



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

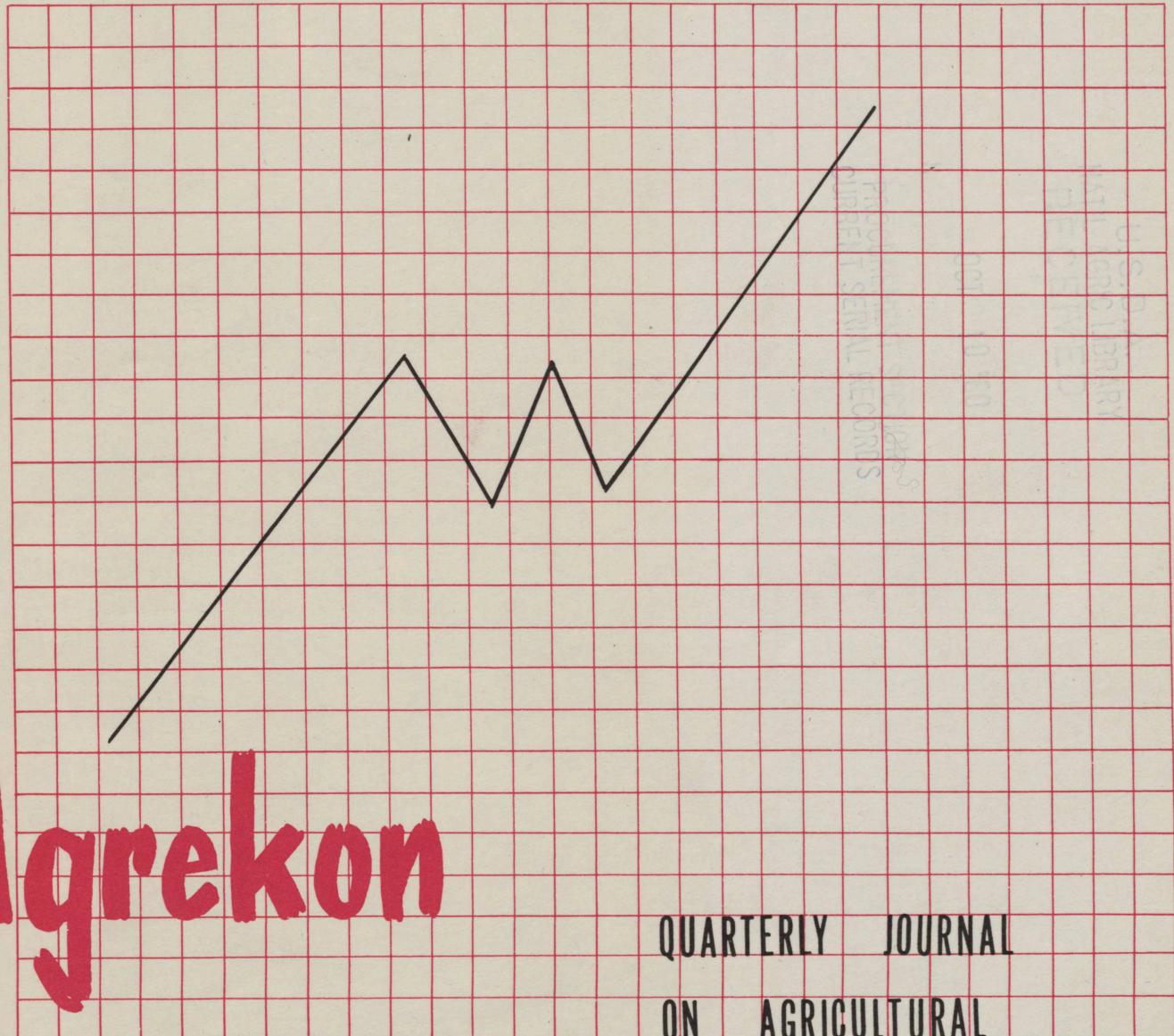
281.8
Ag 835

DCB/DCB

cop. 2

Vol. 19 No. 1
JANUARY 1980

Price 40c



QUARTERLY JOURNAL
ON AGRICULTURAL
ECONOMICS

Issued by the Department of Agricultural Economics and Marketing, Pretoria

LAND UTILISATION, ORGANISATION AND PRODUCTION IN THE AGRICULTURE OF DEVELOPING AREAS OF SOUTH AFRICA

by

J.L. VAN ZYL
Corporation for Economic Development Ltd

1. INTRODUCTION

The World Bank makes a classification of developing countries between the low and middle income groups. Low income countries are defined as those with a per capita income of less than \$300, while an amount exceeding \$300 is ascribed to middle income countries.¹

The emerging Black states of South Africa may as a group be classified within the lower income group since their average national income per capita during 1975 was R161.² The variation stretches from R192 for Bophuthatswana to R110 for KaNgwane. Although the developing areas in South Africa are better off than many other states in Africa, there is still considerable scope for large-scale improvements and upliftment in the interest of improving the quality of life of their inhabitants.

The philosophy of development combines faith in the dignity of man with the need to improve his own situation. In general terms the concept of economic development means the raising of living standards of both the individual and of groups of people who at present lead unsatisfactory lifestyles through sustained greater investment in selected multiplication factors which can lead to sustained economic growth. Development is therefore not only a national problem, but also concerns the individual and in addition has an international aspect extending across national borders.

It is, however, clear that there are aspects which must be done by a developing state itself to bring about development, and which cannot be instituted from outside.

Development is therefore not only an economic phenomenon. It incorporates, amongst others social aspects, the maintenance of law and order, healthy business principles, family attitudes and education and training, as well as technical skills. The will to develop must therefore be present in the inhabitants of a state. Uckendu³ puts it this way: "Economic history has taught us that no nation has been developed by another nation. Development is essentially a homemade product whose most important ingredient is the national will to develop".

Development in the emerging Black states of

South Africa is to an extent influenced by the relatively high level of development in the Republic of South Africa. Where most African countries have to rely upon themselves for the provision of work opportunities and foodstuffs, the inhabitants of the Black states in South Africa have access to the relatively inexpensive staple foods from South Africa as well as the possibility of finding job opportunities in the Republic. During 1970 the male absentee-coefficient for Venda and Transkei was 25 %.⁴

2. ACCORDING TO SAMUELSON⁵ ECONOMIC DEVELOPMENT IS INFLUENCED BY:

-Population:	Growth rate
	Improvement of human resources
	Better utilisation of manpower
-Natural resources:	Land utilisation
	Soil utilisation
-Capital accumulation:	Investment
	Thrift
	Foreign capital
-Technical change and innovation.	

2.1 Population

Without going into details over the population factor it may be mentioned that the average annual population growth in 37 low-income countries for 1960 to 1970 was established at 2,4 %.⁶ The average population increase of the developing Black states of South Africa was established at 2,7 % for the period 1960 to 1970.⁶

The overwhelming portion of the population of developing countries is found in rural areas. In 1977 only about 16 % of the population of the Black states of South Africa was resident in proclaimed towns. Densely populated settlements spread in rural areas also house a number of people. Apart from the income contributions of commuters and migrant workers, the

people in rural areas rely mainly upon agriculture for their source of income or subsistence. Of the 1 473 000 people who were economically active in 1970 in the Black states, 66,5 % were employed in agriculture.

3. THE ROLE OF AGRICULTURE IN DEVELOPING AREAS

Although there are basic similarities in the place and role of agriculture in the developed and developing countries, there are differences of emphasis in respect of the importance of certain factors.

The primary functions of agriculture are:

- to produce food;
- to supply products for agro-industries;
- to act as an employer and also to supply labour;
- as a market for non-agricultural sectors;
- to contribute to the capital needs of the developing country in respect of overhead investments and the development of secondary industries;
- to earn foreign exchange.

In order to carry out this function the following must take place within the agricultural sector:

- (i) optimum utilisation of present (and even poten-

- tial) natural resources within the boundaries of bio-climatological and agro-ecological factors;
- (ii) the conservation and improvement of production potential;
- (iii) that optimum profits be obtained over the long term;
- (iv) that the necessary institutional framework exists;
- (v) that the necessary physical infrastructure be created.

The way in which agriculture in the Black states of South Africa stands in the fulfilment of its basic functions will now be examined.

4. SURFACE AREAS OF DEVELOPING STATES

The surface areas of the Black states in 1977 was 15,6 million hectares. The consolidation program of land purchases has not yet been completed, and will probably still be influenced by the appointment in 1979 of a commission to investigate the consolidation of the states.

About 76 % of the Black states in South Africa lie in an area where the rainfall exceeds 500 mm per year. Whereas about 27 % of South Africa's surface area has a semi-desert climate only a half of 1 % of the surface area of the developing states falls into this zone.

TABLE 1 – Division of land (ha) in certain states in South Africa, 1976

Item	Bophuthatswana	Gazankulu	KwaZulu	Lebowa	Venda
Total	3 876 013	627 660	3 008 935	2 249 399	618 156
Dryland	309 672	107 987	648 738	377 886	61 161
Irrigation	6 000	1 498	2 644	8 146	3 744
Grazing	3 435 743	439 308	2 120 935	1 754 992	498 279
Forestry	1 457	143	24 000	27 588	4 271
Land utilisation:					
Dryland %	65	58	49	57	64
Irrigation %	54	73	100	65	72

Source: Annual Reports of the Departments of Agriculture

TABLE 2 – Percentage contribution of certain activities to the GDP of Black states in South Africa, 1975

Activity	Bophuthatswana	Ciskei	Gazankulu	KaNgwane %	KwaZulu	Lebowa	QwaQwa	Transkei	Venda
Agriculture and forestry	11,0	15,1	18,6	50,7	28,8	16,2	10,0	43,3	34,2
Mining	48,9	-	0,1	-	0,4	27,3	-	0,1	1,7
Industry	12,1	20,3	21,8	8,7	17,2	14,1	18,2	8,6	15,1
Public administration	6,1	15,6	14,8	4,9	12,8	9,2	16,8	10,9	13,9
Education	8,1	22,8	17,6	10,8	11,2	15,6	26,8	8,8	19,8
Total	86,2	73,8	72,9	75,1	70,4	82,4	71,8	71,7	84,7
GDP per capita (R)	167	78	64	52	69	79	72	98	64

Source: Benso : Statistical survey of Black development, Pretoria, 1978

5. CONTRIBUTION OF AGRICULTURE TO THE GROSS DOMESTIC PRODUCT

The GDP of the Black states increased by 7,8 % and 21,2 % respectively over the period 1960 to 1970 and 1970 to 1975. (BENSO 1978).

The contribution of agriculture to the GDP remained virtually constant at 25 % of the total. Following community, social and personal services, agriculture is the largest economic activity in the Black states.

In Table 2 the percentage contribution of five economic activities to the GDP is indicated, as well as the GDP per capita.

The important role which agriculture plays in most of the Black states appears clearly in Table 2. The relatively low percentage contribution of agriculture in Bophuthatswana should be seen against the great role which mining plays in this country. Qwaqwa on the other hand, with its limited land area in 1975, revealed a relatively unimportant role for agriculture.

The World Bank⁷ indicates that the share of agriculture in the gross domestic product of 37 low-income countries in 1977 stood at 37 %. For medium-income countries the contribution of agriculture was set at 15 %.

From 1971 to 1976 the agriculture of the Black states averaged 5,1 % of the gross value of production of agriculture in South Africa.

Animal production made the greatest contribution to the gross value of agricultural production, namely 59 %. During 1976/1977 the contributions of agronomy and horticulture were 25 % and 16 % respectively. In real terms the production of agronomy increased the fastest during the 1970's. With 1971/72 as base (100) the value of agronomical production rose to 148 in 1976/77. During the same period the index value of horticulture rose to 126. The value of animal production remained virtually constant, reaching an index of 101 in 1976/77 over 1971/72.

In all the states maize was the most important crop grown under dryland conditions. Yields were however very low in comparison with the potential. These yields are shown in Table 3.

TABLE 3 – Extent and level of maize production in certain Black states of South Africa, 1976/77

Area	Surface under maize ha	Percentage of total surface area worked	Yield per hectare
		%	t/ha
Bophuthatswana	36 355	18	1,83
Gazankulu	25 375	40	0,35
KwaZulu	181 394	57	0,58
Lebowa	99 531	46	0,25
Venda	13 539	34	0,58

Source: Annual reports of the Departments of Agriculture

Apart from Bophuthatswana the maize yields have not increased significantly over the previous three decades. The Tomlinson Commission indicated that the average yield in 1949/50 was 0,26 tons per ha.⁸ The White farmers of the Western Transvaal and the Transvaal Highveld achieved average yields of 2,6 tons per ha in 1976/77.

The traditional attitude of the Black man regarding his cattle is well-known. The turnover of beef production remains low. During 1976/77 the turnover was about 9 % in Bophuthatswana; 5,8 % in Venda; 4,5 % in Gazankulu; 3 % in KwaZulu and 1,9 % in Lebowa. The corresponding figure for the Republic was 23 %.

The generally low level of production in crop as well as animal production is such that all the Black states are importers of food products.

6. CERTAIN FACTORS WHICH LIMIT THE INCREASE IN AGRICULTURAL PRODUCTION

6.1 System of land tenure and utilisation

Land in these states is almost entirely state-owned or tribally owned. Private ownership of land is rare. In many cases state land has been ceded to tribes for utilisation.

Where tribes have control over the land, every member of the tribe can lay claim to a plot. Land which is not utilised for ploughing is used jointly by the community for grazing by stock belonging to all members of the community. Small farmers produce on units varying between 1 and 8 hectares under dryland conditions, and of about 1,5 hectares under irrigation. In addition a farmer gains grazing rights for a certain number of large stock units. Where planning has not yet been done, there is a wide variation in the size of a person's plot. In addition, further subdivision of plots also takes place.

The traditional system of land tenure is influenced by factors such as the tribal structure, and economic, sociological and political factors. As long ago as the early 1950's it had been stated: "The object of creating a self-sufficient small farmer population in the Bantu areas as part of a diversified economy in those areas can be realised only if the Blacks radically change their attitude in respect of land and their stock."⁹

6.1.1 Certain observations arising out of the system of land tenure

- (i) The traditional approach in respect of land leads to a large number of people being involved in agriculture.
- (ii) Small plots do indeed require a certain management ability and technical skill.
- (iii) The large number of people at present on the land because of the existing system leads

to a low income per plot occupier.

- (iv) This income in turn gives an image of poverty which is unattractive to progressive entrepreneurs. For this reason the Black man does not see agriculture as an activity from which a worthy income may be made.
- (v) The land is a sort of social pension for the day of retirement.
- (vi) The woman plays a prominent role in the utilisation of the plot.
- (vii) A relatively large percentage of the men who use plots fall into the age group exceeding 60 years.
- (viii) A plot occupier is not obliged to work and utilise his property. Only nominal rentals are required.

Positive changes of attitude are however taking place. Governments of various developing states are giving attention to the aspect of land utilisation. Whether political factors will permit them to bring about reforms is something which the future will show.

A Chief Minister put it in 1979 "that the agricultural development will not come about in the short to medium term unless the inhibiting factors arising from the social attitudes of the people who still adhere to traditional norms, over-population and communal or customary tenure of land in the tribal areas are removed. Of these inhibiting factors, land tenure and land usages do deserve immediate attention"¹⁰.

In a White Paper on Development Policy¹¹ the Lebowa Government stated: "The present dual main objectives of agricultural development are that of commercial agricultural production and labour absorption". Lebowa emphasises however that: "To achieve consolidation of small land areas into economic size farming units on any large scale is not a practical proposition at present. "Further it states: "The Government does not propose immediate large-scale land reforms, but attention must be given to possible ways by which reforms of land right can be achieved over the longer term without disruptions and in the best interest of the country".

6.2 Purposeful application of means of production

With given soil, climate and management potential, the scale of production is determined by the use made of the means of production. This includes seed, fertiliser, chemical preparations as well as mechanisation.

According to the annual reports of the agricultural departments in the states, there is an increase in the use of improved seed and fertiliser. Globally viewed however the actual inputs are still at too low a level to produce positive results. There must be a balance between various means of production to obtain true increases in production. By using inherently poor seed, but applying fertiliser, increased production will no-

where nearly be achieved.

The low level of utilisation of such inputs is caused by a shortage of sources of supply near the production areas, shortage of knowledge concerning inputs and alternatives, shortage of credit, transport facilities, and traditional attitudes.

6.3 Lack of infrastructure

By the term infrastructure is meant here those inputs and services which are controlled by the community and which are outside of the function of the individual undertaking. It is thus those items which render an economic service and which have an important effect on the functioning of the individual undertaking. These services include:

- (i) transport (of products from agriculture and inputs to the farm);
- (ii) communication;
- (iii) energy facilities (electrical or petroleum);
- (iv) irrigation water;
- (v) handling and storage facilities.

6.4 Credit facilities

As farming units change from a subsistence position to a commercial phase, there arises a need for production credit. Security must be supplied in respect of a loan. Because of the nature of land tenure, land itself does not serve as a good source of security.

There is also no merit in supplying credit for subsistence production. While production levels in the developing states hover around the subsistence level, the farmer cannot lay claim to credit.

The important sources of finance for farmers are the Government and development corporations. In the past, both have channelled their financing partly through co-operatives, though only to a limited extent. It should be stated here that an increase in production can be obtained only through package deal financing, involving most of the means of production.

7. CO-OPERATIVES

In the developing states, co-operatives can make a significant contribution to the development of agriculture. The approach followed is that a co-operative is not forced onto the farmers, but that the need for such an organisation should rather arise from the people themselves. The scale of co-operative farming has however not yet assumed large proportions. The system used is that where a group of 10 to 30 farmers unite, a primary co-operative is established. A number of primary co-operatives then form a secondary co-operative.

On 30 June 1978 there was a total of 61 primary co-operatives in the dependent states. By August 1979 the number had risen to 116.

TABLE 4 – Membership, turnover and source of funds of co-operatives in dependent Black states, June 1978

Area	Membership	Turnover	Source of funds		
			Member's funds	Government	Creditors
		R1 000	R1 000	R1 000	R1 000
KwaZulu	1 202	258	21	11	36
Lebowa	1 369	247	28	32	17
Venda	330	44	5	-	13
KaNgwane	76	102	2	-	23
Gazankulu	271	5	3	3	10
Ciskei:					
Primary	1 281	131	57	42	2
Secondary	7	324	0,3	114	-

Source: Division of Agricultural Advisory Services, Department of Co-operation and Development

The turnover consisted principally of production requisites purchased. In very few cases did the members sell their products through the co-operative. Of the dependent Black states, the Ciskei Government gave the greatest financial help to co-operatives.

In general, co-operatives find it difficult to survive in the Black states. The reasons for this are:

a lack of management ability and entrepreneurship on the part of the boards and management;
a lack of storage and office space;
a lack of operating capital;
a lack of technical support.

Because of these shortcomings the farmers lose confidence in the organisation, and the objectives set are not attained.

8. RENDERING OF ASSISTANCE BY A DEVELOPMENT AGENCY

8.1 Since 1973 the Corporation for Economic Development has also been involved in supplying development aid to the emerging states in South Africa. The initial mandate was that attention should be given to:

- (i) the production, processing and marketing of industrial crops such as tea, sugar, cotton and others on a project or agency basis;
- (ii) effective utilisation of irrigation land through production on land units larger than those of the individual farmers;
- (iii) the management and maintenance of farms which have been purchased for consolidation purposes.

Complementary to this the Corporation has also been asked to:

- (iv) render aid in the agricultural development of tribal areas;
- (v) render aid by supplying agricultural services to farmers;
- (vi) provide loans to individual farmers;
- (vii) supply loans to co-operatives;
- (viii) undertake viability studies into the establishment of projects;

- (ix) supply training to people within the wide range of agricultural activities.

8.2 The agricultural division of the CED has as its function to support the government of any state, on the commercial level, in raising the welfare of the people concerned with agriculture. Subsections of the strategy are:

- (i) an increase in agricultural production;
- (ii) the creation of employment opportunities;
- (iii) concentration on labour-intensive projects and methods;
- (iv) the training of people in production, administration and management aspects of agriculture;
- (v) to establish a commercially orientated middleclass farming community;
- (vi) to establish vertically integrated development;
- (vii) to establish growthpoints in rural communities.

8.3 Up till the end of the 1978/79 financial year almost R40 million had been spent in agricultural development and at the same time about 14 000 work opportunities created. Although many projects are still in the establishment stage, the turnover achieved was about R34 million for the financial year mentioned. The most important activities on a project basis were citrus, tobacco, sugar, cotton, fresh milk, beef cattle and pigs.

8.4 Activities

The activities of the Corporation may be divided into the following categories:

8.4.1 Activities on trust farms

The Corporation manages and maintains farms which are bought up under the consolidation program by the South African Development Trust. This action was aimed at maintaining production at at least the same

level as that ruling before the purchase. Assets are maintained in a good condition and in many cases the production potential is further extended. For example, in the Gilead-Limburg area the production of citrus for the export market increased from 160 000 cartons in 1974 to about 700 000 cartons in 1979.

In the district of Eshowe sugar production has been built up to almost the same level at which sugar quotas were initially granted.

8.4.2 Activities on tribal or state land within the states

Development in this sphere takes place within the context of close liaison and co-operation between the government, the tribe and the Corporation. Action takes place mainly on undeveloped land. The Corporation does a complete viability study into the soil potential, climate, choice of crops, need for capital and profitability. After acceptance of the development proposals by all parties concerned, the project is developed by the Corporation and brought to production.

No fixed programme or recipe exists whereby agricultural development can be done. In broad terms, however, the action in tribal areas takes place on the nucleus or central unit principle. A project area consists of a nucleus unit, with farmers established on its boundaries. Financing and management are supplied by the Corporation. The purpose of the nucleus unit is to:

- (i) recompense for management costs;
- (ii) serve as a demonstration unit;
- (iii) supply technical advice to farmers;
- (iv) supply loans to farmers for production purposes;
- (v) make production requisites available to farmers;
- (vi) organise the marketing of farmers' products;
- (vii) supply continuous training to farmers;
- (viii) train local people in the management and administration of an agricultural project.

8.4.3 Agency undertakings

Under this scheme White undertakings are established in the developing states with financial support from the Corporation. The broad principle is that the Corporation will provide the fixed improvements according to the needs of the agents. The agent rents these improvements from the Corporation at an economic rental. Further, the Corporation contributes up to 50 % of the operating capital and plant requirements in the form of a loan to the undertaking. Interest rates vary according to the situation of the project as well as the products produced.

Agencies already established include the production, amongst others, of broilers, citrus, pork, sugarcane, eggs and trout.

A variation in this system is the involvement of sugar milling companies which act as agents of the Corporation in the development of sugarcane production. Five mills are involved in this scheme. In three cases the milling groups have established separate development companies which promote the development. Loans for the establishment of cane are made available to the farmers via the milling group. These loans are repayable over three cutting seasons at an interest rate of 5 %. The milling group helps the farmer with his soil preparation and planting of his property. Assistance is also given in the cutting process through cutting teams and transport facilities. In the Ndwedwe district in KwaZulu the Sukumane Development Company has established 800 ha of cane annually for three years. The tonnage of cane cut has risen over the past four years from 35 000 tons to 200 000 tons. Yield per ha has more than doubled and at present stands at 55 tons. About 50 % of the cane which is cut is transported to the mills by Zulu contractors. Within two years about 6 000 ha will be established under cane.

9. IMPROVED IMAGE OF AGRICULTURE

It has already been stated that agriculture does not enjoy high regard as a form of livelihood. A way of giving agriculture a greater attraction is to ensure that the entrepreneur earns an income from his farming activities which compares with that from other work situations at the same level of education, activity and experience. After discussions with officials of the agricultural departments of the developing states as well as representatives of tribal authorities, an amount of R2 500 has been set as an income which should be obtained against 1979 prices. To a large extent, the level of income determines the size of a unit required. The influence of environmental factors and the type of product must be taken into consideration in determining the size of a production unit. The yield per unit has a decisive influence on the sizes of a production unit.

In Table 5 the size of a number of production units which should give an annual income of R2 500 are set out. The table also indicates the capital needs in terms of equipment and operating capital. Equipment includes items such as tractors, implements and irrigation. Operating capital includes the expenditure necessary to bring the undertaking to the production stage, i.e. when the first production takes place.

The cash flow situation for each type of farming undertaking is calculated, and the operating capital determined according to this.

TABLE 5 – Extent and capital requirements of certain products for the earning of R2 500 net income

Industry	Size ha	Yield/unit	Turnover R	Capital requirements		Job oppor- tunities
				Total (R)	Operation (R)	
Annual crops						
Cotton, irrigation	9,6	2,2t/ha	11 900	8 048	7 092	7,0
Maize, dryland	40,0	2,6t/ha	10 608	17 720	7 621	2,65
Wheat, dryland	41,0	1,25t/ha	8 713	13 800	4 428	1,00
Perennial crops						
Coffee	0,8	1,76t/ha	4 160	7 308	1 645	2,0
Citrus	4,0	147 kg/tree	17 140	50 000	12 508	3,65
Mangoes	1,5	100 kg/tree	10 148	18 000	4 690	2,04
Poultry						
Laying-hens	2 500 hens	234 eggs	35 860	28 210	6 391	2,0
Broilers	7 000 birds	1,7 kg	122 218	81 230	23 144	6,0
Beef cattle	1 352	169 LSU	8 469	9 683	1 124	4,0

The figures given in respect of crops in Table 5 are based on production units which are either linked to a nucleus unit or in respect of which overhead management is supplied on a cost basis. Physical yields per unit in respect of annual crops and poultry have already been obtained by individual producers in the Black states.

In the harvesting of crops, temporary labour needs arise over and above the ability of family labour. Provision is made for paying this temporary labour, as well as family labour. Interest is included as a cost item.

Wheat production is labour-extensive because virtually all facets, from soil preparation to harvesting, are mechanised.

The relatively high capital requirements of perennial crops are because of the fact that the establishment costs of orchards, as well as the maintenance costs up to the time the trees start to yield significant crops, are capitalised.

In respect of the poultry units, housing is included in the total requirements. Land is not a factor here. An egg production unit requires a plot of about 1 ha and a broiler unit about 2 to 3 ha.

9.1 If the information contained in Table 5 is used in relation to the potential areas available for certain crops and stock farming, an indication will be gained of the number of farmers who can be involved in agriculture at competitive incomes.

9.2.1 Bophuthatswana

In Table 1 it is indicated that the dryland area measures 309 672 ha. According to preliminary indications, 100 000 ha of high potential land is available for wheat production and 160 000 ha for maize production.¹² If it is accepted that middle class farmers are

settled on these areas, and the balance of the dryland areas utilised for other production purposes:

- (i) a total of 6 439 farmers can be settled on maize and wheat production units;
- (ii) 625 farmers can be settled on irrigation land with plots of 9,7 ha;
- (iii) 2 541 cattle farmers can be established with units of 169 large stock units;
- (iv) a total of 9 605 farmers will have been settled, earning incomes of R2 500 per year.

The gross value of production of these 9 605 farmers will come to R92 641 000. During 1977 the total gross value of production of agriculture was R11,08 million.

A production of 416 000 tons of maize and 125 000 tons of wheat will be obtained, which is more than sufficient for the needs of the population.

An amount of R134,1 million will be needed for tractors, implements and production credit.

On the basis of the creation of employment, 27 578 people will be employed fulltime as workers on these middle class farming units.

9.2.2 Gazankulu

The rainfall in this state varies between 480 to over 950 mm. The greatest portion falls into the class 500 to 650 mm. If the relatively high temperatures are taken into consideration, the area does not, generally speaking, have a high dryland cash crop production potential. The rivers which flow through the territory compensate for this. Of the land under the control of Gazankulu in 1976, some 28 600 ha can be put under irrigation if the necessary structures are created to con-

serve water. Potential products include, amongst others, cotton, vegetables, citrus, mangoes, guavas and coffee. On the basis of the data in Table 5, some 8 500 farmers can be settled on irrigation land, earning an annual income of R2 500.

An equivalent of 27 500 permanent job opportunities will be created. The capital requirements of this establishment are estimated at R263 million. The annual gross production value on this irrigation land will be about R101 million.

10. CONCLUSION

10.1 Agricultural land and resources are basically used for one purpose, namely to acquire income. The need to acquire income arises out of the need to satisfy certain requirements. The extent of this income is determined by agro-ecological, bio-climatological factors; price relationships between products and means; the availability of production means, credit and markets. The number of entrepreneurs within the industry will further determine the income of the individual.

10.2 The Tomlinson Commission has already indicated that 100 ha in the Black states have on average the same potential as 147 ha in the White areas.¹² If the 1975 consolidation proposals are carried out, the relationship will further broaden.

10.3 Although the Black states have considerable production potential, the actual production results are at a low level. The underlying reasons for this are a combination of factors such as excessive population concentration; land utilisation; lack of production means, finance, technical knowledge and infrastructure.

10.4 Organised support in the spheres of production, marketing and financing can have a positive effect in changing the situation of agriculture.

10.5 The development of agriculture can make a contribution to the total development of the Black states, though the greatest contribution will have to come from other sectors of the economy. In striving to in-

crease the per capita income of the population and create more job opportunities in the Black states, a significant and steadily increasing proportion of the job opportunities outside agriculture will have to be created.

10.6 Agriculture in the Black states and in the White area is to a large extent interwoven. Mutual co-operation between the various groups is of cardinal importance.

For this reason the establishment of a constellation of states in Southern Africa is essential from an agricultural viewpoint.

REFERENCES

1. World Bank: World Development Report, 1979, Oxford University Press, 1979.
2. Buro for Economic Research: Co-operation and Development, Statistical Review on Black Development, Pretoria, 1978.
3. Uckendu V.C.: Motivation and Incentive Structure for Planned Rural Development, p. 31. In Strategy for Development: Ed. J. Barratt et. al. Macmillan Press, London, 1976.
4. Samuelson P.A.: Economics, 5th edition, p. 782. McGraw-Hill, New York, 1961.
5. World Bank, op.cit., p.158.
6. Department of Statistics, Pretoria.
7. World Bank, op. cit., p.130.
8. Commission for the Socio-economic Development of Bantu Areas within the Union of South Africa. Government Printer Pretoria, 1955, p.85. (Tomlinson Commission).
9. Tomlinson Commission, p.77.
10. Buthelezi M.D.: The KwaZulu Government's approach toward rural development. Speech delivered at the Urban Foundation in Durban, 10.8.1979.
11. Lebowa Government: White Paper on Development Policy. March 1979.
12. Harmse J. van M.: Potchefstroom University. Information supplied October 1979.
13. Tomlinson Commission, p.110.