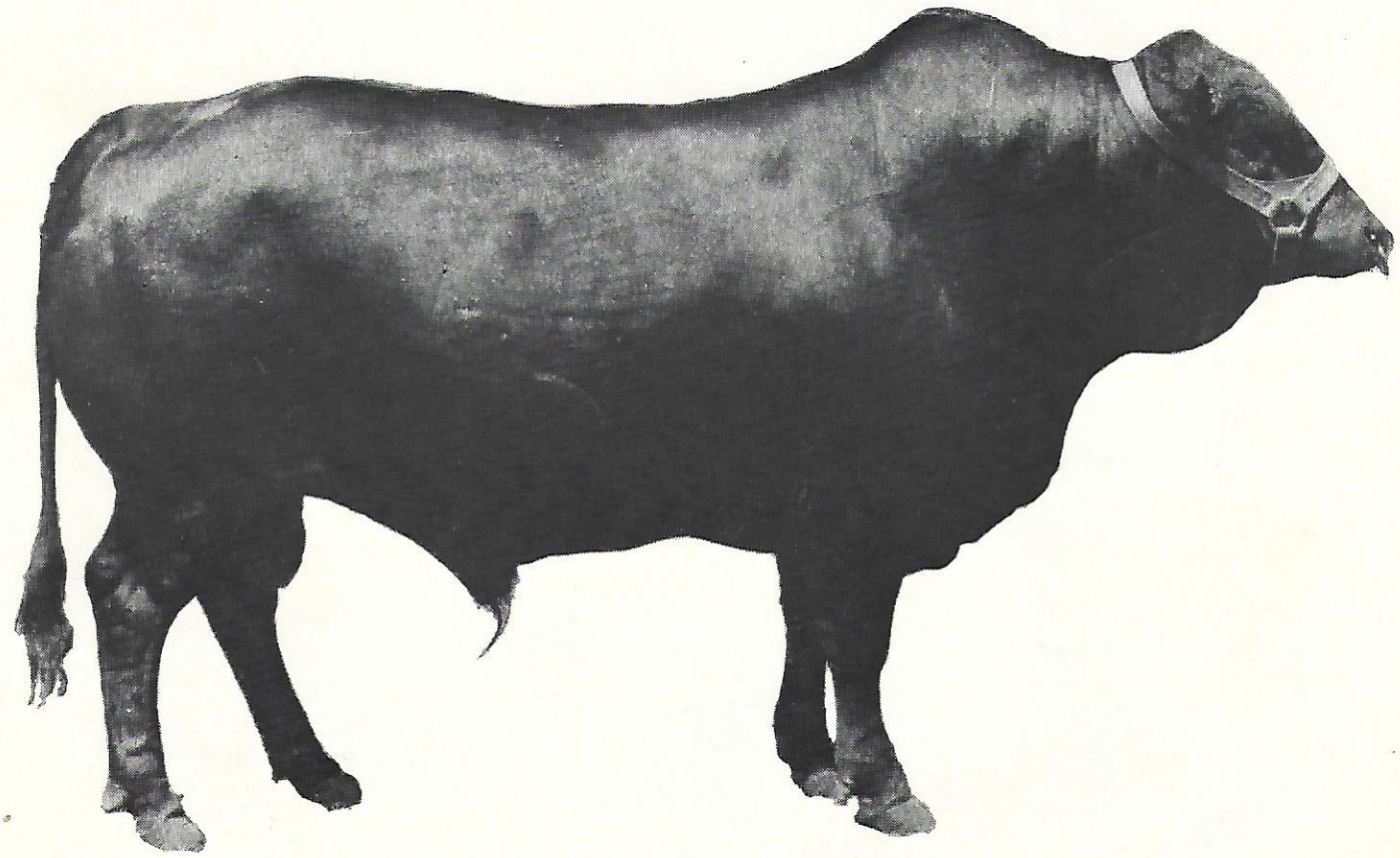
the modern Mashona



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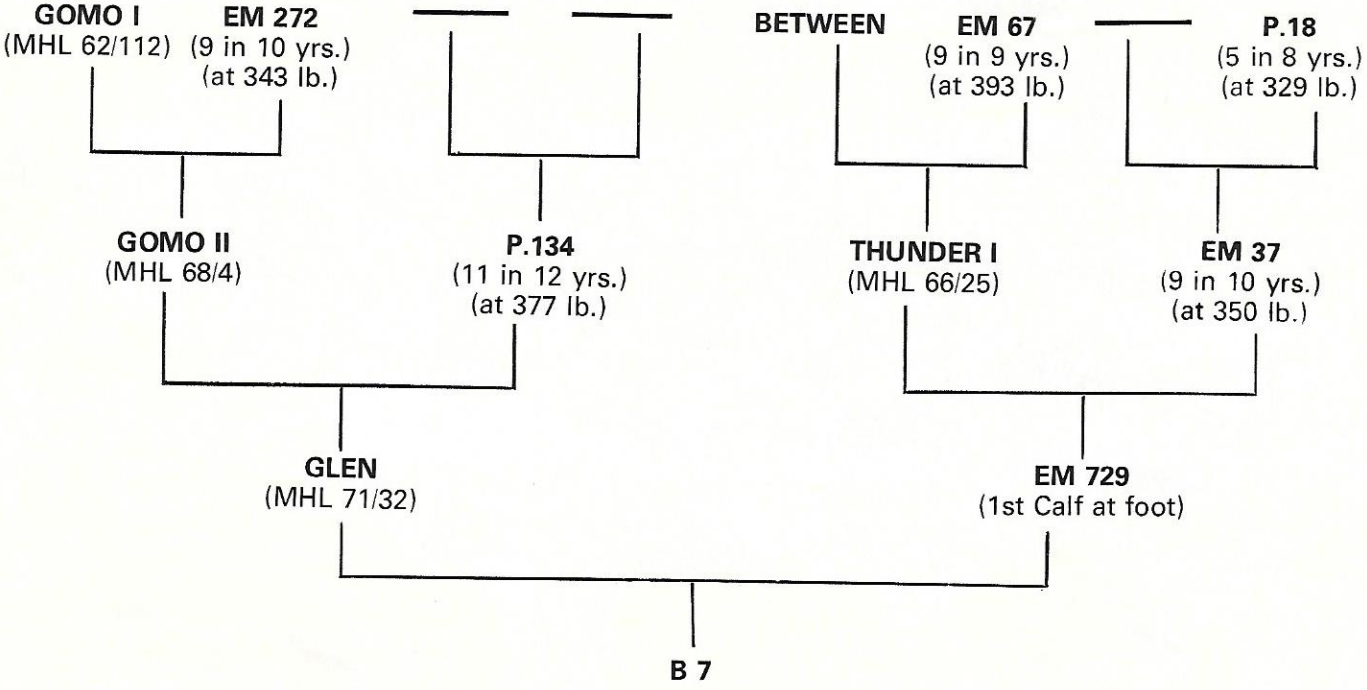

A FOUNDATION HERD OF THE MASHONA CATTLE SOCIETY

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CONTENTS

Published by Jim Fobbester, P.O. Box 2466, Tel: 69223, Bulawayo, on behalf of the Mashona Cattle Society.

JOHN GRAYLIN says

It gives me very great pleasure to write this foreword, especially at a time when the Mashona breed has been recently highlighted because of its ability to provide a carcass of a very high quality, when crossed with various other breeds. Of course, there are many other qualities possessed by the Mashona which are most desirable, particularly so in a country such as Rhodesia, which has extensive farming, rather than the intensive variety. Its mothering qualities, its resistance to disease, its ability to thrive in hot and droughty conditions: its ability to conceive readily, its high percentage of meat compared with bone and its good quality carcass, these and other plus aspects, are all most desirable attributes and will, I am certain, ensure an ever-increasing place for the Mashona in the overall cattle set-up of this country.

Although it is a relatively small-framed animal, it can put on weight readily and it has been suggested, not without merit, that one should really judge the profitability of one's herd by its ability to gain weight in terms of kilograms per hectare rather than in terms of kilograms per animal. When this criteria is applied to the Mashona it stands up to comparison with the best.

As always, of course, the varying conditions both of climate and farming, will always ensure that we need many breeds to constitute our complete farming picture in Rhodesia, and I am sure that this situation will always appertain. However, by the same token, the Mashona breed itself will continue to gain ground as our cattle industry increases, in size and scope, as it inevitably will.

May I wish all Mashona breeders all success in the future. Those who are not yet using them, may I commend this breed to their earnest attention.

Mr. Cattle Farmer

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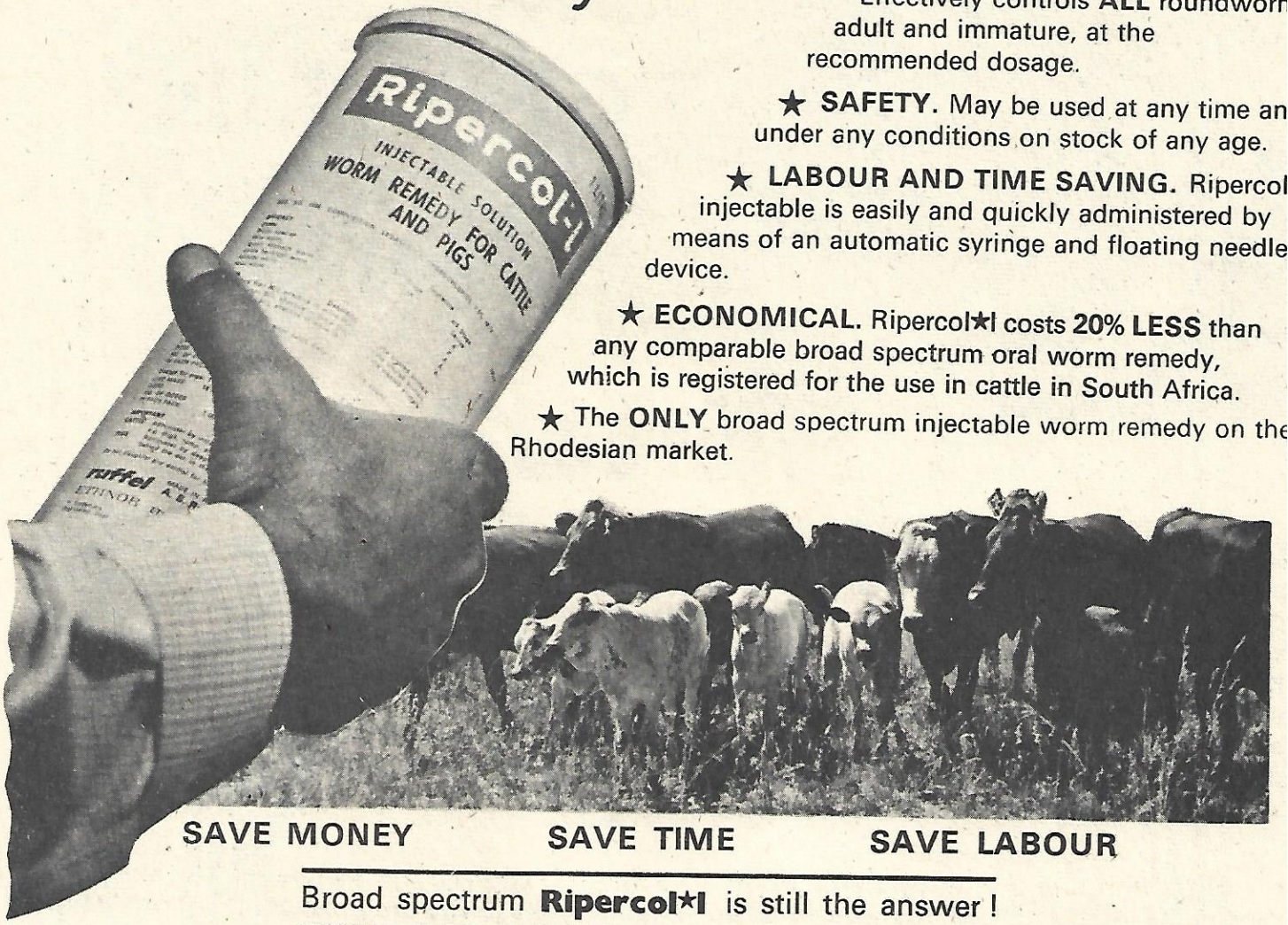

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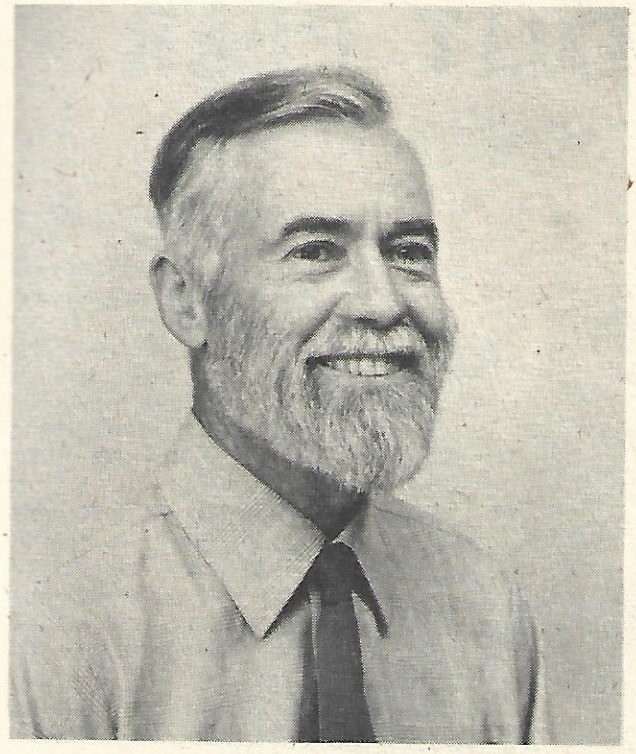


A message from our President . . . .

Cmdr. R. P. M. Colborne

I should like to welcome you as a reader of this brochure and give you some idea why it has been produced.

Ten years have passed since our last report on the improvement of the Mashona cattle as a beef breed, and considerable changes have taken place in the breeding of beef cattle in Rhodesia during this decade. Mainly in management brought about by the emphasis on results obtained by Government Research Stations, the spreading of this information through Conex by field days and the example of foremost breeders who have implemented the advice offered; and most recently the value of the beef performance testing scheme which has focused the attention of all breeders on the invaluable aid of recording to beef performance.

Probably the most important contributing factor has been the rise in the price of beef due to a seller's market, for only the wealthy or dedicated can afford the expensive occupation of breeding without remuneration.

We acknowledge with gratitude the part played by the founders of the Mashona Cattle Society on their vision and in the soundness of the practical basis on which they set the course of today's breeders. In particular we owe much to Mr. F. S. B. Willoughby and to Bryson, his son, whose service is commemorated in the Willoughby Scholarship, awarded annually at Gwebi Agricultural College; to Mr. E. A. B. McLeod, who was the co-founder with Mr. Willoughby; and more recently to Mr. Fred Barron, still dedicated to the economic production of beef per acre through Mashona cattle; to Mr. J. P. Wilkinson, who has encouraged the production of well-managed herds through his family trophy for the most up-to-date cattle competition in the country, competed for annually by breed members.

The articles which follow, written by acknowledged experts in their fields and successful breeders, will give a clear indication of the progress and results obtained during the last 10 years and some will point the way ahead.

Here I must emphasise that, on the threshold of cross-breeding with its potential of an improvement of 20 per cent to 24 per cent in commercial production of beef, we have a breed ideally suited to take advantage of our high veld conditions. There is no breed more fitted to take the position as the superior cow breed advocated by Dr. Harwin, as the articles to follow will make clear.

Our main challenge today will be to supply sufficient female breeding stock to meet the demands of cattlemen who turn their attention to cross-breeding as a means of improving their production of beef per acre.

A BREED WITHOUT PEER

Keith Harvey outlines the origin of the Mashona

Indigenous cattle of varying types are to be found throughout the length and breadth of Africa, but only since the turn of the present century has any attempt been made to study and classify them. Because of the dearth of reliable evidence and the general lack of historical records in Africa, the conclusions arrived at must be regarded as somewhat speculative.

Although the indigenous cattle of Africa generally lack uniformity of type, they may be placed in the following five main groups:

1. The Humpless Long-horn Cattle.

These were the original cattle of North Africa as was illustrated in paintings in the tombs of Egypt 7 000 years ago, but are today only found in West Africa.

2. The Humpless Short-horn Cattle.

These begin to be depicted in the Egyptian tombs from about 2 500 B.C., from which time they obviously displaced the longhorns to the south and west. The cattle of the Mediterranean region today are mainly of this type.

3. The Neckhumped Lateral-horned Zebu.

There are records of this type of humped cattle from the old civilisations north of the Persian Gulf and later records, about 1 500 B.C., of their appearance in Egypt. It is thought that they may have entered at the "horn" of Africa and become established in Ethiopia, from whence they spread north and south. Today, however, they are only represented by the Africander breed, which was developed from Hottentot cattle which the early settlers found at the Cape.

4. The Chesthumped Short-horn Zebu.

This appears to be the most recent type to enter the continent, and evidence indicates that it was introduced down the East Coast by Arab and Indian traders from about the middle of the seventh century A.D. It is now the dominant type in East and Central Africa.

5. The Sanga Cattle.

This type is widely spread in South, Central and West Equatorial Africa and is obviously the result of cross-breeding between the original humpless cattle and the invading zebus. They are usually neckhumped but vary greatly in the size and shape of the horns. The indigenous breeds of Rhodesia fall into this group.

As the migrating Bantu tribes moved down the continent, they took their cattle with them, crossing the Zambezi about 700 A.D. Portuguese explorers reported the presence of cattle in what we now know as Rhodesia in the 16th century, and our own pioneers found large numbers of stock, estimated at 500 000, in the hands of the local inhabitants. They were distributed mainly along the central plateau, which was free of tsetse fly.

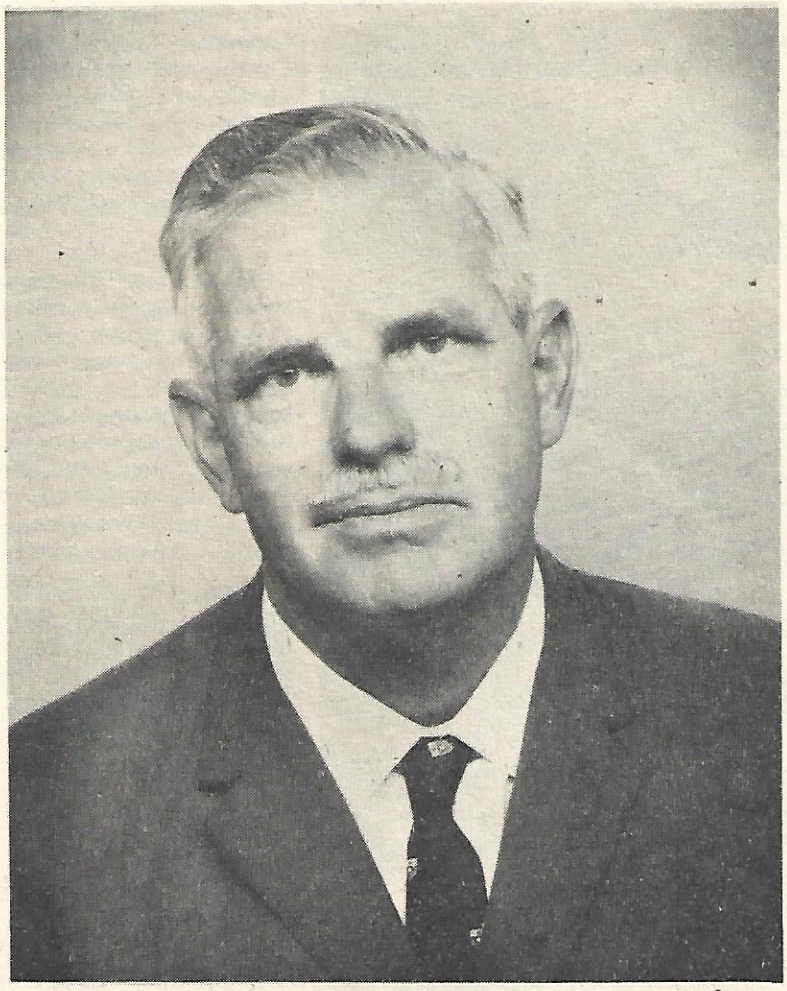
The cattle which the pioneers found were almost exclusively of the Sanga type. They were neck-humped, small in stature, rounded in appearance with sloping rumps, their coats were sleek and shiny, they were fine of bone, had small, broad, alert heads and long, thin, active tails. The horns in the cow curved outwards and forwards and were round and fine in cross-section. The horns in the bull were also rounded but shorter and heavier, curving out and upwards. The horns in the oxen were longer and more widespread. A few of the animals were naturally polled. Colour patterns were many and varied. The predominant colour was black followed by reds and browns, with yellows and duns being less common. These colours were often accompanied by white patches or stipples very broken in outline. Black and red were frequently mixed, giving rise to variations of the attractive M'Sundu pattern or more rarely the brindle (Nhuru).

These little cattle were extremely hardy, disease resistant, and well adapted to the harsh sour-veld conditions of the plateau, which was characteristically poorly mineralised and low in protein during the long dry season.

However, in 1896, disaster struck in the form of the Rinderpest epizootic which swept down from the north killing cattle and antelope alike; to be followed a few years later by the introduction of East Coast Fever from Mocambique. The herds were decimated and by the time these diseases were under control it was estimated that only 50 000 remained in the country.

To help build up numbers again, cattle were introduced from Northern Rhodesia. They were mostly cows and were probably Angoni type short-horn Zebus, but it is not known what genetic influence they had on the native herds. From about this time both Government and private individuals began importing bulls from South Africa and overseas with which to grade-up and "improve" the indigenous stock. In many instances this process led to indiscriminate cross-breeding, without any corresponding improvement in management and resulted in heterogeneous, degenerate animals completely lacking the desirable characteristics of their parent stock.

In 1941, and independently of each other, two dedicated men, Mr. F. B. Willoughby and Mr. E. A. B. McLeod, began building up herds of indigenous cattle. They visited dip-tanks in various remote native reserves and bought up animals which conformed to the characteristics which they had fixed in their minds. Mr. Willoughby obtained many of his foundation stock in the Chilimanzi and Buhera Reserves, one polled bull in particular, which, as a three-month-old calf, walked the 200 miles from Buhera to Ellerton farm, had



Robert Keith Harvey is a prominent Victoria rancher who has a long record of service to Rhodesia's cattle industry. A leading Mashona breeder, he is renowned for his knowledge of the breed.

a tremendous influence on the future Mashona breed. Mr. McLeod bought most of his original animals in Mondoro Reserve when he was stationed at Hartley as Native Commissioner. He trekked them first to Gokwe and then to Essexvale as he was transferred, finally buying a farm in the latter district. He obtained some polled bulls from Ellerton and by very rigorous selection built up a herd of fertile and prepotent, small, black, hornless cattle of considerable hardiness and docility. The Ellerton herd was larger and more broadly based, and although predominantly black, managed to perpetuate most of the colour and colour patterns of the native stock. Here again selection was based strictly upon the most desirable functional characteristics of the indigenous cattle, and over the years a remarkably productive herd was achieved.

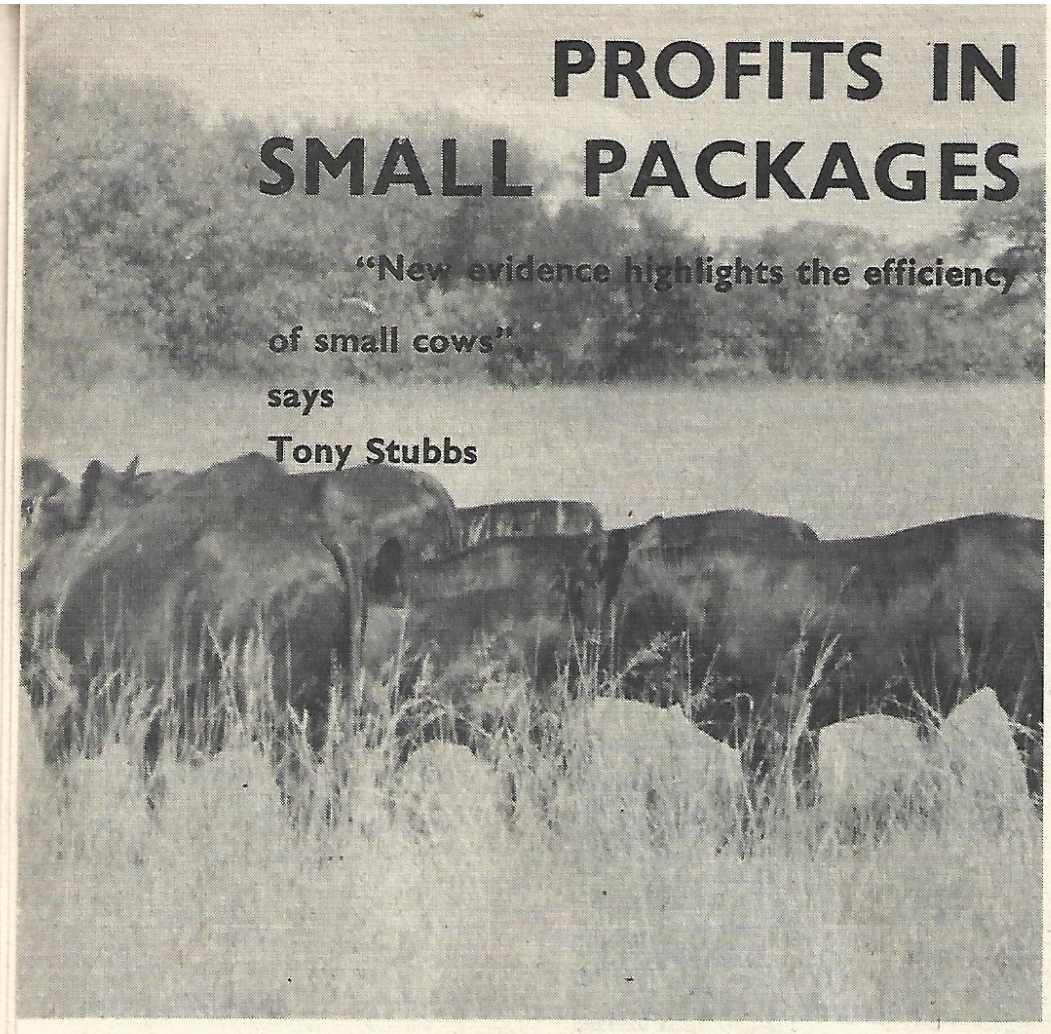
The enthusiasm of these two men led to the founding of the Rhodesian Indigenous Cattle Society on the 16th of January, 1950, Mr. Willoughby becoming the first president with Mr. McLeod as honorary secretary. A few years later the name was changed to the more specific, Mashona Cattle Society. A Herd Book was opened for the registration of foundation stock and at a ceremony in Bulawayo the names of four outstanding bulls were the first entries to be made; two were from Ellerton, one each from McLeod and the Native Agriculture Department's Central Breeding Station at Mrewa. Rules were drawn up for a system of registration based on records and visual inspection of both parents and progeny which is today accepted as the most advanced and enlightened practised by any of the breed societies.

Herds were now being established throughout Mashonaland as far apart as Umvukwes, Macheke and Fort Victoria, while at Banket membership was sufficiently strong for the formation of a branch of the Society. From the very first the breed enjoyed strong Government support and officials have always been well represented on the Society council.

Apart from the Central Testing Station at Mrewa, herds were established at Grasslands Research Station, Makoholi Experiment Station and Domboshawa Training Institute. In more recent years the Grasslands herd was transferred to Chibero College of Agriculture and 50 heifers from Makoholi were sent to Henderson Research Station as the nucleus of what may become one of the most significant herds in the country. As part of a more complex breeding experiment, the performance testing of Mashona bulls in individual feed pens was started at Makoholi in 1961. Since that date the use of high performance bulls selected from the annual tests has undoubtedly had a profound influence on the development of the breed.

In the registered herds today a very high standard has been reached, not only in the quality and excellence of these beautiful cow animals but also in their fecundity and productivity; the Mashona may be said to have no peer in production per unit of Rhodesian veld, while pure and crossbred steers have enjoyed considerable success in the slaughter classes at agricultural shows.

The vision and enterprise of Messrs Willoughby and McLeod have been more than justified, and while the breed today has a much broader genetic base than either may ever have visualised their original bloodlines still run very strong in the modern Mashona. □



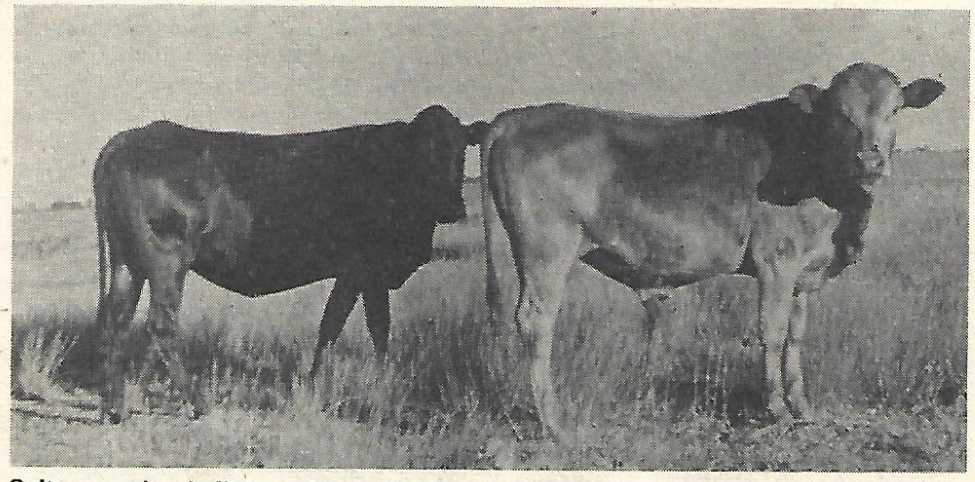
PROFITS IN SMALL PACKAGES

"New evidence highlights the efficiency of small cows" says Tony Stubbs

New evidence highlights the efficiency of small cows

Evidence and research results on the effects of cow size on the economics of beef production have been sparse or lacking in most parts of the world. Some evidence relating to the economic importance of growth rate has been published and this has shown for example, the high correlation between gross income, high weaner mass and rapid post-weaning growth. Fast growth in feedlots has also been shown to be economically important. Cow size has, however, seldom been linked to profitability, although large cows tend to produce larger weaners, and some workers conclude large cows were more productive per cow.

At shows the visual effect of large size is impressive and this factor, coupled with the general trend towards "growthy" cattle, has led to the popular conclusion that "bigger is better".



Quite exceptional efficiency from a Mashona heifer: Midsummer mass 592 lb., calf weaner mass 412 lb., or 70 per cent of the dam's mass. The heifer is in calf again. The relative grazing and maintenance cost of this heifer is very low and it is this sort of performance that the Mashona tops for profitability and beef per hectare, either in a straight-bred or, particularly, in a cross-breeding programme.

Two trends have resulted. Greatly increased popularity of the large continental breeds and, secondly, selection of large cattle in the traditionally medium sized British breeds. The latter trend is most noticeable in the USA where great emphasis has been placed on mature size.

The aim of all beef producers is sustained high profitability, whether they be breeders or feedlot operators. One sector cannot thrive for long at the expense of the other. Systems and methods of production must seek to maximise profitability from breeding to slaughter. Hence the effect of cow size on this overall profitability is important and it is here that evidence and research results have been lacking.

A group of workers in the USA have begun to question the general trend towards larger and larger mature cattle, while accepting the need for good growth in young cattle. Early doubts were expressed about the efficiency of larger cows in poorer environments. Later, workers set out to find the *most efficient* cow size under different environments and two recent studies are referred to here. Accumulated performance data from research station herds were used in the studies. Efficiency of beef production from herds of large, medium and small size cattle was studied by means of linear programming and computer simulation techniques. This method allows for the study of a range of variables, chosen to make the results as nearly as possible comparable to a range of practical farming situations.

The first study sought to establish the cow size which yielded the maximum income per unit of capital invested in feed, including all phases from breeding through to sale for slaughter.

Table 1. Economic return to investment in total nutrient requirements of cows, replacements and slaughter progeny.

Cow size	% Return
S	19,6
M	13,0
L	7,5

While progeny from larger cows tended to make more efficient gains than progeny from smaller cows, the *system of production* utilizing small

cows returned the greatest amount to the money invested in feed. Apparently the maintenance requirements of smaller cows were sufficiently reduced to more than compensate for the lowered efficiency associated with slower growth of their progeny. The *net effect was the greatest overall efficiency for the small cows.*

A significant additional result was that when weaning % was raised from 85% to 90% in each size group, returns were increased by 4,5% in each group, emphasising the key role of fertility in beef profits.

In the above study some factors were omitted, such as the salvage value of cull cows. Those omissions may have biased the results in favour of small cows, so a more extensive systems analysis study was undertaken. The model included nutritional costs for production and maintenance, fixed per head costs, relationships between cow size and progeny growth, attrition rates, and milk yields for cows of different ages and other considerations. Criteria for evaluating efficiency included *saleable live mass* produced when total nutritional expenditure was held constant, *profitability* and, *net return to total financial investment.* Holding nutritional expenditure constant, may be likened to a constant acreage available, as contrasted with a constant number of cows. Beef per unit area of land or beef per hectare could therefore be measured. Pasture and drylot regimes were included, but since drylot systems for breeding females have very limited application, only the pasture regime is quoted here. Some preliminary results were as follows:

Live mass sold was highest for the S group. This result can be interpreted as highest beef per hectare.

Net income (excess of gross income over expenses) is also highest for the S herd, in other words, this was the most profitable group.

There was virtually no difference in return on investment between the groups.

Rhodesian Conditions

A question which immediately arises is the applicability of these results under Rhodesian conditions. Part of the results are probably directly applicable, such as relative stocking rates and mass of beef produced per unit of feed or per area of grazing. The economic results are dependant on prevailing costs and prices, although scrutiny of the data leads one to the conclusion that results would be similar. Clearly it would be best to repeat the study using basic data from local sources. In the absence of a local study however, these results probably represent the best available information on the question of cow size and economics of beef production under range conditions fairly similar to those in this country. Under very different conditions, e.g. Europe, where items such as expensive housing, equipment and labour are encountered, or where zero grazing is employed, different answers are likely to be forthcoming.

Applying the Results

Mashona breeders have long believed that their small, efficient cows produce more beef per hectare. These results should strengthen that belief and support the contention that more beef per hectare is related to better profits.

In these investigations comparisons were made between cow sizes in different breeds, each of which had been subject to selection for good performance. The conclusions may not apply to cow size within a breed, because of the effects of selection.

Good early growth rate in slaughter progeny was shown to be economically advantageous and, for this reason, recording and selection for good weaner mass and post weaning growth remains important.

Because of the overriding economic importance of fertility however, in the case of replacement heifer selection, special attention should be given to selection of functionally efficient heifers from the most fertile dams, with above average milk production.

The above results point to the high efficiency of small cows in straight-breeding programmes. That a system of small cows mated to fast growing sires in a cross breeding programme may show the highest profitability of all combinations is shown in a separate article. □

A wonderfully efficient first calving heifer. Midsummer mass 568 lb., calf weaner mass 424 lb., or 75 per cent of the dam's mass. With exceptionally economical grazing and maintenance costs, it is this sort of heifer or cow that makes the Mashona tops for profitability and beef per hectare.

Table 2. Number of cows, live mass production, net income and return to investment.

	Size Group		
	S	M	L
No. of cows	+	0	−
Live mass sold kg	+	0	−
Net income US$	+	0	−
Return on investment %	0	0	0

In each case the performance of medium cows is taken as 0, with + indicating increased performance and − indicating reduced performance.

It must be appreciated that these are preliminary results. Nevertheless, the following trends are of interest.

Smaller cow size permitted a higher stocking rate and a higher number of cows, as expected.

WATERLOO MASHONAS

SANTU

SANTU: Sire of our Red Herd, photographed on the only sunny day in February, 1974 — after three months of hard work which left 49 of his 50 cows with calves.

P. PEECH

Registered Mashona Breeder since 1954.

WATERLOO FARM
P.O. WATERLOO
VIA MACHEKE

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PERFORMANCE TESTING THE MASHONA

by H. K. Ward*

Over the past 12 years, some 640 Mashona bulls have been performance-tested at Makoholi Experiment Station. The main questions arising from this statement are: "What does performance testing mean?" "How is it done?" "How are the results assessed?" and "Is the procedure effective in selecting genetically superior bulls?"

What is performance testing?

As its name implies, performance testing is the comparison of animals based on their individual performance. Among economic traits in beef cattle, growth rate is not only one of the most important, it is known to be moderately heritable. As growth is easily measured in the live animal, the faster growing animals in any group of cattle of the same age and in the same environment can be expected to produce progeny of higher growth potential than their contemporaries. As most growth occurs before the attainment of reproductive age, a large number of individuals may be conveniently "screened" on the basis of their own growth before they are allowed to mate. Thus, we can predict those animals likely to produce faster growing progeny — and, conversely, but equally important, predict those animals that are likely to produce slower growing progeny — before any progeny are conceived.

Performance testing allows a very much greater selection intensity and a marked reduction in generation interval compared to progeny testing. Whilst progeny testing is certainly the "proof of the pudding" in that it is more accurate than performance testing, the latter does predict best breeding beasts — hence only performance-tested bulls should be used in any progeny test. Farmers selecting animals on a mass-per-day-of-age basis are automatically practising selection on performance.

It is not suggested that growth rate is the only selection criterion, but it is certainly one of vital economic importance and one responsive to selection. The term performance testing in its widest sense, is applicable to both the feedlot testing of bulls for growth rate and feed conversion, and to the assessment of growth and reproductive traits in heifers and cows through farm recording. Female performance is a feature of the on-farm Rhodesia Beef Performance Scheme and, wisely, it is obligatory for all breeders of registered Mashona cattle to participate in this scheme. However, the greater part of genetic progress comes from the selection of bulls and it is principally in this context that performance testing at Makoholi is discussed.

Procedure

Mashona breeders are invited to send bull calves at weaning age (±8 months) to Makoholi, where the animals remain for their weaning winter. Animals are given a settling-in period to accustom them to pen feeding. Settling-in is normally of about one month's duration. During this period a high roughage ration is offered initially, the roughage contents being gradually reduced to the level of the formal test period. The bulls are individually penned and offered the test ration *ad libitum* through self feeders. The ration, principally milled maize grain and roughage with protein, vitamin A and minerals, is aimed to promote mass gains of about 0,9 kg per day on average. The T.D.N. value of the test ration is normally ±61 per cent, crude digestible protein ±11 per cent and the roughage content about 50 per cent. When all bulls are readily consuming the test ration the formal test period of 120 days commences. Bodymass and feed consumption are recorded. Performance test procedure then is essentially a uniformity test where all bulls are offered the same ration under the same conditions: each has the same opportunity to grow.

Individual bull merit is assessed on the basis of final bodymass at the end of test. As final mass is generally recognised as having the highest heritability of the growth characters in cattle, its use in selection is obvious, embodying as it does all aspects of growth. Three scorers nominated by the Breed Society assign conformation gradings to each of the bulls at the end of test, without prior knowledge of the test performance. A bull may be given any one of 10 conformation grades. The scoring is usually done at or before a field day attended by breeders and other interested people. Once the conformation score is announced, so the performance of the bull is made known.

Results

If all the animals entering the test were of the same size, age and from similar backgrounds, little or no explanation would be necessary of how test merit is assessed. Bulls entering performance test at Makoholi have been raised with their dams on veld, are of similar age (2-3 months range in the date of birth) and are from dams that weaned a calf in the immediate previous season. What cannot be controlled with any test where calves at ±8 months are brought to one point from a wide range of ecological and management environments, is the effect of these pre-weaning environments on bull growth on test. Initial mass varies widely between bulls and in consequence so does feed consumption and growth rates. Larger animals require more food than do smaller animals irrespective of inherent growth potentials. Similarly, older bulls are generally bigger than younger bulls and require more food. These differences are real — we cannot eliminate them. Valid comparison

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*Officer in Charge Matopos Research Station

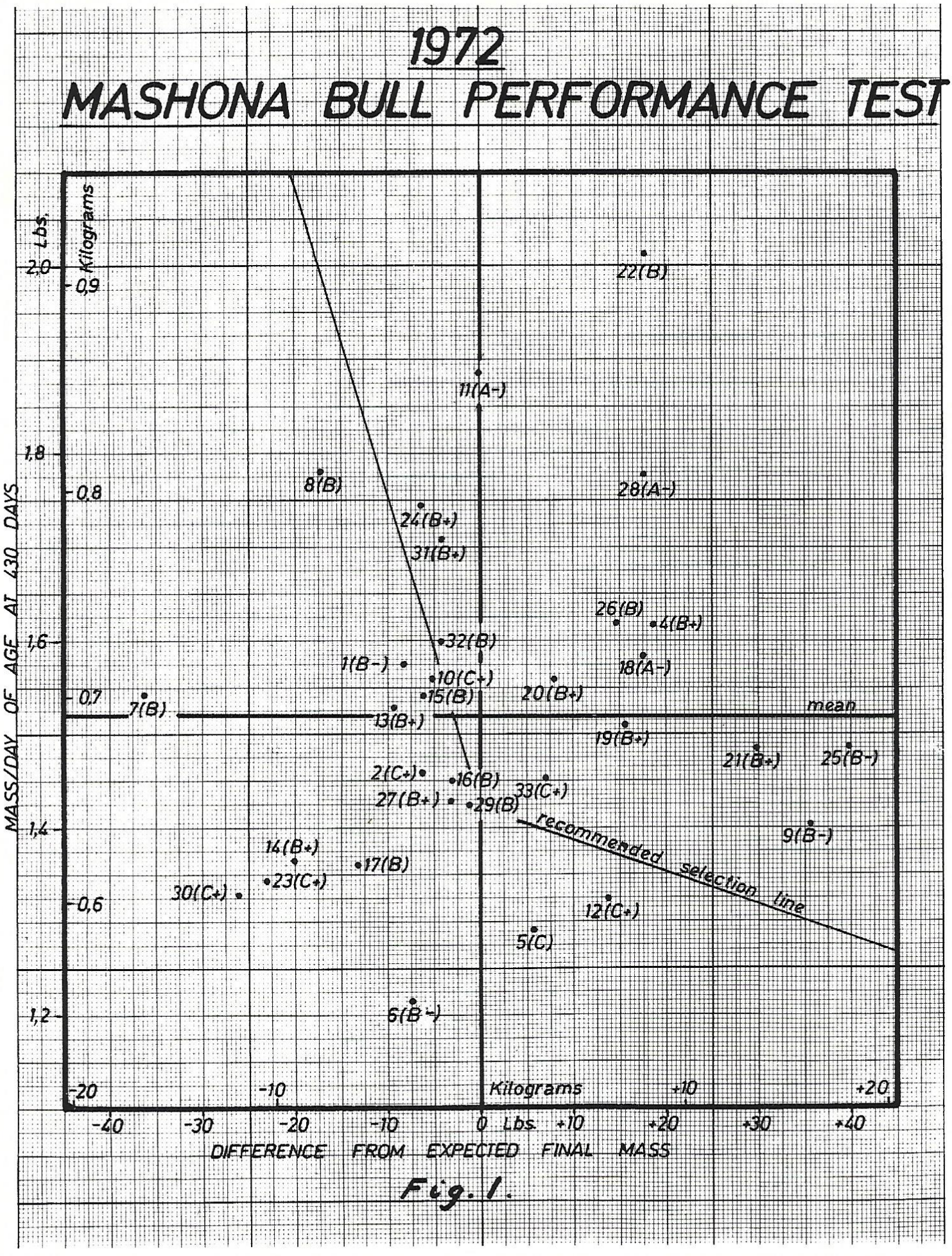

1972
MASHONA BULL PERFORMANCE TEST
MASS/DAY OF AGE AT 430 DAYS
Lbs.
Kilograms
2,0
0,9
1,8
0,8
1,6
0,7
1,4
0,6
1,2
22(B)
11(A-)
8(B)
28(A-)
24(B+)
31(B+)
26(B)
4(B+)
32(B)
1(B-)
10(C+)
18(A-)
15(B)
20(B+)
7(B)
13(B+)
mean
19(B+)
21(B+)
25(B-)
2(C+)
16(B)
33(C+)
27(B+)
29(B)
recommended selection line
9(B-)
14(B+)
17(B)
23(C+)
30(C+)
12(C+)
5(C)
6(B-)
-20
-10
Kilograms
+10
+20
-40
-30
-20
-10
0 Lbs.
+10
+20
+30
+40
DIFFERENCE FROM EXPECTED FINAL MASS

Fig. 1.

between individual bulls therefore requires all these factors which may effect bull growth on test be taken into account in such a manner that all bulls are assessed on the same relative basis.

It is established that an animal's food intake is proportional to bodymass; age influences bodymass and hence food intake; and in turn, food intake is reflected in bodymass and in age, and bodymass is reflected in age. It is apparent, then, that the known variables in the performance test, initial mass, age, and feed consumption, not only exercise individual influences on final mass, but in fact jointly and differentially influence final mass and each other. Further, each animal is unique and its growth response on test and hence its final mass, will reflect this individuality. It will be that portion of the final mass not accounted for by initial mass, age and feed consumption. Final mass may therefore be described in the following form:

Final mass =

Initial mass

Initial age

Feed consumption

Animal's individuality

\+ + +

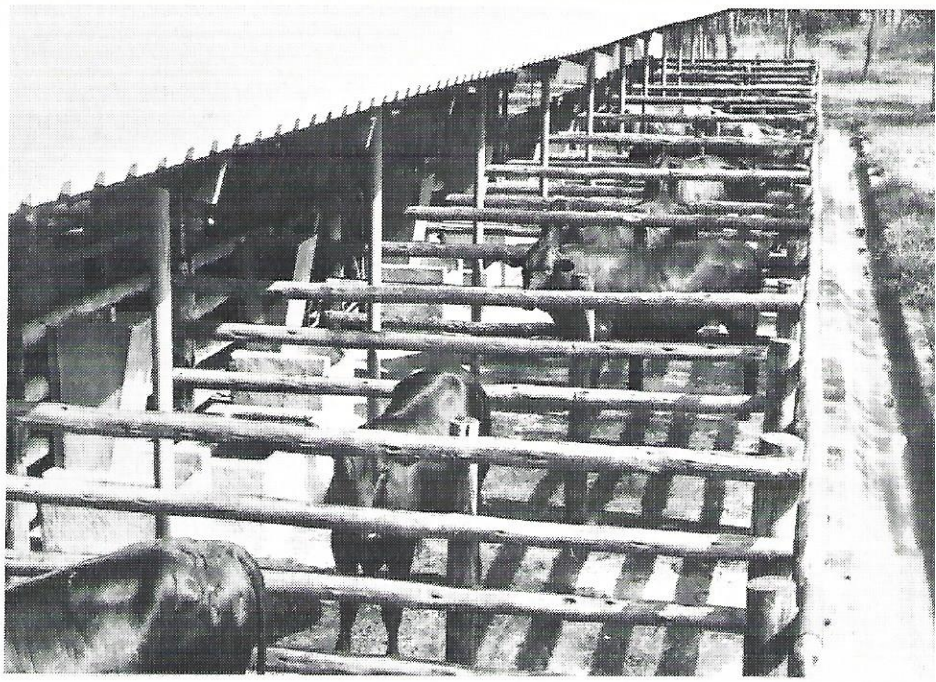
The joint influences of initial mass, initial age and feed consumption on final mass are determined for each test, using regression procedure. These three variables commonly account for ±90 per cent of the variation in final mass. The final mass of each bull is then predicted using this joint relationship, having inserted the individual's actual initial mass, initial age and feed consumption into the equation. A bull's predicted or expected final mass, is that mass the bull would be EXPECTED to have attained at the end of test, had his performance been in keeping with his contemporaries on test, taking full cognisance of his own initial mass, initial age and the amount of food eaten on test.

Each bull's expected final mass is then compared to his actual mass attained, which may be heavier or lighter.

The difference represents the animal's own individuality, and is used to assess bull merit.

The differences from expectancy are shown on one axis (horizontal) of a scatter diagram (Fig. 1) a copy of which, together with the relevant data, is provided to breeders participating in the performance test. Figure 1 illustrates the 1972 results. Bull 28, for example, age 270 days at the commencement of test, whose initial mass was 227 kg and who ate 806 kg of feed, should have weighed 328 kg at the end of test if his performance was as good as that of his contemporaries on test. His actual final mass was 336 kg, hence his performance was 8 kg better than expected. On the vertical axis the scatter diagram shows the actual mass per day of age attained by individual animals. In other words, the differences from expected final mass are considered in relation to the overall growth rate, this latter being a good index of the on-farm nutritional level of the particular herd in which bulls were raised. Bulls of good growth coupled with an above expectancy performance are desired. This form of presentation of the data is intended to assist breeders to decide which of their own bulls show most promise as potential sires. The recommended selection line in Figure 1 is a performance guide — bulls to the left and below this line should not be considered as breeding material on performance grounds. Similarly, bulls below a B- conformation score are not recommended for use in registered herds.

Feedlot testing indicates those bulls most likely to pass on good growth rate and feed efficiency. For best results however, breeders should interpret these results in conjunction with records from within their own herds, for example records on weaning mass and family performance (Fig 1, page 12)



Weaner bulls on feedlot performance test at Makoholi Research Station. Feed conversio efficiency, feed intake and growth rate are measured and the results expressed as a adjusted 400-day mass.

Effectiveness

A progeny test herd has been maintained at Makoholi for some years. The cows in this herd are themselves the unselected daughters of bulls of varying merit (performance tested in 1962) out of randomly assigned cows. They were born in 1964, raised on their dams on veld, weaned at ±200 days and supplied with a moderate level of protein concentrates each winter. Each year from the age of 27 months they have been mated to a series of unrelated bulls categorized either "high" or "low" performance on the basis of subsequent performance tests. The bulls used in any one year have been of the same conformation score. The resultant progeny have been weaned at ±200 days of age and grazed on veld to 18 to 20 months. A small amount of protein supplement was provided during the weaning winter. The growth rate of the respective progeny from the first four years' matings is shown in Table 1. (page 14)

Progeny growth rates were generally consistent with both the performance test results of their sires and that of their maternal grandsires. The difference between the high and low sire groups of

→

about 18 kg is the annual difference due to the choice of sire, a difference of some 7 per cent in the average bodymasses at ±20 months of age. There has been no suggestion that the performance testing of weaner bulls at moderate levels of nutrition in the feed-lot was incompatible with the growth of the resultant progeny raised on veld.

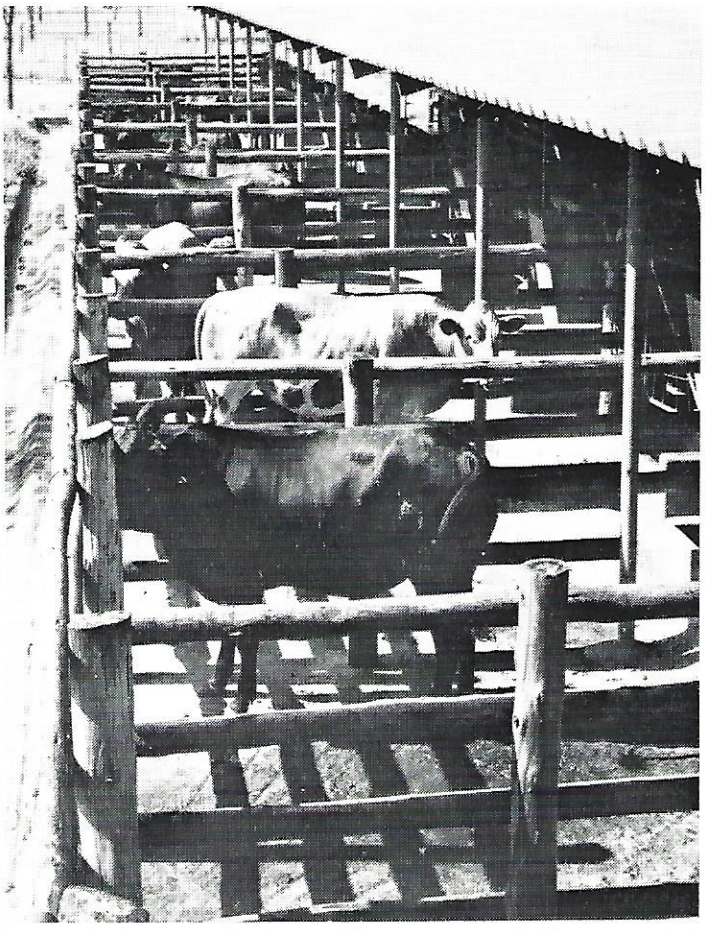
It is of interest to note the influence of the dam's own growth rate on that of her calves. An analysis of the response of calf growth to variation in dam growth as measured when the dam itself was a calf in this progeny test herd, has shown that some 30 per cent of the variation in calf growth can be accounted for in terms of the dam's own growth. This dam effect was not only apparent to calf weaning age, but with the exception of the year in which the dams were first calving heifers, the effect persisted at least until the progeny were 18 to 20 months old. In view of the size of these dam effects, it is clear that considerable advantage in progeny growth would result from selection among potential dams at the end of their yearling summer. This is perhaps not surprising in this particular herd where the dams themselves were the unselected female get of their particular sires. Nevertheless, there is little doubt that selection for growth among the replacement heifers would be of marked benefit in many registered and commercial herds and the Rhodesia Beef Performance Testing Scheme has particular relevance in this respect.

No claim is made that the particular form of performance testing in practice at Makoholi approaches the ideal, and the future may well see changes that will increase its effectiveness and precision. However, present evidence certainly indicates that the test is a valuable selection aid and Mashona breeders may feel justly proud of their initiative in the objective assessment of potential breed sires in this country.

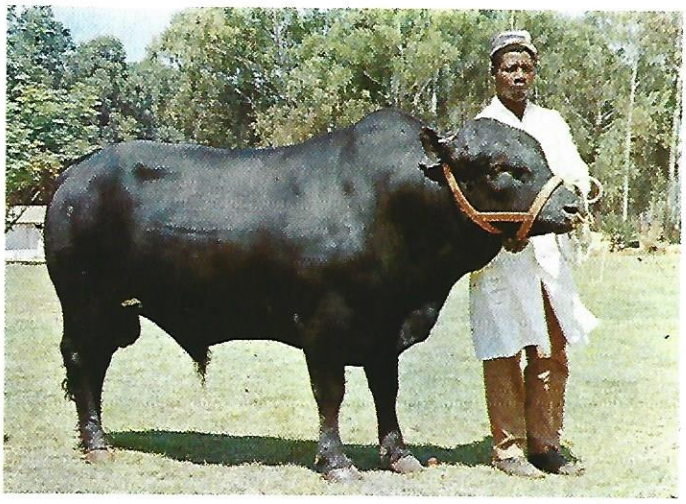
Grateful acknowledgment is made to Mr. W. R. Mills for his contribution to performance test assessments, and to the staff of Makoholi Experiment Station.

Table 1. The results of progeny testing performance tested bulls. Mean growth of progeny groups on veld to 600 days 1967-1972 (kg/day)

Sires of calves	Dam's sire rating		Mean	Difference at 600 days (kg)
	High	Low		
High	0,384	0,362	0,373	18,2
Low	0,344	0,339	0,341	
Mean	0,364	0,350		
Difference at 600 days (kg)	8,4			



BARROCK MASHONAS



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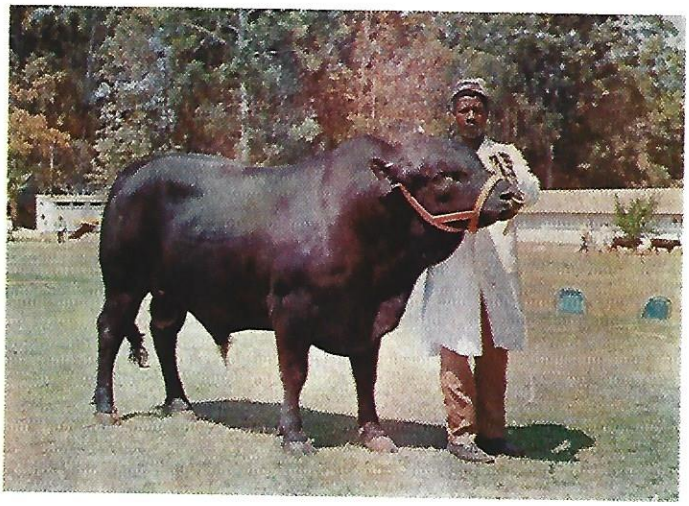
FINEST MASHONAS IN RHODESIA



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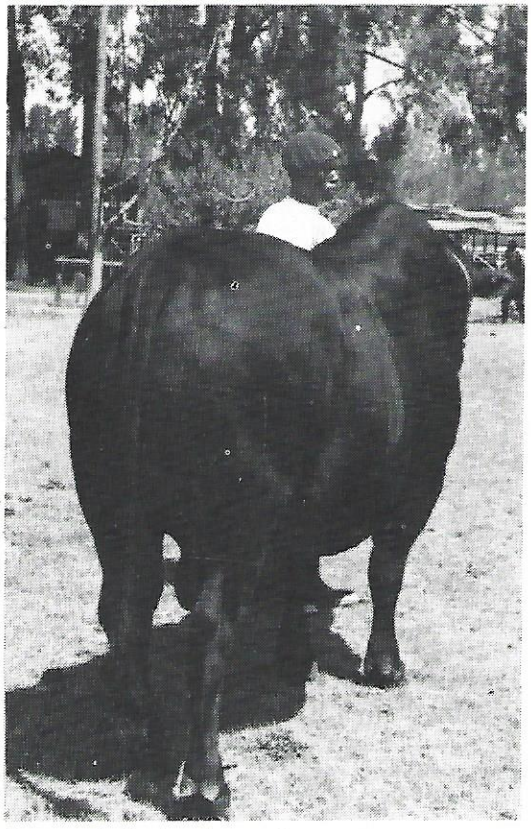
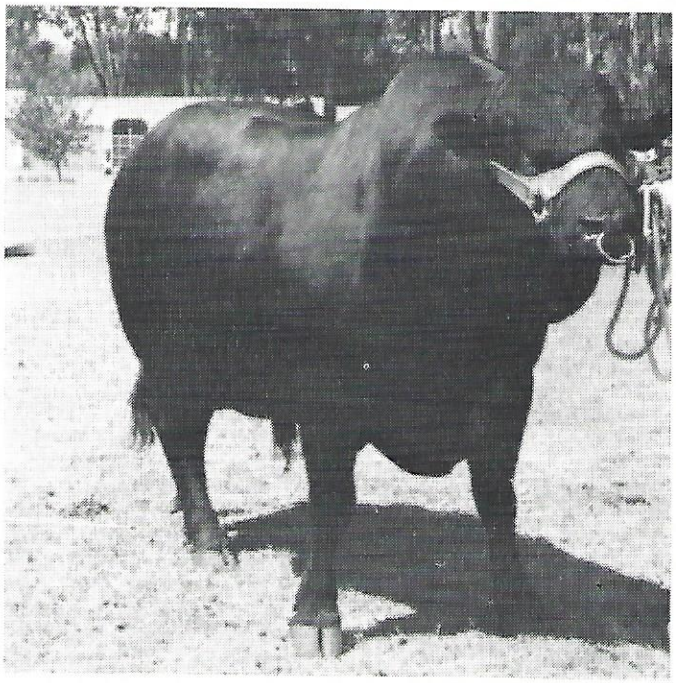
Above: A herd of typical Mashona cows about 20 years ago.

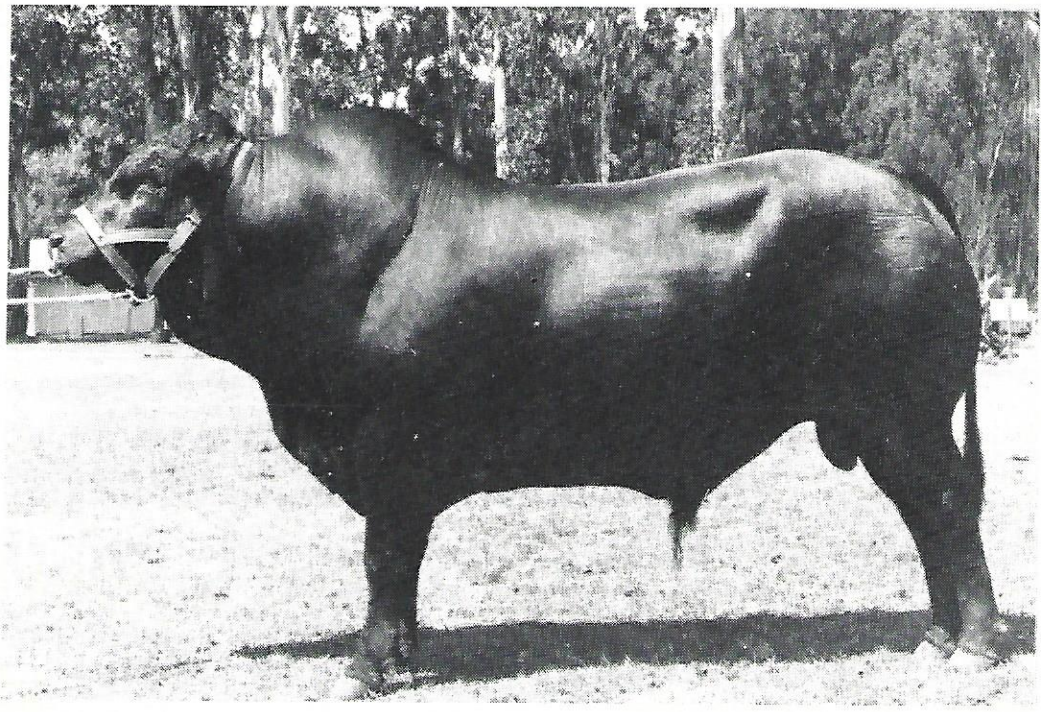


A young bull, showing typically rounded, bulging muscles of hindquarters.



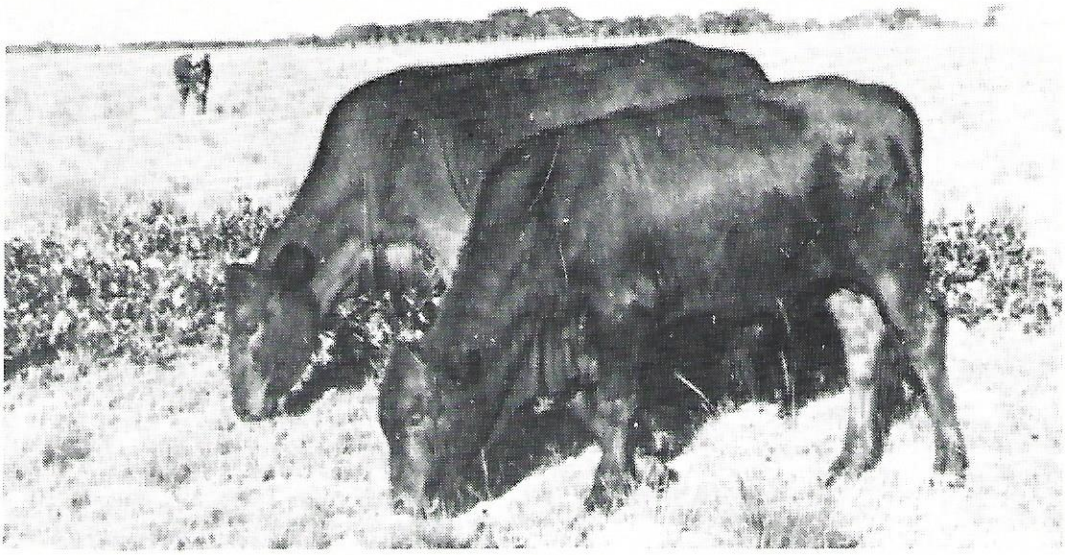
Good forequarters and head on a young bull.

MEET THE MASHONA



Right:
A well muscled young bull.

Left:
Mashona heifers on sandveld in winter. Under these conditions, the adaption of the Mashona to its environment shows to best advantage.

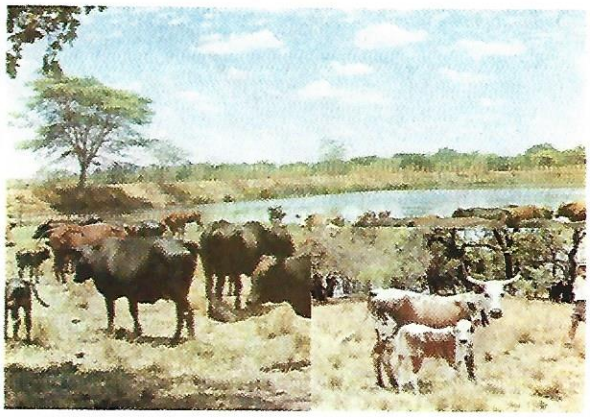


Right:
Highly efficient young Mashona cows. Midsummer mass 600 lb., calf weaner mass 416 lb. or 69 per cent of dam's mass.

Modern Mashonas

from Mrs. M. E. R. Colborne

Member of Beef Performance Testing Scheme.
All Bulls Performance Tested since 1961.



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RHODESIAN HISTORY IN CATTLE

A LETTER FROM JACK CARRUTHERS SMITH

Jack Carruthers Smith was one of three brothers with the Pioneer Column.

His interesting letter to Mr. Willoughby was unfortunately badly water stained and some of the words, in brackets, have had to be interpolated.

The letter is now lodged with the National Archives.

Lanark Hotel
Fish Hoek
Nov. 7th/49

Dear Mr. Willoughby,

You have asked me about the little Mashona cattle as they were in 1890. Personally I definitely think, and have always thought, that they were a distinct breed of their own, just as the Hereford, Angus, Jersey, etc. etc.

Now to go back to myself, and my excuse for telling you anything about them I went to Canada farming in 1888, and farmed there for about 20 months under my brother, John Stace Smith (who) learned his farming in New Zealand, (under) the old way they had there, viz: by paying a fee of two hundred guineas a year, under a recognised good farmer, this was in the late 1870s. I left Canada as we had to feed our stock six months in the year, and beef at that time was 3 cents per lb. (by the quarter), and I considered farming an unpayable proposition. I returned to Scotland, heard of the Expedition up to Mashonaland, and was lucky enough to join up, leaving for there in April 1890.

My first experience of Mashona cattle was in the beginning of 1891, and in all 1891, 1892, 1893 and until the end of March 1894, when I left for Bulawayo in Matabeleland.

I considered Mashona cattle a distinctive breed of their own. They were a very small breed, with very small and fine bone, very compact. They had lovely (little?) symmetrical horns.

I should think about 70 per cent of the cattle were jet black, 25 to 27 per cent dark red, perhaps 1½ per cent dark yellow, probably 1 per cent dun coloured. I never remember seeing the white backed colour amongst the pure Mashona.

Amongst the black, there was perhaps 1 or 2 per cent hornless and in the red an odd hornless beast. Mashonaland is of course a big country and where I was stationed and had my experience, was round about the Victoria and Zimbabwe District and Makouri and as far as (Inutetsi?) near (Charter?). Inutetsi was about 80 miles north of Victoria and Makouri was about 40 miles north of Victoria and now known as (Felixburg). From Makouri I was running teams near the Shashi River (where I found) the cattle all mixed (up) with the Matabele cattle (and were) the same little distinctive breed. (With the) Matabele cattle again, had been all mixed up Bechuanaland cattle, and odd Angoni cattle and you simply could not call them any breed at all. They were of all colours, horns all shapes e.g. bones big, horns very long and shapeless. The true Mashona, as I remember it, had very short legs, bone very fine, a long thin tail, with a bush at the end of it, not unlike the bush on a lion's tail. They were very straight on the back, and their rumps square, not the fall away rump of the Africander.

In 1892, I got a pure bred yearling, to fifteen months old (Strawberry) Shorthorn from two (old?) Irishmen who with their (nephew) had brought this little bull calve out from (as) I understand Ireland, as (a) calve. I had just started buying pure Mashona, that is young cows and big heifers, through a great pal of mine in Victoria, who was running a butcher's shop for Messrs Napier Weir. His name was Jack Robertson of Pitlochry, who was afterwards killed in Wilson's party on December 4th 1893. To the best of my memory the pure bred little Mashona gave about 1½ to two bottles of milk, at a milking, almost like (cream?). I only used to milk a few of my cows, and then only once daily.

I should think if I had milked them twice daily then full capacity would be 3 bottles of really wonderful milk. I must have had quite 40 cows, when I sold my complete herd to a life long friend of mine viz: Harry Long of Hillindon Farm, Selukwe, who also had Longdale Farm, Victoria.

Before I actually sold them some of the cows had calved down, and the cross was simply unrecognisable, wonderful in fact.

Later I saw young half breeds, they were fine animals.

In finishing up, I might say from the middle of 1892, to March 1894, I was Secretary and Store Keeper and in charge of all boys, to the Victoria District Gold Mining Co. Ltd. at Fern Spruit, Victoria, and had great chances of seeing many Mashona cattle, while I was recruiting boys for the Company. The standing price at that time was £4 (per) picked cow. Again while in the Laager in Victoria in July 1893, I bought a small herd of mixed Mashonas, 20 head for £20.

The Matabele were all round us and I had sundry mine boys in my charge which I put on to herd them round the Fort.

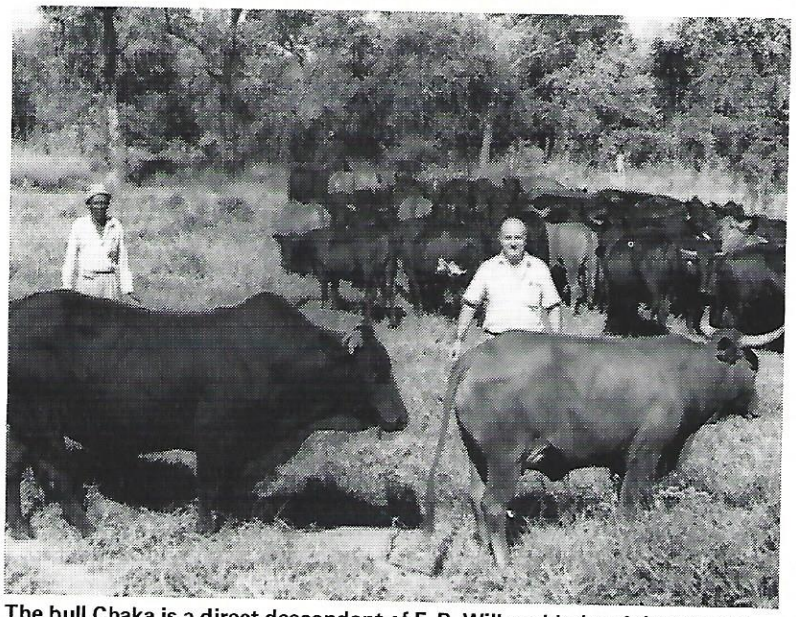
Hoping that these few notes may be of use to you.

Yours very sincerely,
J. C. Smith (signed)

My Rhodesian address is:
Carruthers Smith, Senior
Willock, Box 66
Selukwe, SR.

P.S. I might add that the hair on the Mashona cattle was very short, and simply shines. When in perfect condition, which in the early 1890s they generally were.

J.C.S.



The bull Chaka is a direct descendant of F. B. Willoughby's original Shona herd, and the cow is a direct descendant of the McLeod herd which started at the same time. The cows and calves in the background are also of McLeod stock, and it is believed that they are the only herd of pure Shona established in the Lowveld.

A VISIT TO ELLERTON

Home of F. B. Willoughby

By Ian de la Rue

Under this heading, Ian de la Rue writing his diary in the Rhodesian Farmer of 10th May, 1950, recorded his visit to Ellerton, the home of F. B. Willoughby. It was possibly the first time that a written description of what we call Shona Cattle today was published, with at the same time a description of Mr. Willoughby's unbounded optimism as to the future of the breed. No amount of scorn or ridicule ever ruffled his enthusiasm or his kindly manner and, the progress of the breed since the mid forties has vindicated his faith in his work and in his cattle.

It is a tribute to his work and his memory that these notes are as current today as they were 20 years ago when they were written. This then was the story . . .

"A visit to any farm where the owner is a keen breeder of cattle is always interesting, and especially might this be said of Ellerton, where Mr. Willoughby is developing the pure strain of Native Cattle. The first herds we saw were his black cows and calves in their paddocks, and one was impressed with the number of polled animals that were already apparent . . . well over 50 per cent at a guess . . . and among the younger stock an even greater proportion. He has found it difficult to get polled bulls up to the specifications he has set himself, and therefore relies on his cows to give this characteristic to their offspring. But he is saving his own polled bulls now, and there is coming forward a better selection from which to choose.

To the ordinary eye the animals might appear nothing different from the general run one sees in the Native Reserves, for they are small boned and small framed. But Mr. Willoughby has certain very definite points that each animal must pass before they can be considered uncontaminated by imported blood and therefore fit for his herd.

These points are interesting. The head and neck must be fine and even the bulls must not show undue heaviness. The legs must be fine boned and the hoofs small, and there must be no dewlap . . . an interesting point as this characteristic is very pronounced in the Afrikander. As the animal stands, the line of the back should slope down slightly from the hindquarter to the forequarter, and this forequarter must not be heavily developed.

The hindquarters can be either square or slope down towards the base of the tail: at this stage this characteristic is not important. But great importance is attached to the make and shape of the tail itself. The tail is as long and as thin as a sjambok, and finishes abruptly in a short bushy end. The length of the leg is not important, so long as the animal is well proportioned.

If, as a stranger, one had to name a noticeable characteristic, one would put first their docility. It was quite remarkable how tame they were, and although they were paddocked, one could approach and touch almost any beast as it stood. Mr. Willoughby is determined to maintain this as an essential part of his breeding. The other noticeable point was the freedom from eye trouble . . . a factor common to all native cattle.

The polled herds of red cows were similar to the blacks, though noticeable among them were two cream-coloured bulls. These bulls were imported from the Gwanda district, and it was considered that this variation in colour was warranted by their greater size and good conformation, even though this colour tends to show itself markedly in the off-spring.

Ellerton, which is situated 20 miles out of Salisbury, is ordinary sandveld with the type of grass that makes poor winter grazing. It is intended to maintain hardiness in the breeding herds by leaving them to forage naturally in the paddocks, and to wean the calves at about 6 months, so as not to impose unnecessary hardship on the mothers. It is hoped increasingly to feed these weaners through the winter, and likewise the slaughter stock to get added weight and maturity.

The calves and weaners of his own breeding stock did not strike one as being any larger, age for age, than what one is used to seeing among the better types in the Native Reserves in the lowveld; but Mr. Willoughby maintains that, though both bulls and cows at present may mature rather more slowly when reared on the veld, the size and weight of the oxen is limited only by the conditions under which they out grow.

The development of the pure strain of Native cattle is only in its infancy, and it is difficult to estimate the progress that may be made during the next 15 to 20 years. Different strains are likely to be developed in the different districts for the different conditions. In colour it would appear that Gwanda is concentrating on the cream, and in another Native area the black dappled and white dappled colours are being developed, just as Mr. Willoughby is breeding the separate herds of red-polled and black-polled animals. And all this is apart from the work that is going on with the dairy types.

Many of us tend to judge an animal by size and weight, and we find it hard to raise enthusiasm for smallness. But should not our output more rightly be

(continued on page 24)

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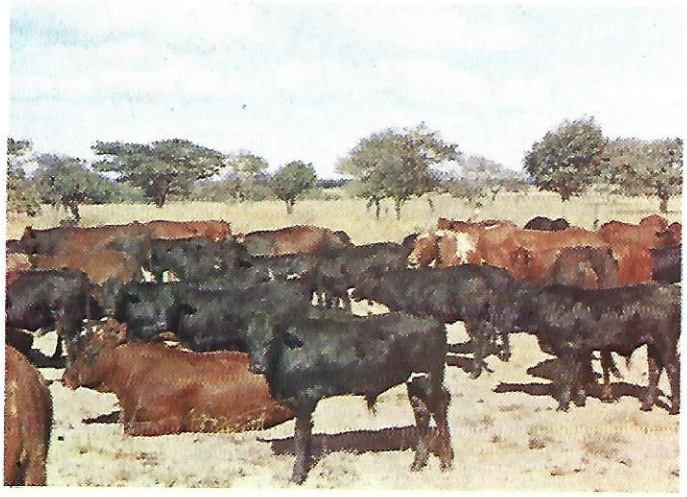
The home of hardy Mashonas. Leached Kalahari sand at 5 000 ft. altitude means real sourveld.



The Mini Mou with the Maxi Muru.
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PROGRESSIVE REGISTRATION

By Commander "Dick" Colborne *

I have often had to prepare a talk on our system of registration for field days and every time I do it I am impressed by its built-in guarantees to eliminate unfavourable material. It is a system without loopholes, if you stick to the rules. Every breeder has his favourites which blind his eye to defects, sometimes small and occasionally not so small. Let us assume that you intend to start breeding Mashona cattle with the aim of providing the cross-breeding market with a pure indigenous breed for maximum hybrid vigour with the following economic factors contributing to your cross bred steer and F1 female:

(1) A small size cow with low maintenance costs,
(2) A highly fertile female,
(3) With early puberty and conception,
(4) Easy calving and good milking qualities,
(5) Longevity and freedom from defects,
(6) Early maturity and grade-ability,
(7) A well-muscled carcass with optimum fat deposit.

Starting from scratch, you buy foundation stock from tribal areas and arrange an inspection with the Society.

Each heifer or cow is seen as an individual and accepted or rejected as a true Mashona type in the first instance on appearance only; all beasts showing exotic influence are thrown out. For your herd sires you go to an established breeder who can offer you bulls with this background: they will have been reared from cows with strict selection criteria behind them, and have been sired by a performance-tested bull; they will have been performance tested themselves for ability to gain and convert food — at Makoholi Experiment Station.

As a Mashona breeder it is obligatory that you join the Beef Performance Testing Scheme so that your cows and bulls are immediately recorded and identified for this purpose.

At the end of your first breeding season, application is made for your annual inspection, to have your herd sire's performance judged on his progeny. He will only qualify for registration provided he has a 90 per cent calf crop and 90 per cent of his crop are true to type, uniform and, an overall improvement on the quality of their dams.

It is still possible for your sire to fail at this stage, in spite of the care taken over his previous selection and, with cows of an unrecorded background this is quite likely due to the high standards required.

Your cows would only be eligible for registration after their second calf when, only those that have calved each of the two years are inspected with their yearling and their calf at foot, as a visible measure of the quality of her production. This is very telling in practice for the cow who produces a fine weaner her first year, may produce an indifferent calf the second year, showing clearly her inability to respond to her environment and/or management. So often we are impressed by a large well done calf and keep a pleasing picture in our minds of her first performance, but the inspector is faced with the facts as presented, and fails the dam for you. The just-under-average cow shows up clearly here too, when two calves are seen together, both manifesting the same weakness in conformation. This very telling picture goes a long way to culling weakness in conformation and the type you have set out to breed.

And again what a joy to see the good breeders bring in a pair of well grown and beautifully conformed progeny.

You may not be left with too many of your original cows this way, since they were, after all, completely unknown and rough, but those that you have left will set you up with a reliable breeding herd from which to start. This process of selection by inspection is available to you from unbiased and experienced inspectors who bring healthy first and second opinion on your own decisions. Each generation passes through this rigorous system of selection backed up by the results you obtain from the Beef Performance Test figures you receive back each year. So anyone buying heifers that have attained registration in Volume 2 or higher, should obtain valuable reproductive stock eminently suitable for putting to an exotic bull.

And this is what every established breeder is able to offer today. □

*President of the Mashona Cattle Society

A visit to Ellerton

(continued from page 21)

judged by how much beef we produce per acre? We have no reason to believe that a well grown Native beast is not an efficient transformer of grass into beef, nor that his weight increases in terms of grass eaten is much different from other breeds. The smaller animal needs less food and water, and therefore proportionately more can be kept on the same area. We must admit that the death rate is likely to be considerably less, and Mr. Willoughby claims that the birthrate is a good deal more. It would, therefore, seem reasonable to expect that his output in pounds of beef per acre might easily beat normal ranch cattle under similar conditions.

We have seen before that the total output of dressed beef, taking the whole area of the colony, is less than 1 lb. per acre per year. Under good ranching conditions, it can be as high as three pounds in our area. A big rancher in the Bulawayo area, who does a lot of feeding, told me several years back that his output was averaging five and a quarter pounds per acre, but lately droughts have thrown more recent calculations to the winds . . . figures that at best seem appallingly low.

Later on, the records of Ellerton will make interesting reading". □

CROSSBREEDING for MAXIMUM RETURNS

By A. T. Stubbs

Interest in cross-breeding is running high at the present time as beef cattle breeders seek to maximise their returns in the new more favourable economic climate. The importation in recent years of ever increasing numbers of exotic breeds new to this country has stimulated this interest further, and the question often asked is how best to use these breeds in cross-breeding programmes. Many people have also been aware, sometimes rather vaguely, of the merits of using indigenous cattle in cross-breeding programmes but due, perhaps, to lack of specific evidence on the best way to use them full use has not been made of our genetic resources.

Cross-breeding has been practised in Rhodesia since the early days of farming when imported animals were crossed with native stock in attempts to improve their productivity. Results of these early crossing were often quite spectacular, as one might predict with today's knowledge of hybrid vigour, particularly between such widely different types of cattle. The outstanding result was however usually attributed to the introduced breed, so that most cross-breeding became a so-called "grading-up" process to one or other (or several together!) of the introduced breeds.

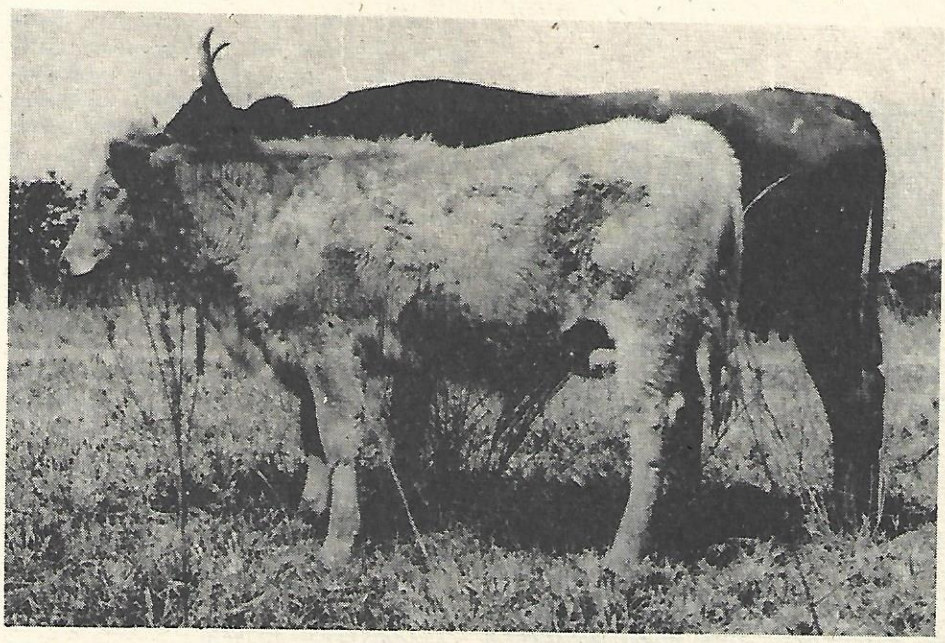
Systematic cross-breeding plans have been notable for their absence and consequently heterosis was often rapidly lost with a resultant loss of performance. A second factor causing decreased performance was a decrease in adaptedness to local environmental conditions, as the proportion of exotic blood increased. This process is well illustrated by the following passage from an article by Ian de la Rue.

"I remember an old pioneer hand in the middle thirties saying to me: 'Ian, I don't know what goes on with our cattle. The finest cattle I ever produced were the first calves I bred from native cows . . . ever since then, buy what bulls I like, my cattle always seem to go backwards. It worries me that when I die my last cattle will not be as good as my first'."

Although most-crossbreeding was rather haphazard, its contribution to improved production has been significant, as such well-known crosses as the Sussex-Africander testify. There is no doubt also, that the genetic contribution of the hardy indigenous cattle to the establishment of the national herd has been substantial.

Table 1. Cumulative effects of hybrid vigour

Increase in % Weaned		% Increase in Weaning Mass		% Increase in post Weaning		% Increase production per cow
8%	+	15%	+	3%	=	26%



Almost as big as mother and only 7 months old!

For the future, cross-breeding has great potential. Rhodesia is richly blessed with genetic resources which can be utilised to maximise the benefits of cross-breeding. To do so requires planning the breeding programme so as to best combine the two principal advantages of cross-breeding, i.e *complementarity* (or trait matching), and *heterosis* (or hybrid vigour). Failure to take advantage of these two key principles negates the benefit from crossbreeding.

Hybrid Vigour

This is the first advantage of cross-breeding normally considered, although it is not necessarily the most important. Hybrid vigour can be →

described as the increase in performance above the average of the two parents used in the cross. Selection for high performance in the parent breeds remains important, since hybrid vigour merely adds a bonus to the basic performance. The size of the bonus is dependant on the trait involved, but in many cases it will not compensate for lack of selection. Recording and performance testing should be continued in a crossbreeding programme, as well as in the straightbred herds supplying animals for cross-breeding programmes.

Various traits exhibit different amounts of heterosis which is generally highest in those traits with low to medium heritability. An economically important group of traits in this category are those associated with reproduction, early calf survival and mothering ability. While each of these traits shows heterosis, it is the cumulative effect which has greatest economic impact. Cumulative effect is illustrated in Table 1.

Complementarity

Matching the traits of breeds so that a high number of desirable traits are combined, or alternatively, so that deficiencies in one breed are covered by strengths in another, is a vitally important aspect in planning a cross-breeding programme. It is an aspect often neglected, perhaps due to a preoccupation with hybrid vigour.

No breed is ideal for all conditions. Examination of Table 2 shows a wide range of variation between breeds.

A fair amount of work has been done on rating the economic importance of various traits. Fertility, weaner mass, yearling mass and growth rate have been shown to be economically important. Because of the complex nature of whole production systems however, little work has been done to find the most economic combinations of traits in a production programme from breeding through to slaughter.

Table 2 Breed Characteristics*

	Her.	Char.	Sim.	Af.	Bra.	AA.	'Tuli	Nkone	'Shona
Rapid growth & large size	+	++	++	−	−	0	−	−	−
Small size & low maint. cow	0	−	−	+	0	+	+	+	++
Highly fertile fem.	+	−	+	−	−	++	++	++	++
Highly fertile males with libido	+	0	+	−	+	++	++	++	++
Early puberty & conception	+	0	0	−	−	++	++	++	++
Good milking qualities	−	0	++	0	0	0	0	0	0
Ease of calving	+	−	0	++	++	++	++	++	++
Carcass quality: (1) early mat. & grade-ability	++	+	−	+	+	++	+	+	++
(2) late maturity, lean muscular	−	+	++	0	0	−	0	0	−
Adaptability to Environment: (1) Extensive	0	−	+	++	++	0	++	++	++
(2) Intensive	+	++	++	−	−	+	−	−	?
Docile temperament	++	++	++	0	−	0	0	0	0
Longevity & freedom from defects	+	0	−	++	−	0	++	++	++

++=outstanding; +=above average; 0=average; −=below average.

Clearly there is a wide range of possible combinations for a cross-breeding programme. It should be noted that complementarity is not in itself necessarily advantageous, the correct combinations are required.

* After G. Harwin; Additions by the author.

Mr. J. D. R. Lashbrook (left) and Mr. W. H. Lashbrook with the prize-winning carcasses.

The effect of cow size and growth rate of the breeds used has recently been investigated in a simulated cross-breeding programme by workers in the USA. The effects of both complementarity and heterosis on economic returns were calculated for different systems of cross-breeding and compared to straight-breeding. Some preliminary results are referred to here.

Systems compared were:

Straight breeding
Simple 2 breed crossing (selling all progeny)
2 breed criss-crossing
3 breed crossing →

Breeds characterised as small (S) medium (M) and large (L) were considered within and between these categories. Pasture and drylot regimes were included, but only the pasture regime of the trial is quoted here, since the drylot regime for breeding females has very limited application.

Results

Evaluation of the cross-breeding systems tends to confirm that heterosis in the progeny, heterosis in the dams and complementarity *all* tend to increase measures of efficiency.

Results are expressed as deviations from the medium (M) group of straight breeds in the following table.

Rhodesian Conditions

It would obviously be best to carry out a similar study using local data. Scrutiny of this analysis, however, does lead to the conclusion that there are sufficient similarities in conditions to enable the results to be used as a guide.

How do the results relate to Mashona cattle?

A substantial advantage for small cows in cross-breeding systems is shown. Complementarity in this case relates essentially to size and growth rate. The combinations using small, efficient, low-maintenance cows, bred to sires producing fast growing progeny appear to be the economically mos advantageous systems. Other factors such as adaptation to environmen fertility, calving ease, calf livability disease resistance and longevity, whic are not taken into account, can b considered as additiona complementarity advantages fo Mashonas in a crossbreedin programme with Bos taurus type cattle

Hybrid vigour, using indigenous typ breeds with exotic types, can b expected to be greater than tha allowed for in this analysis, thus furthe increasing the advantages of the cross-breeding systems.

Points to note on cross-breeding

Attractive advantages are available from cross-breeding systems. These systems are, however, of necessity more complex to apply in practice than a straight-breeding programme. Unless management, nutrition and recording are of a high standard, much or all of the advantages of cross-breeding may be lost. □

Table 3. Numbers, livemass produced, profit and return to investment for systems of production as deviation from the M system within the pasture regime

Breeding System		Deviation from M Pasture			
		Live wt. No. MT		Profit $	Return %
Straight	S	++	++	+	0
	M	0	0	0	0
	L	– –	– –	–	0
Single Cross	SS	++	++	++	+
	MS	+	+	++	+
	LS	+	+	+++	++
	SM	0	+	+	+
	MM	0	+	++	+
	LM	–	0	++	++
	SL	–	–	0	0
	ML	– –	0	0	0
	LL	– –	– –	0	+
Rotational Cross	(SS)	+	++	++	+
	(MM)	–	+	++	++
	(LL)	– –	– –	+	+
	(MS)	+	+	++	+
	L(SS)	0	+	+++	+++
	L(MM)	–	0	+++	+++
	L(MS)	–	+	+++	+++
Terminal Cross	LSS	0	+	+++	+++
	LMM	–	0	+++	+++
	LMS	–	+	+++	+++

Deviations from M group: +++ outstanding
++ well above
+ above
0=close to M group
– below
– – well below

THE SECRET WEAPON

WHY IS THE MODERN MASHONA MAKING SUCH A RAPID IMPRESSION ON RHODESIA'S BEEF INDUSTRY?

IT'S ALL IN THE BREEDERS' CLAIMS JIM FOBBESTER

THE meeting came to order and the business was conducted with meticulous precision, rather like a formal luncheon with the CO for junior officers in a Brigade of Guards mess. The members at the meeting responded exactly on cue.

"Minutes of the previous meeting?" queried the Chairman, raising an interrogatory eyebrow.

"Move their adoption, Mr. Chairman," responded a Member with alacrity.

"Second," came a voice, a melow descant to the harmony of the impressive ritual.

"Against, if any?" the Chairman's steely eye caught the attention of the Members, each alert to his responsibility, waiting to see if a Companion would challenge the veracity of the words recorded on the crisp, white paper. Words which were destined to be carried unsullied down the hallowed corridors of time.

The fractional hush might have been an aeon of time, so still was the moment, so fraught with expectancy the mood.

"Carried." The decisive tone of the Chair lashed the purified and conditioned air, bringing Members to a greater degree of readiness. ". . . Unanimously," continued the Chairman in a quieter tone; he revolved and inclined graciously to the right, like a Prussian Emperor acknowledging the presence of a foreign plenipotentiary in his court. The Secretary's venerable head bowed gently in acknowledgement of the desires of the Committee.

Back to action.

"Matters arising?" demanded the Chair.

"Mr. Chairman, on the question of Minute 293, your sub-committee had investigated the situation and recommends that the Association does not alter its present terms of reference and we so move."

"Second," interposed a calm and authoritative voice from a dark corner of the panelled boardroom.

"Any questions?"

Silence.

"Any discussion?"

Silence.

"In favour?"

A ripple of approving "Ayes" fluttered about the gleaming conference table, a verbal caress for the sub committee.

And so the meeting crackled through its business. Crisp. Succinct. No detail forgotten, no item overlooked. And through the staccato commentaries breathed an air of friendliness and goodwill. The deep pile of the lush carpet supported the feet of men who knew where they were going: secure in the perfect knowledge of their future.

Under the heading of "Any other business" came me.

From the three and a quarters minutes from when my topic was raised to the time when the meeting was closed and I was being shepherded to the sumptuous bar for a privileged cocktail with the Members, the decision had been made.

As a matter of policy the secret of the Modern Mashona was to be published. And I was the man to do it.

His strong right hand cradling a leaden crystal goblet in which was suspended a gently gleaming amber liquid, the Chairman leaned forward in his club chair and patted me on the knee. "There they are, my boy," he said, and I could have sworn that there was a catch in his voice. "There they are. The secret of the Modern Mashona." His eye surveyed the rugged countenances of his Committee Members. "They don't look much, but they are all I have."

The deed was done. A page in the new Handbook, 'The Modern Mashona' was to be set aside to portray the lives and

works of the men who had founded the breed, who had bent their backs to the wheel and after years of labour had raised triumphant eyes towards a bright horizon.

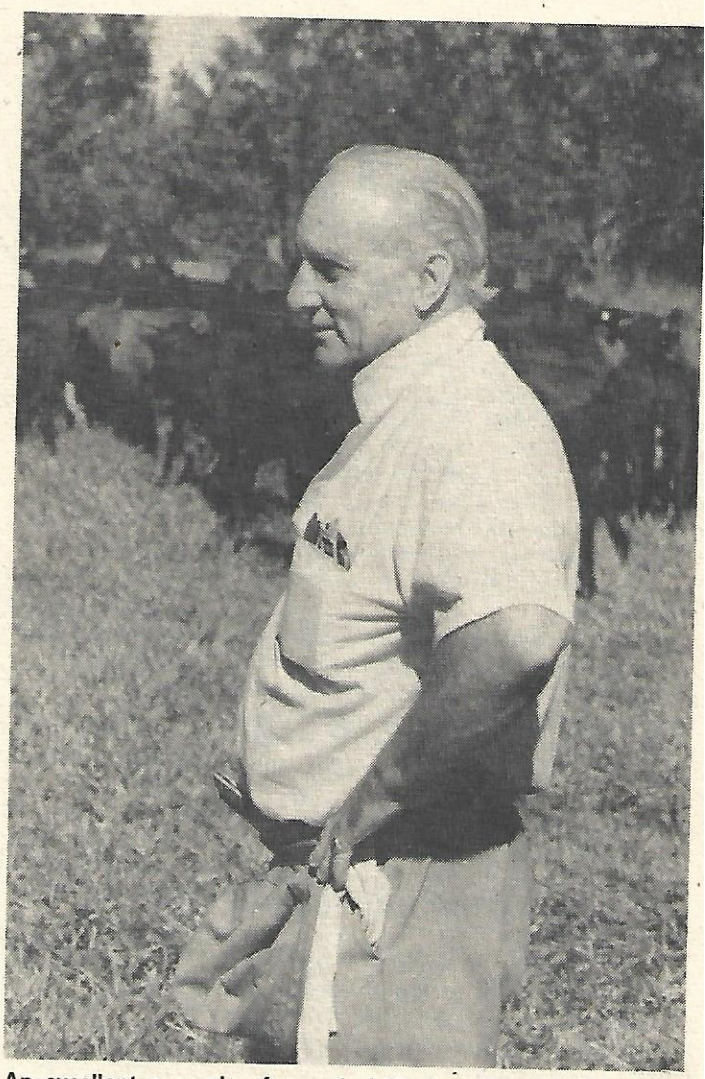
Each member was to provide something by way of background and a photograph to accompany his story. The words "curriculum vitae" have always made people a little sensitive: they have simultaneous connotations of singular and plural. Getting the life history of skilled breeders is also likely to make people a little sensitive. It seems that those rugged, hardworking men are better orientated towards the great outdoors than to recognition of their own talents. I gather that once they have completed their hard day's toil in the bundu they prefer to retire behind a glass of beer, shunning the bright lights which are so dear to the extrovert.

Each contributor to 'The Modern Mashona' was invited to let us have a photograph and a brief look at his life and preferences. In response we received: nothing.

Some of our friends and contributors thought that they could deflect the dreaded glare of the limelight by making oblique references to their fellow breeders. "Why don't you try old so-and-so, he is a first class fellow and an absolute expert on the breed.?" Such confidence in people who might be considered to be competitors was particularly heartwarming. It gave me a somewhat sentimental feeling, a recognition that the true old times were not yet dead. But this cameraderie did nothing to swell our pages, it certainly did not produce a series of pen pictures of our senior Mashona breeders.

In the absence of co-operation, then, here is our secret survey of the secret weapon of the Modern Mashona. These 'facts' have been gleaned from midnight burglaries, continuous surveillance exercises by private eyes, and created from statistics which I have just invented. Here, for the first time in any theatre on this or any other continent, Laydees ern Gerremun, the complete secret: IT'S ALL IN THE BREEDING!

Let us look, for a moment, at a few breeders:



An excellent example of a typical Mashona breeder. Note the excellent condition; the high, intelligent forehead; and the general air of enthusiasm. This particular breeder is so much in demand that it has been selected to present a number of papers to an international cattlemen's conference in 1975.

Conformation type one:

Of rugged construction, he has a good bone structure and is still capable of hard work. The abdomen tends to be somewhat distended, well endowed with adipose tissue. The limbs in this type are usually well grown, but are often found to exhibit a certain measure of flaccidity. The skin is of a somewhat coarse and reddened texture with a good covering of curly hair. The head is strongly built and can be expected to be pointed at the crown. The forehead is shallow, the ears small and flush.

Conformation type two:

Although still clearly identified as coming closely with the Mashona standards of excellence, this breeder, the Type Two, is inclined to be narrower in the flank than the Type One. The limbs are not so well developed, although the muscle cover is somewhat firmer. The skin is finely grained, but there is little excess hair. The head is rather narrow and, in certain circumstances, the teeth are long and narrow and match the general shape of the head. The eyes are set wide apart and have a glassy, vacant look. There is considerable bone structure between the ears.

Conformation type three:

This breeder is short in the barrel, well boned and compact. The abdomen is pendulous and flaccid and more pronounced than in the Type One: it often has to be restrained by the application of a wide leather belt. The maximus gluttinus is over-developed and extensive. Skin covering is good, but lacks pigment. Hair is adequate, but of a wiry consistency, often exhibiting a yellow or reddish colouring. Muscle development along the spine is good, particularly from the occipit down to the first lumbar vertebra: in relaxed stance this muscular mass gives the appearance of a good quality cervical hump. Closer examination, however, will disclose a deterioration of the tissue.

Conformation type four:

The Type Four is deceptive in appearance, as from the front it appears to have a somewhat square structure, while from the side it seems to have a purely vertical dimension. This

(continued on page 32)

WEALTH IN THE TTL's

By P. A. Davies

The author Mr. P. A. Davies of the Ministry of Internal Affairs.

The tribal herd of + 2,5 million head of cattle which are at present depastured by the ±600 000 cultivators throughout the 16 200 000 hectares of tribal area (165 tribal areas), surely constitutes one of Rhodesia's greatest natural resources, and potentially one of its most valuable sources of production.

It is still the policy of the Ministry of Internal Affairs to encourage the tribesmen to preserve and to maintain their indigenous types of cattle (the Mashona, the Nkone and the Tuli) and this will continue to be so until such time as the management and the environmental aspects of tribal areas have improved considerably, and when perhaps other breeds or crossbreeds may be recommended for certain areas and for specific purposes.

Unfortunately in certain areas today the national pool of indigenous blood has been considerably dissipated and diluted, mainly due to the effects from neighbouring exotic type herds and from earlier misguided "genetic improvement" programmes, through the introduction of grade exotic type bulls. However there still remain many areas containing valuable indigenous tribal herds, and every effort is being made to preserve these and to propagate from them.

The aim of the Ministry is to eventually ensure that the tribal cattle herd becomes economically viable, and one that regularly contributes its fair share towards Rhodesia's national economy. Thus the tribesman, despite his current customary and spiritual atitudes towards his animals, must eventually become convinced that his cattle consitute a most important cash crop, and one, that when correctly managed, will ensure for him a regular cash income.

The socio-economic aspects, and the management, breeding and thus all the genetic and environmental aspects of livestock production are all of great importance when carrying out animal husbandry extension and education throughout the tribal areas.

Overall mismanagement is practically universal of course, but the main *technical* factor which inhibits anything like potential production is the situation created by the uncontrolled and indiscriminate breeding, which is unavoidably prevalent throughout all the communal tribal areas, among the multitudes of small fragmented and uneconomic livestock holdings. This situation is even more aggravated by the fact that there is always far too much rank inferior male breeding stock allowed to assist in the degeneration of all the herds concerned.

However the Ministry has now embarked upon a positive and realistic policy of cattle and agronomic extension, which is being concentrated within relatively small tribal group development areas, where response to extension is forthcoming rather than the somewhat negative "blanket" approach. It is far more feasible and possible to improve the localised cattle herds through properly planned and supervised livestock programmes, such as veld management schemes, group feeding schemes, supplementary feeding, crop-livestock integration and, localised disease and tick-control exercises.

It is from these specific development areas that considerable improvements are being, and will be evolved. These areas will eventually, for example, provide sources of valuable breeding stock for outside breeders (both for pure stock, and for cross-breeding purposes), and could provide weaners, say, for processing by other development areas or individual farmers.

At this stage there may not be a great demand, or an ability on the part of many African cattle-owners to register any suitable animals that they may have, but it is envisaged that certain development areas would benefit by, and be willing to purchase registered animals for the improvement of their localised herds.

A much closer liaison and association between the Ministry and the indigenous breed societies is highly desirable, and it is intended that the former will in future take every advantage of the offers from the societies to assist in the promotion and the preservation of the respective indigenous types.

The Ministry welcomes any advice from Society members, such as giving lectures, attending field days and shows within livestock development areas, and therefore benefiting selected groups of tribal farms and their cattle.

The Sanga type cattle are ideally suited to Tribal Trust Land conditions. Their natural high fertility and disease resistance, their agility and ability to graze and to browse over such wide extremes of conditions, their natural selective background, and their productive output per acre (rather than per beast), makes them just this.

When it is considered that the annual commercial yield of the 2,5 million tribal cattle should be nearer 12 per cent than the present 4 per cent, and that with proper management the unit value could easily rise from, say, $40 to at least $60, it can be deduced that the real income potential of these cattle should be somewhere in the region of $20 million. A far, but feasible, cry from the present annual output. □

GRAZING SYSTEMS IN CHIBERO

Prior to the 1966/67 season all the Mashona cattle grazed mainly on veld but the limited production from unfertilised Sabi panicum was also utilised when available.

By the 1966/67 season it had been decided to over-winter weaner calves in pens and feed them on maize silage, hay and concentrates to allow them to gain about 0,25 kg live mass per day. The summer grazing for yearlings (as much as the season would permit) was to be on fertilised Sabi panicum pastures. This system would remove considerable grazing pressure from the limited area of veld.

From 1966/67 to 1969/70 the yearlings were stocked at 10-12 beasts per hectare and the live mass gains in kilograms per hectare for the beasts from summer grazing seasons were as follows:

654, 325, 865 and 710 respectively. The poor production in 1967/68 was due to a reduced rainfall of 490 mm. The margins for 1968/69 and 1969/70, over costs of pasture establishment and fertiliser applied were $63 and $67 per hectare respectively.

In the 1970/71 season it was decided to establish 16 hectares of star grass pastures for summer grazing for the cows with calves at foot and six hectares for the summer grazing for the yearlings.

In 1971/72 the 16 hectares, divided into 4 x 4 hectare paddocks, were fertilised and rotationally grazed by the cows and calves at a stocking rate of 7 LU per hectare. The grazing season lasted 118 days and gave 510 cow days per hectare. The yearlings were grazed at a stocking rate of 10 LU per hectare and made similar weight gains to previous years. With the yearlings the indications, in one year of good rainfall, were that the summer grazing stocking rates on fertilised star grass pastures could be twice the stocking rate achieved on fertilised Sabi panicum pastures.

The 1972/73 season was so poor for rainfall that the grazing for the breeding herd lasted 91 days only and the number of cow days per hectare was reduced to 391. The yearlings had to be grazed on lands other than star grass pastures and therefore live mass gains from fertilised pastures are not available. □

WHO BREEDS MASHONAS?

Aston, J. R., Box 216, KAROI.
Barron, A. T., P/Bag 8521, BANKET (Gomo Estate).
Chibero Agricultural College, P/Bag 901, NORTON.
Colborne, Mrs M. E. R., Box 95, BANKET (Woodleigh).
Domboshawa Training Centre, P/Bag 1, BORROWDALE.
Fertyline, Box CH 88, Chisipite, SALISBURY.
Gifford, P. T., Box 624, GWELO (Kabanga Ranch).
George Kileff & Sons (Pvt.) Ltd., Box 1944, SALISBURY.
Harvey, R. K., P/Bag 9017, GWELO (Nyororo).
Hodson, L. M. N., P/Bag 451G, SALISBURY (Tor Fell).
Morley, C. P., Box A 87, AVONDALE (Hidden Valley).
Stuart & Roulston, P/Bag 525, UMVUKWES (Umsengedsi Estate).
Waterloo Farms (Pvt.) Ltd., P.O. Waterloo, VIA MACHEKE.

The secret weapon

(continued from page 29)

breeder is known as 'the squarehead' and although at first it is of rather formidable appearance, it is quite docile and is easily managed. Shape and docility make for slow movement and this type of breeder often comes to a halt for prolonged periods of time. Such lack of activity can be disturbing as it can be interpreted as the disease known as *premature demise*. In cases of doubt a thorough medical examination is advisable before interment.

General conclusions

Skilled breeders are very much in demand, and should be handled with considerable care. It is not unusual to provide three *ad lib* meals daily, and even to change their bedding every month. The Mashona breeder responds well to good, firm management and is not averse to physical handling after a degree of training.

As it matures, the Mashona breeder tends to become excited in the presence of young females, and in case of extreme nervous tension has been known to bite pieces from glassware and furniture. The condition is readily recognised by the perspiration which forms on the brow, general restlessness and breathless panting through the nostrils. The best treatment is liberal dosing with a liquid prepared from hops, barley and sugar fermented with yeast. The Mashona breeder finds this remedy extremely palatable, and care should be taken not to exceed the recommended dose.

Overall, the Mashona breeder finds a high degree of technical excellence and can be expected to work well for considerable periods of time. Work must always be interspersed with periods of rest. Whatever the Conformation Type, the Mashona breeder must always be treated with care and attention, and, in certain cases, responds well to affectionate handling. A thoroughly good, all-round type. □

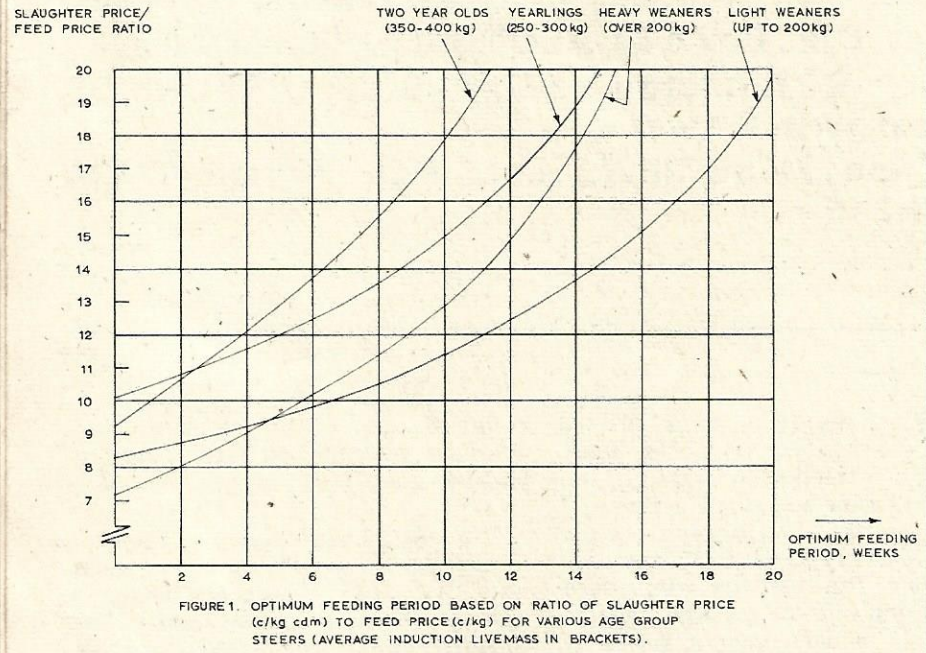


FIGURE 1. OPTIMUM FEEDING PERIOD BASED ON RATIO OF SLAUGHTER PRICE (c/kg cdm) TO FEED PRICE (c/kg) FOR VARIOUS AGE GROUP STEERS (AVERAGE INDUCTION LIVEMASS IN BRACKETS).

This graph gives an accurate indication of the performance of a better quality Mashona breeder in terms of age, mass, conformation and experience.

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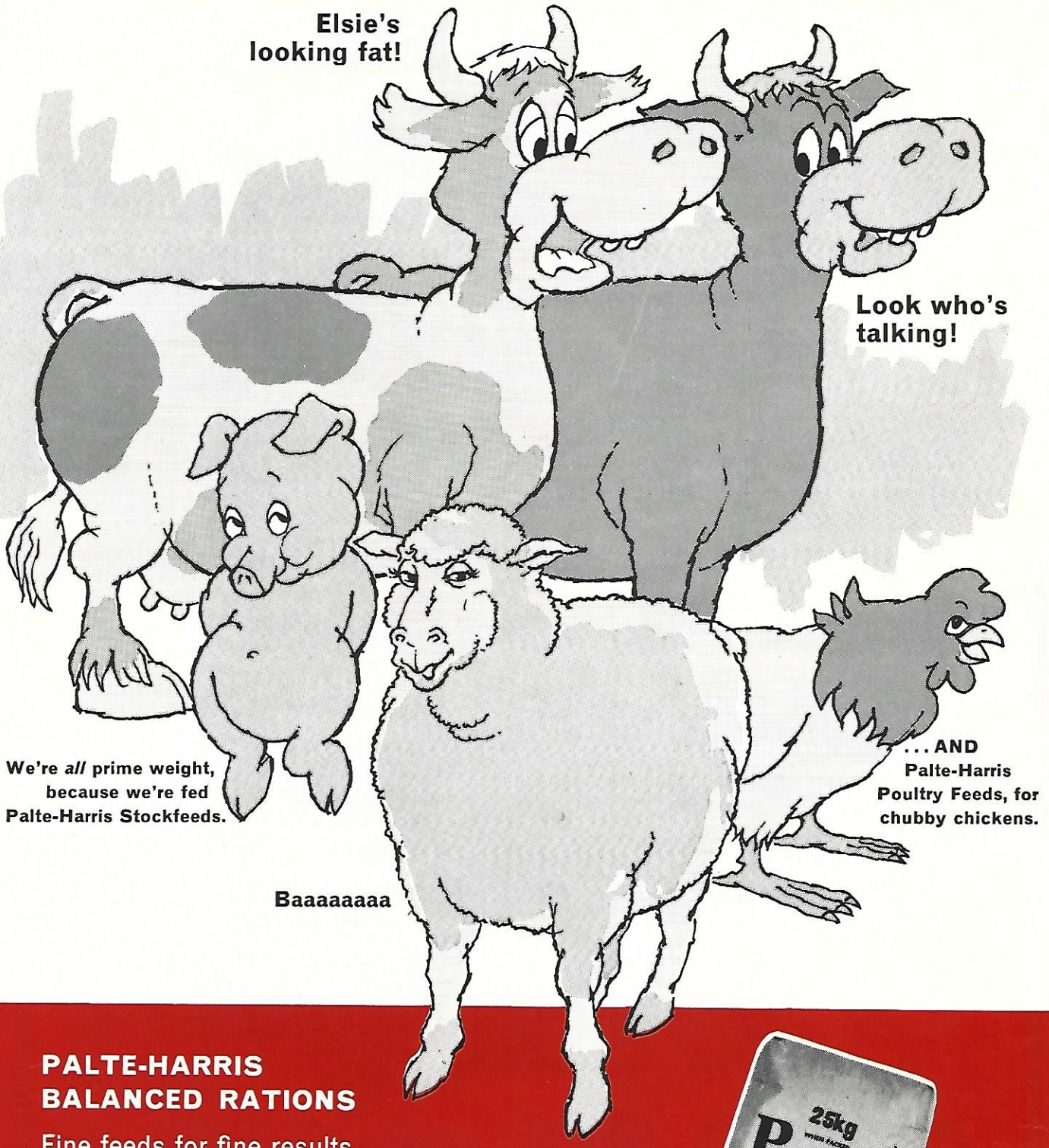

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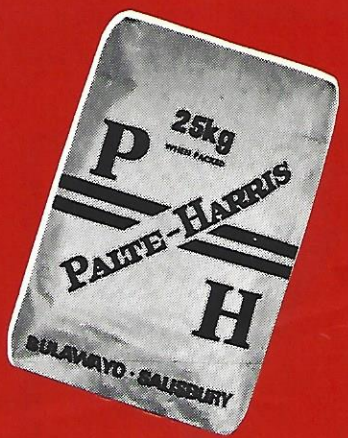

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