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Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.), typed in double spacing. Contributions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c.o. Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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The Agricultural Economic Structure of the Transvaal Region

by
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INTRODUCTION

Of the seven agricultural regions into which the country is divided, the Transvaal Region can probably be considered the most diversified. For this reason it offers the research worker as well as the extension officer a great challenge and they are at least assured that monotony in solving questions will not arise.

The entire area consists of 27.2 million morgen and its composition is as follows:

	<u>Million morgen</u>
(1) Kruger National Game Reserve	2.20
(2) Bantu Areas	5.60
(3) Cities and towns (estimate)	0.50
(4) White farms	18.80

Map 1 shows the Agro-economic distribution of the areas in this region, but as will be observed later, this distribution of areas does not by any means reflect the actual diversity of the region. On the map it is shown that the following Agro-economic areas are included in this region:

- (1) Irrigation Areas (A1, A2, A3, A4, A5 and A8)
- (2) Descriptions of the different regions are published periodically. See Vol. 5 No. 4 page 47.
- (3) Liaison Division, Transvaal Area. According to the 1960/61 census the area of White farms was 14.1 million morgen.

- (4) Dryland Crop Areas (B1)
- (5) Mixed Farming Areas (C1, C2, portion of C6 and E1/1)
- (6) Portion of Drakensberg Grazing Area (D1, D1/1 and D1/2)
- (7) Small portion of the Thornveld Area of Natal and the Transkei (F2) and
- (8) Cattle Grazing Areas (M5, M6/1, M6/2, M6/3, M7 and M8).

Along with these areas the distribution of the Bantu Areas are also shown on Map 1.

The following special features peculiar to this region create agricultural problems of their own:

- (1) The Pretoria/Witwatersrand/Vereniging industrial complex is situated in the Transvaal Region and thus forms the central market for raw materials, food and labour.
- (2) Surrounding this complex there are the well-known ploholders (32,000) who, from an agricultural point of view, are detached from the agriculture of the rest of the Region.
- (3) Some of the most important irrigation schemes with 3,000 settlers are in the Region - Loskop, Hartbeespoort, Sterkrivier, Marico/Bosveld and various smaller schemes.
- (4) These features result in the pattern of exploitation varying from the most intensive in the central areas to the most extensive in other parts like the Mopani Area north of the Zoutpansberg.

That delimitation of the Agro-economic areas does not provide a complete picture,

has been clearly shown by an investigation undertaken in the three Magisterial districts of Potgietersrus, Pietersburg and Zoutpansberg ¹⁾. While there are only seven agro-economic areas in these districts, it has been shown by this investigation that 22 distinct areas may be demarcated. (See Map 2). The potentialities of each of these areas differ and the agricultural problems encountered are not the same. It is clear that for purposive research (both economic and technical) and exploitation the time is overdue for the Agro-economic delimitation of areas to be undertaken in greater detail for the entire country. The present map lacks detail and may be considered to be out of date.

NUMBER AND SIZE OF FARMS

For the analyses which follow, the Transvaal Region has been divided into five sub-areas on the basis of the 1962/63 boundaries of the Magisterial districts. Although such a classification does not correspond precisely with the agro-ecological areas, it serves to illustrate certain general differences between the areas. It is not considered necessary to adapt the data on the basis of districts to agro-economic areas.

These sub-areas are as follows:

- (1) Far Northern Transvaal - this includes the districts of Zoutpansberg, Pietersburg and Potgietersrus.
- (2) North-western and Western Transvaal - Waterberg, Warmbad, Brits, Groblersdal, Rustenburg and Marico.

(1) Pienaar, A.J. en Smith D.J.G. Sosio-ekonomiese ondersoek van Noord-Transvaal: Indeling van Boerderystreke. Unpublished memo, University of Pretoria, 1963.

- (3) Central Transvaal - Krugersdorp, Roodepoort, Johannesburg, Germiston, Boksburg, Benoni, Springs, Bronkhorstspuit, Witbank, Middelburg, Pretoria, Kempton Park en Brakpan.
- (4) South-eastern Transvaal - Belfast, Carolina, Ermelo, Piet Retief, Amersfoort, Wakkerstroom and Volksrust.
- (5) Eastern Transvaal - Letaba, Nelspruit, Pelgrimsrust, Lydenburg, Barberton and White River.

In table 1 the number of farms as well as the area for the respective sub-areas are shown. The average size of farms reflects the expected tendencies for the various areas. Thus the average size in the Central Transvaal where the plot-holders are concentrated, is only 204 morgen and 43 per cent of the farms are under 20 morgen in extent. Although the Far Northern Transvaal shows the biggest average area per farm, it is significant and in some respects disturbing that nearly half (46.6 per cent) of these farms are less than 500 morgen in extent. On the other hand 14.3 per cent of the farms cover 53.1 per cent of the farming area. Although the Eastern Transvaal is normally considered an irrigation area, 29 per cent of the farms exceed 500 morgen in extent, which tends to indicate that there is still a fair amount of extensive exploitation and these farms cover as much as 86.2 per cent of the farming area.

CROPS

The diversified production pattern in the Transvaal Region is clearly illustrated in tabel 2. A variety of products is produced intensively under irrigation (tobacco, subtropical fruits, citrus, vegetables etc.) while there is also extensive dryland production — cow-peas, sunflower, maize, kaffircorn etc.

TABLE 1. - Number and area of farms in various sub-areas of the Transvaal Region, 1959/60

Size groups morgen	Far Northern Transvaal				North-west and Western Transvaal			
	Number of farms	Per-cent	Area morgen	Per-cent	Number of farms	Per-cent	Area morgen	Per-cent
Up to 19.9	128	3.6	1,430	0.1	854	10.6	9,024	0.2
20 - 199	771	21.8	63,563	1.7	3,210	39.7	245,370	5.7
200 - 499	748	221.2	245,612	6.7	1,660	20.6	522,631	12.0
500 - 1999	1,379	39.1	1,407,503	38.4	1,860	23.0	1,841,846	42.5
2000 - 4999	416	11.8	1,196,016	32.6	430	5.3	1,240,107	28.6
5000 and more	89	2.5	752,434	20.5	63	0.8	474,654	11.0
Undivided	3	-	-	-	5	-	-	-
TOTAL	3,534	100.0	3,666,558	100.0	8,082	100.0	4,333,632	100.0
Average			1037.5				536.2	
	Central Transvaal				South-eastern Transvaal			
	Number of farms	Per-cent	Area morgen	Per-cent	Number of farms	Per-cent	Area morgen	Per-cent
Up to 19.9	3,308	43.0	21,247	1.3	66	2.0	605	0.1
20 - 199	2,362	30.7	185,138	11.8	625	18.7	60,351	2.3
200 - 499	1,165	15.2	359,662	22.9	1,101	32.8	366,387	13.9
500 - 1999	743	9.7	635,509	40.5	1,298	38.7	1,235,338	46.9
2000 - 4999	90	1.2	229,457	14.6	223	6.7	638,199	24.3
5000 and more	16	0.2	139,684	8.9	37	1.1	329,758	12.5
Undivided	1	-	-	-	1	-	-	-
TOTAL	7,685	100.0	1,570,697	100.0	3,351	100.0	2,630,638	100.0
Average			204.3				785.0	
	Eastern Transvaal				Total Transvaal Region			
	Number of farms	Per-cent	Area morgen	Per-cent	Number of farms	Per-cent	Area morgen	Per-cent
Up to 19.9	348	12.3	3,518	0.2	4,704	18.5	35,824	.2
20 - 199	1,127	39.9	91,377	4.8	8,095	31.8	645,799	4.6
200 - 499	532	18.8	167,096	8.8	5,206	20.4	1,661,388	11.8
500 - 1999	592	21.0	584,185	30.9	5,872	23.1	5,704,381	40.5
2000 - 4999	173	6.2	531,697	28.1	1,332	5.2	3,835,476	27.2
5000 and more	51	1.8	514,613	27.2	256	1.0	2,211,143	15.7
Undivided	-	-	-	-	10	-	-	-
TOTAL	2,823	100.0	1,892,486	100.0	25,475	100.0	14,094,011	100.0
Average			670.3				553.2	

Source: Bureau of Statistics

TABLE 2. - Production patterns of the various areas of the Transvaal Region
1961/62

Product	Transvaal Region	Percent of R. S. A.	Far N. Tvl.	N.W. and W. Transvaal
Tobacco, lb.	38,571,940	87.0	9,232,847	27,415,094
Subtropical fruit, morgen ^{a)}	9,833	30.3	984	222
Citrus, morgen ^{a)} ^{a)}	47,383	66.4	6,823	9,064
Vegetables, morgen	29,869	47.9	3,486	4,108
Potatoes, 37½ lb.	7,164,852	34.9	2,984,704	133,243
Groundnuts, un- shelled 100 lb.	492,928	56.5	52,463	269,378
Groundnuts, shelled 100 lb.	332,851	29.1	143,092	173,296
Cow-peas 200 lb.	25,546	44.9	9,317	4,582
Sunflowerseed, 100 lb.	301,732	17.7	21,104	139,030
Maize, 200 lb.	5,250,487	9.3	360,243	1,688,717
Wheat, 200 lb.	1,108,752	11.3	35,083	671,286
Kaffircorn, 200 lb.	515,519	29.9	197,048	180,249
Oats, 150 lb.	134,827	7.8	846	5,698
Lucern, morgen	11,455	3.8	1,268	4,270
Product	Central Transvaal	S.E. Transvaal	Eastern Transvaal	
Tobacco, lb.	202,470	90,108	1,631,421	
Subtropical fruit, morgen ^{a)}	41	41	8,545	
Citrus, morgen ^{a)}	430	923	30,143	
Vegetables, morgen ^{a)}	5,876	935	15,464	
Potatoes, 37½ lb.	2,482,762	1,138,908	425,235	
Groundnuts, unshelled 100 lb.	155,978	5,477	9,632	
Groundnuts, shelled 100 lb.	10,187	170	6,106	
Cow-peas, 200 lb.	6,964	2,082	2,601	
Sunflowerseed, 100 lb.	86,563	52,635	2,400	
Maize, 200 lb.	1,978,437	1,056,706	166,384	
Wheat, 200 lb.	311,563	34,820	56,000	
Kaffircorn, 200 lb.	50,650	76,586	10,986	
Oats, 150 lb.	3,272	121,366	3,645	
Lucern, morgen	2,714	929	2,274	

^{a)} 1960/61 Census
Source: Bureau of Statistics

The relative importance of the Transvaal Region as a producer of agricultural products is reflected in its contribution to the total supplies of the country. During 1961/62 it produced 87 per cent of the Republic's total tobacco crop. Of this production the North-Western and Western Transvaal, where irrigation takes place extensively, accounted for 71 per cent of the Region's total output. Another product which is important in these areas, is citrus. The acreage under citrus orchards is 66.4 per cent of the country's total acreage. The importance of vegetables and potato production can be seen from table 2.

With the exception of tobacco the contributions of the various sub-areas do not differ materially, except that the output of subtropical fruits, citrus and vegetables is important in the Eastern Transvaal.

LIVESTOCK

The importance of livestock in the Region in relation to the whole country and its distribution between the sub-areas, is shown in table 3.

In contrast with the general view that cattle in this Region constitutes a large percentage of the country's total, it is shown in table 3 that less than a quarter (23.4 per cent) of the total cattle population is found here. A comparatively large percentage of the Region's cattle is found in the more intensive sub-areas.

As may be expected, the greatest concentration of fowls and pigs is found in the Central sub-area where there are a

TABLE 3. - Livestock in the various sub-areas of the Transvaal region, 1961/62

Animals	Transvaal Region	Percent of R. S. A.	Far N. Tvl.	N. W. and W. Transvaal
	Number	%	Number	Number
Cattle	1,767,908	23.4	396,075	658,595
Sheep	2,317,352	6.5	99,155	148,944
Goats	100,376	4.3	37,113	27,166
Pigs	174,211	28.0	30,440	41,286
Fowls	2,919,326	24.7	215,718	544,644
	Central Transvaal		S. E. Transvaal	Eastern Transvaal
	Number		Number	Number
Cattle	252,430		283,822	176,986
Sheep	207,089		1,707,358	154,806
Goats	18,940		7,883	9,274
Pigs	70,437		19,516	12,532
Fowls	1,795,426		232,756	130,782

Source: Bureau of Statistics

large number of plotholders. The total number of fowls and pigs in the Region represents 28.0 and 24.7 per cent respectively of the country's total numbers. This is a definite indication that the contribution of the plottowners to food production must not be underestimated.

FORESTRY

The most important types of timber found in the Region are given in table 4.

According to table 4 the total area under timber plantations in the Transvaal Region is 41 per cent of the total area in the coun-

try. Pines and Eucalyptus Saligna are the most important species. The Eastern Transvaal with a relatively high rainfall is the most important forest are, while tanning wattles are grown mainly in the South-Eastern Transvaal.

GROSS VALUE PER UNIT OF AREA

From the foregoing it is clear that the intensity of production varies considerably between the various sub-areas. It may, however, be expected that the greatest intensity will occur in the neighbourhood of Pretoria, the Witwatersrand and Vere-niging where the plottowners are to be found. This conclusion is confirmed in table 5.

TABLE 4. - Area under various types of timber in the Transvaal region in comparison with forestry in the country

Species	Transvaal Region	Per cent of R. S. A.	Far N. Transvaal	Far W. and W. Transvaal
	morgen	%	morgen	morgen
Pines	200,475	52.1	7,575	17
Other coniferous	2,665	44.1	420	15
E. Saligna	84,580	50.5	5,062	470
Other Eucalyptus	36,492	56.3	288	322
Tanning wattle	91,736	24.5	281	168
Match poplars	2,805	36.4	349	79
Other broadleaf types	3,857	15.2	10	171
TOTAL	422,610	41.0	13,985	1,242

	Central Transvaal	S. E. Transvaal	Eastern Transvaal
	morgen	morgen	morgen
Pines	2,366	45,238	145,279
Other coniferous	40	342	1,848
E. Saligna	684	12,241	66,123
Other Eucalyptus	5,171	23,491	7,220
Tanning wattle	4,323	85,302	1,662
Match poplars	138	1,178	1,061
Other broadleaf types	798	2,484	394
TOTAL	13,520	170,276	223,587

Source: Bureau of Statistics

TABLE 5. - Average gross value per morgen of farm area for the various sub-areas of the Transvaal Region, 1959/60

Sub-area	Gross value per morgen a)
	R
Far Northern Transvaal	6.5
Eastern Transvaal	13.5
South-eastern Transvaal	8.2
Central Transvaal	16.5
North-western and Western Transvaal	7.6
Average	9.2

(a) The gross value per morgen is merely an indication of the intensity of farming, but it must not be viewed as a measure of intensity.

In an area like the Eastern Transvaal with a high rainfall more intensive farming may be expected as shown by the crop patterns. The average gross value per morgen of farm land is R13.5 in this area. The corresponding value in the extensive Far Northern Transvaal is only R6.5.

In conclusion a few observations on the possibilities of development may be made. Important structural changes are at present taking place in the eastern and north-eastern parts of the Region, namely the establishment of tea plantations and the expansion of sugar production. It should also be mentioned that the Drakensberg Grazing Area with a high and regular rainfall offers great possibilities for development. These possibilities will, however, only materialise after the problems with sour veld have been solved through research.

AGRO-EKONOMIESE STREEKSINDELING VAN TRANSVAALSTREEK

AGRO-ECONOMIC SUBDIVISIONS OF THE TRANSVAAL REGION

VERKLARING — LEGEND

WEISTREKE — GRAZING AREAS

- [A1] HARDE MOPANIEVELD
MOPANI VELD (SHALLOW SOIL)
- [A2] SAGTE MOPANIEVELD
MOPANI VELD (DEEP SOIL)
- [A3] ALLDAYSSTREEK
ALLDAYS AREA
- [A4] MAASSTROOMSTREEK
MAASSTROOM AREA
- [A5] BALTIMORE-MARNITZSTREEK
BALTIMORE-MARNITZ AREA
- [A6] MARA-BANDELIERKOPSTREEK
MARA-BANDELIERKOP AREA
- [A7] DENDRONSTREEK
DENDRON AREA
- [A8] LOUIS TRICHARDTOORGANGSTREEK
LOUIS TRICHARDT TRANSITION AREA
- [A9] SOUTPANSBERGOORGANGSTREEK
SOUTPANSBERG TRANSITION AREA
- [A10] SUID PIETERSBURGSTREEK
SOUTH PIETERSBURG AREA
- [A11] WATERBERGSTREEK
WATERBERG AREA

GEMENGDESTREKE — DIVERSIFIED AREAS

- [B1] ZOEMEKAAARSTREEK
ZOEMEKAAAR AREA
- [B2] SENTRAAL PIETERSBURGSTREEK
CENTRAL PIETERSBURG AREA
- [B3] PIETERSBURGSTREEK
PIETERSBURG AREAS
- [B4] MARKENSTREEK
MARKEN AREA
- [B5] MARKEN OORGANGSTREEK
MARKEN TRANSITION AREA
- [B6] STERKRIVIERSTREEK
STERKRIVIER AREA

SAAISTREKE — CROP AREAS

- [C1] ROEDTAN POTGIETERSRUSSTREEK
ROEDTAN POTGIETERSRUS AREA
- [C2] SPRINGBOKVLAKSTREEK
SPRINGBOK FLATS AREA
- [C3] GRASS VALLEYSTREEK
GRASS VALLEY AREA
- [C4] NIVALLEISTREEK
NILE VALLEY AREA
- [E] BOSBOUSTREEK
FOREST AREA

BANTOEGEBIED — BANTU AREAS