0,00	0,22
	Low	5	0,18	0,00	0,15
		10	0,28	0,00	0,31
		15	0,34	0,00	0,45

increase over time as input prices increase faster relative to output prices growth in net worth declines and eventually becomes negative. It is therefore necessary to differentiate between capital profits and current profits by changes in net worth. Capital profits are realised only when assets are sold, while current profit is a function of annual cash flow generated by production. Table 8 shows the mean annual change in net worth and the composition thereof from year 10 to year 15.

From Table 8 it can be deduced that zero capital profit is made in the no inflation condition. With output price inflation, however, capital profits amount to more than 50% of the change in net worth in all the situations, excluding above-average management with a high asset/liability ratio. Relatively large positive current profits in all situations with no inflation and output price inflation illustrate a sound cash flow. In the input price inflation condition a substantial mean annual capital profit is experienced. Current profits are, however, negative in all situations, indicating severe cash flow problems. In the case of average management with a low asset/liability ratio these problems are so acute that current deficits exceed capital profits, resulting in negative changes in net worth. Cash flow thus seems to be a real problem, especially with input price inflation. Table 9 shows the probability of a positive net disposable income

after 5, 10 and 15 years.

According to Table 9 it appears that relatively few cash flow problems can be expected in the no and output price inflation conditions. Severe liquidity problems are however foreseen in the input price inflation condition. These problems become increasingly severe as the planning horizon lengthens and as input prices rise faster relative to output prices.

## IMPLICATIONS FOR THE FARMING SECTOR

The simulation runs reveal that the input price inflation experienced since 1973 results in severe cash flow problems for farmers. The higher the increase in input prices relative to output prices, the more important it becomes to maintain a high level of operational management, or to improve it. Survival probabilities are in general higher with more conservative business strategies. Unrealised capital profits, especially from land, contribute an important share to net worth and thus also to a healthy solvency position. Cash flow problems, resulting from a smaller increase in product prices than in input prices, however, increase debt liabilities, especially over the short term. The high rates of increase in farming debt (Table 1) illustrate this trend clearly.

Groenewald (1982b: 13) is of the opinion that it is unlikely that productivity increases will be sufficient to absorb the decline in profitability. Increased productivity reflected in higher production, because of the relatively low price elasticity of demand for most agricultural products, exerts strong downward pressure on product prices and decreases total revenue.

The chances are also slight that product price increases will solve the problems. Higher food prices will lead to larger wage demands, which in turn will be passed on to prices of manufactured goods, including those used as farm inputs. According to Haasbroek (1985) the agricultural sector cannot reciprocate, with the result that agriculture is a suffering party. Even where government action has the power to drastically increase domestic prices, it has responsibilities on other terrains that render

TABLE 8 - Mean annual change in net worth and composition thereof from year 10 to year 15 (R)

Management	Asset/liability ratio	Item (R)	No in- flation	Inflation condition	
				Output price inflation	Input price inflation
Above average	High	Change in net worth	48 213	364 091	160 600
		Capital profit	0	180 397	358 900
		Current profit	48 213	183 694	(198 300)
	Low	Change in net worth	35 238	342 562	71 046
		Capital profit	0	180 397	358 900
		Current profit	35 238	162 165	(287 854)
Average	High	Change in net worth	19 359	287 812	32 810
		Capital profit	0	180 397	358 900
		Current profit	19 359	107 415	(326 090)
	Low	Change in net worth	7 192	268 185	(67 746)
		Capital profit	0	180 397	358 900
		Current profit	7 192	87 788	(426 646)

Annual change in net worth = Annual capital profit + annual current profit

TABLE 9 - Probability of a positive net disposable income in year 5, 10 and 15

Management	Asset/ liability ratio	Year	Inflation condition		
			No in- flation	Output price inflation	Input price inflation
Above average	High	5	0,72	0,84	0,71
		10	0,74	0,88	0,54
		15	0,77	0,91	0,22
	Low	5	0,69	0,81	0,59
		10	0,71	0,83	0,35
		15	0,74	0,86	0,14
Average	High	5	0,62	0,76	0,54
		10	0,65	0,79	0,30
		15	0,68	0,82	0,09
	Low	5	0,51	0,64	0,36
		10	0,57	0,68	0,11
		15	0,63	0,73	0,02

relatively low food prices attractive (Groenewald, 1982b).

The faster increase in input prices in South Africa relative to foreign countries, especially the USA, weakens the competitive position of the South African export-orientated farmer, with the result that his revenue suffers. Productivity increases with export in mind thus also provide no solution. In most cases South African exports of agricultural products are also too small relative to total world trade to influence international prices. In addition, exports usually go to highly competitive markets where government intervention is fairly general (Groenewald, 1985). The terms of trade of agricultural products have not only weakened relatively to inputs, but also relatively to most foreign countries (Groenewald, 1982a and b). If this phenomenon is common for the majority of export sectors, exchange rate changes tend to overcome these problems. In South Africa the price of gold, however, has a substantial influence on the exchange rate and such corrections do not occur automatically. If corrections by means of a weaker exchange rate do occur automatically, relief will only be short-term of nature before accelerated inflation, resulting from the lower exchange rate, will cancel out potential advantages and possibly worsen the same problems (Van Zyl & Groenewald, 1985).

The individual farmer can probably counteract the effects of input price inflation best by economising on costs. Economic logic determines that if prices of inputs rise relative to those of output, smaller quantities of inputs should be used. Groenewald (1985: 33) however concludes that South African farmers acted irrationally with regard to the largest group of inputs by purchasing larger volumes. These actions not only worsened the effects of inflation for the agricultural sector, but also aggravated cost-push inflation via higher production prices and statutory price determination. If farmers as a group, given the present background of import protection, restricted competition and monopoly formation, do however use smaller input quantities per unit costs of industrial products will increase. These will be passed on to farmers in the form of more expensive inputs so that the advantages of economizing on costs may be eclipsed.

Although individual farmers can thus counteract the effects of input price inflation through productivity increases and cost savings, the probability that the farming sector as an whole can do so is relatively small, mainly due to restricted competition in input sectors.

## STRUCTURAL AND POLICY ASPECTS

Measures aimed at the correction of the cash flow problems might logically incorporate policy options through which it is endeavoured to increase the growth rate of current yields and profits. The major long-term effects of programmes aimed at increases in the growth rate however concern not so much the profitability of farming, but rather the distribution of profit between capital accumulation and current profits. Policy options that increase this growth rate will tend to depress current profits via capitalisation, and will thus worsen the same problem that these attempt to alleviate (Melichar, 1979: 1 091; Plaxico, 1979: 1 102).

A low current profit relative to the market value of assets is not necessarily a problem felt by all farmers. Farmers with limited available resources can however find it difficult to survive or start farming under such circumstances. It might in such cases be desirable to assist these farmers financially. When assistance is given, care must be taken to prevent further increases in the growth rate of current revenue, otherwise it might be counter productive.

A constant decrease in current profits can increase concentration in farming and accelerate the exodus of farmers from agriculture (Groenewald, 1982b). According to Plaxico (1979: 1101), policy measures aimed at alleviation of concentration problems in agriculture, can amongst others be concerned with:

- Modification of increases in land prices.
- Decreasing the attractiveness of capital profits relative to current profits.
- Impeding transfers of assets to successive generations.
- Designing of commodity programmes where revenue and benefits accrue to factors other than land.

Agricultural policy alone, however, cannot solve the problems of the agricultural sector (Groenewald, 1982b; Melichar, 1979; Plaxico, 1979). General economic policy will thus become increasingly important, with agricultural policy as essential component thereof.

Groenewald (1982b) is of the opinion that the solution of these problems lies in more effective competition within the South African economy. Competition for differential advantage brings about effectiveness that retards or even prevents cost-push inflation. Experts on agricultural policy regard economic concentration and monopoly formation in agricultural input industries as among the most important problems of the agricultural sector (Parker & Connor, 1979).

More effective competition will amongst others include moving away from direct economic control



such as price and wage control, import control and exchange rate control. A growing consciousness among politicians and other policy makers that the wellbeing and salvation of the South African economy lies - at least partially - in freer competition, was acknowledged by the Prime Minister of South Africa (Botha, 1981). South African agriculture is at this stage partially dependent on the priority of such already declared policy intentions.

According to Haasbroek (1985: 10) another promising possibility for the solution of present problems regarding competitiveness lies in the duality of South Africa's economic system. He sees this in the increase in effective demand for consumer goods, building materials and inputs for the generation of infrastructure that will result from an increase in the rate of Black urbanization. Because of the low import intensity for these goods, there will be virtually no outflow of purchasing power. If the urbanization process is accompanied by an increase in productivity of the Black labour force through education and training, the increase in consumer demand will not be inflationary. The expansion of the market for consumer goods and services should encourage the emergence of numerous small entrepreneurs in manufacturing industries and commerce. They should realise that South Africa's resource restrictions can be overcome only by the selection of the correct production function, and specifically by avoiding capital-intensive technology. A change to more labour-intensive production methods will also be required for purposes of job creation for the increasing number of migrants and also skilled workers. If the government can succeed in keeping the price of capital high, the distorting effect that First World factor price ratios have had on the utilization of resources will be retarded. The acknowledgement of South Africa's Third World problems, and the design of a development strategy that is adapted to it thus can, according to Haasbroek (1985), at least potentially retard the structural problems of the economic system from which the cost-price squeeze resulted.

## CONCLUSIONS

From 1973 South Africa experienced double-digit inflation with slower increases in agricultural producers' prices than for inputs. Profitability of agriculture is declining, debts increase and risks are higher. Inflation undoubtedly affected agriculture severely with a sharp decrease in purchasing power parity of agricultural products and a weakening of agriculture's competitive position on international markets.

Simulation shows that the input price inflation experienced since 1973 has resulted in serious cash-flow problems for farmers. A high level of operational management and the implementation of conservative financial strategies become more important as increases in input prices exceed increases in product prices. Unrealised capital profit contribute an important portion to net worth during

input price inflation. Cash flow problems, especially over the short term, increase the debt liability of farmers.

Individual farmers can possibly counteract the effect of input price inflation on cash-flow by means of productivity increases and cost savings. For the farming sector, however, higher productivity and product prices and cost savings can contribute towards increased input price inflation which will probably worsen the problem. The reason for this is probably mainly due to present competitive structures in South Africa.

Agricultural policy alone cannot solve the problems of the agricultural sector; general economic policy will thus become increasingly important. It seems that the declared policy of more effective competition might contribute a great deal towards solving agriculture's problems.

Another possibility lies in the effect of an increase in effective demand that will result from an increase in the rate of Black urbanisation. This will possibly retard the distorting effect that First World factor price ratios have had on the utilisation of resources.

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