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An Economic Inquiry

into

WHEAT FARMING

IN THE

Western Cape Province

1929-1930.

By

W. J. PRETORIUS, B.A., (Stell.), M.Sc., (Cornell).

Division of Economics and Markets.

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PREFACE.

THE accompanying bulletin is the result of one year's study of representative wheat farms in the western Cape Province by Mr. W. J. Pretorius, M.Sc., of the Division of Economics and Markets.

As has been stated in previous bulletins of a similar nature, a single year's results cannot be taken as conclusive. The work is proceeding and will be carried on for at least a few more years.

The western Cape Province wheat-grower has passed through difficult times, and with the gradual decrease in the size of farm properties has found it difficult to carry on under a single-crop system. In many areas he has been forced to shorten the rotation, use larger quantities of fertilizer, and pay higher prices for farm labour. It was felt that an economic survey of the conditions might contribute something towards indicating where economies might be effected, and in which direction a more balanced system of farming might be introduced. It is not to be expected that a one-year study would be able to answer the various questions involved, but there are important points which emerge from the investigation even at this early stage to which special attention is directed, viz.:—

(*a*) The important rôle which yield per morgen plays in relation to costs per bag and the farmer's profit.

(*b*) Cereal crops account for nearly 65 per cent. of the total farm income, while livestock contributes to the average farm income from 16 to 20 per cent., depending on locality.

(*c*) The high costs involved in producing the wheat crop, particularly in respect of labour, animals, and fertilizer.

(*d*) The small margin of profit in grain farming excepting where yields are much above average per morgen, or where the total turnover per farm is relatively high.

(*e*) The high capital investment per farm.

Without wishing to anticipate future results, one is entitled to express the view that much more diversity must be introduced into the grain-farming system of the western Cape Province in order to enable the farmer to spread his risk over a greater number of enterprises and to reduce his dependence on the wheat crop to reasonable proportions. In this respect it would seem that live stock is destined to play an important part in the farming economy of the western Cape Province, not to mention its important bearing on the maintenance of soil fertility.

W. J. LAMONT,
Chief, Division of Agricultural Economics
and Markets.

14th April, 1931.

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AN ECONOMIC INQUIRY

INTO

WHEAT FARMING

IN THE

WESTERN CAPE PROVINCE

1929–1930.

CHAPTER I.

INTRODUCTION.

General.—A branch of the farming industry to which considerable attention has been devoted during the last few years is wheat farming. It is generally acknowledged that South Africa is not a country that is exceptionally well suited to the production of wheat. So far, she has not been able to produce sufficient for her own needs. From 25 to 40 per cent. of her total annual wheat consumption is still imported.

Only a limited area along the south-west coast has a rainfall which enables wheat to be produced fairly successfully. Other parts of the country experience either a heavy summer rainfall, which is disastrous for this crop, or a fall that is so variable that only in exceptionally good seasons is it possible to produce a profitable crop.

Wheat is to a certain extent grown under irrigation in the interior, but the quantity thus produced forms only a small proportion of the total production of the Union. The major proportion of our wheat is still being produced in the winter rainfall area along the south-west coast of the Cape Province.

Even this south-western corner languishes under serious natural disabilities, and were it not for the bolstering of the industry by means of a protective import duty, it is doubtful whether wheat production would continue much longer in that area.

In Table I the wheat yield per morgen in the chief wheat-producing countries is compared with the yield per morgen in the Union of South Africa. It will be noticed at once that our production compares very unfavourably with that of any other country. Thus, where the South African farmer has to content himself with such a low rate of production, it must necessarily be a hard struggle for him to make things pay.

TABLE I.—*The Production of the Chief Wheat-producing Countries compared with that of the Union of South Africa (Bags per morgen).*

Country.	1926.	1927.	1928.	1929.
Germany	15·3	17·7	21·0	19·7
France	11·3	13·4	13·8	16·0
Italy	11·5	10·2	11·8	14·0
Canada	11·3	13·6	14·9	7·6
United States	9·3	9·4	10·0	8·4
Argentine	7·7	8·9	9·7	6·4
Australia	8·8	6·1	6·8	5·7
Union of South Africa	5·8	4·7	5·6	—

OBJECT AND METHOD OF STUDY.

Object.—The object of this study is—

(1) to become better acquainted with the economic problems of the grain farmer in the wheat area;
(2) to determine if possible what system of farming is the most profitable;
(3) to estimate the production costs of wheat;
(4) to determine if possible what factors influence the profitableness and efficiency of grain farming in the wheat area.

To render such a study of any value, it will be necessary to extend the inquiry over a few years, as the data for one year may possibly be misleading, in that the year during which the study was made may either have been abnormally good or the reverse. It is the intention, therefore, to continue this study for a year or two. This report is, therefore, to be regarded *merely as a preliminary one*, based solely on data collected during the first study year (1929-1930). It gives merely a general review of farming conditions in that area, while for the following years the study will be of a more comparative and analytical nature and, consequently, enable more definite conclusions to be drawn.

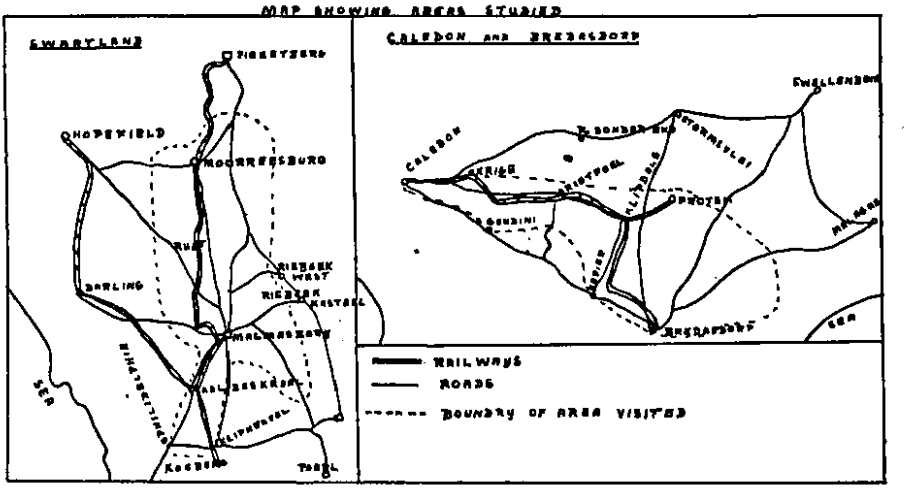
Method of Inquiry.—The method of inquiry is as follows: An officer personally visits a number of farmers on their farms and obtains from each a complete record of the business side of his farming during the previous year. These particulars are then collated and analysed by the officer concerned. *The report is therefore based on typical, representative cases and not on general impressions.*

In this manner the data of 83 separate farming propositions were obtained—44 in the Swartland and 39 in the Caledon and Bredasdorp areas.

Area Studied.—This study is, for the time being, confined to the western Cape Province, but it may possibly be extended, later on, to other areas in the interior.

Anyone acquainted with farming conditions in the western Cape Province knows that there are two main wheat-producing areas: (1) The so-called Swartland, which includes the Malmesbury, Moorreesburg, and Piquetberg Districts; (2) the Districts of Caledon,

Bredasdorp, and Swellendam. As these two areas differ considerably, it was necessary to study a number of farms in each. In neither of the two areas was it possible to extend the study over a large tract of country as the number of cases that could be studied had necessarily to be limited and the study had, therefore, to be undertaken where the prevailing conditions were more or less uniform.



In the Swartland area the study embraced a comparatively long strip of farms. This strip stretched lengthways from the Koeberg and Philadelphia—about 20 miles south of Malmesbury, to about 15 miles north of Moorreesburg. In width it is about 15 miles on either side of the main road from Capetown to Moorreesburg (see the accompanying map). The reason why this area was selected is that it constitutes in the first place the main wheat-producing area of the Swartland and, secondly, because it has a more or less uniform rainfall and its soil varies less than that of surrounding parts.

In Caledon and Bredasdorp, on the other hand, the area studied stretches from Caledon along the railway as far as Protem and from Klipdale to Bredasdorp, the greatest number of cases being concentrated in the Bredasdorp District (see map). This area is generally known as the Rûëns, with a fairly regular rainfall and uniform soil.

CHAPTER II.

BRIEF DESCRIPTION OF THE SYSTEM OF FARMIN GIN EACH DISTRICT.

Rainfall.—As indicated by its name, the winter rainfall area gets most of its rain during the winter months. In the Swartland about 90 per cent. and in the Bredasdorp area about 70 per cent. of the rain falls during the winter months, i.e. April to September. The average annual fall in the Swartland varies from 15 to 20 inches, and in the Bredasdorp area from 10 to 15 inches (Table III).

Soil.—The most serious problem of the Western Province is unquestionably the low fertility of the soil. This means a persistent and strenuous fight against nature and the annual expenditure of a considerable amount by the farmer on fertilizer alone.

Most of these soils are poor in phosphates. As a result of the lands having been under cultivation for a good many years and of their not being properly manured, the humus content of the soil, and consequently also its nitrogen content, has been considerably reduced. Such is especially the case in the Swartland, more so than in the Rûëns of Caledon and Bredasdorp, where most of the lands have not been under cultivation for so long a time. Therefore, the farmers in the latter areas consequently apply less nitrogenous fertilizer and, as a rule, obtain better yields than the farmers of the Swartland.

Topography.—The general topography of both these areas may be described as " rolling ", i.e. alternating hills (" bulte ") and depressions, the slopes being seldom so steep as to preclude cultivation.

Crop Rotation.—The system of farming practised in either of these two area does not differ materially from that followed in the other. In most cases the grain farmer is to some extent also a sheep farmer. It is customary, however, for the farmer to sow about half of his land, while the remaining half or two-thirds is either fallowed or used as stubble grazing. The fallow lands, which usually produce a volunteer crop, after rains, as well as the old lands,* serve as pasture for the sheep, draught animals, and pigs during the growing season (April-November), while the stubble lands are used for this purpose between the harvesting and sowing seasons.

The rotation practised depends to a certain extent on the land available for cultivation. If the farm is fairly large, i.e. about 1,000 morgen of cultivated land†, a tri-annual rotation is usually practised. But when the holding is fairly small—about 400 morgen of arable land—the rotation will be a bi-annual one. In the Bredasdorp area, for instance, where the soil is better than in the Swartland, and where there is more natural grazing, more than half of the cultivated land is sown annually to crops.

Table II shows that 55.84 per cent. of the Swartland farms consists of fallow and old lands, 44.9 per cent. being sown annually to crops. In Bredasdorp, on the other hand, 44.9 per cent. consists of fallow and old lands and 55.1 per cent. of land under crops.

TABLE II.—*Use of Cultivated Land (per farm).*

	Swartland.		Bredasdorp.	
	Area in Morgen.	Percentage of Total.	Area in Morgen.	Percentage of Total.
Area under crops.....	285·72	44·16	243·33	55·09
Area under fallow and old lands.....	361·34	55·84	198·38	44·91
TOTAL AREA UNDER CULTIVATION	647·06	100%	441·71	100%

* The term old land signifies land that was not fallowed in the winter following the reaping of the crop but was kept as stubble land.

† The term cultivated land signifies, for the purposes of this report, land which had previously been under cultivation.

The following may be regarded as rotations generally pracatised: (1) wheat, fallow, (2) wheat, old land, fallow, (3) wheat, oats, fallow, (4) wheat, oats, old land, fallow. Bredasdorp is practically the only area where oats are sown on wheat stubble land, while in the Swartland oats are now mostly sown on fallow land. In the case of virgin soil it is customary to sow them two years to wheat, two years to oats, and to rest them for one year. Fodder crops are seldom grown, except where oat or barley crops are grown for winter or spring grazing.

Kinds of Grain Grown.—The main crop is, of course, wheat. In the Swartland about 70 per cent. of the total area under cultivation and about 51 per cent. of that of the Bredasdorp area were sown to wheat.

Next to wheat oats is the most important crop. Barley and rye are only grown to a limited extent. Before motor transport came into prominence, barley and oats were of much greater importance than they are to-day. As a result of the reduced demand for oats and barley as fodder crops and the increased production of lucerne and other fodder crops in the interior, the production of these two crops is diminishing. Many farmers, to-day, produce only sufficient for their own use on the farm. And with the increased use of tractors in replacement of horses and mules it is to be expected that the production of the two crops will further diminish.

In the Swartland oats are mostly marketed in the form of hay, while in the Caledon and Bredasdorp areas the crop is marketed in the form of grain. Formerly, considerable quantities of chaff were sold, but to-day there is practically no demand for it.

Soil Cultivation.—The methods of soil cultivation are fairly uniform. Land intended for wheat is usually ploughed twice, fallowing, to a depth of 7 to 9 inches, being done during June, July and August. Where fairly large bushes or stones are found they are first removed before the lands are fallowed. During the summer months the lands are often loosened up once more with plough or harrow.

With the advent of the winter rains the lands are ploughed again to a depth of 3 or 4 inches and the seed is either ploughed or harrowed in or put in with a seed drill. Towards the end of May or the beginning of June sowing has usually been completed, unless the rains have been very late.

Nowadays many farmers only loosen up their lands once by fallowing during the winter months, and afterwards cultivate them with a "ghrop" or spring-tooth harrow, whereby a considerable saving is effected.

In the Swartland oats and barley are now usually sown on fallow land, while in the Caledon and Bredasdorp areas they are sown almost exclusively on stubble lands.

Fertilizer is usually put in together with the seed. Many farmers still broadcast it by hand, while others work it in with machines.

Harvesting Grain.—The harvest time usually commences about the end of October and lasts about a month or six weeks. This is undoubtedly the grain farmers's busiest time. Reaping is in most cases done with self-binders. The sheaves are stacked in "oppers" or "shocks" on the land. Thence they are transported to some spot nearer the homestead and stacked in big stacks, where they are

threshed by itinerant threshing machines. Some farmers build smaller stacks on the lands and thresh them there. In such cases it may be necessary to shift the machine from time to time, but nevertheless, this method saves much labour and as it involves less handling of the crop less grain is lost. An additional advantage is that the chaff remains on the land where it can be used as manure. A few farmers own threshing machines, with which they also thresh the grain of their neighbours.

As soon as possible, after threshing, the grain is transported to the railway station at the nearest town, as few farmers are in a position to store their grain for any length of time; consequently most of the grain is sold during the harvesting season, except in the Swartland, where some farmers are members of the Malmesbury Co-operative Mill. Of the 1930-31 crop, however, a big proportion was sold through the co-operative societies.

Livestock.

Sheep.—The number of sheep kept by the farmer depends naturally on the grazing available. In the Swartland there is very little natural grazing, as every inch of land is, wherever possible, brought under cultivation. Even the natural grazing, such as there is, is not of much value. The farmer has, therefore, to depend almost exclusively on his lands for grazing.

In the Bredasdorp area, however, there is more natural grazing available but more and more of it is brought under cultivation every year, so that the farmers will in the near future be in the same position, in this respect, as those of the Swartland.

Many of the Bredasdorp farmers, however, still own "strandplase,"* which, in most cases are suitable only for stock farming; such farmers are thus in the fortunate position to give their stock a change of grazing from time to time, which accounts for the fact that the number of stock kept on the grain farm never remains constant throughout the year.

In this study the "strandplase" (seaside farms) have not been taken into account as they are to a certain extent a separate unit and, so far as conditions are concerned, are totally different from other farms. When a wheat farmer owning a seaside farm was visited he was asked to estimate the number of livestock he could keep on his grain farm if he did not own a seaside farm. On this basis an estimate of the sheep enterprise was made. This branch of farming is thus not a genuine economic unit but this was the only means of placing all the farm organizations on a comparative basis.

Another system which is fairly common in the Caledon and Bredasdorp areas, but which has practically become obsolete in the Swartland, is the so-called "share-croppers' system." It obtains chiefly where the farmer owns a very large farm or, perhaps, a number of farms, which he cannot work unaided. In such cases land is given to other people to work on shares. The owner usually reserves the grazing rights in respect of stubble or fallow lands. Sometimes the share-cropper is the farmer's son, who is given a start in farming. There is practically no uniformity in this system. In one instance the share-cropper has to provide all the necessary fertilizer, seed,

* The strandplase lie to the south of Bredasdorp along the coast and are considered eminently suitable for sheep farming.

draught animals, implements, etc., and in addition to surrender a proportion of the crop. Other share-croppers supply neither fertilizer nor their own draught animals. In such a case the owner would naturally demand a larger share of the crop. As farms become smaller and smaller the system is bound to become less and less practicable until, eventually, it will be nothing but a memory of the past.

Share-cropper farms have, therefore, not been included in this study. Only those cases where the owner alone conducts the operations have been studied.

Where the farmer—as for example in the Swartland—has not too much land at his disposal, and for nine months of the year has the half or a third thereof under crops, he would naturally not be in a position to keep too many sheep. So far as livestock are concerned the critical time is during the hot and dry months of March, April and May. During the rainy season there is usually sufficient grazing in the form of a volunteer crop on fallow and old lands, while during December and January the stubble lands are available after the crops have been reaped. When these have been grazed off the farmer is on the horns of a dilemma and very often has to feed oats to his sheep.

Old and fallow lands undoubtedly furnish better grazing than the veld. Thus, the higher the percentage of land under cultivation the greater the carrying capacity of the farm, i.e. as compared with the farm with only a small proportion of land under cultivation.

Many farmers endeavour to provide green feed for their sheep by sowing oats or barley early in April, but when the rains are late such attempts usually end in failure.

It has already been shown by experiments that lucern can be grown with a certain amount of success on cool kloof soils and that such lands provide good grazing during the lean months. Sheep are undoubtedly the only livestock that are able to make beneficial use of the grazing provided by old and fallow lands.

Cattle.—Dairy farming on a commercial basis is not carried on in these areas. In most cases the farmer keeps only a few cows to supply his household with milk and butter, while the surplus production, which is so small as to be hardly worth taking into account, is usually exchanged for groceries (Table XIV).

The reason why dairy farming is not carried on more extensively in these parts is that the grazing is inadequate. To make this branch of farming pay it is essential that good grazing should be available for the best part of the year which, as has already been pointed out, is not the case. The view, however, is generally held that if fodder crops could be grown more successfully dairy farming would be conducted on a larger scale.

Pigs.—Pig farming forms a not unimportant industry in the Swartland. On nearly every farm the owner usually keeps about 50 or 60 and sometimes more than a hundred pigs. The pigs are for the best part of the year grazed on the lands and, with the exception of sows with young and a few pigs fattened for home consumption, get very little feed of any other description. As a rule, very few pigs are sold, the majority being slaughtered for the farm labourers during the winter months. During the summer months sheep are killed for

that purpose. If dairy farming could be conducted on a larger scale pig farming on a commercial basis might also be made possible.

In the Bredasdorp area farmers devote very little attention to pig farming. Seldom does one find more than 15 or 20 pigs on a farm, and these are as a rule slaughtered for the labourers and for home consumption.

Fowls.—Poultry farming has undoubtedly made good progress in both these areas, which in this respect compare favourably with other parts of the country. Flocks of over a hundred white leghorns can be seen on almost every farm; the owners, however, do not as a rule give the necessary attention to this branch. After the threshing season there is usually an abundance of grain in the chaff heaps which, together with the usual quantity of screenings, etc., serve as a feed for the poultry and obviate the purchase of additional feed.

Few farmers are, however, members of egg circles, the eggs being usually sold to local dealers. Geese are also kept, but not to an extent worth taking into account.

Labour.

White Labour.—Practically every grain farmer in these areas employs a white foreman, or "kneg" as he is usually designated, whose salary consists of a certain amount in cash plus a number of slaughter stock, his meal and a dwelling house. Often an elder son of the farmer fills the position of foreman. As the activities on a grain farm are numerous and varied it is essential that the farm labour should be efficiently supervized.

Coloured Labour.—Cape coloured labour constitutes the chief source of manual labour. In the Swartland each farmer employs a few labourers on a monthly basis. These and their families reside on the farm throughout the year. Part of their wages is paid in cash and part in the form of slaughter stock, fish, meal, liquor and accommodation. The regular labourers are employed on a monthly basis, except during the harvesting and threshing season when they are paid on a daily basis at current rates. During the harvesting and threshing season there is much more work on the grain farms than at any other time, and there is then a general exodus of labourers from adjacent towns, such as Capetown, Paarl, Wellington, etc., and these are hired on a daily basis—usually at 2s. 6d. per day, plus food and drink.

The regular labourers, who have their families with them, usually prepare their own food, but in the case of extra labour, the food is prepared by the farmer's wife.

Bredasdorp.—In the Caledon and Bredasdorp areas labourers are employed on a totally different basis. In those parts few labourers take their families along with them to the farms. The women folk usually remain at adjacent mission stations while the men are at work on the farms. Labourers are seldom kept on the farm for the year. As soon as the ploughing season commences (in April) the farmer hires as many labourers as he requires and when these have completed the fallowing of the lands—in August or September—one or two, at most, may be retained by the farmer until the following harvesting season. While these labourers have not their families

with them, their food is prepared by the farmer's wife. Further, they are given less liquor than the labourers in the Swartland.

Although coloured labour is fairly expensive there is no lack of it.

Traction.—In these parts animals still constitute the chief form of tractive power. Until about years ago their tractive power consisted exclusively of animals, but since then several farmers have acquired tractors.

Mules are practically the only draught animals used. Every farmer has usually a pair of horses, but for the purpose of this report the term " mule labour " will be used throughout. The number of mules kept on the farm varies in accordance with the number of morgen under cultivation—that is to say, where no tractors are used.

In the Swartland only 9 out of 44 farmers possessed tractors. The Swartland farmers have an inherent liking for fine horses and mules and usually keep them in first class condition. This predilection is of a psychological nature and cannot be expressed in economic terms.

Those farmers that possess tractors have so far not achieved much success with them. a fact which tends to discourage other would-be buyers.

As a result of the decline in prices of practically all agricultural products, fodder crops especially, it probably pays the farmer better to keep draught animals and feed them oats and barley than to incur additional cash expenditure in the purchase of tractors.

Farmers who possess tractors have, apparently, not yet realized the imperative necessity of keeping fewer mules, and many undoubtedly find it difficult to determine the exact relationship between a tractor and the number of mules that should be kept in conjunction therewith.

In the Caledon and Bredasdorp areas many farmers own tractors. Of the 39 visited, 15 had tractors. The mules of these areas are inferior to those of the Swartland.

In the course of an economic inquiry into the costs of tractive power in these areas * it was found that the most advantageous use to which tractors could be put in comparison with animal traction, is the making of new lands. As new lands are constantly being made in the Bredasdorp area this will, no doubt, account for the fact that more farmers there are already in possession of tractors.

Mechanical traction will undoubtedly replace animal traction more and more in these areas—even in the Swartland—in the near future; as there is a definite trend in agriculture towards a greater use of mechanical power.

As a result of the lack of grazing, mules have to be fed for the best part of the year, the feed consisting chiefly of chaff mixed with oats and barley (grain). To vary the feed farmers usually purchase a few tons of lucerne.

After the farmer has finished fallowing the mules are usually grazed for a week or two on the veld, and, immediately after the crops have been reaped, on the stubble lands for a month or more. During the busy months, however, they are fed regularly.

* F. R. Tomlinson, Stellenbosch: " Die koste van Meganiese trekkrag en muiletrekkrag op plase in die Swellendam-Rivier Sonder End Graanstreek."

Improvements.—As a result of the mixed system of farming followed, namely grain and sheep farming, each farm has been subdivided into camps, whereby the farming, generally, is greatly facilitated.

On each farm there are usually a few veld dams to supply water for stock during the rainy season. Natural waters are scarce in the Swartland, as a result of which most farms have windmills. In the Caledon and Bredasdorp areas, on the other hand, there are a good many natural springs, thus obviating the erection of windmills.

So far as buildings are concerned the Swartland is undoubtedly in a more favourable position than the Bredasdorp area. Each farm usually has a substantial dwelling house with the necessary outbuildings such as wagon sheds, stables, storerooms, etc. The standard of living of the average grain farmer compares very favourably with that of any other agriculturalist in the country.

To What Extent was the Study Year a Normal Year?—In a study of this nature, especially where crops play such an important rôle in the farm organization, it is essential to determine, if possible, to what extent the results of a given year reflect more or less normal conditions, as the year may have been an exceptionally favourable one for the grain farmer, or the reverse. In any case these facts must be clearly kept in mind in studying this report so as to prevent the possibility of erroneous conclusions being drawn.

I. *Rainfall.*—If the grain farmer were to determine whether a given year was a normal one or not he would naturally first take the rainfall as a gauge. The grain farmer in the Western Province is, more than any other, dependent on the rainfall for his ploughing operations, the germination of the seed and the growth and ripening of his grain. Therefore, when the rains are later or when the rainfall is inadequate the farmer may sustain heavy losses. Table III furnishes the rainfall figures for the period, April, 1929—March, 1930, as compared with the normal fall in certain parts of the areas studied.

Unfortunately Malmesbury is the only place in that part of the Swartland that was studied where official record was kept of the rainfall. For this reason the rainfall figures for Piquetberg are also given, although that part is to a certain extent out of the area concerned.

It will be observed from Table III that during that year 2 inches less rain fell than the normal fall over a period of years, while Piquetberg had 7½ inches less. During the first four months, April, May, June and July the normal fall did not vary to any extent. It may, therefore, be accepted that most farmers got their seed into the ground in time and also that the seed germinated properly. It is doubtful whether the slightly reduced fall during the ensuing months was to any degree detrimental to the growth of the grain. It would appear therefore, that, so far as rainfall is concerned, the study year in respect of the Swartland was not a normal one.

The other five places, in respect of which rainfall figures are quoted in Table III, are all in the Caledon-Bredasdorp area. Klipdale, Mierkraal and Protem are in the centre of the area studied, while Caledon and Bredasdorp about on the boundary. These five places, with the exception of Caledon, all show a rainfall above the normal for the year in question. Thus, so far as the rainfall is concerned, the year was a good one for that area.

Rainfall for year April, 1929—March, 1930, compared with Normal Rainfall.

Months.	Malmesbury.		Piquetberg.		Caledon.		Klipdale.		Mierkraal.		Protem.		Bredasdorp.	
	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.	Normal Rainfall.	Rainfall 1929–30.
1929.														
April.....	1·43	1·90	1·59	1·26	1·80	1·48	0·52	0·84	0·82	1·12	0·91	0·69	1·69	1·48
May.....	2·61	2·51	2·92	2·47	2·49	0·96	0·64	0·62	0·38	0·96	0·74	0·96	2·16	1·33
June.....	3·14	2·20	3·52	1·91	2·87	1·53	3·07	1·63	3·08	1·87	2·35	1·11	2·26	2·24
July.....	2·59	3·41	2·80	2·81	2·53	3·25	1·25	2·89	0·89	3·16	0·96	1·19	2·03	3·35
August.....	2·52	1·86	2·90	1·52	2·59	0·95	1·31	1·16	1·84	0·62	1·18	1·15	2·17	2·44
September.....	1·88	0·58	2·16	1·11	2·01	0·69	0·99	0·87	0 47	0·63	1·30	1·32	1·81	1·07
October.....	1·30	0·54	1·72	0·44	1·89	1·29	0·82	—	0·85	0·37	0·68	0·96	1·83	0·74
November.....	0·76	0·25	0·97	0·32	1·30	0·27	0·19	—	1·22	0·19	1·38	0·58	1·38	1·71
December.....	0·46	1·20	0·65	0·38	0·87	2·54	0·11	1·31	0·10	1·15	0·07	3·23	1·13	2·34
1930.														
January.....	0·45	0·80	0·58	0·90	0·88	0·55	0·79	1·14	0·99	0·40	0·77	0·76	1·02	1·48
February.....	0·35	0·65	0·48	0·04	0·78	1·45	—	—	—	0·95	0·32	1·63	1·13	1·49
March.....	0·52	0·22	0·54	0·16	1·31	2·51	1·09	1·50	0·10	1·92	1·05	2·26	1·61	2·54
Total.....	18·01	16·12	20·83	13·32	21·32	17·47	10·78	11·96	10·74	13·34	11·71	15·84	20·22	23·21
Rain days.....	69	47	57	67	91	70	25	21	32	40	44	48	81	113

Grain Diseases.—However favourable the natural conditions may be for grain there is always the danger of it being attacked and destroyed by disease. During the study year farmers were most unfortunate in this respect, much damage having been occasioned by rust. In the Malmesbury area the damage sustained was not as bad as in the Moorreesburg area, especially in the northern parts of the latter, some farmers having lost more than half of their whole crop.

In the Caledon-Bredasdorp area the position was even worse than in the Swartland. So far as yield is concerned the year was by no means normal, some farmers having sustained greater losses than would otherwise have been the case.

It should be borne in mind that when grain crops are destroyed in the latter stages of their growth it means a heavy loss to the farmer, as most of the expense has then already been incurred, i.e. money expended in the purchase of labour, plowshares, seed, fertilizer, etc.

Prices of Agricultural Products.—The success or non-success of the farmer's operations is determined by the prices realized for his products. The great slump in the prices of practically all agricultural products occurred in the second half of 1929, i.e. in about October and November, just before farmers had managed to sell their wheat, oats, wool and sheep.

That year farmers considered themselves lucky in obtaining 20 to 21 shillings per bag instead of the usual price of 24 to 25 shillings for the best grade of wheat. This difference of three to four shillings per bag naturally hit the farmer very hard, and as a result of the ravages of rust few farmers reaped a first grade wheat, many having had to content themselves with 17s., 15s. and even 10s. per bag for their inferior, rust-stricken wheat. The nett result was thus not only a diminshed production but also a serious decline in price.

What is true in the case of wheat is even more so in that of oats. That year oathay was sold as 2s. per 100 lb., the usual price being from 3s. 6d. to 4s. The usual price of oats (grain) is in the vicinity of 11s. per bag, but in 1930 there was hardly any demand at 5s. and 6s.

So far as sheep and wool are concerned the position was not much better. Practically no sheep were sold by farmers up to the end of March, as most were held in anticipation of better prices. Those, however, who were obliged to sell had to content themselves with much lower prices. For their wool farmers also obtained 30 to 50 per cent. less per lb. than during the previous year. Practically all products sold by farmers realized less than they did for a number of years previously.

When the prices are compared with those of the past a general and abnormal decline will at once be apparent. No one can venture to prophesy what will happen in the future but, possibly, the prices that are now regarded as low may in a year or two be regarded as perfectly normal or even high. Compared with previous years the year was undoubtedly a bad one. The cost of production remained on the same high level as before, while the products had to be sold on a much lower price level.

CHAPTER III.

FARM ORGANIZATION.

To get some idea of the farm organization it should be determined on what scale the farming operations are carried on. The size of the proposition can be gauged in several ways, i.e.:—

1. By the size of the farm (in morgen).
2. Number of cultivated morgen.
3. Capital investment.
4. Number and value of live stock.
5. Labour employed.
6. Total turnover.

1. *Morgen per Farm and Cultivated Morgen.*

The total number of morgen per farm, in the grain area, is not as important as the total number of cultivated morgen per farm. As has already been shown, the natural grazing and the waste land are of comparatively little value unless some of it could be brought under cultivation.

TABLE IV.—*Average Size of Farm (in morgen).*

Items.	Swartland.		Bredasdorp.	
	Area.	Percentage of Total.	Area.	Percentage of Total.
Area under wheat	194·95	25·7	120·77	14·3
Area under other crops	90·77	11·9	122·56	14·5
Fallow and old lands	361·34	47·6	198·38	23·6
Total area under cultivation	647·06	85·2	441·71	52·4
Grazing and waste land	112·27	14·8	401·08	47·6
Average size (per farm in morgen)	759·33	100%	842·79	100%

Table IV shows that the Bredasdorp farms are larger by 80 morgen than the Swartland farms. In the latter area, however, there were on an average 205 morgen more cultivated land per farm than in Bredasdorp. While the Swartland farms had on an average 286 morgen of land under crops, Bredasdorp had 243 morgen—the difference thus not being too great. In the Swartland, however, more land is kept in fallow than in Bredasdorp, and there is less grazing and waste land. Of the 401 morgen of grazing and waste land per farm in Bredasdorp approximately 71 morgen can still be brought under cultivation. In the Swartland all land that can possibly be cultivated has already been ploughed.

TABLE V.—*Relationship between Total Morgen per farm, Morgen of Cultivated Land, Animal Units and Capital Investment on Swartland and Bredasdorp Farms.**

Total Morgen per Farm.	Number of Cases.	Average Size of Farm.	Capital Investment per Morgen.	Morgen of Cultivated Land.	Animal Units.	Total Capital Investment.
			£			£
450 and less.....	15	399	22·0	344	205	8,779
451–600.....	19	525	16·5	435	286	8,653
601–750.....	13	685	13·5	458	349	9,274
751–900.....	9	832	14·8	542	544	12,293
901–1,050.....	10	988	12·4	574	450	12,276
1,051–1,200.....	6	1,144	13·6	865	559	15,559
1,201 and less.....	11	1,469	11·6	954	723	17,219

According to Table V a relatively higher percentage of the smaller holdings is ploughed than of the larger holdings. The capital investment per morgen also shows that on the small holdings capital investment per morgen is considerably higher than on holdings over 600 morgen in extent. Cultivated land has a much higher value than waste land or grazing, and thus increases the average capital investment per morgen. The number of morgen of cultivated land, the animal units and the capital investment are bound to increase in proportion to any increase in the size of farms. But, apparently, there is no change in the farm organization in relation to the increase in size.

II. *Capital Investment.*

The capital investment on a farm is made up of capital invested in live stock, implements, improvements and land. Table VI shows the amount contributed by each item to the whole.

TABLE VI.—*Average Capital Investment (per farm).*

	Swartland.		Bredasdorp.	
	Value.	Percentage of Total Value.	Value.	Percentage of Total Value.
	£	%	£	%
Livestock.....	1,226·9	10·6	911·3	8·2
Implements.....	652·5	5·6	576·6	5·2
Improvements.....	1,732·1	15·0	1,155·9	10·4
Land.....	7,975·8	68·8	8,473·0	76·2
TOTAL.....	£11,587·3	100·0 %	£11,116·0	100·0 %

* In this study the data of the Swartland and Bredasdorp farms have been worked out and grouped separately. While there is such a pronounced similarity in the type of agriculture in the two areas, the two sets of data will in many cases be dealt with as a whole. But where it is found that these differ materially they will be shown separately and the differences pointed out.

The average capital investment in the Swartland was £11,587 and £11,117 in Bredasdorp. There is, therefore, in this respect very little difference between the two areas. In the Swartland more capital was invested in live stock, implements and improvements but less in land than in the case of the average farm in Bredasdorp. In no case, however, is the difference great, except for improvements.

Table VII furnishes more information rekarding the capitalisation of the land. The capital investment in land is obtained by taking the market value of such a farm and deducting therefrom the value of improvements on the farm, such as buildings, fencing, dams, windmills, etc. The balance is then taken as the value of the land without improvements. The value of the land is then divided between morgen under cultivation and grazing and surplus land as a basis of the market value of such land. These calculations are made separately in the case of each farmer.

TABLE VII. *Classification and Average Value of Land per morgen and per farm.*

Items.	Swartland.	Bredasdorp.
Cultivated land (morgen)	647·07	441·72
Average value per morgen (£)	£10·61	£14·12
Cultivable land (morgen)	—	71·28
Average value per morgen (£)	—	£18·97
Grazing and waste land (morgen)	112·27	329·77
Average value per morgen (£)	£3·31	£3·73
Average size per farm (morgen)	759·33	842·77
Average value per morgen (£)	£10·50	£10·05

According to these figures the value of cultivated land in the Swartland is £10.6 and in Bredasdorp £14.1 per morgen. Cultivable land, i.e. land that consists of natural grazing but is suitable for cultivation, is no longer found in the Swartland. In the Bredasdorp area such land is valued at £5 more per morgen than land actually under cultivation. The value of grazing is more or less the same in both areas.

Due to the fact that the Swartland farms have so much less grazing and waste land than the Bredasdorp farms the average value per morgen of land in the former area is still slightly higher than in the latter.

III. *Number and Value of Livestock.*

In Table VIII the average number, the average value per head and the average value per farm of the various kinds of live stock are shown.

TABLE VIII.—*Average value and number of different kinds of live-stock on 44 Swartland and 39 Bredasdorp Farms (per farm).*

Items.	Swartland.			Bredasdorp.		
	Number per Farm.	Average Value per Head.	Total Value per Farm.	Number per Farm.	Average Value per Head.	Average Value per Farm.
		£	£		£	£
Average number of cows.....	7·4	13·1	97·2	3·4	8·6	29·2
Other cattle.....	10·0	8·5	84·6	4·2	4·1	17·0
Horses and mules.	37·2	15·7	584·1	24·3	13·9	337·8
Sheep.....	400·0	0·89	355·8	450·1	1·1	490·1
Pigs.....	66·8	1·3	87·1	13·7	1·3	17·9
Fowls.....	142·0	0·13	18·1	133·6	0·14	19·3

The average Swartland farm had more cows, more other cattle, more horses and mules and more pigs, but less sheep than the average Bredasdorp farm. The average value per head of cattle and per mule is also higher in the case of the Swartland farms. It is undoubtedly a fact that these farmers have a better class of cattle and mule than the Bredasdorp farmers. On the other hand more and better sheep are kept in Bredasdorp than in the Swartland.

It has already been shown in Table VI that £1,227 was invested in live stock on the average farm in the Swartland and £911 on the average Bredasdorp farm—thus a difference of £316 in favour of the Swartland farmer. (It should be borne in mind that this does not include the sheep of the Bredasdorp farmer, running on the "strandveld" farm). It is further interesting to note what a large percentage of the capital investment is represented by horses and mules and what a relatively small percentage by sheep. It should, however, be remembered that sheep are regarded more or less as a side line.

IV. *Use of Labour.*

Provided labour is used efficiently it is one of the best means of gauging the size of a farming proposition. Even though the proposition may be a small one so far as the total number of morgen and the capital investment are concerned, it may still be a large one, i.e. it may be farmed more intensively.

TABLE IX.—*Classification of Farms according to the number of days worked (per farm).*

Swartland.		Bredasdorp.	
Distribution of Days.	Number of Cases.	Distribution of Days.	Number of Cases.
2,000 and less.....	5	900 and less.....	8
,2001–2,500.....	9	901–1,400.....	13
2,501–3,000.....	11	1,401–1,900.....	10
3,001–3,500.....	5	1,901–2,400.....	4
3,501–4,000.....	5	2,401 and more.....	4
4,001–4,500.....	5		
4,501 and more.....	4		

Table IX shows a classification of farms according to the number of days worked.* In the Swartland most of the farms had between 2,000 and 3,000 work days. On the basis of 300 work days per individual per year this means the employment of 7 to 10 labourers throughout the year, which is undoubtedly a high percentage of labour employed.

In Bredasdorp most of the farms showed from 900 to 1,900 days worked, i.e. the employment of 3 to 6 labourers throughout the year. Gauged in terms of labour it would appear that the farms of the Swartland are much larger than those of Bredasdorp. Actually, however, there is not such a great difference between the two areas. This point will be dealt with at greater length further on.

V. *Total Turnover.*

By total turnover is meant the value of everything produced on the farm and sold, plus the value of farm products consumed by labourers and the family.

Of all the measures of "size," total turnover is perhaps the most suitable as it reflects the intensivity of farming propositions more accurately.

TABLE X.—*Relationship between total turnover, number of morgen per farm, number of morgen of land under cultivation and animal units.*

SWARTLAND.

Total Turnover £	Number of cases.	Average turnover.	Number of morgen per farm.	Number of morgen of land under cultivation.	Animal units.
		£			
1,400 and less.....	8	1,158	523	466	223
1,401–1,850.....	9	1,616	491	448	255
1,851–2,300.....	8	2,053	665	534	320
2,301–2,750.....	6	2,478	737	553	445
2,751–3,200.....	5	3,034	1,037	944	500
3,201–3,650.....	3	3,454	1,126	838	731
3,651 and more.....	5	4,192	1,300	1,178	717

BREDASDORP.

£		£			
950 and less.....	7	776	651	292	262
951–1,400.....	11	1,144	640	311	352
1,401–1,850.....	9	1,629	692	474	398
1,851–2,300.....	5	2,122	1,069	550	521
2,301 and more.....	7	2,647	1,387	677	609

* Days worked are calculated on the basis of 300 work days per year and 25 work days per month per labourer. Two "klonkies" (youngsters) are taken as being equivalent to one adult labourer.

Table X shows a classification of the farms in accordance with the total turnover. A study of the table will reveal the fact that the Swartland farms, generally, had a much larger turnover than the Bredasdorp farms.

An important point also reflected by the table is that the total turnover is the direct result of size rather than the intensive nature of the farming. The total turnover increase in proportion to an increase in the number of morgen per farm, the number of morgen under cultivation and the animal units. The large farms had therefore a larger turnover than the smaller farms, which is precisely what might be expected from this type of farming.

Summary.

So far as size is concerned, i.e. the number of morgen per farm, the farms in both areas are about the same. In the Swartland, however, the farms had about 200 more morgen of cultivated land each than those in Bredasdorp.

The average capital investment was approximately £11,500 per farm in both areas. There was in this respect very little difference between the two areas.

The Swartland farmers, generally, keep more and better cattle and mules than the Bredasdorp farmers, but the latter keep more and a better quality sheep.

On the Swartland farms more labour is employed on an average than on the Bredasdorp farms, while the total turnover per farm is also greater.

CHAPTER IV.

FARM INCOME AND FARM EXPENDITURE.

Farm Income.—Farm income consists not only of farm products sold but also includes the value of increased capital, the value of farm products consumed by the labourers and in the home, e.g. wheat, meat, dairy products, eggs, fats, etc., as also other minor sources of income, such as the sale of old implements, renting of lands or pasture and hiring out labourers to, or exchanging them with, neighbours, etc.

TABLE XI.—*Income (average per farm).*

Items.	Swartland.		Bredasdorp.	
	Value.	Percentage of Total.	Value.	Percentage of Total.
	£		£	
Increase of capital	221·55	9·7	137·74	8·7
Live stock sold	191·57	8·3	100·32	6·2
Animal products sold	193·11	8·5	220·65	13·9
Wheat sold	1,344·82	58·6	860·48	54·0
Other crops sold	129·84	5·6	108·67	6·8
Products consumed in home and by labour	186·88	8·1	136·65	8·6
Other minor sources of income	27·12	1·2	29·00	1·8
TOTAL INCOME	£2,294·89	100%	£1,592·98	100%

Table XI shows the average farm income and the percentages contributed to the total income from the various sources.

The average farm income in the Swartland was £2,294.9 and in Bredasdorp £1,593.0, thus a difference of £700 in favour of the former area. The Swartland farms further show a greater increase in capital, and the value of their live stock sold was also greater.

It has already been shown in Table IV that the Swartland farms had on an average 195 morgen under wheat and the Bredasdorp farms only 121 morgen, for which reason the former area sold wheat to the value of £1,345 and the latter to the value of £860 per farm—a difference of nearly £500. In respect of the other sources of income there is not much difference. It is noteworthy that wheat contributed more than 50 per cent. of the farm income in both areas. Animal products sold—which include butter, milk, cream, eggs, hides, skins and wool—contributed less than might have been expected, although many of these products were used on the farm, and were included in the item "products consumed in home and by labour."

TABLE XII.—*Farm products* consumed in the home and by labour (per farm).*

Items.	Swartland.		Bredasdorp.	
	Value.	Percentage of Total.	Value.	Percentage of Total.
	£		£	
Milk	6·27	3·4	5·30	3·9
Butter	5·66	3·0	3·53	2·6
Eggs	4·74	2·5	4·15	3·0
Meat	112·86	60·4	86·20	63·1
Grain	57·35	30·7	37·47	27·4
TOTAL	£186·88	100%	£136·35	100%

* These products were all valued at farm prices—milk at 6d. per gallon, butter at 1s. per lb., eggs at 1s. per dozen, meat in accordance with the value of the animals, and grain (wheat) at 18s. per bag.

Table XII shows the value of the products consumed in the home and by labour. In the case of the Swartland the total value thereof was on an average £186.9 per farm, and in that of Bredasdorp £136.6 per farm. The consumption of meat exceeded by far that of any other item, while that of wheat takes second place.

Income from Various Branches of Farming.—In this respect it might perhaps be advisable to furnish a brief analysis of the various branches in order to determine the part played by each in the farm organization as a whole and the share contributed by each to the farm income.

Live Stock.

Sheep Enterprise.—Next to wheat, sheep undoubtedly constitute the most important branch of farming. In view of the system at present in vogue the two branches are almost inseparable.

Table XIII.—*Income from Sheep Farming (per farm).*

Areas.	Number of sheep per farm.	Value of sheep per farm.	Average value per sheep.	Income.				
				Sheep sold.	Wool sold.	Skins sold.	Value of sheep slaughtered.	Total income.
		£	£	£	£	£	£	£
Swartland...	400	355·82	0·89	59·08	124·46	8·57	41·63	233·74
Bredasdorp..	450	490·08	1·09	76·38	180·05	13·34	60·90	330·67

According to Table XIII the average number of sheep on a Swartland farm was 400, at an average value of £0.89 per sheep, and on a Bredasdorp farm 450 sheep at an average value of £1.09 per sheep. In all respects sheep contributed more to the farm income on the Bredasdorp farms than on those of the Swartland. The Bredasdorp farmers keep a better class of sheep and, therefore, get more for their wool and skins.

Cattle Enterprise.—All cattle—cows, heifers, calves, slaughter oxen—are included under this head. In the Swartland there were on an average 17.4 cattle per farm and only 7.6 in the case of Bredasdorp. (Table VII.)

Cattle are of less importance than might have been expected, but, as has previously been pointed out, this is largely due to lack of suitable grazing during the summer months.

TABLE XIV.—*Income from Cattle Enterprise (per farm).*

Areas.	Value of cattle per farm.	Value of Cattle Products.				Value sold.	Value cattle slaughtered.	Total income.
		Consumed in home and by labour.		Sold.				
		Milk.	Butter.	Cream.	Butter.			
	£	£	£	£	£	£	£	£
Swartland...	181·73	6·27	5·66	15·86	10·30	43·38	7·12	88·59
Bredasdorp..	46·24	5·30	3·53	—	4·08	3·46	7·59	23·96

More attention is devoted to this branch of farming in the Swartland, the sale of butter and cream having averaged £26.16 per farm, while in Bredasdorp the average was only £4.08 per farm. The total income from cattle amounted to £88.59 per farm in the case of the Swartland, while in Bredasdorp it was only £23.96 per farm. (Table XIV).

Pig Enterprise.—Table XV shows clearly that pig farming is of greater importance on the Swartland farms than on those of Bredasdorp. In the former area the pigs are usually slaughtered for the labourers during the winter months, while some are sold on the farm to private buyers. Very little attention has so far been devoted to the special feeding of pigs, in this direction much could still be done.

In Bredasdorp pig farming is of minor importance. Hardly any pigs are sold and only a few are slaughtered for home consumption.

TABLE XV.—*Income from Pig Enterprise (per farm).*

Areas.	Number of pigs per farm.	Value of pigs per farm.	Average value per pig.	Income.		
				Pigs sold.	Pigs slaughtered.	Total income.
		£	£	£	£	£
Swartland.....	67	87·1	1·30	49·6	60·6	110·2
Bredasdorp.....	14	17·9	1·30	1·9	17·4	19·3

In the Swartland the average income per farm from pigs was £110.2 and in Bredasdorp £19.3 (Table XV).

Poultry Farming.—Although much more attention is being devoted to poultry farming in these parts than in many other agricultural areas of the country, the industry is on anything but a sound basis. On most farms there are a few hundred Leghorns, but,

apparently, they are not properly cared for, otherwise the egg production would be much higher than it is at present. In isolated cases, however, suitable " runs " have been made and the fowls receive the necessary attention.

TABLE XVI.—*Income from Poultry (per farm).*

Areas.	Number of fowls per farm.	Value of fowls per farm.	Value per fowl.	Receipts.				Total income.
				Consumed in the home.		Sales.		
				Eggs.	Table birds.	Eggs.	Fowls.	
		£	£	£	£	£	£	£
Swartland...	142	18·10	0·13	4·74	3·25	25·82	5·83	39·64
Bredasdorp..	134	19·30	0·14	4·15	1·99	23·21	2·28	31·63

In the Swartland the average income per pafrm from poultry was £39.6 and in Bredasdorp £31.6 (Table XVI).

GRAIN FARMING.

Wheat.—Wheat farming will only be dealt with briefly here as a more comprehensive analysis of this enterprise will be found towards the end of this report.

According to Table XVII the average wheat production in the Swartland was 1,497.8 bags per farm, or 7.69 bags per morgen, and in Bredasdorp 1,028.6 bags per farm, or 8.49 bags per morgen. The total value was respectively £1,529.8 and £981.6.

Under the heading " Farm Use " the wheat represents the number of bags reserved for seed and the screenings and rusty wheat used as stock and poultry feed. In view of more labour having been employed in the case of the Swartland 22 bags more per farm were used for bread.

TABLE XVII.—*Quantity and Value of Wheat Produced (per farm).*

Areas.	Morgen of Wheat per farm.	Farm use (bags).	Value.	Consumed in home and by labour (bags).	Value.	Sold (bags).	Value.	Total production.	Total value.
			£		£	£	£		£
Swartland...	195	142·5	127·6	63·7	57·4	1,291·6	1,344·8	1,497·8	1,529·8
Bredasdorp..	121	97·4	83·6	41·7	37·5	889·5	860·5	1,028·6	981·6

Oats and Barley.—Table XVIII shows that in the Swartland there were on an average 78 morgen under oats and 10 under barley and rye per farm, and 108 morgen under oats and 6 under barley and rye per farm in Bredasdorp. The wheat crops were, the previous year, somewhat disappointing in Bredasdorp and for that reason the farmers sowed more oats the following year.

In Bredasdorp the farmers only sell oats in the form of grain, while in the Swartland this product is sold almost exclusively in the form of hay.

TABLE XVIII.—*Quantity and Value of Oats and Barley Produced (per farm).*

Areas.	Oats.								Barley and Rye.		
	Number morgen.	Farm use (bags).	Value.	Hay sold (tons).	Value.	Grain sold (bags).	Value.	Total value.	Number morgen.	Production (bags).	Value.
			£		£		£	£			£
Swartland	75·8	484	109	49·8	98·4	25·2	7·5	214·9	10·0	127	31·8
Bredasdorp.	107·9	444	100	—	—	407·0	106·0	206·0	6·2	97	24·8

The total value of the oat crop in the case of the Swartland was £215 per farm and in that of Bredasdorp £206 per farm, and in both cases about fifty per cent. of the value of oats was used on the farm.

Barley and rye are of minor importance. Only a few morgen are sown to these crops for mule feed and an additional few morgen (of which the value was not estimated) for grazing.

During the study year there was practically no market for these fodder crops. Oathay sold at 2s. per 100 lb. and oats as grain at 5s. 3d. per bag. On account of there having been a much greater decline in the price of oats than in that of wheat, farmers, the following year again, sowed more wheat and less oats.

FARM EXPENDITURE.

In Table XIX the farm expenditure is shown under a number of heads, as also the percentage of the total borne by each item.

TABLE XIX.—*Farm Expenditure (average per farm).*

Items.	Swartland.		Bredasdorp.	
	Expenditure.	Percentage of Total.	Expenditure.	Percentage of Total.
	£		£	
Decrease of capital	5·8	0·6	6·7	0·6
Live stock bought	95·4	6·0	42·0	4·0
Supplies bought	30·2	1·9	13·3	1·3
Labour (hired) *	547·4	34·8	331·2	31·9
Repairs to equipment	99·2	6·3	49·2	4·7
New equipment	99·7	6·3	118·5	11·4
Improvements	68·8	4·4	32·1	3·1
Depreciation on improvements	69·3	4·4	46·2	4·4
Fertilizer	271·5	17·2	142·3	13·7
Bags and twine	90·7	5·8	90·1	8·7
Threshing charges	67·0	4·3	45·2	4·4
Motor-car and telephone	54·8	3·5	45·7	4·4
Oil	16·2	1·0	39·1	3·8
Miscellaneous	54·9	3·5	37·8	3·6
TOTAL	£1,573·9	100%	£1,039·4	100%

* Unpaid family labour, as an item, is practically negligible in these parts.

The average farm expenditure in the Swartland was £1,573. 9s. and in Bredasdorp £1,039. 4s.—thus a difference of £500. Table XI, on the other hand, shows that the average income of the Swartland farms exceeded that of the Bredasdorp farms by £700 per farm.

A close study of Table XIX will reveal the fact that there are two items of exceptional importance in the Swartland, namely hired labour and fertilizer. In that area hired labour alone, amonted to about 35 per cent. of the total farm expenditure, while fertilizer amounted to 17 per cent.

In Bredasdorp hired labour amounted to 33 per cent. of the total expenditure, while fertilizer in terms of cash and in percentage of the total expenditure, was not such an important item as in the Swartland. In the latter area £271.5 per farm was, on an average, expended on fertilizer, while in Bredasdorp this item averaged only £142.3. The rest of the items shown in Table XIX are of minor importance.

While labour is of such great importance it might be advisable to discuss it at greater length.

Hired Labour.—Hired labour may be classed under three heads. In the first place there is European labour hired on a monthly basis; another class may be designated " regular coloured labour " and is also hired on a monthly basis to perform the more or less regular work on the farm, and the third class may be termed " extra " or " special " coloured labour and is usually hired on a daily basis during exceptionally strenuous periods, as for instance during the reaping and threshing seasons, when it is impossible for the regular labour to perform all the work on the farm.

Table XX gives a complete analysis of labour costs under the three heads in respect of each area.

The Swartland farms employed on an average slightly more European labour, but much more regular coloured labour, than the Bredasdorp farms, while the reverse was the case with extra coloured labour. The Bredasdorp farmers try to do with as little labour as possible and only hire it as the occasion arises.

TABLE XX.—*Labour Costs per Farm.*

SWARTLAND.

Items.	Work Days.	Wages.			Costs per day Worked.
		Cash.	Privileges and Food.	Total Costs.	
		£	£	£	s.
European labour.....	410·68*	82·32	60·10	142·42	6·94
Regular coloured labour.....	2,369·27	150·73	190·21	340·94	2·88
Extra coloured labour.....	280·89	35·56	28·51	64·07	4·56
TOTAL.....	3,060·84	£268·61	£278·82	£547·43	3·58s.

* Basis of calculation—300 work days per labourer per year and 25 work days per month. Two " klonkies " (youngsters) equivalent to one adult labourer.

Privileges include in most cases value of accommodation.

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Items.	Work Days.	Wages.			Costs per Day Worked.
		Cash.	Privileges and Food.	Total Costs.	
		£	£	£	s.
European labour	341·69	59·85	48·96	108·81	6·36
Regular coloured labour	781·41	67·74	79·97	147·71	3·78
Extra coloured labour	333·97	38·82	35·88	74·70	4·47
TOTAL	1,477·07	£166·41	£164·81	£331·22	4·48s.

Privileges include in most cases value of accommodation.

There were in all 3,061 work days at a cost of £547 per farm in the Swartland, as against only 1,477 at a cost of £331 per farm in Bredasdorp.

There is, comparatively, little difference between the two areas in respect of the cost of white labour per day, i.e., 6s. 7d. per day in the case of Bredasdorp as against 7s. per day in that of the Swartland.

Regular coloured labour is, however, cheaper by about 1s. per day in the Swartland than in Bredasdorp. Extra coloured labour comes to about the same—4s. 6d. per day—in both areas. The average rate for all labour works out at 3s. 7d. per day in the case of the Swartland and 4s. 6d. per day in that of Bredasdorp. It is interesting to note, as shown in Table XX, that the labourers receive just as much in kind, i.e. in privileges and food, as they do in cash.

The grain farmer himself does not perform too much manual labour. Such a grain farm is a fairly large organization and practically all the time of the owner is taken up by supervision. But in busy times the farmer may sometimes help with the ploughing, especially when a tractor is used.

Financial Summary.—Table XXI gives a financial summary of the farms.

TABLE XXI.—*Fiancial Summary (Average per Farm).*

Items.	Swartland.	Bredasdorp.
	£	£
Total income	2,294·89	1,592·98
Total expenditure	1,573·91	1,039·42
Nett Farm Income	720·98	553·56
Interest on capital at 5 per cent	542·54	555·85
Operator's earnings	£178·44	minus £2·29

Nett Farm Income.—The nett farm income is the difference between the total income and the total expenditure of a farm. According to Table XXI the nett farm income per farm in the case of the Swartland averaged £720.98 and in that of Bredasdorp £553.56. Tables XI and XIX show, respectively, how the total income and the nett total expenditure are arrived at.

In calculating the nett farm income no allowance was made for interest on the capital invested in the farm. Thus the farms are not placed on a comparative basis, and a comparison between a small proposition with a small capital investment, and a large proposition with a large capital investment would not be justified, but it might serve to compare the status of one farm wih that of another.

Operator's Earnings.—The amount of the operator's earnings is obtained by deducting the total expenditure, inclusive of 5 per cent. interest on the average capital investment for the year, from the total income. The item operator's earnings therefore represents the amount which the farmer received for his labour and supervision for the year. Each farm organization has thus to pay interest in accordance with the capital invested in it and, consequently, all the farms are placed on a comparative basis and the amount of the operator's earnings serves to measure the efficiency of one proposition as compared with another.

In this instance the amount of the operator's earnings per farm was £178.44 in the case of the Swartland and in that of Bredasdorp minus £2.2 (Table XXI). Therefore, for the year in question the Swartland farmers received on an average £191 more than the Bredasdorp farmers.

It is not, however, of much use to show an average for any district unless it is also shown how big the deviations are on either side of the average.

TABLE XXII.—*Classification of Farms according to Operator's Earnings.*

Operator's Earnings.	Swartland.	Bredasdorp.	Total.
Minus £300 and less	5	4	9
Minus £299 to minus £100	7	11	18
Minus £99 to plus £100	7	10	17
£101—£300	8	8	16
£301—£500	7	6	13
£501—£700	4	—	4
£701 and more	6	—	6

Table XXII shows a classification of the farms according to the operator's earnings. In the Swartland 19 out of 44 had less than £100 in operator's earnings, while in Bredasdorp only 14 out of 39 had over £100 and not one that had over £500.

CHAPTER V.

MORE IMPORTANT FACTORS INFLUENCING OPERATOR'S EARNINGS.

After having studied the operator's earnings arrived at in respect of a number of farms, interested persons will, no doubt, want to know why some farmers did so well while others farmed at a loss.

As has already been pointed out in the beginning of this report, it was not the intention herein to furnish a complete analysis but merely to describe the general conditions in the areas studied.

It might, however, be advisable to ascertain whether any appreciable influence was exerted by likely factors such as " total area in morgen ", " capital investment ", " morgen under wheat ", etc., on the operator's earnings during the study year.

Morgen per Farm.—In these areas, where a more or less uniform system of farming is carried on, one would naturally expect that farmers possessing large farms would do better than those possessing small holdings.

Table XXIII shows the relationship between morgen per farm, total turnover, nett farm income, and operator's earnings. In the Swartland increased farming operations resulted to some extent in an increase in turnover, nett farm income, and operator's earnings.

In Bredasdorp an increase in morgen per farm also shows a certain increase in turnover and nett farm income, but no definite tendency so far as operator's earnings are concerned.

As a result of the ravages of rust and the partial destruction of the crops on many farms, a definite trend could hardly be expected.

TABLE XXIII.—*Relationship between Morgen per Farm, Total Turnover, Nett Farm Income, and Operator's Earnings.*

SWARTLAND.

Morgen per Farm.	Number of Cases.	Average Morgen per Farm.	Total Turnover.	Nett Farm Income.	Operator's Earnings.
			£	£	£
450 and less.....	9	410	1,430	283	— 69
451— 600.....	12	518	1,786	548	151
601— 750.....	6	656	2,358	731	235
751— 900.	4	830	3,032	1,190	565
901—1,050.	2	1,008	2,081	758	150
1,051—1,200.	4	1,146	3,232	999	171
1,201 and more...	7	1,375	3,503	1,225	372

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			£	£	£
450 and less.....	6	382	987	474	9
451— 600.....	7	538	1,726	612	119
601— 750.....	7	707	1,084	440	18
751— 900.....	5	834	1,730	423	— 199
901—1,050.....	8	983	1,712	584	— 31
1,051—1,200.....	2	1,150	2,202	748	59
1,201 and more...	4	1,882	2,365	896	— 111

Capital Investment.—When capital is used productively, and conditions are normal, an increased capital investment should show increased operator's earnings.

TABLE XXIV.—*Relationship between Capital Investment and Total Turnover, Nett Farm Income and Operator's Earnings.*

SWARTLAND.

Capital Investment.	Number of Cases.	Average Capital Investment.	Total Turnover.	Net Farm Income.	Operator's Earnings.
£		£	£	£	£
7,500 and less	8	6,614	1,633	382	50
7,501– 9,500	12	8,142	1,780	556	150
9,501–11,500	8	10,004	2,031	548	47
11,501–13,500	3	12,735	2,861	1,070	433
13,501–15,500	4	14,456	3,087	1,243	520
15,501–17,500	3	16,567	3,190	829	1
17,501 and more	6	22,244	3,572	2,625	420

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£		£	£	£	£
7,500 and less	6	5,850	851	444	— 15
7,501– 9,500	12	8,569	1,315	509	89
9,501–11,500	6	10,207	1,315	430	— 81
11,501–13,500	5	12,138	1,945	639	32
13,501–15,500	3	14,407	2,841	900	180
15,501–17,500	3	16,667	1,778	414	— 419
17,501 and more	4	20,128	2,364	871	111

Table XXIV, however, shows that the farm with a large capital investment is, as a rule, not in a much better position than the farm with a small capital investment. Possibly this may be due to the capital not having been used productively on the larger propositions, but what is more likely is that this may have been due to abnormal conditions.

Total Turnover.—The total turnover of a farm is represented by the value of the products sold and the value of the products consumed in the home and by labour, and may be regarded as the result of the farmer's operations during the year.

Table XXV shows the relationship between total turnover and various other factors. It shows, in respect of both areas (Swartland and Bredasdorp), that an increase in turnover is accompanied by an increase in the number of morgen under cultivation, morgen under wheat, animal units and labour costs, net farm income and operator's earnings.

Total turnover is undoubtedly the best measure of the size of an undertaking as it reflects the results obtained on all operations. Table XXV shows that the farmers with the greatest number of morgen under cultivation, the greatest number of morgen under wheat and the most animal units per farm had the greatest turnover. It is only natural to expect that with an increase in turnover labour costs would also increase. This measure, " total turnover," naturally eliminates to a large extent such factors as losses due to rust, drought, etc., which it is impossible for " total morgen per farm " and " capital investment " to do, as they constitute potential factors of production which may to a large extent be adversely affected by unfavourable conditions. Total turnover shows what is actually accomplished on the farm under, or in spite of, the prevailing conditions.

TABLE XXV.—*Relationship between total turnover, number of morgen under cultivation, morgen under wheat, animal units, labour costs, nett farm income and operator's earnings.*

SWARTLAND.

Total Turnover.	Number of Cases.	Morgen Cultivated Land.	Morgen Under Wheat.	Animal Units.	Labour Costs.	Net Income.	Operator's Earnings.
£					£	£	£
1,400 and less.....	8	466	149	223	409	160	— 242
1,401–1,850.....	9	448	170	255	450	391	6
1,851–2,300.....	8	534	179	320	476	614	167
2,301–2,750.....	6	553	162	445	566	913	401
2,751–3,200.....	5	944	260	500	752	945	200
3,201–3,650.....	3	834	227	731	708	1,265	537
3,651 and more.....	5	1,178	314	717	733	1,721	801

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£					£	£	£
950 and less.....	7	292	69	262	204	326	— 163
951–1,400.....	11	311	76	352	235	436	9
1,401–1,850.....	9	474	127	398	332	615	70
1,851–2,300.....	5	550	146	521	347	572	— 95
2,301 and more.....	7	677	216	609	599	942	82

SUMMARY.

Several other classifications were made, but no pronounced relationship with operator's earnings is shown by any of these, nor did capital investment and total morgen per farm exert this year any marked influence on operator's earnings, as the year was a very abnormal one. Total turnover is, therefore, the only reliable factor showing a direct relationship with operator's earnings.

Comparison between certain factors of the five best and the five poorest farming propositions in each area.

Another effective method to determine the importance of certain factors is to compare the best with the poorest farms.

TABLE XXVI.—*Comparison of chief factors as between five best and five poorest farms in each area. (Average per farm.)*

Items.	Swartland.		Bredasdorp.	
	5 Best Farms.	5 Poorest Farms.	5 Best Farms.	5 Poorest Farms.
	Morgen	Morgen	Morgen	Morgen
Morgen under wheat	290	121	110	196
Morgen under other crops	99	111	89	149
Morgen cultivated land	872	489	413	612
Total morgen per farm	984	737	864	912
	£	£	£	£
Capital invested in livestock	1,645	1,008	798	1,040
Capital invested in equipment	820	598	628	708
Capital invested in improvements	2,062	1,723	984	1,867
Capital invested in land	9,750	6,510	8,439	11,584
Total capital investment	14,277	9,839	10,849	15,189
Income from wheat sold	2,267	551	1,128	1,062
Income from other crops sold	184	142	133	96
Animals and animal products sold	577	254	279	283
Products consumed in home and by labour	215	180	137	147
Total turnover	3,646	1,242	1,863	1,776
Cost of hired labour	619	511	272	493
Cost of fertilizer	357	188	118	173
Interest on capital invested	714	492	542	759
Total costs (without interest)	1,974	1,195	913	1,479
Operator's earnings	958	minus 445	408	minus 462

In the Swartland the five best farms had about 2½ times as many morgen under wheat as the five poorest farms, and about twice as much cultivated land. So far as capital investment is concerned, that of the former far surpassed the latter. The greatest difference, however, lay in the income derived from the sale of wheat. The five best farms sold, on an average, wheat to the value of £2,267, while the other five realized only £551, with the result that the former averaged a turnover of £3,646 as against only £1,242 in respect of the latter five.

It is also noteworthy that the owners of the five best farms expended on an average £357 on fertilizer as against £188 by the owners of the five poorest farmers. Further the expenditure per farm of the former exceeded that of the latter by £800, while the operator's earnings in the case of the former amounted to £961 per farm, and the latter five average a loss of £445.

In Bredasdorp the position was totally different. Here the five best farms had less morgen under wheat, less morgen under other crops, less cultivated morgen, and a smaller number of morgen per farm than the five poorest farms. The various items of capital investment show precisely the same trend.

The wheat sales of the five best farms exceeded those of the five poorest farms by £66, while the turnover of the former exceeded on an average that of the latter by £100. The matter of expenditure, however, presents the greatest difference between the two groups of farms.

The five best farms in Bredasdorp showed on an average an amount of £408 in operator's earnings while the five poorest farms averaged a loss of £446 per farm.

It seems anomalous that the large farms in the Swartland did so well while those in Bredasdorp did so badly. As has been mentioned repeatedly the ravages of rust were much worse in parts of Bredasdorp than in the Swartland. Therefore, if the farmer operates on a fairly large scale, and his crops are attacked by rust his losses are bound to be greater than in the case of the small farmer. *All* the five poorest farms in Bredasdorp suffered severely as a result of rust.

CHAPTER VIA.

PRODUCTION COSTS OF WHEAT.

Introduction.—While wheat plays such an important part in the farm organization, and so many farmers depend thereon for a living it is felt that it is necessary to make a more detailed study of the industry, i.e. to determine if possible the cost of production and what savings and improvements could be effected.

Cost of production is a term which is very extensively used, but it is feared that it is, more often than not, abused, in that so many people invest it with different meanings and follow their own methods of calculation. Many people apparently also hold the view that, so far as cost of production is concerned, a fixed figure for certain products exists. Thus we often hear it said that it costs so much in this or that area to produce a bag of wheat or a pound of wool.

One of the outstanding peculiarities of a study of this nature is that the cost of production of a given product not only varies considerably as between different farms, but also—as is very often the case—on the same farm during different years.

It is customary to regard the average cost of production as representative of a given area, but in such cases the fluctuations above and below the average should be clearly shown as, ordinarily, there will be just as many cases above the average as below it.

The value of production cost figures lies in the fact that these furnish a comprehensive analysis of all the factors and costs involved in the production process. The total cost figure shows the farmer at once that one or more of his items of expenditure are too high and where he should economize in order to farm at a profit. Therefore, such figures are of greater value to the individual farmer than they would be to the community as a whole. The producer of any product cannot continue to produce unless he can compete with other producers of the same article. Thus, so far as the economic side of the question is concerned, each farmer competes with his neighbour. It is important, therefore, for the farmer to be in a position to compare an analysis of his own operations with those of another engaged in the same branch of farming.

Calculation of Production Costs.

It is very difficult to calculate accurately the production costs of wheat in the Western Province, as so many factors have, as a result of the mixed type of farming (live stock and grain), to be taken into consideration.

Table XXVII shows a calculation of the production costs of wheat per morgen and per bag and the percentage of the total cost borne by each item.

In the Swartland the nett cost per morgen (inclusive of interest, etc., but excluding the value of stubble-land-grazing) was £7. 9s. 8d. and £7. 14s. 10d. in Bredasdorp. In the former case the cost* per bag was 19s. 5d. and 18s. 1d. in the latter.

It is noteworthy that there is practically no difference between the two areas in the matter of cost per morgen. The only reason why a bag of wheat costs 1s. 4d. less to produce in Bredasdorp, than in the Swartland is that the production in the former area exceeded that of the latter by nearly a bag per morgen.

On the other hand, the Swartland farmers obtained on an average 1s. 8d. more per bag for their wheat than the Bredasdorp farmers. The latter made a profit of 11d. per bag and the former 1s. 3d. per bag.

TABLE XXVII.—*Production Costs of Wheat in the Swartland and Bredasdorp.*

Items.	Swartland.			Bredasdorp.†		
	Per Morgen.	Per Bag.	Percentage of Total.	Per Morgen.	Per Bag.	Percentage of Total.
Production per morgen.....	7·69	—	—	8·49	—	—
Value of production.....	£7 18 9	£1 0 8	—	£8 1 7	19s.	—
White labour Days worked.....	·89	—	—	·93	—	—
White labour costs.....	6s. 4d.	10d.	4·3	6s. 5d.	9d.	4·2
Coloured labour—Days worked.	5·80	—	—	3·78	—	—
Coloured labour costs.....	£1 1 2	2s. 9d.	14·1	16s. 0d.	1s. 11d.	10·4
Total days worked.....	6·69days	—	—	4·71days	—	—
Mule days worked.....	18·7 ,,	2·42	—	16·2 ,,	1·91	—
Total cost of labour.....	£1 7 5	3s. 7d.	18·4	£1 2 5	2s. 8d.	14·6
Mule labour costs.....	£1 8 10	3s. 9d.	19·3	£1 7 10	3s. 3d.	18·1
Tractor costs.....	1s. 10d.	3d.	1·2	6s. 9d.	10d.	4·4
Implement costs.....	16s. 1d.	2s. 1d.	10·7	17s. 6d.	2s. 1d.	11·4
Fertilizer costs.....	£1 3 4	3s. 0d.	15·6	19s. 0d.	2s. 3d.	12·4
Seed costs.....	12s. 6d.	1s. 8d.	8·4	12s. 6d.	1s. 5d.	8·1
Bags and twine costs.....	8s. 5d.	1s. 1d.	5·6	9s. 5d.	1s. 1d.	6·1
Threshing costs.....	5s. 6d.	8d.	3·7	4s. 11d.	7d.	3·2
Storage (of grain) costs.....	3s. 1d.	5d.	2·1	3s. 7d.	5d.	2·3
Miscellaneous costs.....	6s. 4d.	10d.	4·2	8s.	11d.	5·2
Gross costs.....	£6 13 4	17s. 4d.	89·2	£6 11 11	15s. 6d.	85·8
Value of grazing.....	7s. 7d.	1s.	5·1	5s. 9d.	8d.	3·7
Net costs (without interest)....	£6 5 6	16s. 4d.	84·1	£6 6 2	14s. 10d.	82·1
Interest on land.....	£1 3 11	3s. 1d.	15·9	£1 7 8	3s. 3d.	17·9
Net costs (with interest).....	£7 9 8	19s. 5d.	100·0	£7 13 10	18s. 1d.	100·0
Profit (interest not deducted)...	£1 13 0	4s. 4d.	—	£1 15 5	4s. 2d.	—
Profit (interest deducted as a charge).....	9s. 1.d	1s. 3d.	—	7s. 9d.	11d.	—

* Wherever terms "production cost per morgen" or "per bag" are mentioned, interest has been included.

† Complete data on the wheat enterprise were obtained from only 36 out of 39 Bredasdorp farms, while in the Swartland such data were obtained from all the farms.

The reason why the Swartland farmers got more for their wheat is that their crops were not so badly damaged by rust and that those farmers who had marketed through the Co-operative Mill at Malmesbury received more for their wheat than those who had sold out of hand.

Table XXVIII shows what has been stated before, namely, that production costs of wheat as between different farms usually vary considerably.

TABLE XXVIII.—*Variation in Production Costs per Bag of Wheat in the Swartland and Bredasdorp.*

Cost per Bag.	Swartland.	Bredasdorp.
14s. and less	—	5
14s. 1d.–16s.	6	6
16s. 1d.–18s.	11	7
18s. 1d.–£1	6	8
£1. 0s. 1d.–£1. 2s. 0d.	11	2
£1. 2s. 1d.–£1. 4s. 0d.	5	1
£1. 4s. 1d.–£1. 6s. 0d.	3	5
£1. 6s. 1d. and more	2	2

In the Swartland the cheapest wheat produced ranges from 14s. to 16s. per bag and in Bredasdorp it is below 14s. per bag. In both areas, however, the production costs of the largest number of farms is round about the average (see also graph).

Table XXVII gave merely a résumé of the various costs and it is necessary, therefore, to show how each cost is arrived at.

Manual Labour.—This item was determined by getting separate data from each farmer as to the amount of labour employed on wheat alone, keeping all branches of the work, such as fallowing, ploughing, harrowing and threshing, separate and then classifying them under three heads as shown in Table XXIX. The rates pertaining to the different classes of labour are shown in Table XX.

TABLE XXIX.—*Number of Manual Labour Work Days and Costs of the Various Operations in the Production of Wheat (per morgen).*

Area.	Preparing and Sowing Lands.		Harvesting and Threshing.		Marketing.		Total.	
	Days	Costs	Days	Costs	Days	Costs	Days	Costs
Swartland....	3·79	£0·66	2·61	£0·64	·29	£0·07	6·69	£1·37
Bredasdorp..	2·05	£0·49	2·43	£0·57	·23	£0·06	4·71	£1·12

Labour is one of the most expensive factors in the production of wheat. In the Swartland it averaged 18.4 per cent. and in Bredasdorp 14.6 per cent. of the total production costs. Where the farmer

himself did manual labour on wheat this was taken into account at the prevailing rates for hired labour. (For further particulars in conection with labour see also Table XX.)

Mule Labour.—Table XXX shows how the cost of mule labour was calculated.

TABLE XXX.—*Cost of Mule Labour.*

Items.	Swartland.			Bredasdorp.		
	Per Farm.	Per Mule.	Percentage of Total.	Per Farm.	Per Mule.	Percentage of Total.
Average number of mules	36·97	—	—	23·49	—	—
Value of mules	£581·66	£15·74	—	£323·90	£13·15	—
Number of cultivated morgen	646	17·5	—	442	18·8	—
Number of morgen under crops	285	7·7	—	243	10·3	—
Number of work days	6,024·32	162·98	—	3,506·86	149·32	—
Cost of Feed.						
Value of grazing	£36·66	£0·99	8·07	£21·29	£0·91	6·89
Quantity of chaff fed	55.45 ton	1.50 ton	—	35.23 ton	1.50 ton	—
Value of chaff	£27·74	£0·75	6·10	—	—	—
Quantity of lucern fed	2.64 ton	143 lb.	—	1.42 ton	121 lb.	—
Value of lucern	£11·13	£0·30	2·45	£6·30	£0·27	2·04
Quantity of grain fed (bags)	536·69	14·52	—	379·68	16·17	—
Value of grain	£222·18	£6·01	48·90	£159·55	£6·79	51·62
TOTAL COST OF FEEDING	£292·72	£8·05	65·52	£187·13	£7·97	60·55
Miscellaneous Costs.						
Attention to animals	£50·45	£1·36	11·10	£42·88	£1·83	13·87
Shoeing of animals	£19·39	£0·52	4·27	£6·49	£0·28	2·10
Cost of trek gear	£23·46	£0·63	5·16	£14·91	£0·63	4·82
Cost of stables	£26·83	£0·73	5·90	£18·01	£0·77	5·83
Depreciation on mules	£36·50	£0·99	8·03	£23·49	£1·00	7·60
Interest on mules	£29·65	£0·80	6·53	£16·16	£0·69	5·23
TOTAL MISCELLANEOUS COSTS	£186·28	£5·04	40·99	£121·93	£5·19	39·45
Gross costs	£484·00	£13·09	106·51	£309·06	£13·16	100·00
Value of manure	£29·59	£0·80	6·51	—	—	—
NETT COSTS	£454·41	£12·29	100·00	£309·06	£13·16	100·00
COST PER MULE-WORK DAY.	1·515s.	1·515s.	—	1·763s.	1·763s.	—

In the Swartland there were on an average 37 mules per farm and in Bredasdorp on an average 23.5. Although there were less morgen per mule in the Swartland than in Bredasdorp the mules in the former area worked 163 days in the year as against 149 days in the latter. In Bredasdorp, however, there are considerably more tractors than in the Swartland. The cost of feed alone came to about £8 per mule in both areas. In Bredasdorp chaff had no value as farmers neither sell it nor plough it in, it being the practice to burn the stacks. The same is true of manure.

The oats fed to the mules was valued at 8s. per bag and barley and rye at 9s. per bag, which valuation is in excess of market prices for the study year. The greater part of the fodder, however, fed during the year in question was produced during the previous year, when prices were much higher.

Grazing was valued at three pence per head per day for the period during which feed was fairly abundant on the lands. On an average, the mules did not even graze for three months out of the year.

The nett costs per mule amounted to £12. 6s. in the Swartland and £13. 3s. in Bredasdorp.

Table XXXI shows the classification of mule labour according to the different stages of production and the amount in each case.

TABLE XXXI.—*Number of Mule-Labour-Days necessary for the production of One Morgen of Wheat.*

Areas.	Preparation and Sowing of Lands.		Reaping and Threshing.		Marketing.		Total.	
	Days.	Costs.	Days.	Costs.	Days.	Costs.	Days.	Costs.
		£ s. d.		s. d.		s. d.		£ s. d.
Swartland....	14·8	1 2 9	2·8	4 5	1·1	1 8	18·7	1 8 10
Bredasdorp..	12·1	1 0 5	2·9	5 2	1·1	2 3	16·1	1 7 10

Many farmers do not seem to realize that in the production of a morgen of wheat mule labour costs more than any other single factor. In the Swartland mule labour costs came to 19.3 per cent. of the total production costs of a morgen of wheat and in Bredasdorp to 18.1 per cent. (Table XXVII).

Tractor Costs.—Tractor costs include depreciation of the tractor, interest on the purchase price, repairs, and running costs. Neither the tractor plough nor the labour of the driver was included. In the Swartland especially very few tractors are used. There are more in Bredasdorp, but in view of the cheapness of fodder, the farmers do as much work as possible with mules.

Implement Costs.—These costs were obtained in the usual way for the whole farm organization. They include depreciation, repairs and interest. The percentage of the total implement costs as applied to wheat is the same as that of mule labour used for the production of wheat. Plough shares are an expensive item, especially when the farmer has to plough or fallow dry land. Implement costs came to 11 per cent. of the total costs (Table XXVII).

Fertilizer Costs.—These costs represent the total expenditure on fertilizer for wheat. This is an expensive item in these areas. In the Swartland it amounted to 3s. per bag reaped, and in Bredasdorp to 2s. 3d. per bag.

Seed Costs.—Seed costs, bags, twine and storage are of minor importance. Other minor charges include such items as oil, dip, insurance of stacks, use of motor-car and telephone, etc.

Gross Costs.—These represent the total expenditure prior to deduction of the value of stubble land grazing, and interest on land.

Value of Grazing.—It would be practically impossible for the farmer of the Western Province to farm with sheep if he did not have the advantage of the grazing on the lands. If wheat and other crops had to pay the interest for the use of the land it would be no more than fair if sheep were made to contribute towards the crops for the use of the grazing.

The calculation of the value of the grazing presented many difficulties. The basis used, although by no means perfect, was the best that could be found.

Assume that a farmer has 480 morgen of cultivated land, 240 morgen being under crops—160 under wheat and 80 under other crops. By the end of November, when the crops have usually been reaped, the stubble lands are grazed. (This study is for the period 1st April to 31st March). Thus for a period of 8 months the 240 morgen would be under crops and grazed for 4 months only. The remaining 240 morgen would be fallowed in July or August and for a period of one month would afford practically no grazing. It might, therefore, be accepted that 240 morgen would afford grazing for a period of 11 months, and 240 morgen would afford grazing for a period of 4 months, or in all 240 morgen grazing for 15 months. The value of the grazing was estimated at 5s. per morgen per year.

In the above example wheat represents two-thirds of the area under crops and is therefore credited with two-thirds of the value of the grazing—in the present instance 240 morgen at 5s. per morgen per year gives £75, and two-thirds thereof is £50. Thus 160 morgen are credited with £50 for grazing or, in other words, each morgen of wheat receives credit for 6s. 3d. As shown in Table XXVII the actual amount credited to wheat in respect of grazing was 7s. 7d. per morgen in the Swartland and 5s. 9d. per morgen in Bredasdorp.

Many people may perhaps object to the deduction of the value of grazing from the production costs of wheat, but this item might just as well figure as income in the case of the wheat industry as skim-milk might in that of the dairy industry.

Reason for valuing grazing at 5s. *per morgen per year.*—One of the most difficult problems in this study was the determination of the value of the grazing on the lands. It was decided to take 5s. per morgen per year as a reasonable hire or value basis. The arguments in its favour are as follows:—Natural grazing in these parts is usually valued at—plus minues—£3 per morgen, while every farmer would put almost double that value on stubble-land-grazing throughout the year. Therefore, stubble-land-grazing was taken at £5 per morgen, which, with the interest at 5 per cent., gives 5s.

Five shillings per morgen per year is also what most farmers regard as a reasonable rental for stubble-land-grazing, although it is seldom or never rented as such.

If a farmer has 480 morgen of cultivated land, without much natural grazing and sows about 240 morgen annually (the other 240 morgen would be fallowed during the winter), he would be able to keep about 240 sheep and a few pigs and cows in addition to his mules. The value of grazing on the 480 morgen would be £75 at 5s. per morgen, which would more or less be equivalent to the hire value of land for the same number of live stock in good sheep country.

Value of Chaff.—The value of chaff should, as a matter of fact, also have been deducted, but it is a difficult matter to estimate the quantities of chaff stacked each year, and while it is again used as

manure in the Swartland is cannot be assumed that the two items balance in this respect. In Bredasdorp chaff has practically no value as the stacks are burnt on the lands.

Interest on Land.—In calculating the interest on land, precisely the same method was followed as in calculating the value of grazing. Each grain farmer is obliged to practice a system of crop rotation to prevent the soil from becoming completely impoverished. The grain cannot, therefore, pay only for the land on which it is grown but it has also to pay for the land that lies fallow or is rested. To use the illustration previously employed: If the farmer has 480 morgen of cultivable land, of which 160 morgen are under wheat, 80 morgen under other crops and 240 morgen of fallow land, the 160 morgen of wheat would have to pay the interest on 320 morgen, i.e. on 160 morgen under wheat and on 160 of the 240 morgen of fallow land.

TABLE XXXIIA.—*Estimate of that part of the cultivated land for which wheat is responsible (per farm).*

Areas.	Total Area under cultivation.	Area under wheat.	Total Area under Crops.	Percent-fallowed Land sown to Wheat.	Area fallowed and old Lands.	Fallow and old Lands charged against Wheat.	Total Area charged against Wheat.	Area per Morgen of Wheat.
	Morgen.	Morgen.	Morgen.	Morgen.	Morgen.	Morgen.	Morgen.	Morgen.
Swartland....	646	195	285	68·4	366	250	445	2·28
Bredasdorp..	442	121	243	50·0	195	97	218	1·80

TABLE XXXIIB.—*Estimate of interest on wheat land (per farm).*

Areas.	Value of Land under Cultivation.	Value of Land under Wheat.	Value of Land under Crops.	Value of old and Fallow Lands.	Value old and fallow Lands Charged against Wheat.	Value of Area Charged against Wheat.	Total Interest against Wheat.	Interest on one Morgen of Wheat.
	£	£	£	£	£	£	£	£
Swartland....	6,868	2,061	3,007	3,861	2,599	4,660	233·0	1·19
Bredasdorp..	6,236	1,731	3,484	2,752	1,424	3,155	157·8	1·38

Table XXXIIA shows for what proportion of the cultivated land wheat is responsible, while Table XXXIIB shows the value of the land shown in Table XXXIIA and the interest payable by wheat. In the Swartland each morgen of wheat pays interest on 2.28 morgen, and in Bredasdorp on 1.80 morgen (Table XXXIIA). In the Swartland the interest on land amounted to 3s. 1d. per bag and in Bredasdorp to 3s. 3d. per bag (Table XXVII). Next to manual labour and animal labour this is the most expensive item in the production of wheat.

SUMMARY.

It was found that there was very little difference in the average production costs per morgen as between the two areas, for the 1929 harvest season. Because the production per morgen in the Bredasdorp area exceeded that of the Swartland by nearly a bag per morgen the cost per bag was about 1s. 8d. less in Bredasdorp than in the Swartland.

In the Swartland, however, the farmers obtained, on an average, about 1s. 8d. more per bag for their wheat, which gave them an average profit of 4d. per bag more than that realized by the Bredasdorp farmers.

TABLE XXXIII.—*Production Costs of Wheat at Different Stages (per morgen).*

	Swartland.		Bredasdorp.	
Number of farms	44		36	
Morgen under wheat (per farm)	195 morgen		121 morgen	
Production per morgen	7·69 bags		8·49 bags	
Receipts per morgen	£7 18 9		£8 1 9	
Receipts per bag	£1 0 8		£0 19 0	
Preparation and Sowing of Lands.				
Manual labour	3·79 days	£0 13 2	2·05 days	£0 9 10
Animal labour	14·8 ,,	£1 2 10	12·08 ,,	£1 0 5
Tractor costs	·322 gals	£0 1 5	1·70 ,,	£0 5 9
Fertilizer		£1 3 5		£0 19 0
Implement costs (Dep. Rep. and Int.)		£0 12 10		£0 13 0
Seed costs		£0 12 6		£0 12 6
Other costs		£0 6 5		£0 7 11
TOTAL COST OF PREPARATION AND SOWING		£4 12 7		£4 8 5
Reaping and Threshing Costs.				
Manual labour	2·61 days	£0 12 10	2·43 days	£0 11 5
Animal labour	2·76 ,,	£0 4 5	2·90 ,,	£0 5 2
Tractor costs	·094 gals.	£0 0 5	·22 gals.	£0 0 10
Implement costs		£0 2 5		£0 3 2
Threshing charges		£0 8 5		£0 9 5
Bags and twine		£0 5 4		£0 4 10
Storage of grain		£0 3 0		£0 3 7
TOTAL REAPING AND THRESHING COSTS		£1 16 10		£1 18 5
Marketing Costs.				
Manual labour	·29 days	£0 1 4	·23 days	£0 1 3
Animal labour	1·11 ,,	£0 1 10	1·12 ,,	£0 2 2
Lorrie charges		—		£0 0 2
Implement costs		£0 1 0		£0 1 5
TOTAL MARKETING COSTS		£0 4 2		£0 5 0
GROSS COSTS		£6 13 4		£6 11 11
Value of grazing		£0 7 7		£0 5 9
Net cost per morgen (without interest)		£6 5 9		£6 6 2
Profit per morgen (without interest)		£1 13 0		£1 15 5
Cost per bag (without interest)		£0 16 4		£0 14 10
Profit per bag (without interest)		£0 4 4		£0 4 2
Interest on land (per morgen)		£1 3 1		£1 7 8
Net cost per morgen (with interest)		£7 9 8		£7 13 10
Profit per morgen		£0 9 1		£0 7 9
Cost per bag (with interest)		£0 19 5		£0 18 1
Profit per bag		£0 1 3		£0 0 11

Table XXXIII gives a final summary of the average production costs per morgen of wheat in the two areas. This table will be of great assistance to farmers in estimating their own production costs as the items have been grouped according to the different stages of production.

CHAPTER VI B.

THE CHIEF FACTORS INFLUENCING PROFIT.

Yield per Morgen.—If a grain farmer should make an accurate analysis of his wheat enterprise, and should find that he had produced the crop at a loss, he would at once want to know to what factors this was particularly due. The first to be investigated would be production per morgen.

Table XXXIV shows the relationship between production per morgen and profit per morgen.

TABLE XXXIV.—*Relationship between yield per morgen and profit per Morgen.*

SWARTLAND.

Classification according to Yield per Morgen.	Number of Cases.	Value of Production per Morgen	Labour Costs per Morgen:	Fertilizer Costs per Morgen.	Total Costs per Morgen.	Profit per Morgen.
		£	£	£	£	£
6 bags and less..	7	4·8	1·23	0·79	6·34	— 1·5
6·1– 7.....	11	6·8	1·32	1·03	6·97	— 0·2
7·1– 8.....	9	7·8	1·43	1·16	7·58	0·3
8·1– 9.....	7	8·9	1·52	1·38	8·47	0·6
9·1–10.....	6	10·0	1·38	1·50	8·03	1·9
10·1–11.....	2	11·0	1·73	1·67	8·65	2·4
11·1 and more....	2	15·4	1·96	1·98	10·75	4·6

BREDASDORP.

		£	£	£	£	£
6 bags and less..	5	4·4	0·94	0·77	6·89	— 2·6
6·1– 7.....	3	6·5	0·78	0·98	6·13	0·4
7·1– 8.....	6	7·3	1·16	0·96	6·82	0·5
8·1– 9.....	3	8·3	0·80	1·15	7·23	1·0
9·1–10.....	9	9·1	1·17	1·44	9·00	0·1
10·1–11.....	4	10·3	1·21	1·22	8·42	1·9
11·1 and more....	6	10·8	1·64	1·00	8·32	2·7

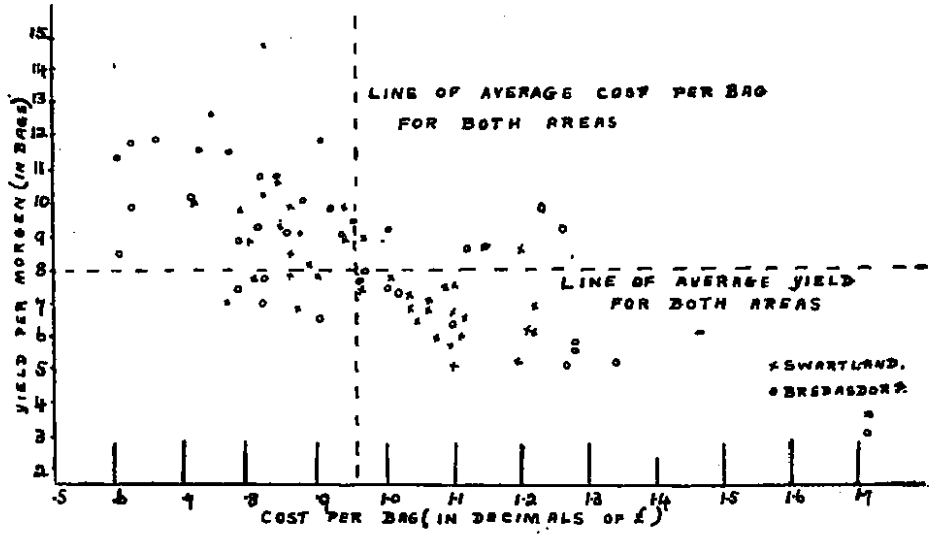
The value of the production per morgen naturally increases in proportion to an increase in the production per morgen and, as might be expected, also the labour costs per morgen, as a large crop usually demands more labour than a small one, and a good crop is often the result of more and better labour.

It is also interesting to note that increased production and higher fertilizer costs go hand in hand—eloquent testimony to the value of good fertilizing. In Bredasdorp this relationship is not so

pronounced, as there the farmers do not use fertilizer to the same extent. Moreover, results were undoubtedly affected adversely by rust.

Production costs increase as a result of increased production, but not to the same extent or as rapidly as does the value of the production per morgen. Consequently, increased production per morgen means greater profit per morgen. Farmers with an average production of less than 7 bags per morgen did not show much profit for this study year.

In Graph 1 the relationship between production per morgen and cost per morgen has been graphically illustrated. It shows that a pronounced relationship exists between the two factors. It can further be determined from the graph what proportion of the 80 farmers would, for that year in question, have made a profit on their wheat had prices been at any other level.



RELATIONSHIP BETWEEN YIELD PER MORGEN AND COST PER BAG

Labour Costs per Morgen.—In Table XXVII it was shown that labour costs alone amounted to 18.4 per cent. of the total production costs in the Swartland and to 14.6 per cent. in Bredasdorp. It is, therefore, fairly obvious that if labour is not used efficiently the profits of the whole farm or any particular enterprise might be adversely affected.

Table XXXV shows the relationship between labour costs, cost per morgen and profit per morgen. In this instance, also, increased production goes hand in hand with higher labour costs. It is difficult, however, to say precisely what may be regarded as cause and what as the effect. But it is interesting to note that increased fertilizer costs are also accompanied by increased labour costs in the Swartland, but not in Bredasdorp.

Higher manual labour costs very often mean better cultivation of the soil and, consequently, better crops. The result is that more mule labour is required, as shown in Table XXXV.

In both areas increased manual labour costs also result in a definite increase in the total cost per morgen. In the Swartland increased manual labour further shows an increased profit per morgen, which is not the case in Bredasdorp, where other factors may have had a disturbing influence, e.g. rust.

TABLE XXXV.—*Relationship between Manual Labour Costs and Profit per Morgen.*

SWARTLAND.

Classification according to Manual Labour Costs	Number of Cases.	Production per Morgen.	Fertilizer Costs.	Mule Labour Costs.	Cost per Morgen.	Profit per Morgen.
		Bags	£	£	£	£
£1·1 and less....	9	6·9	0·97	1·19	6·4	0·6
£1·11–£1·30.....	7	7·4	1·13	1·59	7·4	0·3
£1·31–£1·50.....	12	7·4	1·15	1·37	7·3	0·3
£1·51–£1·70.....	8	8·0	1·26	1·53	8·1	0·1
£1·71–£1·90.....	3	9·3	1·47	1·53	8·3	1·3
£1·91 and more...	5	10·2	1·69	1·69	9·7	1·2

BREDASDORP.

		Bags	£	£	£	£
£0·70 and less....	4	8·4	0·58	0·65	6·0	2·3
£0·71–£0·90.....	6	7·6	1·04	1·31	7·2	0·1
£0·91–£1·10.....	10	8·2	1·07	1·46	7·6	0·2
£1·11–£1·30.....	4	8·5	0·58	1·81	7·5	0·5
£1·31–£1·50.....	7	10·2	0·97	1·73	8·6	0·6
£1·51 and more...	5	9·9	0·81	2·04	9·6	0·2

Production Costs per Bag.—Table XXXVI shows the relationship between production costs per bag, production per morgen and profit per bag. The production per morgen and the profit per bag decrease as the cost per bag increases. That such should be the case is quite understandable for, as has already been shown in Table XXXIII, the preparation and sowing of the land is by far the most expensive item in the production of wheat. A large proportion of the wheat farmer's expenditure, therefore, remains more or less constant, independent of whether the crop may ultimately be a large or a small one.

TABLE XXXVI.—*Relationship between Cost per Bag and Profit per Bag.*

SWARTLAND.

Classification according to Cost per Bag.	Number of Cases.	Yield per Morgen.	Profit per Bag.
		Bags	£
£0·8 and less	6	9·4	0·28
£0·81–£0·90	11	9·4	0·19
£0·91–£1·00	6	8·2	0·06
£1·01–£1·10	11	6·7	—0·06
£1·11–£1·20	5	7·1	—0·12
£1·21 and more	5	5·3	—0·48

BREDASDORP.

		Bags	£
£0·70 and less	5	10·7	0·30
£0·71–£0·80	6	8·4	0·19
£0·81–£0·90	7	8·9	0·14
£0·91–£1·00	8	9·2	0·02
£1·01–£1·10	2	7·0	—0·07
£1·11–£1·20	1	8·8	—0·14
£1·21–£1·30	5	7·3	—0·37
£1·31 and more	2	6·7	—0·68

Table XXXVI also shows that farmers both in the Swartland and Bredasdorp were not able, with production costs exceeding £1 per bag, to show a profit.

Comparison of 5 farms showing greatest profit per morgen with 5 showing greatest loss per morgen.

Table XXXVII shows a comparison between the 5 best and the 5 poorest farms in each area, i.e. on the basis of profit per morgen of wheat.

TABLE XXXVII.—*Comparison of more important factors of wheat enterprise of 5 farms with greatest profit per morgen and 5 with greatest loss per morgen.*

Items.	Swartland.		Bredasdorp.	
	Five with Greatest Profit per Morgen.	Five with Greatest Loss per Morgen.	Five with Greatest Profit per Morgen.	Five with Greatest Loss per Morgen.
Area in wheat	153 morgen	172 morgen	114 morgen	110 morgen
Yield per morgen	11·5 bags	5·7 bags	10·6 bags	6·1 bags
Value of yield per morgen	£12·50	£5·05	£10·44	£5·18
Manual labour costs	£1·59	£1·47	£0·90	£0·99
Mule labour costs	£1·53	£1·49	£1·05	£1·68
Fertilizer costs	£1·71	£1·07	£0·64	£1·68
Total cost	£8·09	£6·59	£5·67	£7·07
Value of grazing	£0·37	£0·45	£0·28	£0·28
Cost (interest not included)	£7·73	£6·15	£5·40	£6·78
Interest on land	£1·11	£1·36	£1·29	£1·21
Cost (interest included)	£8·84	£7·15	£6·69	£8·00
Profit per morgen	£3·66	minus £2·46	£3·70	minus £2·82

In the Swartland and in Bredasdorp there was not much difference between the best and the poorest farms so far as costs are concerned. In the former area the farmers who made the greatest profit per morgen incurred about £1. 6s. more in costs to produce a morgen of wheat than was incurred by the owners of the poorest farms. In Bredasdorp, on the other hand, it cost the five poorest farms £1. 6s. more per morgen than it did the five best farms. The greatest difference, however, occurs in connection with the " yield per morgen " and, consequently, in " the value of yield per morgen." The five best farms redived on an average more than twice as much income from a morgen of wheat as the five poorest farms, consequently the former could show an average profit of £3. 14s. per morgen where the latter showed a loss of £2. 10s. per morgen.

Summary.

The four chief items in the cost of production of wheat are: manual labour, animal labour, fertilizer, and interest on land. The interest which the farmer has to pay is not reducible. The cost of fertilizer can be reduced, but in most cases this would be expensive economy. Table XXXIV shows that an increased production per morgen goes hand in hand with increased expenditure on fertilizer. It therefore pays the farmer to use enough fertilizer on his lands, especially during years with a good rainfall and in the absence of serious grain diseases.

Manual labour and animal labour are thus the only two important items where, in most cases, economy might be effected without detriment to the efficiency of the farm organization. In the Swartland, especially, many farmers could undoubtedly do with less farm labour. For example, it seems unnecessary in many instances to employ either a " klonkie " (youngster) or an adult constantly as " touleier " (leader) whenever ploughing or fallowing is done. In Bredasdorp only one labourer is employed to a team of mules. It does not follow, however, that economy might not be effected on minor items. According to certain data collected for this study, farmers owning tractors were in a position to produce their wheat slightly cheaper than farmers who used only mules. It would, however, not be advisable to draw any conclusions from this in view of the small number of cases involved and the few tractors in use. In future studies, however, more attention will be devoted to this phase of the matter.

Where farmers produced at a loss, i.e. with wheat at an average price of £1 per bag, this would in very few instances be ascribed to the fault of the farmer or his farming methods. In the majority of cases the cause could be sought in a bad harvest as a result of unfavourable climatic conditions or plant diseases, which usually are beyond the control of the farmer. But it is by no means to be inferred that the farm organizations are perfect, although the are, on the whole, on a fairly high level of efficiency.