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Economic Planning of Farming Units in Certain South African Bantu Areas*

by

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1. INTRODUCTION

In a discussion of economic planning of Bantu farming units in South Africa, attention must first of all be paid, *inter alia*, to the differences in economic culture and consequent differences in the approach to, for example, technology between White and Bantu; the principle of trusteeship of the Whites over the Bantu; the concept of Government intervention and the motives and qualities of the Bantu farmer himself. Add to this the effect of the migrant labour system on the agriculture of the Bantu, and it becomes clear that the economic planning of farming units is a very complicated task.

It is difficult to discuss this subject in isolation, while simply losing sight of the social and institutional sides. Although these aspects are treated in more detail in other papers at this conference, it will nevertheless be necessary to refer to them. Despite this, developments among the Bantu nations of South Africa have nevertheless had the effect that the Bantu have already undertaken their own farming activities successfully on an individual basis. This tendency, and the evident absence of successful enterprises in the communal system have even led the White trustee Government in South Africa to start to encourage the logical development of individual farming units out of the communal system, the best example being the development of irrigation schemes outside the communal framework. Hence it would be fit to try to determine precisely on these individual irrigation farms what is being achieved with economic planning in Bantu agricul-

ture, especially since Western techniques are better suited to such farming than to the communal. A further reason is that it can be considered to be a relatively new system for the Bantu and the individual Bantu's potential as agricultural entrepreneur and "economic planner" in miniature can probably be measured more effectively here than in the communal system, where the entrepreneur does not really exist as an individual. For the purpose of this study, use is therefore made of the results of Bantu irrigation farms in some parts of South Africa.

2. ECONOMIC CULTURE

As is generally known the economic culture of the Bantu is in many respects traditionally different from and differently valued than that of the White or Western economic culture. Because the economy is to an exceptional degree family-centred the needs and desired, and therefore also the motives of the economic subject are differently valued. Also, it was the general custom that nobody may be more wealthy than the chief, that is to say, wealth was really in the national community associated with the chief. Effort and independent work, therefore never had as objects self-enrichment and improvement of one's own standard of living in terms of Western norms. The needs were simply different and hence also the means and techniques of satisfying them.

Although the process of economic development is unique, from which one cannot drastically depart and which takes place by means of, for Whites, known and practicable techniques, it must always be kept in mind that these techniques were designed and developed by Westerners, and moreover, that these techniques were developed as a result of specific needs according to the desires, motives, and goals of Westerners. The unique processes and techniques in agriculture too, can therefore be described as a result or a function of the needs of the Western economics. They are, therefore, so unique to and intimately connected with the norms and value judgements and desires of Western society that the failure

*Further details on the statistical data and concepts contained in this paper may be found in Mr Weidemann's D. Com. Thesis - *Die Ekonomie van Ontwikkelingsbeleid in die Suid-Afrikaanse Agtergeblewe Gebiede met spesiale verwysing na Bantoebesproeiing*, University of Pretoria, 1970.

**Professor Smith read the paper.

of the Bantu to accept them can often not be understood or tolerated by the Westerner. Similarly, from his point of view the Bantu cannot always appreciate and accept the necessity and the uses of these techniques, and often rightly regards as unnecessary and illogical the effort and work involved. It is therefore evident that the Western techniques will not readily stimulate the imagination and creative urge of the Bantu to higher achievements and independent development, because it did not grow and develop spontaneously from his own thought, effort and deprivation to the high level where today it can be widely applied in agriculture. These Western techniques therefore do not exist in Bantu society as a natural result of their economic culture, but was introduced into their society as a foreign element by the Whites, to be a potential reason for ever higher production. The acceptance by the Bantu of modern production and economic techniques is, therefore, a deeper intervention in their society, and a much more positive step to be taken by the individual, than is generally realized. It would therefore be wrong to compare at this stage the production and economic planning in Bantu agriculture with achievements of or employment of techniques by White farmers. These are not comparable entities. Hence planning by government, i.e., by the White trustee must be seen as an enormous task, and every bit of progress in the direction of acceptance of techniques and higher production by the Bantu, as a great achievement.

It is encouraging that some of our overseas colleagues are also beginning to realize this. In a recent paper, Earl O. Heady states that the central problem in getting agricultural development underway, lies in "..... the political, cultural, intellectual and similar restraints, largely exogenous to the agricultural development process, which prevent 'getting on with the job'".¹⁾

3. THE PRINCIPLE OF TRUSTEESHIP

Here the view is adopted that government intervention is even more essential in Bantu agriculture than in White agriculture, and that on account of the principle of trusteeship, particularly unique and strenuous demands are imposed on government intervention, especially in respect of economic planning of farming units in Bantu agriculture. It is exceptional in the sense that it is not intervention by the Bantu's own authorities, but intervention by a White trustee authority. This relationship of White trustee vis a vis Bantu ward in the process of agricultural development and agricultural planning, is thus necessarily much more problematical than the familiar relationship between government and individual in White agriculture.

1) W.W. Mc Pherson (editor), Economic Development of Tropical Agriculture: Theory, Policy, Strategy and Organization, Gainesville, University of Florida Press, 1968.

Against this problematical background of, for example, a different-valued culture, race differences, and a process of coming of age, planning of Bantu farming units in South Africa must therefore be evaluated.

4. IRRIGATION FARMING

For the purpose of this discussion irrigation farming was chosen, because apart from the reasons already mentioned sufficient and dependable information about it is at present readily available, and because in a certain sense irrigation farming currently includes the most advanced growth points of agriculture in the Bantu areas, despite the fact that it also requires a higher degree of acceptance of techniques, and of skill. Moreover, the occupiers of irrigation plots already display development motives which break away from the traditional sub-subsistence way of life, which is not yet development-centred. It must not be deduced from this, however, that, for example, individual Bantu farmers in extensive enterprises producing up to 4 000 bags of maize a year, are also still traditionally backward. These are, however, the exceptions. (We refer here to some maize producers in the Western Transvaal, in the vicinity of Mooifontein). In general, Bantu agriculture is still backward and undeveloped.

There are at present more than 23 000 morgen of land under irrigation in the Bantu areas which is only 37 per cent of the potential 63 000 morgen which can eventually be brought under irrigation. These 23 000 morgen are widely distributed in the Bantu areas, and include numerous smaller irrigation schemes as well as the relatively large scheme at Taung in the Northern Cape Bantu areas. Some of the smaller schemes such as Mooi River and Tugela in Natal, were established as early as 1910.

The techniques of irrigation have thus been known among the Bantu for over 50 years, at least at two schemes in Natal. In Table 1, are shown, inter alia the approximate dates on which production at the various schemes began, giving an indication of the periods in other parts of the homelands. Thus there is sufficient reason to believe that the Bantu could equally well make a success (or a failure) of irrigation farming as of any other type of farming. Whether indeed he has enough aptitude and skill to be able to make an economic success of this more intensive, and hence more difficult, type of farming, is a question to which an answer will have to be found. As appears from Table 1, all the schemes consist of holdings of 1.5 morgen, with the exception of the Tugela, Mooi River and Taung schemes, where the respective sizes are 2 acres and 2 morgen per holding. Although the average age of these schemes is only 9.7 years, a sample of 99 holdings was taken in a recent study from a number of schemes of which the average age

TABLE - 1 Most important irrigation schemes in the South African Bantu areas, 1966

Nr.	Name	Size in morgen	River	Dam	Size of holdings morgen	Date at which production began	District or area
1.	Njelele	900	Njelele	Weir	1.5	1962	Louis Trichardt, Tvl.
2.	Rembrander	182	Dzondo	do	1.5	1955	Sibasa, Tvl.
3.	Palmaryville	138	Mvuchi	do	1.5	1953	Sibasa, Tvl.
4.	Dzindi	170	Dzindi	do	1.5	1954	Sibasa, Tvl.
5.	Shiombo	1 355	Mutali	do	1.5	1964	Sibasa, Tvl.
6.	Rambuda	139	Tshala	do	1.5	1952	Sibasa, Tvl.
7.	Thabina	300	Thabina	do	1.5	1960	Tzaneen, Tvl.
8.			Modadimo, Lafale and Ratspruit	do	1.5	1959	Tzaneen, Tvl.
9.	Metz and Strassburg Bosbokrand, Dingleydale, New Forest complex	971					
		2 200	Headwaters of the Groot sand	do	1.5	1964	Bosbokrand, Tvl.
10.	Barberton	650	Komati	do	1.5	1958	Barberton, Tvl.
11.	Fertilis and Vallis	105	Mahladpitse	do	1.5	1952	Pietersburg, Tvl.
12.	Grootfontein and Succes	300	Branches of the Olifants	do	1.5	1953 en 1963	Pietersburg, Tvl.
13.	Gompies	103	Gompies	do	1.5	1957	Potgietersrus, Tvl.
14.	Lower Olifants River (Nebo)	750	Olifants	do	1.5	1941	Nebo, Tvl.
15.	Olifants River (Nebo, Coetzedraai, etc.)	900	Olifants	Pump and dams	1.5	1962	Barberton, Tvl.
16.	Lepellane	500	Lepellane	storage dam	1.5	1966	Sekukunieland, Tvl.
17.				Weir (Permanent stream)			
	Bulurana	400	Branch of the Black Umfolozi		1.5	1966	Noyoma, Natal
18.	Tugela	800	Tugela	Weir	2 acres	1963 rebuilt	Msinga, Natal
19.	Mooi River	600	Mooi	do	2 acres	1964 rebuilt	Msinga, Natal
20.	Mapumulo	200		do	1.5	1960	Mapumulo district, Natal
21.	Majenghie	200	Malenghie	do	1.5	1961	Umzimulu district, Transkei
22.						1966 still being built	
	Qamata	4 000	Indwe	storage dam	1.5	built	Cofimvaba, Transkei
23.	Shilo	200	Branch of the Black Kei	Weir	1.5	1960 before	Whittlesea, Transkei
24.	Keiskammahoek	200	Keiskamma	do	1.5	1960 before	Keiskammahoek, Transkei
25.	Taung	5 000	Vaal-Hartz	storage dam	2.0	1940	Taung, Cape
	Total	21 463	-	-	-	-	-

Source: Department of Bantu-Administration and Development

was 16 years, viz., Taung, Olifants River area and Sibasa. (More detailed particulars of the schemes and the sample are not given for the purpose of this discussion.) Before discussing the economic planning of these holdings, attention must first briefly be given to the necessity of government intervention, and to making a closer acquaintance with the individual occupier himself.

5. GOVERNMENT INTERVENTION

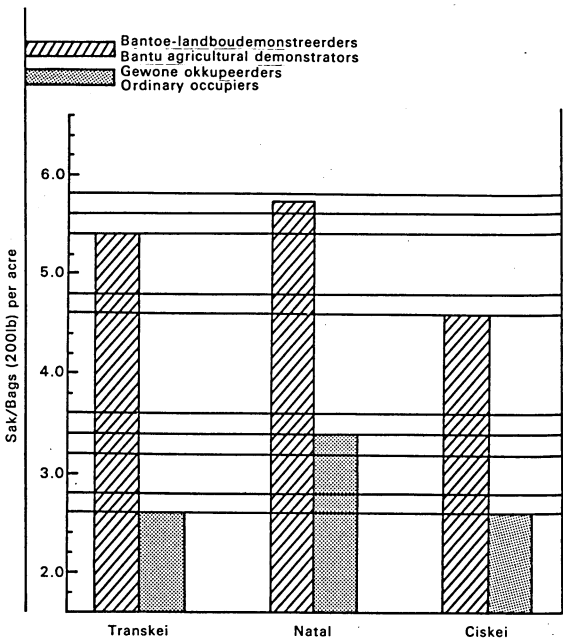
There is no record of Bantu (individually or in groups) who on their own initiative, without government intervention, having made an economic success of irrigation farming in the homelands. This means that all the existing schemes were established by government intervention, and that the opportunities which exist were provided for the Bantu by the government. It is therefore evident that the government not only determines and manages a scheme, but also the planning, crop rotation programs, financing, etc.

This implies a drastic intervention down to the managerial level, which is in fact "close supervision"²⁾, or a system of strict control down to the level of individual decision-making. In practice, however, it cannot be too strict, because the Bantu farmer cannot be forced into it.

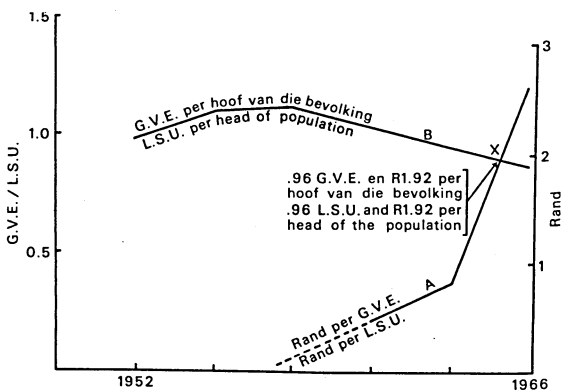
6. THE OCCUPIER

To be able to appreciate the task of economic planning of Bantu farming units in South Africa, it is also necessary to pay brief attention to the potential of the communities from which occupiers are recruited for irrigation farming. Graph 1 shows clearly what the abilities of occupiers and agricultural demonstrators in dryland farming were 14 years ago, when an average production of only 3.2 bags of maize per acre over five years was the best achievement of occupiers under the supervision of demonstrators who obtained an average of 5.4 bags per acre. It should be mentioned that the achievements of the occupiers at the beginning of this measuring period had been considerably below 3.2 bags per acre, which indicates that the abilities of the occupiers did in fact improve, although it remained alarmingly low. (I.e. about 6.6 bags or R19.80 a morgen per occupier per annum.) Additional proof of the relatively low ability of occupiers was found with a more recent measurement in the extensive and in the intensive livestock branches of agriculture, as shown in Graphs 2 and 3. (Although data are extremely sparse, these graphs nevertheless indicate a particular tendency.)

2) For an explanation of this concept please refer to section 6 of the paper by G.M.E. Leistner in this issue.

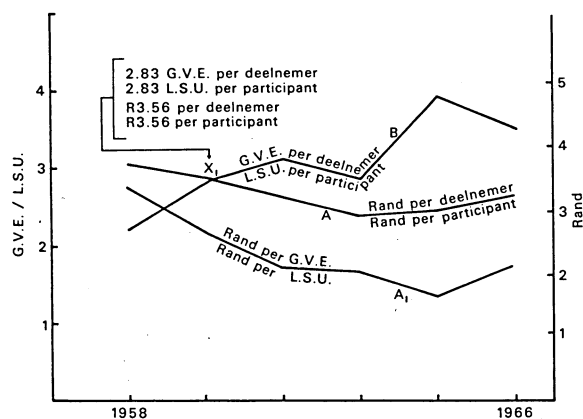


Graph 1 - Comparative average maize production in bags per acre of Bantu agricultural demonstrators and ordinary occupiers, 1939 to 1944.



Graph 2 - Opposite tendencies of the per unit yield and the number of LSU per capita of the population in the extensive animal husbandry sector in the South African less developed areas, 1952 - 1966.

A= Rand per LSU
B= LSU per capita of the population



Graph 3 - Opposite tendencies of the per unit yield and the number of LSU per participant in the intensive animal husbandry sector in the South African less developed areas, 1958 - 1966.

A = Rand per LSU
A = Rand per participant
B = LSU per participant

According to Graph 2, the income per L.S.U. increases appreciably with decrease in the L.S.U. per capita of the population. Point X in the graph represents 0.96 L.S.U. or R1.92 per capita of the population, suggesting once again that even as recently as 1966, the achievements of the Bantu were still relatively low, although the income per L.S.U. shows an increase. What is alarming, however, is that the two curves already show opposite tendencies at such a low level of productivity. This tendency can be observed more accurately in Graph 3, which is based on the more dependable data of an average of 172 dairy schemes over a period of eight years. Here the tendency of a decrease in income per L.S.U. (curve A) with an increase in L.S.U. per occupier (curve B) is clearer, and the opposite directions of the curves are again prominent at a level of 2.83 L.S.U. per participant, at point X in the graph. An explanation for this phenomenon could be that as soon as the supervision of the extension service is spread over a larger percentage of livestock and participants, the output ratio begins to fall. Thus the efficiency of the extension service declines even in irrigation farming, which is intensive. It therefore shows clearly that the ability of the occupiers in the more intensive livestock branch (dairy schemes) is also still at an alarming low level. In view of the foregoing, it can be stated in general that the ability of the Bantu communities from which occupiers are recruited for irrigation schemes, is low.

It must also be kept in mind that these occupiers are not entrepreneurs in the capitalistic sense of the word, and that their achievements must therefore be judged accordingly. On the

other hand it does not mean that in the process of acquiring techniques, these people cannot equal or even surpass Western standards of productivity.

(a) Training and experience

General education and training of the Bantu are clearly of great importance for the economic planning and development of Bantu agriculture. Since large amounts of money are required for this, merely at first to establish general literacy which can lead to better understanding and can in particular facilitate extension services, much emphasis could not in the past be laid on purposeful agricultural training. In fact the present state of affairs indicates that the level of formal training of the occupiers at the three irrigation areas of Taung, Sibasa and Olifants River is such that it is doubtful whether any significant use can be made of written instructions or written explanations of techniques.

No relationship can at present be found between formal school training and production per morgen at the irrigation schemes. (Table 3)

As appears from Table 3, the first seven occupiers out of the best 15 had no training, while only one occupier with school training could take first place in his own area (Sibasa). This occupier took eighth place in the order of best achievement in the sample as a whole. This means that there is still room for purposeful agricultural training. The fact that a relationship cannot be found between formal training and gross income, and that occupiers with no school training obtained the highest gross incomes, clearly indicate the important part played by other factors, such as extension and experience in farming.

Two other facets were consequently examined, which indicate certain guide-lines in planning, viz. experience gained in White farming and experience in own farming. Although the experience in White farming was gained mainly as labourers, it is one of the sole variables which show a relationship with gross income. A general statement can be made, viz. that those occupiers who had already explored foreign innovations showed more initiative and purpose in their production processes than the others.

The same tendency can be observed in respect of experience of own farming, and it can be stated that the duration of the process of experience can indeed have an influence on higher production. Since it has already been pointed out that the gaining of knowledge of problems through study is excluded in this instance (Table 2), practical experience, is therefore of importance. The question (seen from the viewpoint of planning) is what must be regarded as the desirable period of experience in years before "sufficient knowledge" has been acquired. This is important when

TABLE 2 - Formal training: Main occupiers at Taung, Sibasa and Olifants River area, 1964-65

Area	None	Above St. V*
	Per cent	
Taung	66.67	7.4
Sibasa	52.44	9.8
Olifants	58.95	7.0
All three areas combined	63.85	8.4

* Highest training Std. VIII

TABLE 3 - School training and gross income in rand per morgen of the five best occupiers from each area, 1964-65

Taung		Sibasa		Olifants River	
Std.	Rand	Std.	Rand	Std.	Rand
0a)	640.75	IV	313.20	0	809.37
0	392.25	0	252.74	0	468.28
0	362.10	0	241.14	IV	300.38
0	329.66	II	170.92	I	237.60
0	328.15	0	121.86	0	190.12

a) The "0" indicates that the occupier in question never had any formal training.

consideration is given to the determination of a probationary period for the occupier - also when consideration is given to extension programmes, granting of credit, enlargement of lands, etc. In research for his Ph. D. thesis, J.J. Weidemann reached the conclusion that a probationary period of at least four years is necessary, during which occupiers must be subjected to as much supervision and opportunities as possible to gain experience.

One last remark in respect of the fifteen best occupiers can be made: Although 11 per cent of the total number of main occupiers in the sample were women, there was not one among the best fifteen, which is an indication that women as main occupiers should rather be avoided.

(b) Motivation of the occupier

It appears from the sample that the occupiers are strongly motivated to engage in irrigation farming under present circumstances and policy stipulations. At Taung, 100 per cent of the occupiers prefer to continue with irrigation farming, while in the case of Sibasa and Olifants River the corresponding figures were 97.87 and 90.70 per cent, respectively. These high percentages indicate that development on the irrigation schemes, as planned by the authorities, is completely in accord with the desires, needs and

abilities of the Bantu community. If attention is paid to the most important motives of the occupiers at the schemes (as shown in Table 4) then it can justly be said that the White trustee is at least successful in making the planning and development in this field highly acceptable to the Bantu, while their development progresses towards ever higher gross incomes per morgen. In respect of the complaints there were a few specific cases where there were economically motivated complaints, as for example "no money to buy fertilizers", or "poor transport facilities" to market the highest-income crop, viz. vegetables.

It is important to note that the occupiers, rationalise their problems in agriculture to such an extent that development will no longer be impeded by irrational actions, and that the government can feel free to allow this development to progress more rapidly. The data in Table 5 are a summary of the "solutions" towards higher production provided voluntarily by each occupier according to the "open answer" method.

The "solutions" put forward by the occupiers, as appears from Table 5, reflect a remarkable concentration on physical technology in the activities of the enterprise as such. This shows once again the ability of the occupiers to rationalise their problems, as witnessed by the 100 per cent reaction to the problem question, which often revealed enthusiasm. It is striking that such "solutions" as mechanisation, training, extension, private ownership, communal organisation and common management, and problems such as transport, marketing channels and centres, record-keeping, etc., were not mentioned. Items 1 to 4 and 6 to 8, which together represent on average 81.88 per cent, clearly indicate that the occupiers already appreciate their basic technological problem to a large extent, and are willing to tackle it. It also points towards operating capital limitations. The percentages for Taung, Sibasa, and Olifants River are 94.46, 80.88, and 73.33, respectively, but must be compared separately by item to be able to interpret the real situation.

Item No. 1 is important in the sense that ploughing units, and animal draught power in particular are insufficient, and clearly points to the problem of acquiring these rather than to unwillingness or irrational action. That good quality seed is not generally available, and is seen by the occupiers as a serious shortcoming, is equally important. The "ploughing" units consist of animal draught power which they mobilise on their own, and is often a time-consuming factor, and highly inefficient, while private storage facilities for seed and implements are inadequate and give cause to a perpetually unsaturated demand for good seed in peak periods. Mechanical ploughing units involve financing problems, apart from exceptional cases where the Trust undertakes it. It is particularly remarkable that such a high percentage as 41.67 per cent occurs in the Taung area, which boasts the best developed entre-

TABLE 4 - Motives and objections of chief occupiers on the irrigationfarms of the Taung, Sibasa and Olifants River areas, 1964/65

Nr.		Area			
		Taung	Sibasa	Olifants River	Average
		Per cent of occupiers in sample			
	<u>Motives</u>				
1.	Family and birthplace	20.84	17.47	34.62	23.72
2.	Not able to do any other work	1.39	1.94	2.56	1.98
3.	To old for other work	11.11	4.85	6.41	7.12
4.	Here is peace and order	1.39	0	0	39
5.	Department prefers it thus	1.39	0	0	39
	Sub-total	36.12	24.26	43.59	33.60
6.	Irrigation farming is better than any other farming	13.89	12.62	10.26	12.25
7.	Always enough food for family	9.72	23.30	8.97	15.02
8.	Here is water and no droughts	1.39	0	6.41	2.79
9.	Better able to look after livestock	5.56	2.91	2.56	3.56
10.	Prefers to be own boss	8.32	1.94	16.67	8.30
11.	Prospect of rising income	25.00	27.18	2.56	18.97
12.	Enough money to pay taxes	0	0	1.28	39
	Sub-total	63.88	67.95	48.71	61.26
	<u>Objections</u>				
1)	Not enough water	0	3.88	2.58	2.38
2)	Cannot pay rent and tax	0	2.91	2.56	1.98
3)	Rent and tax too high	0	0	1.28	.39
4)	Can obtain higher income elsewhere	0	0	1.28	.39
	Sub-total	0	6.79	7.70	5.14
	Total	100.00	100.00	100.00	100.00

TABLE 5 - Techniques suggested by Bantu irrigation farmers by means of which production can be improved and cash income increased, 1964/65

Nr.	Technique	Area			Average
		Taung	Sibasa	Olifants	
		Per cent of occupiers in sample			
1.	By better cultivation and use of better seed	41.67	38.23	48.89	42.29
2.	By making more regular use of fertilizers and/or kraal manure	2.77	16.18	15.56	12.75
3.	By personally working harder	16.67	20.59	4.44	14.76
4.	By introducing the livestock factor more efficiently	16.67	0	2.22	4.70
5.	By more regular water supplies	2.77	19.12	26.67	17.45
6.	By better credit facilities and higher product prices	5.56	0	2.22	2.02
7.	By obtaining more land	5.56	2.94	0	2.68
8.	By employing more workers	5.56	2.94	0	2.68
9.	By an additional enterprize, e.g. grain mill, repair work, transport, etc.	2.77	0	0	.67
Total		100.00	100.00	100.00	100.00

preneurship. The fact that the occupiers rate this solution so highly further indicates that they do appreciate the advantages of better physical technological techniques and will undoubtedly not remain underdeveloped on this count.

Item 2 is a true reflection of the problem of fertilizer distribution, and its availability on irrigation schemes. Transport costs also play an important part. The occupiers of the Taung scheme are on balance convinced that they are already using kraal manure and fertilizers efficiently and must seek solutions in other directions, such as the "livestock factor", "credit facilities", "more land", and "more labourers".

Item 3 is self-explanatory and shows that the occupiers in the Olifants River area consider that the available man-hours are virtually sufficient - read in conjunction with item 8. The relatively high priority given to this item at Taung and Sibasa also indicates an objective rational view of the aggregate situation, and it would undoubtedly also have received high priority in the Olifants River area, had water problems (item 5) not been such a serious limiting factor.

Item 4 undoubtedly indicates that at least at Taung, livestock no longer play such an important part as cultural objects or as bride-prices. In fact lobola is rarely paid for with cattle on the irrigation scheme. It was established that the cash lobola prices vary for the different areas between R20 to R45 in the Olifants River area, R35 to R50 in the Sibasa area and R45 to R65 and more in the Taung area.

Item, 6,7 and 8 can evidently be described as the strongest economically-oriented solutions, as will also appear later on. It is significant that the occupiers in the Taung area - where the land use pattern is already relatively intensive - regard more land as essential to attain greater material welfare.

Item 5 is merely a technical government problem which can be set right by the provision of storage dams in the Sibasa and Olifants River areas. Although it is at present a detrimental factor, it can in any event not be eliminated by the occupier himself.

Item 9, representing 0.67 per cent on average is the only "solution" that can be regarded as divergent and fortunately represents a small percentage of the whole.

In summary it would appear therefore (Tables 4 and 5) that the decision-making function at the farming level probably still takes place to a large extent without conscious knowledge of economic

technique, in spite of the well planned efforts of the Department of Bantu Administration and Development to provide advice. However, from the open answers the undercurrent of capitalistic principles and thought, out of which an entrepreneurial class can develop, is clearly apparent.

With this general background knowledge about the occupier, it is now possible to proceed, and to determine the form the general production pattern is taking.

7. ANIMAL HUSBANDRY

The capital-output ratio (Table 6) of livestock was calculated at current land prices of comparable grazing land in White areas and current market prices for livestock in Bantu areas. According to this the irrigation areas reach the following percentages in accordance with the average number of L.S.U. per occupier: Taung, 7 per cent with 13.3 L.S.U.; Sibasa, 10 per cent with 3.8 L.S.U. and the Olifants River area, 10 per cent with 5.8 L.S.U. per occupier. Here again there is an indication that the output ratio declines with an increase in L.S.U. per occupier.

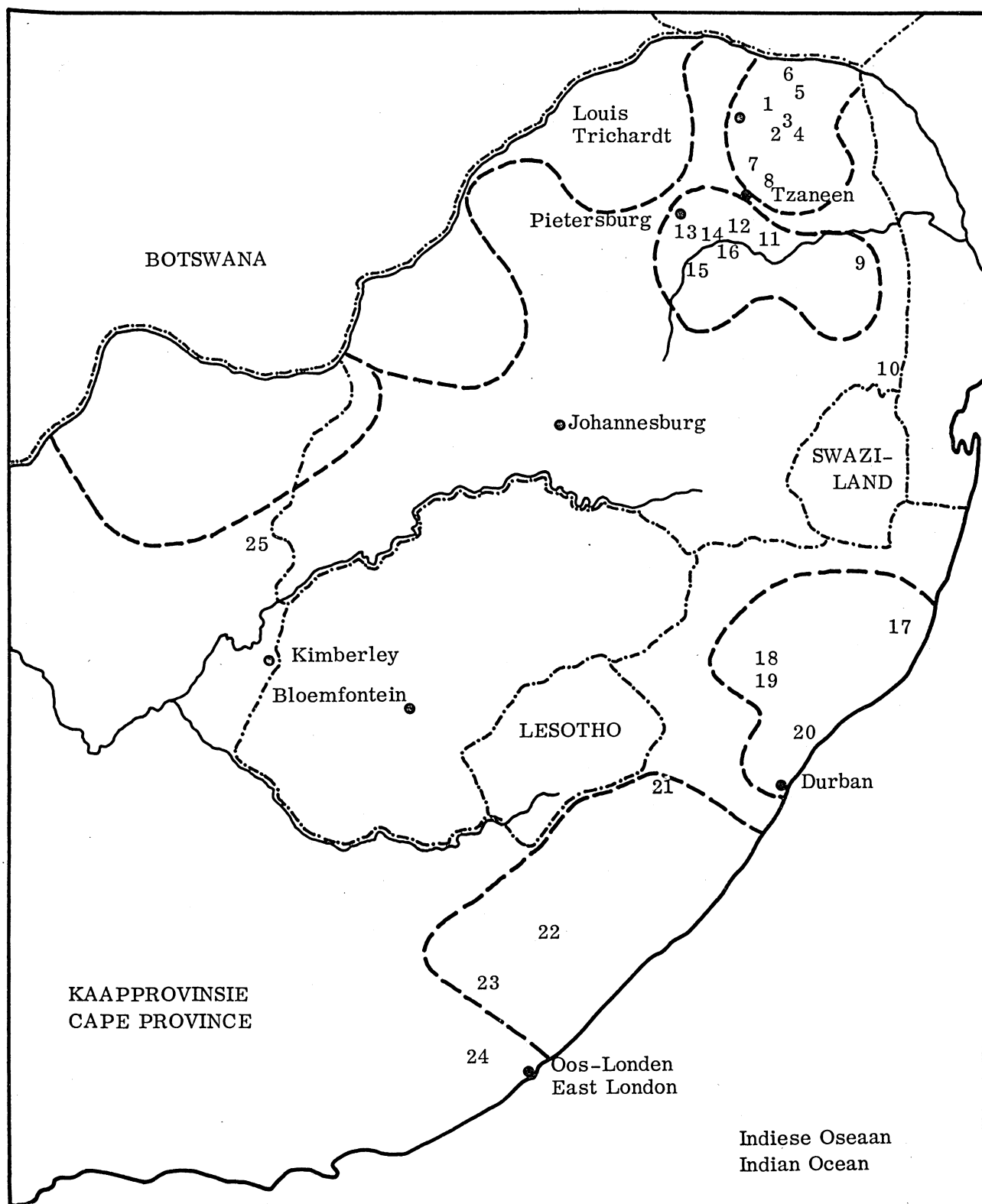
From a nutritional viewpoint (milk and meat), livestock is important, and it was found that as much as 85 per cent of the income from livestock was stated to be for consumption, although cattle products sold amounted to as much as R166.2 per morgen in the Olifants River area. Consideration may possibly be given to concentrate more on livestock kept on the plot and to be less dependent on grazing land, particularly since the tendency can already be detected to use fodder crops (such as lucerne and other legumes) for livestock. It is, however, necessary to go further into this aspect. The inherent attachment to livestock as such, and also the fact that livestock is seen today as an economic possession, possibly provides a favourable opportunity for considerable productivity increases, since collaboration may probably come more rapidly.

8. CROP HUSBANDRY

Tables 7,8 and 9 give an indication of crop husbandry activities in the three areas, Taung, Sibasa and Olifants River. To be concise only some particulars of the Taung area are discussed briefly.

According to column 1 of Table 7, an average of 61.7 per cent of the occupiers took part in a production programme of nine different products in the whole area, which is an indication of an already widespread preparedness to introduce new products in addition to the well known staple food products. A further characteristic of this participation is that at least seven of these crops can be regarded as cash crops.

- Nasionale en provinsiale grense
- National and provincial borders
- - - - - Bantoegebiede (benaderd)
- - - - - Bantu areas (approximate)



Bantu-irrigation Schemes in South Africa - 1965 (Nrs. 1-25)

TABLE 6 - Above-average^{a)} and average^{b)} capital output ratios of different types of livestock at Taung, Sibasa and Olifants River areas, 1964/65

Type of livestock	Capital output ratios					
	Taung		Sibasa		Olifants River	
	Above average	Average	Above average	Average	Above average	Average
	%	%	%	%	%	%
Cattle	71	60	69	22	99	55
Sheep and goats	79	58	26	11	136	18
Poultry and pigs	40	20	70	43	24	13

a) Calculated as: $\frac{\text{Above-average output}}{\text{Above-average capital}} \times 100$

b) Calculated as: $\frac{\text{Average output}}{\text{Average capital}} \times 100$

This high percentage participation in crop husbandry activities resulted in the above-average utilization of 203.6 per cent being reached (column 2). According to this utilization pattern, ground-nuts, wheat, maize and lucerne are the most important single crops, as appears from the average utilization for the whole area (column 3). The fact that both the above-average and the average utilization pattern point to these four as the most important crops, is a further indication that the innovation of cash crops has found general acceptance.

The percentage harvested, in column 4, is the percentage of the participating occupiers who did in fact harvest the crop they planted. This means that there were on average still 24.1 per cent (100-75.9) of the occupiers who planted crops but never harvested or used these, due to for example neglect, hail damage, destruction by animals or diseases and pests. There are, however, other reasons, as for example in the case of fruit (item 5) where most of the fruit trees are still relatively young. The average percentage of 75.9 per cent of crops that was in fact harvested, can in the circumstances be regarded as fairly satisfactory.

Column 5 indicates *inter alia* that to a significant extent the diet of the population on this irrigation scheme already consists of products such as items 1 to 5 and item 6. Add to this the livestock products used, and it can be regarded as a well balanced diet. Moreover it appears that 95.8 per cent of the occupiers who plant lucerne, already use it for livestock and thus introduce the significant livestock factor as confirmed by the gross income from livestock.

The use of artificial fertilizers and kraal manure, which on average 55.1 per cent and 40.7 per cent of the occupiers respectively apply, shows a significant participation.

The gross income per morgen from crop husbandry (columns 8,9 and 10) shows once again that the average occupier's achievement of R197.6

per morgen is already at a relatively high level compared to the above-average producer, but that knowledge of an economic production programme which can bring about a better distribution of land utilization is definitely absent. Moreover, the restricted physical ability of more rapid cultivation, for example with a greater number and more efficient implements, is probably the most important single reason why the average production is not closer to the above-average. There are, for example, only two instances (items 4 and 7, columns 9 and 10) where the average and above-average achievements are nearly equal, namely wheat and lucerne.

Production, consumed and sold (columns 11 and 12) clearly shows that the average occupier, with a gross income of R197.6 (column 10) and higher, has already passed the subsistence level. With the exception of lucerne (item 7), only 12.3 per cent (column 12, 38.7 minus 26.4) of the total production is consumed by the community, while 26.4 per cent (lucerne) is already used by why of more efficient utilization of the livestock factor, which indicates a direction towards balanced farming as well as developed (through extension) entrepreneurial skill. This entails that a large percentage of the livestock output is also regarded by the entrepreneur as cash production, which is in complete agreement with Western ideas. Already 61.3 per cent (column 11) of production is available as cash income, which, all facts considered, indicates a direction which can lead to economic growth. The motive for cash, resulting from the relatively high production per morgen, has become so strong that products for export should receive more attention. The insignificant place assigned to maize (item 3) as a cash crop confirms this. On the other hand it is clear that although 41.5 per cent of the wheat is consumed, maize is the only single crop of which the entire output is consumed. Thus maize remains the most important staple food, as has traditionally been the case.

Index measures

If crop production is measured at a 100 per cent utilization rate to arrive at an index comparison with the other areas the following is found:

Above-average utilization = 203.6 per cent (column 2)

Above-average yield per morgen = R268.0 (column 9)

Index utilization of 100 per cent = $R268.0 \times \frac{100}{203.6} = R131.6$

If a production programme set equal to 100 per cent utilization includes only the four best yielding products, viz. groundnuts, wheat, lucerne, and vegetables, the following results can be attained with the present level of entrepreneurship and given inputs:

25 per cent groundnuts	$\frac{147.9}{4}$	=	R 36.9
25 per cent wheat	$\frac{125.7}{4}$	=	R 31.4
25 per cent lucerne	$\frac{221.7}{4}$	=	R 55.4
25 per cent vegetables	$\frac{406.3}{4}$	=	<u>R101.5</u>
			<u>R225.2</u>

If it is now considered that the land utilization capacity of the average occupier is already 148.7 per cent (column 3), then it means that with this programming the following level could now be reached, viz:

$$R225.2 \times \frac{148.7}{100} = R334.8$$

Given the physical techniques and inputs of the best entrepreneur, together with a certain loss of production (column 4), it means that the production per morgen of the above-average occupier can rise from R268.0 to R334.8 per morgen, or an increase of R66.8 per morgen. The average occupier's gross income could accordingly increase from R197.6 per morgen to R334.8 if his physical technique and inputs could also increase, and if the technological infrastructure and policy of the authorities are geared to it. That is to say, an average increase in crop production of R137.2 per morgen is possible.

This potential increase in gross income per morgen can through better planning be changed as follows in the Sibasa and Olifants River areas. At Sibasa the above-average occupier can increase his gross income by R7.3 per morgen, and the average occupier by R34.4, while in the Olifants River area the increase can be R166.3 and R287.1 per morgen, respectively.

9. NET INCOME AND TOTAL PERSONAL INCOME

Although the outside earnings (Table 10) from participation in the migrant labour system involve an increase in personal income, it more often has a detrimental effect on net farm income, particularly where the occupier himself leaves his plot. Table 10 gives an indication of the extent of outside earnings.

In cases of a lack of credit facilities for operating capital, the regular outside earnings are an important source of finance. It must, however, always be kept in mind that the marginal income through outside earnings is at present usually higher than in agriculture, and consequently the best labour market is outside agriculture.

In Table 11 the total personal income is given in Rand per morgen, showing in general relatively high above-averages at Taung and the Olifants River area. If it is considered that a small percentage of occupiers' gross income per morgen is comparatively higher than the above-average, then it shows clearly that the total personal income can increase appreciably. The four highest gross incomes per morgen in the whole sample, excluding outside earnings, are, for example, R809.37, R640.76, R468.78 and R392.25.

10. SUMMARY

- (1) Economic planning of farming in the strict agricultural economic sense is not possible in Bantu farming, although the undercurrent of Western capitalism in thought and action is emerging. Although planning as such still has a strong physical aspect, the time for linking up with the economic has arrived, and it could be accelerated in the planning.
- (2) Certain guidelines already exist to select *bona fide* farmers, and for determining a probationary period for them to obtain experience to be able to proceed successfully.
- (3) Measures which can contribute considerably as aids in planning are, for example, the inclusion of a credit scheme to meet operating needs in particular, and provision for orderly marketing of products.
- (4) Following from this it is then necessary to create the machinery for the stable physical provision of inputs.
- (5) It will probably be necessary to make it possible for the progressive entrepreneurs to obtain more land under certain conditions.
- (6) Purposeful and sustained agricultural training must receive priority, in informal as well as formal ways.

TABLE 7 - Crop husbandry activities at Taung, 1964/65

No.	Product	Percentage							Gross income per morgen			Percentage of total output	
		Participating occupiers	Land utilization		Harvested	Consumers of product	Users of		Maximum	Above average	Average	Sold	Consumed
			Above average	Average			Artificial fertilizers	Kraal manure					
		1	2	3	4	5	6	7	8	9	10	11	12
		%	%	%	%	%	%	%	R	R	R	%	%
1	Groundnuts	68	45.9	31.8	94.2	76.5	41.2	35.3	147.9	71.8	46.9	89.4	10.6
2	Other legumes	72	17.6	12.2	83.3	38.9	72.2	33.3	71.9	12.9	8.7	90.3	9.7
3	Maize	84	20.1	16.3	0	100.0	52.4	14.3	28.8	5.8	4.7	0	100.0
4	Wheat	96	48.5	44.7	95.8	100.0	100.0	62.5	125.7	57.8	55.6	58.5	41.5
5	Fruit	48	- b)	-	12.0	75.0	0	0	11.7 ^{c)}	11.7	5.4	20.5	79.5
6	Tubers	- a)	-	-	-	-	-	-	-	-	-	-	-
7	Lucerne	92	33.0	31.2	83.3	95.8	79.2	70.8	211.7	74.6	66.0	73.6	26.4
8	Vegetables	32	6.0	2.2	75.0	100.0	37.5	87.5	406.3	27.9	8.6	57.7	42.3
9	Rice	0	-	-	-	-	-	-	-	-	-	-	-
10	Cotton	32	10.0	3.1	87.5	0	87.5	37.5	55.2	5.5	1.7	100.0	0
11	Miscellaneous	32	22.5	7.2	0	0	25.0	25.0	0	-	-	-	-
		61.7	203.6	148.7	75.9	83.7	55.1	40.7	1 059.2	268.0	197.6	61.3	38.7

a) No participants

b) Not applicable

c) On account of the scattered nature of plantings the yield could not be shown as production per morgen, and was consequently given as production per occupier

TABLE 8 - Crop husbandry activities at Sibasa, 1964/65

No.	Product	Percentage							Gross income per morgen			Percentage of total output	
		Participating occupiers	Land utilization		Harvested	Consumers of product	Users of		Maximum	Above average	Average	Sold	Consumed
			Above average	Average			Artificial fertilizers	Kraal manure					
		1	2	3	4	5	6	7	8	9	10	11	12
		%	%	%	%	%	%	%	R	R	R	%	%
1	Groundnuts	69	12.3	8.4	58.8	79.4	0	14.7	69.0	8.4	5.8	47.4	52.6
2	Other legumes	83	28.9	24.2	80.5	51.2	12.2	19.5	35.7	10.3	8.6	80.1	19.9
3	Maize	100	27.2	27.2	0	100.0	8.0	30.6	41.0	11.2	11.2	3.9	96.1
4	Wheat	51	36.2	15.0	84.0	38.1	0	8.0	34.6 ^{c)}	5.2	2.6	67.0	33.0
5	Fruit	39	- b)	-	63.2	100.0	0	0	13.7	13.7	5.7	72.2	27.8
6	Tubers	73	12.3	9.0	66.7	72.2	5.6	22.2	100.7	12.3	9.1	56.4	43.6
7	Lucerne	0 ^{a)}	-	-	-	-	-	-	-	-	-	-	-
8	Vegetables	80	17.1	13.6	89.7	87.2	10.3	25.6	122.2	20.9	16.6	82.9	17.1
9	Rice	51	10.6	5.4	60.0	28.0	8.0	48.0	94.0	9.8	5.1	80.1	19.9
10	Cotton	0	-	-	-	-	-	-	-	-	-	-	-
11	Miscellaneous	0	-	-	-	-	-	-	-	-	-	-	-
		68.3	144.6	102.8	62.9	69.5	5.5	21.1	510.9	91.8	64.7	61.3	38.7

a) No participants

b) Not applicable

c) Per occupier. See Table 7, note c).

TABLE 9 - Crop husbandry activities at Olifants River, 1964/65

No.	Product	Percentage							Gross income per morgen			Percentage of total output	
		Participating occupiers	Land utilization		Harvested	Consumers of product	Users of		Maximum	Above average	Average	Sold	Consumed
			Above average	Average			Artificial fertilizers	Kraal manure					
1	2	3	4	5	6	7	8	9	10	11	12		
%	%	%	%	%	%	%	R	R	R	%	%		
1	Groundnuts	16	67.7	10.8	75.0	75.0	0	25.0	8.6	4.3	0.7	75.6	24.4
2	Other legumes	48	11.7	5.6	75.0	83.3	8.3	58.3	37.3	4.4	2.1	55.6	44.4
3	Maize	88	64.4	56.7	22.7	100.0	4.5	41.0	13.5	8.6	7.6	14.8	85.2
4	Wheat	88	75.6	66.5	91.0	75.0	4.5	68.0	22.6	17.0	15.0	80.1	19.9
5	Fruit	4	- b)	-	100.0	100.0	0	0	8.0 ^{c)}	8.0	0.3	82.0	18.0
6	Tubers	20	8.1	1.6	80.0	60.0	0	20.0	301.6	40.2	8.1	85.6	14.4
7	Lucerne	28	16.0	4.5	57.1	100.0	0	100.0	224.1	34.1	9.6	19.1	80.9
8	Vegetables	32	27.0	8.6	87.5	87.5	12.5	75.0	163.7	43.6	14.0	89.8	10.2
9	Rice	0 ^{a)}	-	-	-	-	-	-	-	-	-	-	-
10	Cotton	0	-	-	-	-	-	-	-	-	-	-	-
11	Miscellaneous	16	9.9	1.6	100.0	100.0	0	0	213.8	21.4	3.4	0	100.0
		38	280.4	155.9	76.5	86.8	3.3	43.0	993.2	181.6	60.8	55.9	44.1

a) No participants

b) Not applicable

c) Per occupier. See Table 7, note c).

TABLE 10 - Average annual outside earnings and percentage participation in the irrigation areas

Particulars of outside earnings	Area			Average
	Taung	Sibasa	Olifants River	
1. Percentage families, with outside earnings	48.0%	49.0%	36.0%	45.5%
2. Total income from outside earnings, average per participating family	R185.7	R374.6	R123.9	R300.8
3. Total income from outside earnings, average per family for whole area	R 89.1	R183.5	R 44.6	R124.8
4. Percentage head occupiers with outside earnings	32.0%	18.4%	16.0%	21.2%
5. Total income from outside earnings, average per participating head occupier	R177.3	R408.7	R160.5	R274.1
6. Total income from outside earnings, average per head occupier for whole area	R 56.7	R 75.1	R 25.7	R 58.1
7. Percentage holdings where other resident family members, apart from head occupier, obtain outside earnings	16.0%	30.6%	20.0%	24.2%
8. Total income from outside earnings by resident family members, average per participating holding	R 32.4	R108.4	R 18.9	R 66.6
9. Total income from outside earnings by resident family members, average per holding for whole area	R202.5	R354.1	R 94.6	R274.8

TABLE 11 - Above-average and average net income, and total personal income in Rand per morgen at Taung, Sibasa and Olifants River areas, 1964/65

No.	Item	Taung		Sibasa		Olifants River	
		Above-average	Average	Above-average	Average	Above-average	Average
		Rand					
		1	2	3	4	5	6
	<u>Including consumption</u>						
	Gross income						
1	Crop husbandry	268.0	268.6	91.8	64.7	181.6	60.8
2	Animal husbandry	195.6	156.4	63.9	22.3	252.1	66.2
3	Total	463.6	354.0	155.7	87.0	433.7	127.0
	Expenses	60.6	46.1	63.2	13.3	46.2	18.4
4	Net income	403.0	308.1	92.5	73.7	387.5	108.6
5	Outside earnings	88.6	28.1	272.5	49.0	107.0	17.1
6	Total personal income	491.6	336.2	365.0	122.7	494.5	125.7
	<u>Excluding consumption</u>						
	Gross income						
7	Crop husbandry	208.2	156.7	58.1	39.3	134.9	43.4
8	Animal husbandry	98.2	78.0	40.8	13.7	91.2	50.9
9	Total	306.4	234.7	98.9	53.0	226.1	94.3
	Expenses	60.6	46.1	63.2	13.3	46.2	18.4
10	Net farm income	245.8	188.6	35.7	39.7	179.9	75.9