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Retarded Growth and Mature Size of Beef Steers

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FOREWORD

The experimental work we are to describe was outlined and initiated in 1914 by F. B. Mumford and P. F. Trowbridge. During the years 1914-26 a number of individuals have rendered important services in connection with the project, and it is a source of regret to the author that he is unable to acknowledge the contribution of each of these individuals. The author's connection with this experiment began in 1920, and it is with pleasure that he accords special mention to W. D. Salmon, C. I. Skouby, M. G. Snell, and W. E. Sewell. We are none the less grateful, however, to all those who have in various ways contributed to the success of this endeavor.

Retarded Growth and Mature Size of Beef Steers

A. G. HOGAN

Of all physiological phenomena none is more impressive or important than that of growth. An enormous amount of study has been devoted to its various phases, and these have yielded exceedingly important results. Our chief concern in the past has been with "normal" growth, though we may digress sufficiently long to point out that it is probably impossible to define with any exactness what normal growth is for any species, breed or race, or even strain. Special emphasis is placed on this statement by recent announcements of unusually rapid rates of growth in two different classes of animal life. However that may be, those immediately concerned with growth have generally assumed that anything less than normal growth is a permanent handicap to the individual concerned. It is with this viewpoint that we are now chiefly concerned, the permanency of the effects of arrested development, especially as regards the mature size of the individual.

Review of Literature

This is certainly a very old problem, but so far as can be judged by physiological literature, it is comparatively recent. One of the first contributions on this topic is that of Waters,¹ who noted that calves underfed to such a degree as to prevent any gain in weight would nevertheless continue to grow. Aron² reported that young dogs fed on a restricted diet continued to grow in dimensions, but the rate of growth decreased and the ultimate size was permanently depressed. In later observations³ on rats the same conclusion was reached; that prolonged underfeeding through the usual growth period results in permanent damage.

Osborne and Mendel⁴ used rats in their experimental work, and retarded growth by feeding inadequate rations. Some contained incomplete proteins, some were satisfactory in quality but inadequate in quantity, and others were deficient in vitamins. They noted that after prolonged underfeeding, and suppression of growth, the growing period was prolonged, and that the animals were able on refeeding to attain the characteristic normal weight and size. They also suggested the possibility that within reasonable limits the capacity to grow may not be lost until it has been exercised.

Eckles and Swett⁵ made some observations on the underfeeding of dairy heifers, and were not in entire agreement with Osborne and Mendel. They also observed that long continued underfeeding is followed by a lengthening of the growing period. If subsequent conditions are favorable there is a strong tendency to overcome previous stunting, but the recovery is seldom complete and the mature size is slightly depressed.

Jackson and Stewart⁶ subjected rats to underfeeding and reached essentially the same conclusion as Aron. Severe underfeeding early in life was followed by a permanent decrease in the mature size. Such underfeeding early in life was more damaging than late in life, and the longer the period, the more severe were the after effects.

Moulton, Trowbridge and Haigh⁷ reported the growth of steers that had been reared on different planes of nutrition. The scantily fed steers reached the same height (at withers) as the others, but of course at a somewhat later age, by lengthening the growing period. They stated, however, that the length of body was somewhat less than normal. None of their animals was under observation for more than about 4 years.

Experimental

The plan of this experiment provided for the placing of steer calves of beef breeding on three planes of nutrition, determined by quantitative differences in the feed supply. The first plane was one calculated to allow normal vigorous growth without fattening, or one pound daily gain. The second group had access to a sufficient amount of food to gain one-half of a pound daily and were on a medium plane of nutrition. The third group was placed on a very low plane, being allowed to gain one-third of a pound daily. Members of the two underfed groups were to be fed out after underfeeding periods of varying lengths.

Quarters were four dry lots sloping to the south from an adjoining shed, with a southern exposure. Feed troughs were arranged so as to be accessible from the rear for feeding operations, and stalls and stanchions were arranged so the feed consumption could be measured.

The calves were fed whole milk at the outset and gradually changed through skim milk to a grain and hay ration at approximately 180 days of age. The grain ration consisted of corn 60 parts, wheat bran 30 parts, and linseed oil meal 10 parts. Timothy hay was the first roughage offered, but was soon replaced by a hay-straw mixture of alfalfa hay 60 parts, and oat straw 40 parts. Feed was offered twice daily, and salt was then accessible. Water was available at all times except when the steers were confined to their stanchions.

Weights were taken each morning, after feeding, but before watering. A summary of the weights of the animals and of the amounts

of feed and nutrients consumed, is given in the Appendix. The animals themselves are described in Table I.

TABLE I.—DESCRIPTION OF ANIMALS

Steer No. and group	Date of birth	Date placed in Experiment	Date placed on full feed	Last observation
520-I	5-11-14	6-11-14		6-15-17-x
528-I	5- 8-14	6-11-14		10-30-21-xx
579-II	5- 2-14	5-30-14	4-12-22	5-26-23-xx
580-III	4-24-14	5-22-14	5-16-17	7-24-18-x
583-III	4-28-14	5-22-14	5- 6-16	3-26-19-x
585-III	4-26-14	5-22-14		12-27-23-xx
586-III	4-21-14	5-22-14		7-25-18-x
587-II	5- 3-14	5-30-14	5- 2-16	6-25-17-x
571-II	3- -17	8- 5-17		2-7-25
572-III	5- -17	8- 5-17	11-17-20	2-7-25
573-II	4- 17	8- 5-17	11-17-21	2-7-25
574-III	5- -17	8- 5-17	11-17-21	2-7-21
575-III	5- -17	8- 5-17	1-31-24	5-15-26
577-I	3- -17	8- 5-17		9- 4-24-xx
578-II	5- -17	8- 5-17	11-17-20	2- 7-25

x-Slaughtered—These steers were still growing rapidly when killed, and are given only very brief consideration in the following pages.

xx-Died.

Nos. 528, 583, and 585 were Herefords and Nos. 571, 572, 573, and 574, 575 and 576 were grades of that breed. Nos. 571, and 586 were Shorthorns and Nos. 520, 579 and 577 were grades of that breed. No. 587 was a Hereford-Shorthorn cross.

THE MEASURE OF GROWTH

Growth as indicated by skeletal increase was measured with specially constructed instruments. In the original choice of the measurements to be taken, as much care as possible was exercised in selecting those least affected by the degree of fatness of the animal. Cross section outlines were taken by means of an adjustable chain, and transferred to paper. Skeletal growth was recorded once each month and cross sections and photographs taken each third month. From the thirty different measurements taken we have selected seven that seem most suitable for our purpose, and a portion of these is reproduced in the Appendix.

Cattle, as other animals also, are quite variable both in mature size and rate of growth, so large numbers of animals would be required in order to define with precision the effects of underfeeding on mature size. Only ten steers in all were kept under observation until growth had ceased, or had practically come to a standstill, so while the results in general are clear, they can not be expressed in a quantitative manner.

So far as deciding as to the permanence of the after effects of underfeeding is concerned, two variables may be considered, severity of underfeeding, and length of the period of underfeeding. The age at which the underfeeding begins may also be an important factor, but in the cases

we are to describe this did not vary enough to merit special consideration.

Since the amount of feed allowed these steers, and so their gains in weight, was determined by the groups to which they were assigned, there is little to be said concerning the live weights. Although periods of relatively rapid and slow gains followed each other, the increases taken over the entire time represented, were fairly uniform in each group.

Since, for the present, we are concerned primarily with growth rather than with fattening, our attention will be directed chiefly to a comparison of measurements. These indicate true growth much better than weight, but even measurements leave much to be desired. Most of those taken vary to a considerable extent with the degree of fatness, and most of the others are variable, due to the fact that it is impossible to have the animals stand in exactly the same position each time they are measured.

In our experience, height at withers has proved to be the most satisfactory single measurement taken. It is comparatively easy to reproduce, different observers obtain practically the same result, and it is influenced to a comparatively slight extent by the degree of fatness. Length of body, point of withers to the end of the ischium is also a useful measurement, but it is more variable than height at withers.

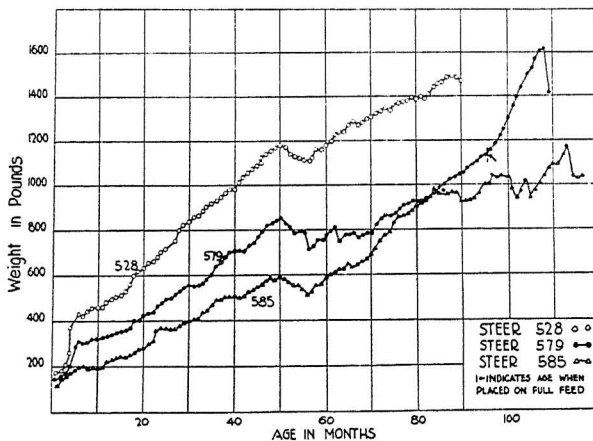


Fig. 1.—Growth as measured by weight, when the steers were continuously held in group condition.

Steers on Same Nutritional Plane Continuously.—Animals 528 (I), 577 (I), 571 (II), 579 (II), and 585 (III) were kept on their original planes of nutrition until death intervened or until they had stopped growing. For the present we will omit Nos. 571 and 577 from the discussion and consider only the three older steers, 528, 579 and 585

(Figures 1 and 2). As shown in Figure 1 the steers were kept rather closely on the prescribed nutritional planes until they were a little over four years old. No. 579 was quite thin, as indicated on Figure 1, but he was not much smaller as indicated by measurements, for he did not lack much of being as tall as No. 528. The most severely underfed steer, No. 585, lagged considerably behind the others, not only in weight but also in measurements. At one time, when steers 579 and 585 were about 7 years old, they had practically the same weight, but 585 was not as tall as the

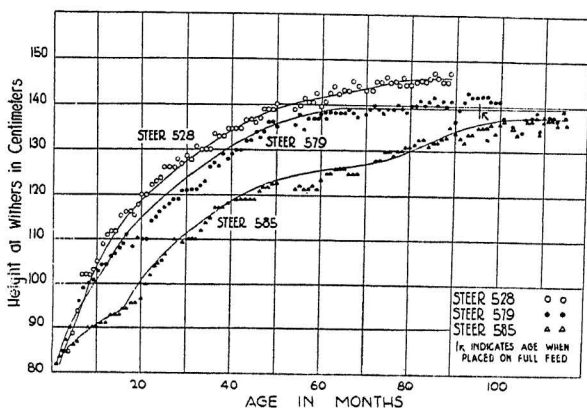


Fig. 2.—Growth as measured by height at withers, when the steers were continuously held in group condition.

other. Inspection of Figure 2 shows that though steer 579 has grown the more rapidly during the first 5 years, following that time, No. 585 began to gain on him. This may have been due to individuality, but was probably due to the fact that No. 579 had been much more generously fed, and so had only relatively little growth yet to make. At death No. 585 had almost attained the same height as No. 579, but he was always conspicuously short.

The three old steers were at one time permitted to lose in weight, over a period of several months. The graphs showing measurements of the animals, however, indicate that even when losing weight they continued to grow in body tissue at a rate no more than slightly diminished.

Figures 1 and 2 indicate the growth of steers when held continuously in the group condition. Mention should be made of the fact that No. 579 was put on full feed when about 8 years old, to see if growth would be resumed. There was no increase in height at withers, so we believe true growth had permanently ceased. There were, however, marked gains in weight. Some mention should be made of No. 577, a Group I steer, but inspection of Figures 3 and 4 shows that he resembled

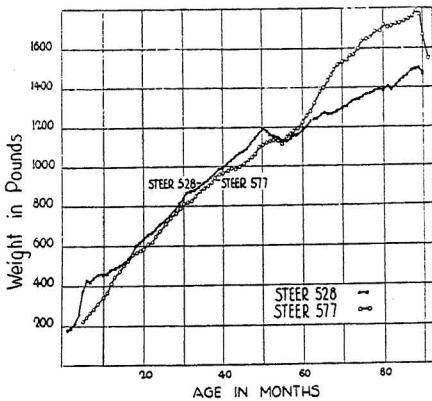


Fig. 3.—Growth of Group I steers as measured by weight.

that there is considerable variation between them. Until they were 4 years old, they had practically the same weight at the same ages but No. 579 was considerably taller throughout.

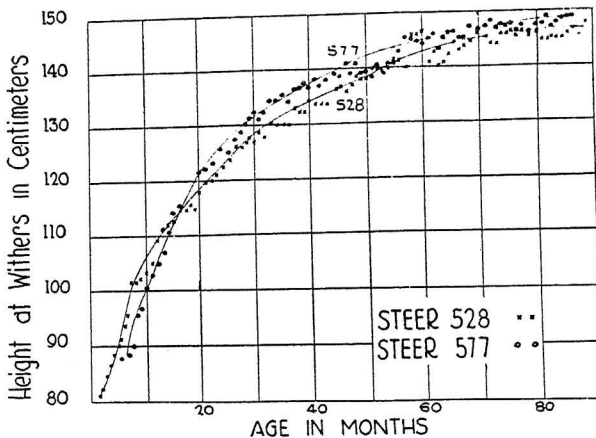


Fig. 4.—Growth of Group I steers as measured by height at withers.

No. 528 as closely as could reasonably be expected. We have therefore used the data of No. 528 as a control.

In connection with Figure 2 the most interesting point is the great lengthening of the growing period of No. 585. This steer grew continuously until he was eight years old, and apparently continued to make slight gains until he was nine years old.

If the two animals of Group II, Nos. 571 and 579, are compared (Figs. 5 and 6) it is seen

that there is considerable variation between them. Until they were 4 years old, they had practically the same weight at the same ages but No. 579 was considerably taller throughout.

Steers Full Fed After Periods of Retarded Growth.—One of the objects of this project was to investigate the permanency of the effects of arrested development. Accordingly certain steers, after various periods of underfeeding, were changed to generous rations, all they would consume. In that connection it is interesting to note that although some of these steers had been on very low nutritional planes, they did not manifest evidence of hunger, and when they were transferred to full feeding, they would not at first consume much more than had been their

habit. Even then considerable care was necessary to prevent their "going off feed", but after a time the capacity to consume food gradually increased.

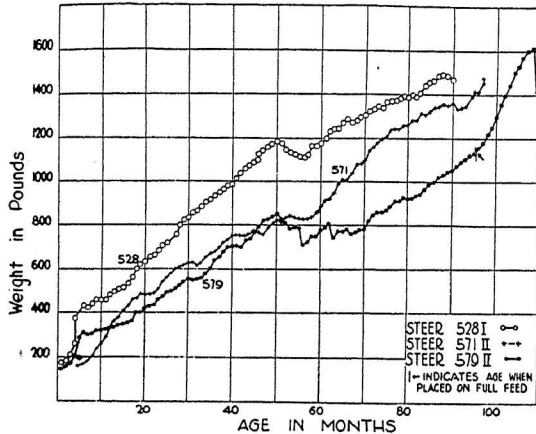


Fig. 5.—Nos. 571 and 579 were held rather closely to the prescribed group condition for about 4 years. No. 571 was consistently heavier thereafter.

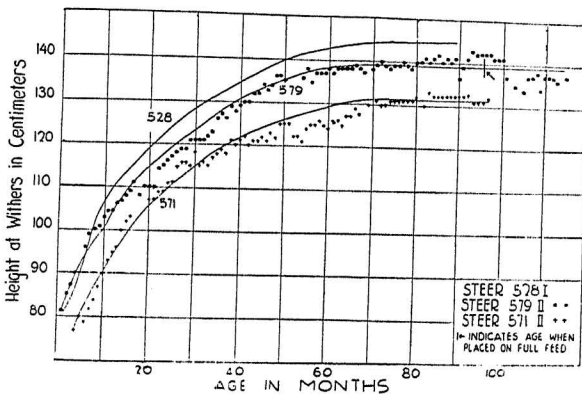


Fig. 6.—Nos. 571 and 579 had about the same weights until they were 4 years old. No. 579 was always conspicuously taller, though No. 571 was usually the heavier.

Effect of Full Feeding on Gains in Weight.—The capacity of the steers to make gains in weight when the feed was not limited, is shown in Figures 7, 8, and 9. Some time is required to get them on full feed, but when that is accomplished they gain rapidly, and at a fairly uniform rate. The periods of underfeeding varied from 3 years and 3 months to about 6 years and 6 months. Within these limits there were no considerable differences in the ability of the steers to make gains in weight.

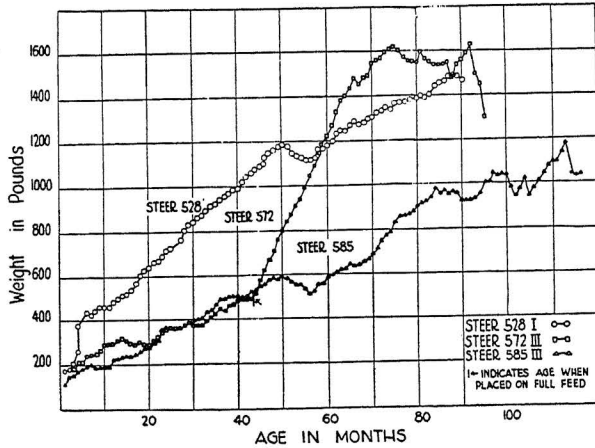


Fig. 7.—No. 572, A Group III steer, was transferred to full feed when about 43 months old, and then gained in weight very rapidly.

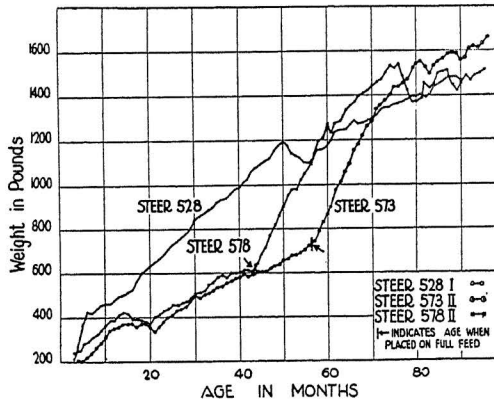


Fig. 8.—Two Group II steers were placed on full feed after long periods of underfeeding. No. 578 was then about 43 months old, No. 573 was about a year older.

Effect of Full Feeding on the Height at Withers.—Figures 10, 11, and 12 indicate that the effect on this measurement of an increase in feed, varies with the plane of nutrition and the period of underfeeding. In Group II two animals, Nos. 578 and 573 (Figure 14), were fed, after underfeeding for periods of 39 and 51 months respectively. The underfeeding was severe, but No. 578 undoubtedly attained normal size. No. 573 was refed one year later and, as indicated by the graph, his mature size was apparently reduced. This would seem to indicate that the shorter the period of underfeeding, the less severe will be the ultimate effects; also that moderate underfeeding is less likely to have permanent after effects than more severe underfeeding.

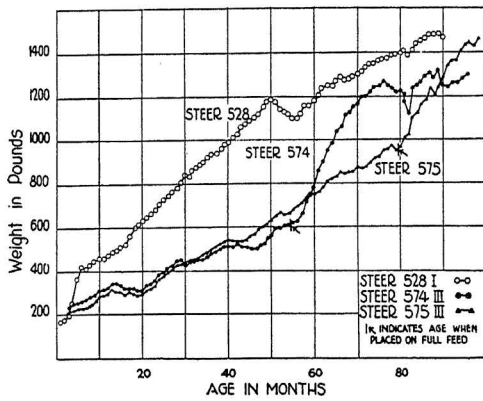


Fig. 9.—Nos. 574 and 575, of Group III, were placed on full feed at ages of 54 and 80 months respectively.

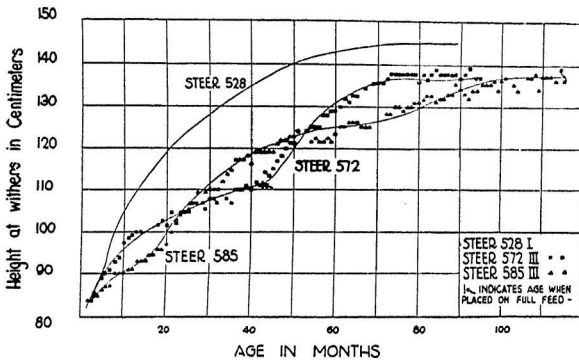


Fig. 10.—No. 572, a Group III steer, severely underfed for 39 months did not attain normal height.

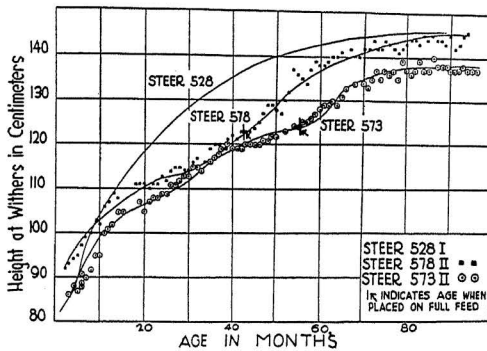


Fig. 11.—No. 578, Group II, moderately underfed for 39 months, attained normal height. No. 573, Group II, underfed to about the same degree for 51 months, did not attain normal height.

In Group III 3 steers were refed, Nos. 572, 574, and 575. No. 572 (Fig. 7) gained weight rapidly when transferred to a generous ration, but never attained the same height (Figure 10) as 577 or 528. Nos. 574 and 575 were underfed to about the same extent as No. 572, but for longer periods (Figure 12). A comparison of Figures 10 and 12 shows clearly, however, that though No. 572 was underfed a much shorter time than the others, he did not attain a larger mature size.

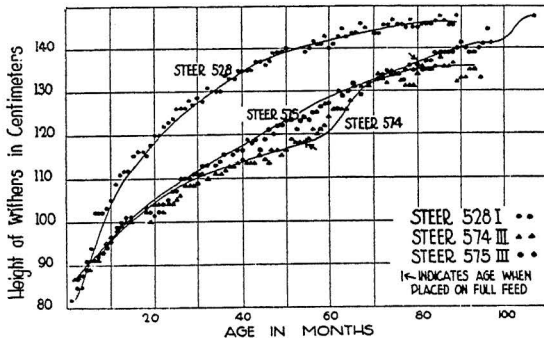


Fig. 12.—No. 574, Group III, severely underfed for 51 months did not attain normal height, No. 575, Group III, severely underfed for 78 months, finally attained normal height.

It is evident from inspection of the preceding graphs that gains in measurements are not necessarily parallel with gains in weights, even among steers that are fed similarly. It will be observed that at the same ages, 585 was usually the lightest steer in Group III, but he was consistently taller at the point of the withers. No. 571 was considerably heavier than No. 585, yet at the age of four and one-half years he lacked two centimeters of being as tall. Individuality is of considerable importance in a consideration of the performance of these animals.

The graphs also indicate quite clearly that when growth is retarded, the growing period is lengthened. No. 528 had practically ceased growing at the age of six years. No. 579 had been underfed somewhat but he did not gain in height much longer than No. 528. No. 585 was retarded more severely than No. 579, and the growth period was correspondingly lengthened. No. 575 was underfed for 6 years and 6 months, then transferred to full feed. This steer was still gaining after the others had apparently ceased to grow, so he was retained for observation. No records of feed consumption were taken, however, and no measurements were made until two years later. He continued to grow and when he was slaughtered, at nine years of age, had attained practically normal height.

It is generally supposed that animals stunted as severely as those we have described will never attain the size they would if they had been

fed generously from the beginning. Passing over No. 575 for the moment, it will be recalled that a Group II steer, No. 578, was underfed for 3 years and 3 months, and on refeeding he attained normal size. A Group III steer, No. 572, was changed to full feed at the same time, but he was always undersized. A year later Nos. 573 and 574 were placed on full feed, and they likewise failed to attain normal size. As previously mentioned, however, No. 575 was the last to be transferred to a ration adequate in amount, and he had attained normal height at the age of nine years. We have already mentioned that No. 585, underfed throughout life, grew continuously until he was nine years old. However, he never became as tall as No. 575.

Inspection of the weights (and of the photographs, Plates I-IV) makes it clear that these animals were severely underfed for long periods of time. In spite of that, two attained normal size, and in no case was the reduction over 10 per cent. Since the steers were not of uniform breeding, it is impossible to say how much of the final differences are due to underfeeding and how much to genetic factors. It remains certain, however, that permanent reduction of the mature size can only be brought about by very severe and long continued underfeeding.

Effect of Underfeeding on Conformation.—Our data lead us to believe that steers may be stunted severely for at least the first two years of their lives, and still recover practically normal weight and measurements on refeeding. The possibility arises, however, that when animals are stunted, one organ or anatomical division might grow more rapidly than another, possibly at the expense of another. This idea was suggested also by the appearance of the animals, for on inspection they gave the impression of differing in conformation in some essential fashion. This impression was strongest in regard to the head, for this portion of the body always seemed to be abnormally large. Accordingly our data have been scrutinized with the idea of determining whether the proportions, or the conformation, of these steers was altered during periods of underfeeding or refeeding.

The method chosen to decide this question was as follows. One measurement was selected as a standard, in this case height at withers. It was decided arbitrarily that by the time the steers were 120 centimeters high, there should have been time for alterations in conformation to occur. Therefore in the first line of Table 2, we have entered for each steer the figure 120, or the figure nearest 120 that was ever recorded for it as height at withers. In succeeding lines various other measurements taken on the same date as height at withers have been entered. It would only be by accident of course that two steers would have the same height at withers at the same age, so our comparisons are made,

not when the steers were of the same age, but when they had the same height at withers. In choosing measurements for comparisons, only the more significant ones were taken, and those not affected much by fattening. The Group III steers are entered at the top of the page, and the

TABLE 2.—EFFECT OF RETARDED GROWTH ON CONFORMATION.

Steer No.	Date	Height at withers	Withers to end of Ischium	Elbow to ground	Poll to point of muzzle	Width of forehead	Width of hips
Group III							
574	2- 2-22	120.5	122.0	70.0	50.0	20.0	44.0
585	3- 2-18	120.5	132.0	72.0	47.0	17.3	41.5
575	3- 2-22	120.5	122.0	70.0	50.0	20.0	39.0
572	6- 3-21	119.5	130.0	70.0	51.0	21.0	43.0
583	12-29-16	120.5	119.0	68.0	45.0	18.5	41.0
580	11- 5-17	119.5	139.0	71.0	49.0	18.5	46.0
Group II							
586	7- 5-17	120.0	126.0	70.0	49.0	17.0	37.5
573	5- 3-21	120.0	126.0	68.0	48.0	20.0	42.0
579	11- 2-16	120.5	124.5	72.0	47.0	18.0	39.0
578	9- 2-20	120.5	125.0	67.0	49.0	20.0	41.0
587	5-29-16	120.0	120.0	69.0	44.0	18.0	37.5
571	7- 3-20	120.0	130.0	72.0	50.0	22.0	43.0
Group I							
528	1-31-16	120.0	126.0	68.5	45.0	19.0	41.0
577	10-28-18	122.0	121.0	71.0	46.0	20.0	38.0
520	7-31-15	120.0	122.0	71.0	41.0	18.0	36.5

Group I steers at the bottom. If the essential conformation of these animals had been altered by underfeeding, it would then seem that there should be a tendency for the different measurements to uniformly rise or fall in reading up or down.

TABLE 3.—EFFECT OF RETARDED GROWTH ON CONFORMATION.

Steer No.	Date	Height at withers	Withers to end of Ischium	Elbow to ground	Poll to point of muzzle	Width of forehead	Width of hips
Group III							
574	6- 3-22	125.5	130.0	70.0	52.5	21.5	48.5
585	7- 7-19	125.0	132.0	75.0	49.5	18.5	43.0
575	1- 4-22	125.0	127.0	73.0	51.0	22.5	43.5
572	12- 7-21	125.0	133.0	72.0	50.0	22.5	46.5
583	5-31-18	125.5	143.0	72.0	51.0	18.5	45.5
580	1- 5-18	125.0	142.0	72.5	49.0	18.7	48.2
Group II							
586	3-29-18	125.0	135.0	75.5	51.0	18.0	41.2
573	12- 6-21	125.0	129.0	70.0	51.5	22.0	41.5
579	4- 3-17	125.0	137.0	72.0	50.0	18.0	41.0
578	3- 3-12	125.0	125.0	69.0	49.0	20.0	45.0
587	10- 6-16	126.0	127.0	71.0	46.0	18.5	42.0
571	2- 4-22	125.0	132.0	72.5	50.0	24.5	48.0
Group I							
528	5-29-16	125.5	130.0	70.0	47.0	19.0	44.0
577	2- 3-19	125.0	131.0	76.0	48.0	20.0	47.5
520	12-31-15	125.0	137.0	72.0	45.0	18.0	39.0

As will be noted in Tables 3 and 4 the same comparisons have also been made when the steers were 125 centimeters high, and when they were 134 centimeters high. We are including in this comparison 5 steers not previously described except in Table 1. They were part of this same investigation, but as they were slaughtered for analysis while still growing rapidly, they could not be advantageously used in growth studies.

TABLE 4.—EFFECT OF RETARDED GROWTH ON CONFORMATION.

Steer No.	Date	Height at withers	Withers to end of Ischium	Elbow to ground	Poll to point of muzzle	Width of forehead	Width of hips
Group III							
574	7- 2-23	134.5	142.0	72.0	52.0	21.0	51.0
585	2- 4-22	134.0	143.0	76.0	52.0	23.0	54.0
575	5- 7-23	134.0	140.0	76.0	56.0	22.0	48.5
572	12-19-22	135.0	146.0	73.0	54.0	21.5	55.5
583	3- 2-18	134.0	157.0	74.4	55.0	26.0	52.0
Group II							
586							
573	12-20-22	134.0	138.0	72.0	53.0	21.0	52.0
579	2- 9-18	134.0	150.0	79.0	52.5	19.0	46.0
578	2- 4-22	134.0	140.5	73.5	51.0	24.0	54.0
587	4- 3-17	134.0	146.0	74.0	46.0	20.0	48.0
571	11- 1-24	133.0	154.0	73.0	56.0	22.0	56.0
Group I							
528	8- 3-17	134.0	150.0	75.0	54.5	20.0	51.0
577	12-12-19	134.5	138.0	80.5	52.5	21.5	44.5
520	9 30-16	134.0	144.5	75.0	48.0	20.0	45.0

In the case of each measurement tested, there is no indication that the period of underfeeding has had any influence on the conformation of the steers. For example, if they are compared in height at withers at the time when all were 120 centimeters tall, it becomes apparent that the variations can not be correlated with the plane of nutrition. It is of course true that the averages of the groups would vary, but the number of animals compared is small and the variations within the groups are extreme and are of similar magnitude.

Our data on this point are limited to fifteen steers but they point unmistakably to the conclusion that when steers are stunted skeletal growth does not become abnormal. We limit ourselves of course to those measurements that are unaffected by loss or gain of adipose tissue.

Rate of Growth in Different Dimensions.—We have stated as our belief that when growth is retarded, the normal conformation is not materially altered. Another somewhat similar question suggests itself, does growth in all dimensions increase at the same rate? In order to obtain some suggestions on that point, suitable measurements of some of these steers have been tabulated to show the total per cent gain. The

measurements selected for comparison are height at withers, length from withers to end of ischium, length of foreleg from elbow to ground, width of hips, length of face, and width of forehead. Our data appear in Table 5.

It will be noted at once that the individual variations are very great, but in spite of that it is obvious that there are differences in the relative increases in different dimensions. Considering first the length of foreleg, the greatest per cent gain recorded, 46 per cent, is for a Group I steer, No. 577. No other measurement of any animal, made a smaller increase. The percentage gains in height at withers, and in width of forehead, are of about the same order of magnitude, and are distinctly higher than the gains in length of foreleg. The length of face, poll to point of muzzle, and length of body withers to end of ischium, both seem to lie in a still higher range. The greatest percentage increase by far, however, was in width of hips. It is true that this measurement is affected by the desposition of flesh, but this fact can not account for any considerable part of the increase. No. 585, for example, was always thin, but still his gain in that dimension was 141 per cent.

Rate of Gain When Underfeeding is Followed by Full-Feeding.—

It is a matter of common knowledge that if a period of inanition is followed by generous feeding, the ensuing gains are very rapid, as indicated both by weight and by measurement. The rapidity of these gains is affected, however, by the extent to which growth had previously been suppressed, as is illustrated by the animals here under consideration. The gains of four of these steers, Nos. 572, 573, 574, and 578, have been chosen for study, and their gains have been indicated in Figures 13 and 14. These four animals contain four sets of pairs, two of which were underfed to approximately the same degree, but for different lengths of time, and the other two were underfed for the same length of time, but to different degrees. The first two sets of pairs appear in Figure 13. Steers 572 and 574 were both in Group III, and steers 578 and 573 in Group II. Nos. 572 and 578 were underfed a little over 39 months, and Nos. 573 and 574 a little over 51 months. According to Figures 10 and 12, No. 574 attained a final height of approximately 136 centimeters, and No. 572 attained a final height of 137 centimeters, but the gains of No. 572 after fullfeeding were considerably greater. Of the Group II steers, No. 578 attained a final height of about 145 centimeters, and No. 573, 138 centimeters (Figure 11). No. 578 not only became taller, but he also grew faster than No. 573, refed one year later.

Figure 13 then is a comparison of steers that were underfed to the same extent, but for different periods of time before transferring to full feed. Those underfed for the shorter period grew more rapidly, and attained a greater final height than those underfed for the longer period.

TABLE 5.—PERCENTAGE GAIN IN DIFFERENT DIMENSIONS

Steer No.	Height at Withers.				Length Withers to end of Ischium.				Length of Foreleg, (elbow to ground.			
	3 mo.	Max.	Gain	Per cent Gain	3 mo.	Max.	Gain	Per cent Gain	3 mo.	Max.	Gain	Per cent Gain
585	84.5	137	52.5	62.	80.5	152	71.5	89.	52.0	75.0	23.0	44.
579	86.0	141	55.0	64.	84.0	158	74.0	88.	54.0	81.0	27.0	50.
528	84.0	148	64.0	76.	83.0	162	79.0	95.	54.0	79.0	25.0	46.
578	91.5	146.0	54.5	60	94.0	155.0	61.0	65.	56.5	78.0	21.5	38.
577	88.0	149.5	61.5	70.	86.0	167.0	81.0	94.	56.0	81.0	25.0	45
575	86.5	147.5	61.0	71.	86.0	166.0	80.0	93.	53.0	76.0	23.0	43.
574	87.0	134.0	47.0	54.	91.5	150.0	58.5	64.	53.5	70.0	16.5	31.
573	86.0	137.0	51.9	59.	89.5	156.0	66.5	74.	52.0	71.0	19.0	37.
572	84.0	137.0	53.0	63.	85.5	148.0	62.5	73.	54.0	74.0	20.0	37.
571	76.5*	132.0	55.5	73.	78.0	153.0	75.0	96.	50.0	70.0	20.0	40.

TABLE 5.—PERCENTAGE GAIN IN DIFFERENT DIMENSIONS (CONTINUED.)

Steer No.	Face, Boll to Point of Muzzle				Width of forehead				Width of Hops			
	3 mo.	Max.	Gain	Per cent Gain	3 mo.	Max.	Gain	Per cent Gain	3 mo.	Max.	Gain	Per cent Gain
585	29.5	53.0	23.5	80.	12.0	20.0	8.0	67.	23.0	55.5	32.5	141
579	30.0	54.0	24.0	80.	13.0	19.0	6.5	50.	23.0	55.0	32.0	139.
528	30.0	59.0	29.0	97.	12.0	25.0	13.0	108.	24.0	61.5	37.5	156.
578	32.0	56.0	24.0	75.	13.5	21.0	7.5	56.	26.5	62.0	35.5	134.
577	31.0	57.0	26.0	84.	13.0	22.0	9.0	69.	24.0	59.0	35.0	146.
575	30.5	59.0	28.5	93.	13.0	21.5	8.5	65.	22.5	61.0	38.5	171.
574	33.0	55.0	22.0	67.	14.0	20.0	6.5	46.	25.5	55.0	29.5	116.
573	32.0	55.0	23.0	72.	13.0	20.0	7.0	54.	24.0	59.0	35.0	146.
572	31.0	55.0	24.0	77.	12.5	19.5	7.0	56.	23.5	58.0	34.5	147.
571	28.0*	55.0	27.0	96.	12.5	22.0	9.5	76.	21.0	58.0	37.0	176.

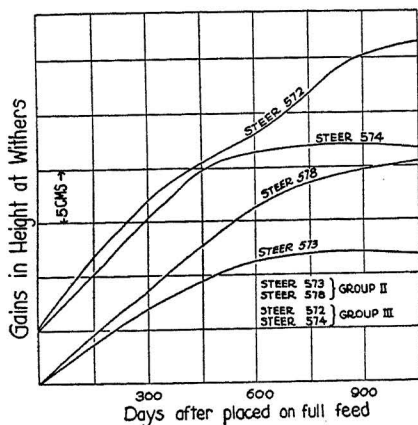


Fig. 13.—This graph merely indicates the gains in height at withers, after being placed on full feed, and is so drawn as to facilitate comparisons of Nos. 572 and 574, and of Nos. 573 and 578. Nos. 572 and 578 were underfed 39 months. Nos. 573 and 574 were underfed 51 months.

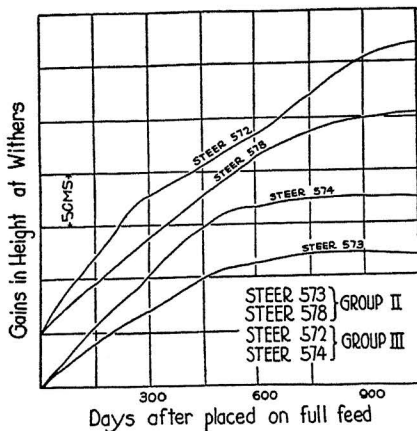


Fig. 14.—This graph presents the same animals as Fig. 13, but arranged so as to compare more easily the animals that were underfed for the same length of time, but to different degrees.

A different arrangement of the graphs (Figure 14) makes it a little easier to compare animals that had been underfed for the same length of time, but to different degrees. It is seen that Nos. 572 and 578 were underfed for 39 months, but No. 572 of Group III was more severely underfed than No. 578 of Group II. On refeeding No. 572 grew more rapidly than No. 578, but he never became as tall. Steers 574 and 573 were underfed one year longer than the other two, and illustrate the same fact. The less severely underfed animal, No. 573, grew the more slowly on refeeding, but as was indicated in Figures 11 and 12, attained a slightly greater final height.

In Figure 14 the comparison is between steers that were underfed the same length of time, but to different degrees of severity. The most severely underfed animals grew more rapidly than the others, but in spite of that they were apparently smaller at maturity. Evidently both the length and the severity of undefeeding affect the rate of recovery on subsequent refeeding.

Cross Sections.—The outlines of the heart and paunch girths were obtained every third month by the use of an adjustable aluminum chain. This chain was adjusted to the body, clamped tightly, and after removal from the steer the outline was traced on paper. These outlines give the relative size and form of the steers in these two regions. Because of the great similarity among many of the cross sections, they have been reproduced for only six steers. Among these are the three old steers, Nos. 528, 579, and 585, kept continuously on the same nutri-

tional plane. Three younger steers, Nos. 520, 587, and 583, one from each group, are also represented. These were held in the group condition until about one year and eleven months old, then put on full feed. The first two were on full feed for a little over a year, the third for nearly two years. The cross sections of the older steers were taken at the ages of one month, three years and eleven months, and seven years and eight months, and seven years and five months (seven years and five months for No. 528). The ages for the younger steers are, one month, one year and eleven months (just preceding the change to full feed), and three years (three years and eleven months for 583). The cross sections are arranged for each steer so as to show the relative height and position as the animal increased in size. The heart girths appear in Figure 15, and the paunch girths in Figure 16.

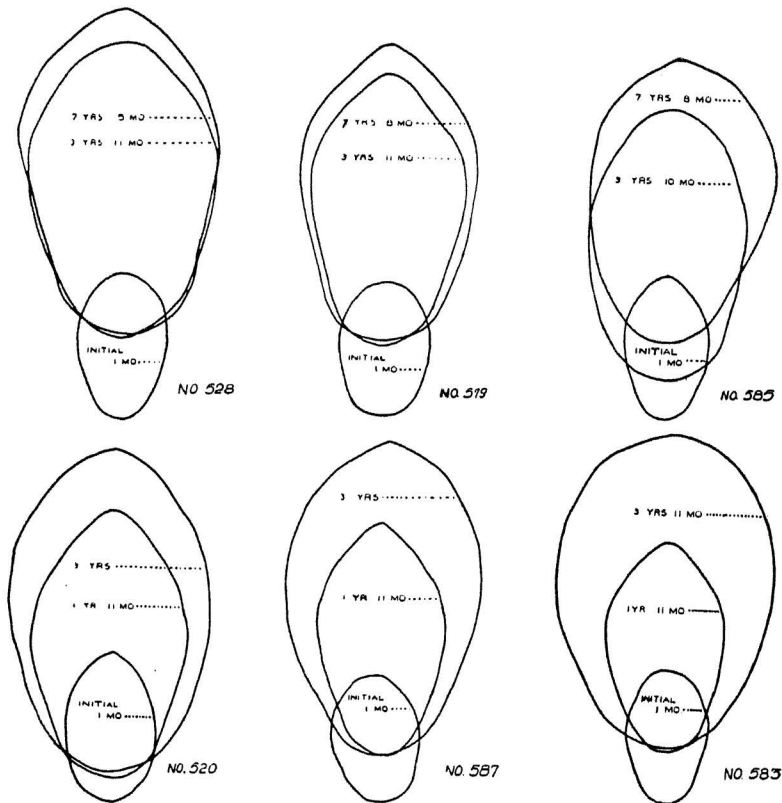


Fig. 15.—Heart girths, as affected by growth and by fattening.

Heart Girths.—Figure 15 shows the outlines of the heart girths of each steer. As would be expected, the areas of the cross sections vary with the planes of nutrition.

It will be noted in the case of Nos. 528 and 579 that the height of the chest floor remained about constant, after the steers had passed the age of three years and eleven months. Since the length of leg and the height at withers were both increasing, it is evident that the chest floor was growing downward as rapidly as it was elevated. During the same period the chest floor of No. 585 was being elevated. His length of leg was increasing more rapidly than was the case with the other two steers, however, and he had a thinner covering of flesh, and these facts may account for the difference.

The cross sections of the three young steers, Nos. 520, 785, and 583 make evident the increase in the areas due to full feed. The sections taken at the age of one year eleven months were secured in March, and the animals were put on full feed April 10. No. 583 was fed about nine months longer than the other two, and accordingly made a greater gain. Although No. 587 was considerably smaller than No. 520 when they were put on full feed, they were about the same size at the end of the fattening period.

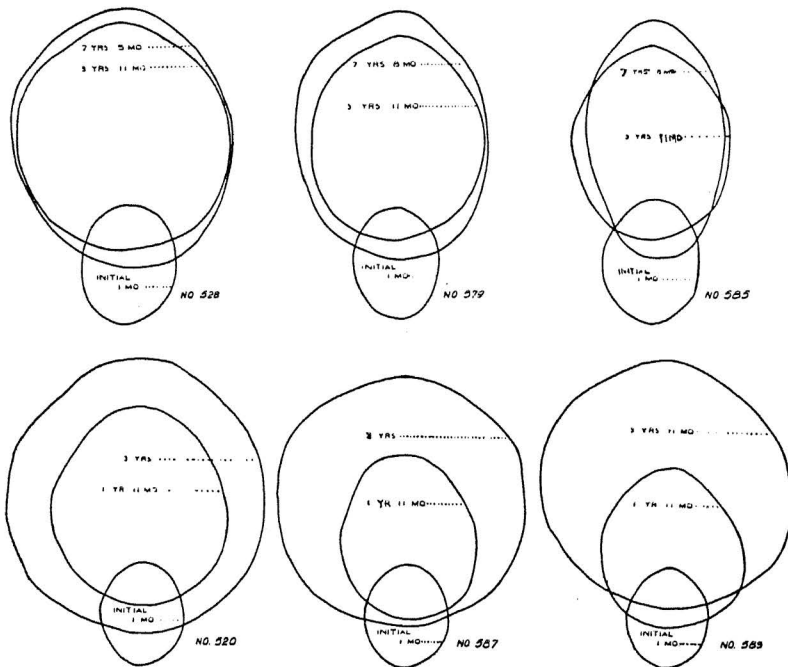


Fig. 16.—Paunch girths, as affected by growth and by fattening.

Paunch Girths.—The paunch girths, taken at the same time as the corresponding heart girths, are shown in Figure 16. Little comment

is necessary. Before refeeding the Group I animals had cross sections of the greatest area and Group III the least. At the time the rations were increased No. 520 had the largest paunch girth, No. 583 the smallest. When the last cross sections were taken, after they had been on full feed several months, they were approximately the same size. No. 583 of course had required more time to make the gain, for he was on full feed about nine months longer than the other two.

Deaths of Experimental Steers.—In all, ten steers were retained until they had passed the age at which steers normally cease growth. Of the four that later died, three were on a comparatively high nutritional plane, while one, No. 585, had been held continuously on the plane prescribed for Group III. The first death was of No. 528, a Group I animal, when about seven years and six months of age. He had been losing weight rapidly during the preceding weeks, and was found one morning unable to arise. He seemed to suffer extreme pain, and was killed. On post mortem examination, no pathological state was discovered that seemed sufficient to account for the death or even for the pain. Two old punctures of the first stomach were found, also a piece of wire had penetrated through the wall into the liver. There was little or no inflammation of the surrounding tissues, however, and the veterinarian in attendance was doubtful as to the punctures being the cause of the violent symptoms evidenced by the steer.

No. 579 was the second to die. It will be remembered that he was in Group II, and had apparently stopped growing at about six years. When eight years old he was put on full feed to see if growth would follow. A few weeks before his death he began to refuse feed, his weight fell off rapidly, and death resulted shortly, when he was almost exactly nine years old. The veterinarians* ascribed the death to fat necrosis. All the internal fat had assumed a very peculiar appearance. It had changed from the normally soft and pliable condition to a solid mass of the consistency of cheese. This hardened mass had interfered with the normal functioning of the small intestine, and where it passed through the affected tissue the intestinal walls had thickened to such a degree as to bring about almost complete obstruction.

About seven months later No. 585 also died. He had previously lost some weight and the immediate cause of death was apparently due to the accumulation of gas in the stomach. At autopsy a number of slight abnormalities were noted, but nothing sufficient to cause death.

Steer 577 was the last one that died, when a little over seven years old. Post mortem examination revealed no symptoms of note.

We have no information as to the direct cause of the deaths of these animals, but some observations are of interest. The Group I

*We are greatly indebted to Dr. J. W. Connaway and Dr. A. J. Durant for making the autopsies.

steers, Nos. 528 and 577 were the youngest at death, about seven years and six months. The Group II animal, No. 579, was put on full feed when eight years old, and he died a year later. The Group III steer, No. 585, died when about nine years and seven months old. Of these four animals, those that were better fed died first.

SUMMARY

1. The length of the period of growth of normal beef steers is about six years.
2. A low plane of nutrition lengthened the growing period, in one case to nine years.
3. Severe undernutrition of cattle for the first three years, or longer, tends to reduce the mature size, though there are exceptions.
4. Both severity of underfeeding and the length of the period of underfeeding affect the mature size that may be attained.
5. Cattle do not make equal percentage gains in all dimensions.
6. Retardation of growth does not result in abnormalities in conformation.

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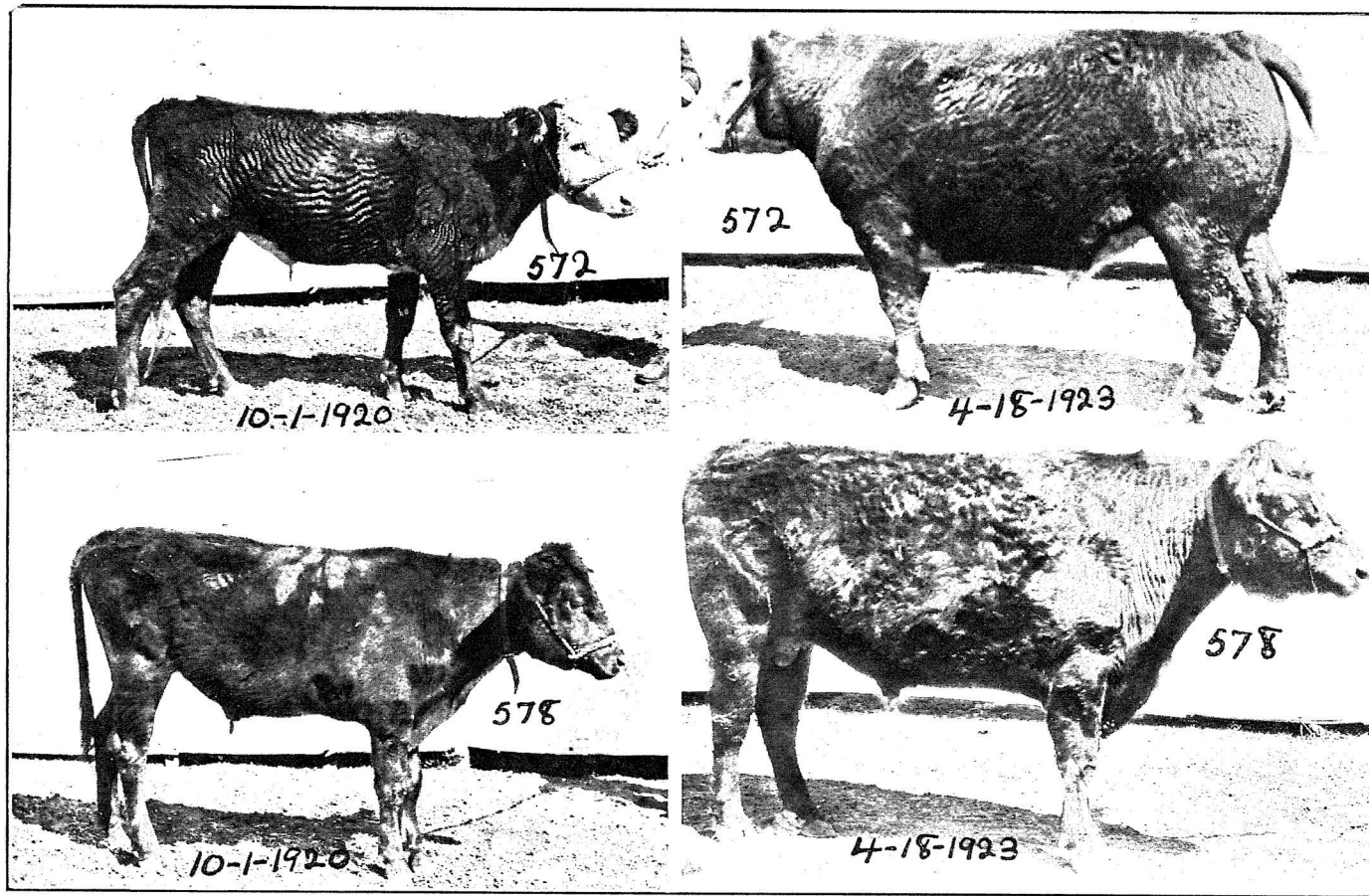


Plate I.—No. 572, Group III. Photographed at ages of 3 years 5 months (487 lbs.), and 5 years 9 months (1574 lbs.). Placed on full feed at 3 years 6 months. No. 578, Group II. Photographed at ages of 3 years 5 months (612 lbs.), and 5 years 9 months (1474 lbs.). Placed on full feed at 3 years 6 months.

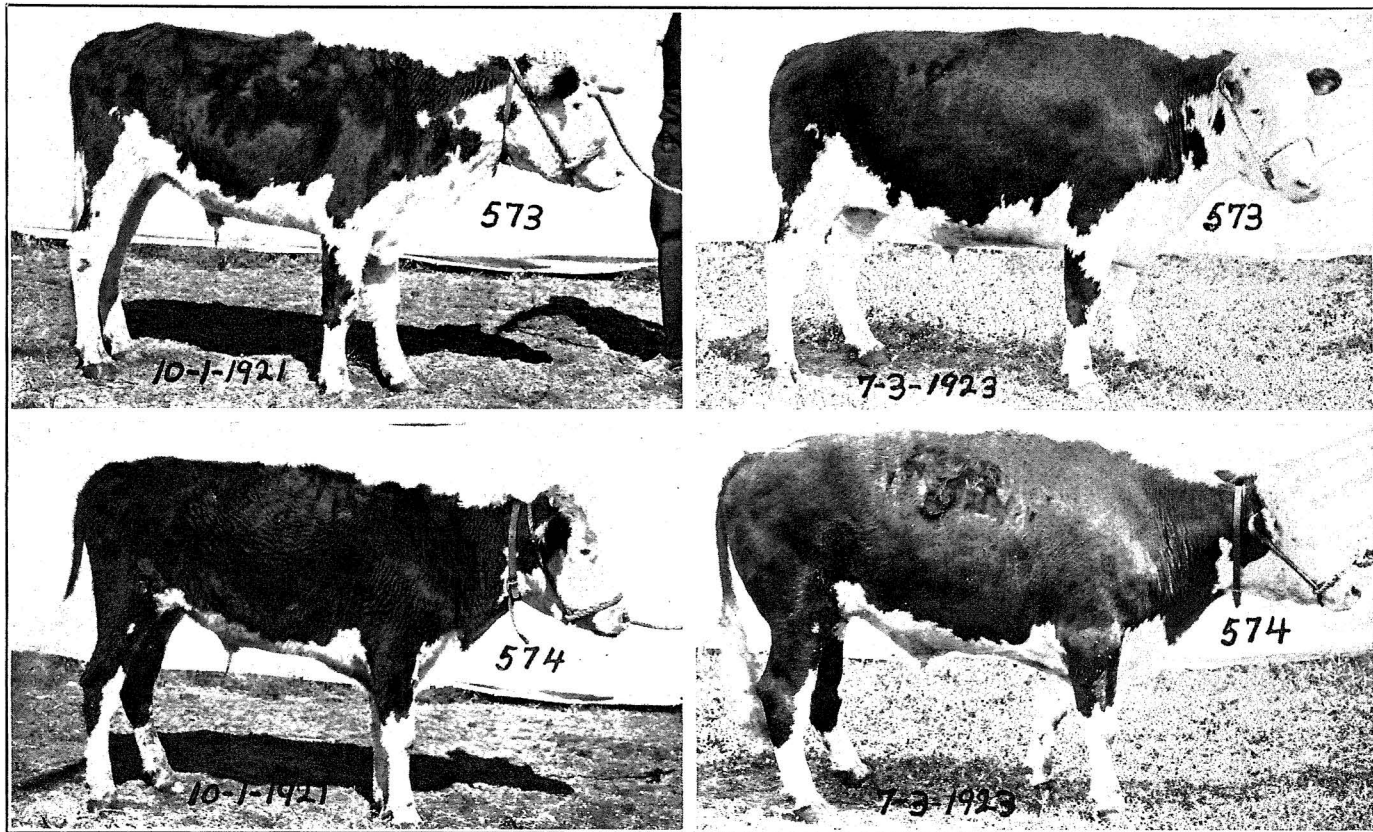


Plate II.—No. 573, Group II.—Photographed at ages of 4 years 6 months (714 lbs.), and 6 years 3 months (1439 lbs.). Placed on full feed at 4 years 7 months.
 No. 574, Group III. Photographed at ages of 4 years 5 months (613 lbs.) and 6 years 2 months (1250 lbs.). Placed on full feed at 4 years 6 months.

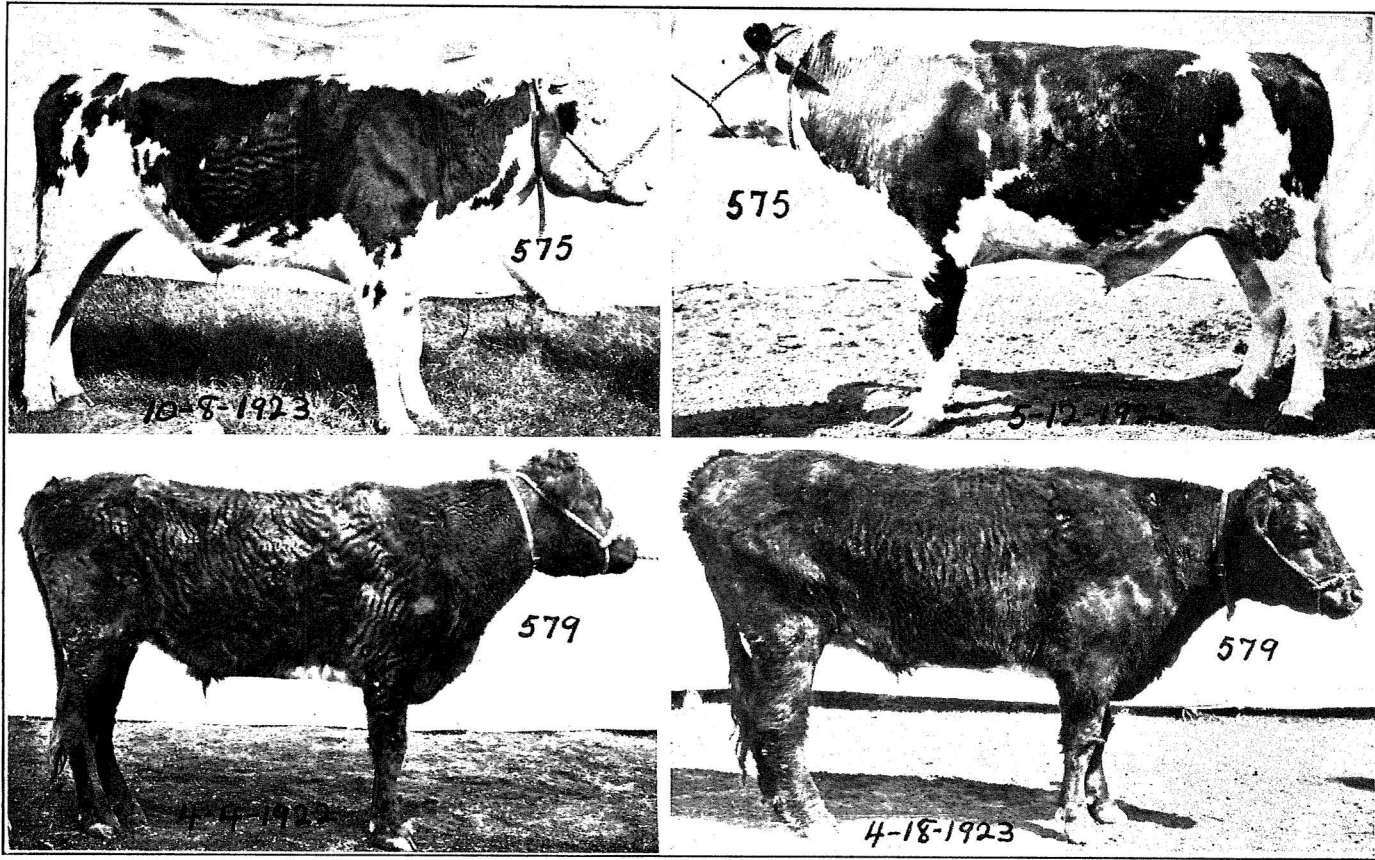


Plate III.—No. 575, Group III. Photographed at ages of 6 years 5 months (975 lbs.) and 9 years (1590 lbs.). Placed on full feed at 6 years 8 months. No. 579, Group II. Photographed at ages 7 years 11 months (1184 lbs.), and 9 years (1495 lbs.). Placed on full feed when a little less than 8 years old.

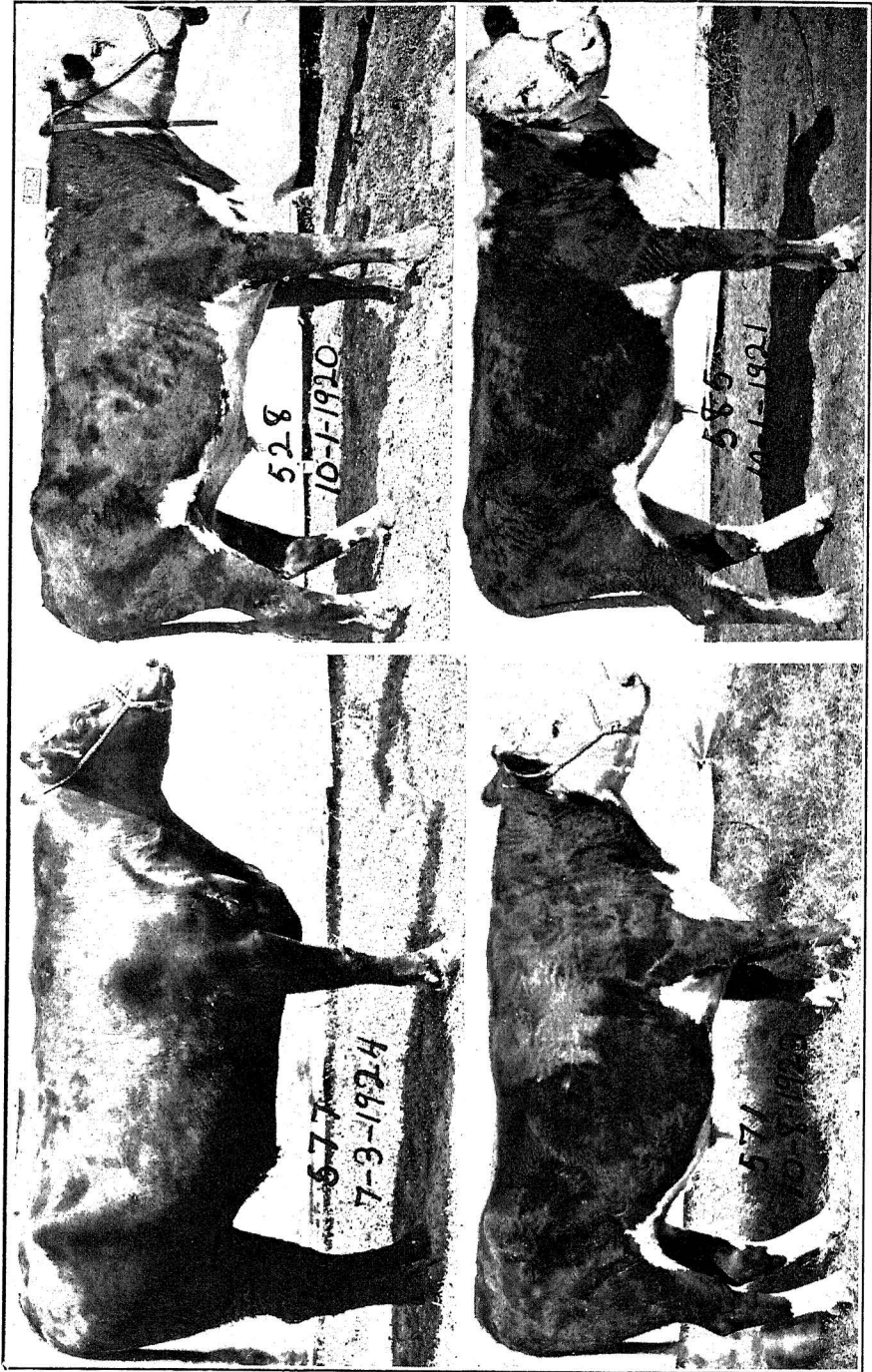


Plate IV.—Nos. 528 and 577, Group I.—No. 571, Group II. No. 585, Group III. None of these animals was placed on full feed.

ORIGINAL RECORDS

TABLE 6

Date beginning of period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
Steer						1-22-20	70	1314	150.0	360.0	-----
528						2-21-20	71	1333	150.0	360.0	-----
6-11-14	1	179.0	-----	2.5	124.9	3-22-20	72	1342	150.0	360.0	-----
6-21-14	2	202.8	14.0	14.0	489	4-21-20	73	1341	150.0	360.0	-----
7-21-14	3	252.0	44.0	53.5	582	5-21-20	74	1355	150.0	360.0	-----
8-20-14	4	303.8	69.0	75.0	600	6-20-20	75	1367	150.0	360.0	-----
9-19-14	5	363.8	110.5	101.5	600	7-20-20	76	1369	150.0	360.0	-----
10-18-14	6	425.1	120.0	120.0	600	8-19-20	77	1381	147.0	348.0	-----
11-18-14	7	426.8	105.2	120.0	176	9-19-20	78	1401	150.0	360.0	-----
12-18-14	8	439.4	120.0	120.0	-----	10-18-20	79	1385	146.25	346.0	-----
1-17-15	9	457.2	120.0	120.0	-----	11-17-20	80	1404	150.0	360.0	-----
2-16-15	10	460.6	120.0	119.0	-----	12-17-20	81	1394	147.5	341.0	-----
3-18-15	11	482	120.0	120.0	-----	1-16-21	82	1405	149.5	358.0	-----
4-17-15	12	497	120.0	120.0	-----	2-15-21	83	1434	162.0	360.0	-----
5-17-15	13	507	120.0	120.0	-----	3-17-21	84	1453	179.0	360.0	-----
6-16-15	14	517	120.0	130.0	-----	4-16-21	85	1459	180.0	360.0	-----
7-17-15	15	527	120.0	150.0	-----	5-16-21	86	1481	180.0	360.0	-----
8-16-15	16	559	145.7	152.0	-----	6-15-21	87	1485	179.0	344.0	-----
9-15-15	17	586	150.0	180.0	-----	7-15-21	88	1486	180.0	360.0	-----
10-14-15	18	620	150.0	180.0	-----	8-14-21	89	1464	180.0	181.0	-----
11-14-15	19	629	155.0	184.5	-----	9-13-21	90	1408	234.0	74.0	-----
12-14-15	20	651	165.0	195.0	-----	10-13-21	91	1340	136.0	-----	-----
1-13-16	21	659	165.0	195.0	-----	Steer					
2-12-16	22	678	165.0	195.0	-----	579					
3-13-16	23	699	165.0	195.0	-----	5-30-14	1	154.0	-----	2.55	226
4-12-16	24	727	165.0	195.0	-----	6-21-14	2	183.9	7.3	14.5	374
5-12-16	25	745	165.0	195.0	-----	7-21-14	3	204.6	24.0	47.0	420
6-11-16	26	768	165.0	194.5	-----	8-20-14	4	240.0	30.0	60.5	208
7-11-16	27	785	165.0	180.0	-----	9-19-14	5	270	37.0	74.0	420
8-10-16	28	805	165.0	180.0	-----	10-18-14	6	304	45.0	90.0	420
9-9-16	29	837	179.5	189.0	-----	11-18-14	7	305	45.0	103.0	140
10-9-16	30	869	180.0	202.5	-----	12-18-14	8	316	45.0	120.0	-----
11-8-16	31	881	180.0	211.0	-----	1-17-15	9	321	45.0	120.0	-----
12-8-16	32	878	180.0	214.5	-----	2-16-15	10	322	45.0	122.0	-----
1-7-17	33	887	180.0	226.0	-----	3-18-15	11	335	45.0	120.0	-----
2-6-17	34	915	180.0	225.0	-----	4-17-15	12	334	45.0	120.0	-----
3-8-17	35	933	180.0	225.5	-----	5-17-15	13	344	45.0	120.0	-----
4-7-17	36	942	180.0	225.0	-----	6-16-15	14	344	50.0	120.0	-----
5-7-17	37	964	190.0	228.5	-----	7-17-15	15	351	71.5	143.0	-----
6-6-17	38	986	180.0	225.0	-----	8-16-15	16	379	76.25	178.0	-----
7-7-17	39	990	180.0	225.0	-----	9-15-15	17	399	70.0	180.0	-----
8-5-17	40	1008	188.0	227.0	-----	10-14-15	18	409	60.0	180.0	-----
9-4-17	41	1029	196.0	238.0	-----	11-14-15	19	419	64.5	184.5	-----
10-4-17	42	1043	209.0	231.0	-----	12-14-15	20	430	76.5	194.0	-----
11-3-17	43	1070	218.0	240.0	-----	1-13-16	21	434	75.0	195.0	-----
12-3-17	44	1076	225.0	240.0	-----	2-12-16	22	453	75.0	195.0	-----
1-2-18	45	1080	225.0	240.0	-----	3-13-16	23	469	75.0	195.0	-----
2-1-18	46	1178	225.0	240.0	-----	4-12-16	24	489	75.0	195.0	-----
3-3-18	47	1147	225.0	240.0	-----	5-12-16	25	495	74.0	194.0	-----
4-2-18	48	1163	224.5	240.5	-----	6-11-16	26	505	68.0	180.0	-----
5-2-18	49	1184	150.0	293.5	-----	7-11-16	27	521	75.0	180.0	-----
6-1-18	50	1177	97.0	318.0	-----	8-10-16	28	536	75.0	180.0	-----
7-1-18	51	1159	28.0	330.0	-----	9-9-16	29	552	75.0	180.0	-----
7-31-18	52	1139	30.0	330.0	-----	10-9-16	30	557	75.0	187.5	-----
8-30-18	53	1122	30.0	330.0	-----	11-8-16	31	565	81.0	189.0	-----
9-29-18	54	1107	30.0	336.0	-----	12-8-16	32	560	90.0	200.0	-----
10-29-18	55	1103	87.0	333.0	-----	1-7-17	33	582	90.0	216.0	-----
11-28-18	56	1122	120.0	353.5	-----	2-6-17	34	601	93.0	211.0	-----
12-28-18	57	1155	120.0	357.5	-----	3-8-17	35	632	105.0	225.0	-----
1-27-19	58	1158	120.0	360.0	-----	4-7-17	36	653	95.5	224.5	-----
2-26-19	59	1172	150.5	360.0	-----	5-7-17	37	674	94.0	229.5	-----
3-28-19	60	1211	150.0	360.0	-----	6-6-17	38	701	91.5	224.5	-----
4-27-19	61	1231	150.0	360.0	-----	7-6-17	39	708	75.0	225.0	-----
5-27-19	62	1258	150.0	360.0	-----	8-5-17	40	709	75.0	225.0	-----
6-26-19	63	1244	149.0	357.0	-----	9-4-17	41	707	86.0	225.0	-----
7-26-19	64	1267	150.0	360.0	-----	10-4-17	42	725	141.5	231.0	-----
8-25-19	65	1278	150.0	360.0	-----	11-3-17	43	744	136.5	247.5	-----
9-24-19	66	1278	150.0	360.0	-----	12-3-17	44	758	147.0	251.5	-----
10-24-19	67	1274	150.0	360.0	-----	1-2-18	45	789	164.5	253.0	-----
11-23-19	68	1285	148.5	360.0	-----						
12-23-19	69	1304	150.0	360.0	-----						

*Average weight of last ten days of period.

Date beginning of period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
2- 1-18	46	820	120.0	255.0	-----	10-18-14	6	200	-----	120.0	290.0
3- 3-18	47	822	67.0	255.0	-----	11-18-14	7	192	-----	140.0	100.0
4- 2-18	48	831	73.5	255.5	-----	12-18-14	8	198	-----	150.0	-----
5- 2-18	49	851	22.5	292.5	-----	1-17-15	9	193	-----	150.0	-----
6- 1-18	50	834.5	-----	309.0	-----	2-16-15	10	194	-----	150.0	-----
7- 1-18	51	821	-----	315.0	-----	3-18-15	11	218	-----	150.0	-----
7-31-18	52	786	-----	315.0	-----	4-17-15	12	223	-----	150.0	-----
8-30-18	53	788	26.0	330.0	-----	5-17-15	13	229	-----	150.0	-----
9-29-18	54	781	2.0	339.0	-----	6-16-15	14	233	-----	155.0	-----
10-29-18	55	795	-----	253.0	-----	7-17-15	15	235	11.75	153.5	-----
11-28-18	56	730	-----	304.5	-----	8-16-15	16	251	36.7	163.5	-----
12-28-18	57	750	-----	330.0	-----	9-15-15	17	256	47.0	150.5	-----
1-27-19	58	750	-----	351.5	-----	10-14-15	18	272	60.0	154.0	-----
2-26-19	59	780	-----	360.0	-----	11-14-15	19	290	60.0	180.0	-----
3-28-19	60	788	-----	360.0	-----	12-14-15	20	303	60.0	180.0	-----
4-27-19	61	808	-----	357.0	-----	1-13-16	21	312	60.0	180.0	-----
5-27-19	62	729	-----	287.0	-----	2-12-16	22	337	56.5	180.0	-----
6-26-19	63	776	-----	326.0	-----	3-13-16	23	345	34.0	180.0	-----
7-26-19	64	799	-----	359.0	-----	4-12-16	24	356	30.0	180.0	-----
8-25-19	65	776	-----	360.0	-----	5-12-16	25	360	30.0	180.0	-----
9-24-19	66	766	8.5	360.0	-----	6-11-16	26	361	31.5	180.0	-----
10-24-19	67	771	59.0	360.0	-----	7-11-16	27	370	45.0	180.0	-----
11-25-19	68	782	60.0	360.0	-----	8-10-16	28	387	45.0	180.0	-----
12-23-19	69	797	60.0	329.5	-----	9- 9-16	29	386	42.5	170.0	-----
1-22-20	70	823	60.0	360.0	-----	10- 9-16	30	403	45.0	187.5	-----
2-21-20	71	843	60.0	360.0	-----	11- 8-16	31	413	45.0	201.0	-----
3-22-20	72	855	60.0	360.0	-----	12- 8-16	32	419	51.0	211.5	-----
4-21-20	73	857	60.0	360.0	-----	1- 7-17	33	437	75.0	225.0	-----
5-21-20	74	866	59.0	328.0	-----	2- 6-17	34	465	66.0	218.5	-----
6-20-20	75	893	60.0	360.0	-----	3- 8-17	35	484	55.0	210.0	-----
7-20-20	76	910	60.0	358.0	-----	4- 7-17	36	482	38.0	210.0	-----
8-19-20	77	907	60.0	360.0	-----	5- 7-17	37	496	30.0	210.0	-----
9-18-20	78	918	60.0	360.0	-----	6- 6-17	38	499	25.0	210.5	-----
10-18-20	79	904	60.0	360.0	-----	7- 6-17	39	504	15.0	208.5	-----
11-17-20	80	921	60.0	354.0	-----	8- 5-17	40	495	15.0	220.5	-----
12-17-20	81	934	69.0	358.0	-----	9- 4-17	41	498	37.0	225.0	-----
1-16-21	82	935	89.5	358.0	-----	10- 4-17	42	512	70.0	225.0	-----
2-15-21	83	957	96.5	360.0	-----	11- 3-17	43	529	67.0	232.0	-----
3-17-21	84	989	120.0	360.0	-----	12- 3-17	44	532	72.5	240.0	-----
4-16-21	85	1004	120.0	360.0	-----	1- 2-18	45	554	76.0	240.0	-----
5-16-21	86	1020	120.0	360.0	-----	2- 1-18	46	576	36.5	240.0	-----
6-15-21	87	1035	120.0	360.0	-----	3- 3-18	47	586	50.0	236.0	-----
7-15-21	88	1045	120.0	360.0	-----	4- 2-18	48	576	-----	225.0	-----
8-14-21	89	1051	120.0	360.0	-----	5- 2-18	49	596	-----	224.5	-----
9-13-21	90	1058	120.0	360.0	-----	6- 1-18	50	578	-----	240.0	-----
10-13-21	91	1093	135.5	360.0	-----	7- 1-18	51	568	-----	240.0	-----
11-12-21	92	1098	150.0	358.5	-----	7-31-18	52	554	-----	240.0	-----
12-12-21	93	1121	150.0	360.0	-----	8-30-18	53	542	-----	253.0	-----
1-11-22	94	1135	150.0	360.0	-----	9-29-18	54	532	-----	255.0	-----
2-10-22	95	1154	147.5	354.0	-----	10-29-18	55	506	-----	263.5	-----
3-12-22	96	1175	150.0	360.0	-----	11-28-18	56	532	-----	278.0	-----
4-11-22	97	1216	237.0	360.0	-----	12-28-18	57	558	-----	328.5	-----
5-11-22	98	1236	240.0	360.0	-----	1-27-19	58	562	-----	317.0	-----
6-10-22	99	1283	304.0	340.0	-----	2-26-19	59	591	-----	330.0	-----
7-10-22	100	1344	360.0	300.0	-----	3-28-19	60	603	-----	330.0	-----
8- 9-22	101	1394	360.0	300.0	-----	4-27-19	61	604	-----	317.5	-----
9- 8-22	102	1434	360.0	300.0	-----	5-27-19	62	614	-----	326.5	-----
10- 8-22	103	1493	360.0	300.0	-----	6-26-19	63	622	-----	335.0	-----
11- 7-22	104	1531	360.0	300.0	-----	7-26-19	64	643	-----	360.0	-----
12- 7-22	105	1568	150.0	300.0	-----	8-25-19	65	630	-----	360.0	-----
1- 6-23	106	1599	360.0	300.0	-----	9-24-19	66	645	31.4	316.5	-----
2- 5-23	107	1609	360.0	300.0	-----	10-24-19	67	653	60.0	333.0	-----
3- 7-23	108	1532	344.0	300.0	-----	11-23-19	68	688	58.0	257.5	-----
4- 6-23	109	1429	111.0	116.0	-----	12-23-19	69	682	60.0	334.0	-----
5- 6-23	110†	1403	1.0	1.0	-----	1-22-20	70	716	60.0	360.0	-----
Steer						2-21-20	71	741	60.0	360.0	-----
	585					3-22-20	72	763	60.0	360.0	-----
5-22-14	1	143.1	-----	9.75	321	4-21-20	73	785	60.0	360.0	-----
6-21-14	2	155	5.00	15.5	317.5	5-21-20	74	825	60.0	359.0	-----
7-21-14	3	173	-----	59.5	300	6-20-20	75	850	60.0	360.0	-----
8-20-14	4	188	-----	90.0	300	7-20-20	76	858	60.0	359.0	-----
9-19-14	5	194	-----	104.0	299.8	8-19-20	77	878	60.0	360.0	-----

*Average weight of last ten days of period.

†Twenty-one days.

Date beginning of period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
9-18-20	78	885	60.0	360.0	-----	2-21-20	32	699	90.0	240.0	-----
10-18-20	79	896	60	358	-----	3-22-20	33	716	90.0	240.0	-----
11-17-20	80	917	60	349	-----	4-21-20	34	727	90.0	240.0	-----
12-17-20	81	931	60	349.5	-----	5-21-20	35	747	90.0	240.0	-----
1-16-21	82	943	60	358	-----	6-20-20	36	755	90.0	240.0	-----
2-15-21	83	977	69	360	-----	7-20-20	37	754	90.0	240.0	-----
3-17-21	84	959	60	323	-----	8-19-20	38	752	90.0	240.0	-----
4-16-21	85	952	60	300	-----	9-18-20	39	757	90.0	240.0	-----
5-16-21	86	948	60	300	-----	10-18-20	40	762	90.0	240.0	-----
6-15-21	87	965	60	300	-----	11-17-20	41	768	90.5	240.0	-----
7-15-21	88	956	60	300	-----	12-17-20	42	771	89.0	236.0	-----
8-14-21	89	924	60	300	-----	1-16-21	43	777	90.0	238.0	-----
9-13-21	90	932	60	300	-----	2-15-21	44	801	99.0	240.0	-----
10-13-21	91	937	75.5	300	-----	3-17-21	45	821	120.0	240.5	-----
11-12-21	92	932	90	300	-----	4-16-21	46	812	120.0	240.5	-----
12-12-21	93	957	107.5	300	-----	5-16-21	47	826	120.0	240.0	-----
1-11-22	94	1011	120	300	-----	6-15-21	48	844	120.0	240.5	-----
2-10-22	95	1009	118	295	-----	7-15-21	49	838	120.0	240.5	-----
3-12-22	96	1036	120	300	-----	8-14-21	50	840	120.0	240.0	-----
4-11-22	97	1036	120	279	-----	9-13-21	51	824	120.0	240.5	-----
5-11-22	98	1018	120	240	-----	10-13-21	52	834	133.5	240.0	-----
6-11-22	99	1043	120	240	-----	10-12-21	53	854	150.0	240.5	-----
7-10-22	100	1001	72	240	-----	12-12-21	54	881	150.0	240.0	-----
8- 9-22	101	922	104	240	-----	1-11-22	55	902	150.0	240.0	-----
9- 8-22	102	959	120	240	-----	2-10-22	56	920	186.5	236.0	-----
10- 8-22	103	1057	120	240	-----	3-12-22	57	946	210.0	240.0	-----
11- 7-22	104	950	120	240	-----	4-11-22	58	995	246.5	236.0	-----
12- 7-22	105	970	137.5	240	-----	5-11-22	59	1006	225.0	240.0	-----
1- 6-23	106	1011	170.5	240	-----	6-10-22	60	1016	225.0	240.0	-----
2- 5-23	107	1047	180	240	-----	7-10-22	61	1029	225.0	240.0	-----
3- 7-23	108	1067	180	240	-----	8- 9-22	62	1079	225.0	240.0	-----
4- 6-23	109	1084	192	240	-----	9- 8-22	63	1089	225.0	240.0	-----
5- 6-23	110	1095	193.5	220	-----	10- 8-22	64	1109	225.0	240.0	-----
6- 5-23	111	1123	210	240	-----	11- 7-22	65	1137	225.0	240.0	-----
7- 5-23	112	1200	164.5	188	-----	12- 7-22	66	1157	225.0	240.0	-----
8- 4-23	113	1072	93	105	-----	1- 6-23	67	1184	225.0	240.0	-----
9- 3-23	114	1052	111.4	128	-----	2- 5-23	68	1202	225.0	240.0	-----
10- 3-23	115	1030	137.5	24	-----	3- 7-23	69	1202	225.0	240.0	-----
11- 2-23	116	978	23.5	-----	-----	4- 6-23	70	1244	225.0	240.0	-----
12- 2-23	117	930	23.5	-----	-----	5- 6-23	71	1245	225.0	240.0	-----
Steer						6- 5-23	72	1242	220.0	240.0	-----
8- 5-17	1	173	24.5	79.3	82.8	7- 5-23	73	1254	237.5	240.0	-----
9- 4-17	2	181	32.5	103.0	-----	8- 4-23	74	1264	240.0	240.0	-----
10- 4-17	3	200	81.1	96.9	-----	9- 3-23	75	1276	240.0	240.0	-----
11- 3-17	4	237	109.6	111.0	-----	10- 3-23	76	1276	240.0	240.0	-----
12- 3-17	5	264	105.9	123.3	-----	11- 2-23	77	1310	240.0	240.0	-----
1- 2-18	6	288	102.0	134.8	-----	12- 2-23	78	1331	240.0	240.0	-----
2- 1-18	7	321	102.0	136.5	-----	1- 1-24	79	1300	240.0	240.0	-----
3- 3-18	8	355	102.0	135.0	-----	1-31-24	80	1337	240.0	240.0	-----
4- 2-18	9	383	103.0	142.0	-----	3- 1-24	81	1344	240.0	240.0	-----
5- 2-18	10	412	76.0	177.5	-----	3-31-24	82	1360	149.0	230.0	-----
6- 1-18	11	433	70.0	189.0	-----	4-30-24	83	1344	240.0	240.0	-----
7- 1-18	12	453	75.0	195.0	-----	5-30-24	84	1379	240.0	240.0	-----
7-31-18	13	469	75.0	195.0	-----	6-29-24	85	1343	240.0	240.0	-----
8-30-18	14	478	75.0	208.0	-----	7-29-24	86	1348	250.0	240.0	-----
9-29-18	15	483	75.0	210.0	-----	8-28-24	87	1357	294.0	240.0	-----
10-29-18	16	494	88.5	210.5	-----	9-27-24	88	1386	300.0	240.0	-----
11-28-18	17	499	90.0	163.0	-----	10-27-24	89	1413	300.0	240.0	-----
12-28-18	18	510	90.0	180.5	-----	11-26-24	90	1416	300.0	240.0	-----
1-27-19	19	536	90.0	207.0	-----	12-26-24	91	1437	299.0	240.0	-----
2-26-19	20	559	90.0	210.0	-----	1-25-25	92	1473	300.0	240.0	-----
3-28-19	21	502	90.5	210.0	-----	2-24-25	93	1498	276.0	216.0	-----
4-27-19	22	496	90.0	210.0	-----	Steer					
5-27-19	23	612	90.0	210.0	-----	8- 5-17	1	210	16.4	72.6	215.4
6-26-19	24	616	88.5	206.5	-----	9- 4-17	2	216	22.1	92.1	42.3
7-26-19	25	635	90.0	210.0	-----	10- 4-17	3	231	28.8	124.9	-----
8-25-19	26	637	89.9	210.0	-----	11- 3-17	4	243	30.0	134.5	-----
9-24-19	27	617	90.0	213.0	-----	12- 3-17	5	252	30.0	146.5	-----
10-24-19	28	627	90.0	230.0	-----	1- 2-18	6	263	30.0	150.0	-----
11-23-19	29	649	90.0	242.0	-----	2- 1-18	7	280	16.3	154.5	-----
12-23-19	30	667	90.0	240.0	-----	3- 3-18	8	289	-----	155.0	-----
1-22-20	31	681	88.5	228.5	-----						

Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
4- 2-18	9	295	0.5	150.0	-----	1-31-24	80	1567	240.0	150.0	-----
5- 2-18	10	305	-----	150.0	-----	3- 1-24	81	1549	270.0	150.0	-----
6- 1-18	11	307	-----	150.0	-----	3-31-24	82	1552	240.0	150.0	-----
7- 1-18	12	311	-----	150.0	-----	4-30-24	83	1541	240.0	150.0	-----
7-31-18	13	306	-----	150.0	-----	5-30-24	84	1560	240.0	150.0	-----
8-30-18	14	304	-----	165.0	-----	6-29-24	85	1511	240.0	150.0	-----
9-29-18	15	309	-----	165.0	-----	7-29-24	86	1547	250.5	206.0	-----
10-29-18	16	309	-----	179.0	-----	8-28-24	87	1553	286.0	240.0	-----
11-28-18	17	304	-----	182.0	-----	9-27-24	88	1586	300.0	240.0	-----
12-28-18	18	309	-----	180.0	-----	10-27-24	89	1650	264.0	214.0	-----
1-27-19	19	317	-----	187.0	-----	11-26-24	90	1501	58.5	57.5	-----
2-26-19	20	328	-----	210.0	-----	12-26-24	91	1412	12.0	32.5	-----
3-28-19	21	341	-----	210.0	-----	1-25-25	92	1318	19.25	64.5	-----
4-27-19	22	358	-----	210.0	-----	2-24-25	93	1248	18.0	73.5	-----
5-27-19	23	362	-----	206.0	-----	Str. 573					
6-26-19	24	370	-----	210.5	-----	8- 5-17	1	197	14.1	64.9	214.0
7-26-19	25	375	-----	210.0	-----	9- 4-17	2	220	34.1	102.3	253.0
8-25-19	26	380	-----	210.0	-----	10- 4-17	3	237	75.7	108.4	50.5
9-24-19	27	378	-----	210.0	-----	11- 3-17	4	269	105.8	128.1	-----
10-24-19	28	375	-----	210.0	-----	12- 3-17	5	290	87.5	145.4	-----
11-23-19	29	372	-----	224.5	-----	1- 2-18	6	312	72.0	164.3	-----
12-23-19	30	392	-----	241.0	-----	2- 1-18	7	335	62.5	165.0	-----
1-22-20	31	414	-----	254.0	-----	3- 3-18	8	345	30.0	165.0	-----
2-21-20	32	434	-----	270.0	-----	4- 2-18	9	354	29.5	165.6	-----
3-22-20	33	448	-----	270.0	-----	5- 2-18	10	366	15.0	192.0	-----
4-21-20	34	433	-----	238.0	-----	6- 1-18	11	364	6.0	202.5	-----
5-21-20	35	460	-----	270.0	-----	7- 1-18	12	369	-----	210.0	-----
6-20-20	36	469	-----	270.0	-----	7-31-18	13	355	-----	210.0	-----
7-20-20	37	479	-----	270.0	-----	8-30-18	14	367	-----	223.0	-----
8-19-20	38	485	-----	270.0	-----	9-29-18	15	364	-----	225.0	-----
9-18-20	39	488	-----	270.0	-----	10-29-18	16	361	-----	213.5	-----
10-18-20	40	491	-----	270.0	-----	11-28-18	17	339	9.5	167.5	-----
11-17-20	41	499	44.6	270.0	-----	12-28-18	18	354	30.0	180.5	-----
12-17-20	42	574	117.0	264.0	-----	1-27-19	19	383	30.0	221.5	-----
1-16-21	43	613	149.5	267.5	-----	2-26-19	20	399	30.0	221.5	-----
2-15-21	44	667	165.5	266.5	-----	3-28-19	21	406	43.0	213.5	-----
3-17-21	45	707	198.5	262.0	-----	4-27-19	22	431	60.0	210.0	-----
4-16-21	46	751	210.0	254.5	-----	5-27-19	23	438	60.0	212.5	-----
5-16-21	47	791	228.5	263.5	-----	6-26-19	24	454	60.0	217.5	-----
6-15-21	48	836	240.0	269.5	-----	7-26-19	25	477	60.0	209.0	-----
7-15-21	49	868	246.5	269.5	-----	8-25-19	26	492	60.0	210.0	-----
8-14-21	50	894	362.5	270.0	-----	9-24-19	27	485	60.0	206.0	-----
9-13-21	51	934	270.0	270.0	-----	10-24-19	28	499	60.0	200.5	-----
10-13-21	52	984	286.0	270.0	-----	11-23-19	29	503	60.0	210.5	-----
11-12-21	53	1032	323.5	268.0	-----	12-23-19	30	522	60.0	209.5	-----
12-12-21	54	1082	357.5	288.5	-----	1-22-20	31	532	60.0	210.0	-----
1-11-22	55	1133	390.0	230.5	-----	2-21-20	32	537	60.0	210.0	-----
2-10-22	56	1177	374.0	251.0	-----	3-22-20	33	552	60.0	210.0	-----
3-12-22	57	1213	404.0	263.0	-----	4-21-20	34	557	60.0	210.0	-----
4-11-22	58	1265	472.0	208.0	-----	5-21-20	35	569	60.0	210.0	-----
5-11-22	59	1319	480.0	150.0	-----	6-20-20	36	581	60.0	210.0	-----
6-10-22	60	1372	480.0	150.0	-----	7-20-20	37	595	60.0	210.0	-----
7-10-22	61	1402	480.0	150.0	-----	8-19-20	38	588	60.0	210.0	-----
8- 9-22	62	1433	480.0	150.0	-----	9-18-20	39	594	60.0	209.5	-----
9- 8-22	63	1473	480.0	150.0	-----	10-18-20	40	600	60	210.0	-----
10- 8-22	64	1458	411.0	150.0	-----	11-17-20	41	600	60	210.0	-----
11- 7-22	65	1479	360.0	150.0	-----	12-17-20	42	612	68.5	209.5	-----
12- 7-22	66	1495	360.0	150.0	-----	1-16-21	43	617	80.5	208.5	-----
1- 6-23	67	1536	360.0	150.0	-----	2-15-21	44	631	82	210.0	-----
2- 5-23	68	1563	360.0	150.0	-----	3-17-21	45	645	91.0	210.0	-----
3- 7-23	69	1569	360.0	150.0	-----	4-16-21	46	653	99.0	210.0	-----
4- 6-23	70	1596	360.0	150.0	-----	5-16-21	47	667	120.0	203.5	-----
5- 6-23	71	1616	360.0	150.0	-----	6-15-21	48	684	120.0	203.5	-----
6- 5-23	72	1633	360.0	150.0	-----	7-15-21	49	686	120.0	209.5	-----
7- 5-23	73	1614	348.0	145.0	-----	8-14-21	50	697	120.0	209.5	-----
8- 4-23	74	1584	234.0	136.0	-----	9-13-21	51	710	120.0	209.0	-----
9- 3-23	75	1556	230.0	147.5	-----	10-13-21	52	731	120.5	198.0	-----
10- 3-23	76	1560	240.0	150.0	-----	11-12-21	53	741	144.5	208.0	-----
11- 2-23	77	1545	240.0	150.0	-----	12-12-21	54	782	192.5	207.5	-----
12- 2-23	78	1595	240.0	150.0	-----	1-11-22	55	817	235.5	209.5	-----
1- 1-24	79	1570	240.0	150.0	-----	2-10-22	56	866	236.0	205.5	-----

Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
3-12-22	57	890	254.0	204.5	-----	5-21-20	35	499	60.0	180.0	-----
4-11-22	58	952	324.0	210.0	-----	6-20-20	36	511	60.0	180.0	-----
5-11-22	59	1007	330.0	210.0	-----	7-20-20	37	518	60.0	180.0	-----
6-10-22	60	1054	330.0	210.0	-----	8-19-20	38	506	60.0	180.0	-----
7-10-22	61	1091	330.0	210.0	-----	9-18-20	39	518	60.0	180.0	-----
8-9-22	62	1140	330.0	210.0	-----	10-18-20	40	509	60.0	180.0	-----
9-8-22	63	1177	330.0	210.0	-----	11-17-20	41	509	60.0	180.0	-----
10-8-22	64	1223	330.0	210.0	-----	12-17-20	42	505	69.0	180.0	-----
11-7-22	65	1263	330.0	210.0	-----	1-16-21	43	500	80.0	180.0	-----
12-7-22	66	1283	330.0	210.0	-----	2-15-21	44	513	81.5	180.0	-----
1-6-23	67	1332	330.0	210.0	-----	3-17-21	45	528	91.0	180.0	-----
2-5-23	68	1359	330.0	210.0	-----	4-16-21	46	539	99.0	180.0	-----
3-5-23	69	1369	220.0	210.0	-----	5-16-21	47	561	120.0	180.0	-----
4-6-23	70	1402	330.0	210.0	-----						
5-6-23	71	1442	330.0	210.0	-----	6-15-21	48	585	120.0	180.0	-----
6-5-23	72	1440	330.0	210.0	-----	7-15-21	49	581	120.0	179.0	-----
7-5-23	73	1451	355.0	210.0	-----	8-14-21	50	602	120.0	180.0	-----
8-4-23	74	1479	360.0	210.0	-----	9-13-21	51	609	120.0	180.0	-----
9-3-23	75	1512	260.0	210.0	-----	10-13-21	52	620	120.0	180.0	-----
10-3-23	76	1544	360.0	210.0	-----	11-12-21	53	624	142.0	180.0	-----
11-2-23	77	1556	360.0	210.0	-----	12-12-21	54	656	194.0	180.5	-----
12-2-23	78	1536	240.0	210.0	-----	1-11-22	55	714	236.0	180.0	-----
1-1-24	79	1472	240.0	210.0	-----	2-10-22	56	748	236.0	177.0	-----
1-31-24	80	1531	300.0	240.0	-----	3-12-22	57	765	254.5	180.0	-----
3-1-24	81	1553	300.0	240.0	-----	4-11-22	58	837	324.0	180.0	-----
3-31-24	82	1563	300.0	240.0	-----	5-11-22	59	902	330.0	180.0	-----
4-30-24	83	1577	300.0	240.9	-----	6-10-22	60	936	330.0	180.0	-----
5-30-24	84	1598	300.0	240.0	-----	7-10-22	61	988	330.0	180.0	-----
6-29-24	85	1593	300.0	240.0	-----	8-9-22	62	1026	330.0	180.0	-----
7-29-24	86	1568	264.0	199.0	-----	9-8-22	63	1064	330.0	180.0	-----
8-28-24	87	1550	235.0	187.5	-----	10-8-22	64	1100	330.0	180.0	-----
9-27-24	88	1605	277.0	225.0	-----	11-7-22	65	1129	530.0	180.0	-----
10-27-24	89	1620	300.0	240.0	-----	12-7-22	66	1148	330.0	180.0	-----
11-26-24	90	1611	300.0	240.0	-----	1-6-23	67	1196	330.0	180.0	-----
12-26-24	91	1622	300.0	240.0	-----	2-5-23	68	1199	330.0	180.0	-----
1-25-25	92	1664	300.0	240.0	-----	3-7-23	69	1191	330.0	180.0	-----
2-24-25	93	1678	272.5	218.0	-----	4-6-23	70	1220	330.0	180.0	-----
Str. 574						5-6-23	71	1242	330.0	180.0	-----
8-5-17	1	242	18.0	78.6	240.0	6-5-23	72	1252	330.0	180.0	-----
9-4-17	2	244	9.8	90.0	226.9	7-5-23	73	1255	355.0	180.0	-----
10-4-17	3	252	23.4	126.2	62.5	8-4-23	74	1247	266.0	208.0	-----
11-3-17	4	264	45.0	141.0	-----	9-3-23	75	1251	240.0	214.0	-----
12-3-17	5	268	46.5	150.0	-----	10-3-23	76	1205	200.0	156.0	-----
1-2-18	6	284	51.0	164.5	-----	11-2-23	77	1232	240.0	240.0	-----
2-1-18	7	309	51.2	165.0	-----	12-2-23	78	1217	240.0	120.0	-----
3-3-18	8	315	11.5	165.0	-----	1-1-24	79	1189	240.0	120.0	-----
4-2-18	9	315	5.5	165.0	-----	1-31-24	80	1234	280.0	224.0	-----
5-2-18	10	337	-----	174.0	-----	3-1-24	81	1250	300.0	240.0	-----
6-1-18	11	337	-----	174.0	-----	3-31-24	82	1267	300.0	240.0	-----
7-1-18	12	332	-----	180.0	-----	4-30-24	83	1293	300.0	240.0	-----
7-31-18	13	322	-----	180.0	-----	5-30-24	84	1308	300.0	240.0	-----
8-30-18	14	324	-----	193.0	-----	6-29-24	85	1293	300.0	240.0	-----
9-29-18	15	321	-----	195.0	-----	7-29-24	86	1321	217.0	132.0	-----
10-29-18	16	316	-----	210.5	-----	8-28-24	87	1265	225.0	147.0	-----
11-28-18	17	309	32.5	192.5	-----	9-27-24	88	1237	300.0	190.0	-----
12-28-18	18	321	60.0	175.5	-----	10-27-24	89	1272	300.0	236.0	-----
1-27-19	19	333	60.0	180.0	-----	11-26-24	90	1277	300.0	240.0	-----
2-26-19	20	348	60.0	180.0	-----	12-26-24	91	1284	300.0	240.0	-----
3-28-19	21	368	60.0	180.0	-----	1-25-25	92	1305	300.0	240.0	-----
4-27-19	22	382	60.0	180.0	-----	2-24-25	93	1322	276.0	220.0	-----
5-27-19	23	412	60.0	180.0	-----						
6-26-19	24	417	60.0	180.0	-----	Steer					
7-26-19	25	445	60.0	180.0	-----	575					
8-25-19	26	445	60.0	180.0	-----	8-5-17	1	217	13.4	75.8	2.35
9-24-19	27	432	60.0	180.0	-----	9-4-17	2	227	.2	75.0	236.5
10-24-19	28	439	60.0	180.0	-----	10-4-17	3	228	-----	109.0	67.0
11-23-19	29	435	60.0	180.0	-----	11-3-17	4	237	17.1	135.0	-----
12-23-19	30	448	60.0	180.5	-----	12-3-17	5	246	30.0	143.9	-----
1-22-20	31	453	60.0	180.0	-----	1-2-18	6	257	30.0	164.5	-----
2-22-20	32	464	60.0	180.0	-----	2-1-18	7	275	18.3	165.0	-----
3-22-20	33	474	60.0	180.0	-----	3-1-18	8	283	-----	155.0	-----
4-21-20	34	481	60.0	180.0	-----	4-2-18	9	290	-----	150.0	-----
						5-2-18	10	308	-----	150.0	-----

Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds	Date beginning of Period	Period No.	Live* weight Pounds	Grain Pounds	Hay Pounds	Milk Pounds
12-12-21	54	1181	196.0	261.0	-----	1-22-20	31	555	30.0	270.0	-----
1-11-22	55	1221	210.0	270.0	-----	2-21-20	32	580	30.0	270.0	-----
2-10-22	56	1266	246.0	265.0	-----	3-22-20	33	595	30.0	270.0	-----
3-12-22	57	1283	270.0	270.0	-----	4-21-20	34	580	30.0	270.0	-----
4-11-22	58	1328	270.0	270.0	-----	5-21-20	35	591	30.0	270.0	-----
5-11-22	59	1370	270.0	270.0	-----	6-20-20	36	696	30.0	270.0	-----
6-10-22	60	1393	270.0	270.0	-----	7-20-20	37	613	30.0	270.0	-----
7-10-22	61	1439	270.0	270.0	-----	8-19-20	38	603	30.0	270.0	-----
8- 9-22	62	1455	270.0	270.0	-----	9-18-20	39	619	30.0	270.0	-----
9- 8-22	63	1486	270.0	270.0	-----	10-18-20	40	599	30.0	270.0	-----
10- 8-22	64	1514	270.0	270.0	-----	11-17-20	41	645	69.5	270.0	-----
11- 7-22	65	1526	270.0	270.0	-----	12-17-20	42	693	130.0	270.0	-----
12- 7-22	66	1529	270.0	270.0	-----	1-16-21	43	723	149.5	269.0	-----
1- 6-23	67	1566	270.0	270.0	-----	2-15-21	44	760	165.5	270.0	-----
2- 5-23	68	1567	270.0	270.0	-----	3-17-21	45	815	195.5	267.5	-----
3- 7-23	69	1601	270.0	270.0	-----	4-16-21	46	843	210.0	270.0	-----
4- 6-23	70	1630	270.0	270.0	-----	5-16-21	47	893	227.5	270.0	-----
5- 6-23	71	1647	270.0	270.0	-----						
6- 5-23	72	1647	270.0	270.0	-----						
7- 5-23	73	1673	270.0	270.0	-----	6-15-21	48	941	240.0	270.0	-----
8- 4-23	74	1689	270.0	270.0	-----	7-15-21	49	968	253.0	270.0	-----
9- 3-23	75	1706	270.0	270.0	-----	8-14-21	50	966	262.5	270.0	-----
10- 3-23	76	1690	270.0	270.0	-----	9-13-21	51	1017	270.0	270.0	-----
11- 2-23	77	1704	270.0	270.0	-----	10-13-21	52	1055	285.0	260.5	-----
12- 2-23	78	1713	270.0	270.0	-----	11-12-21	53	1089	323.5	270.0	-----
1- 1-24	79	1698	270.0	270.0	-----	12-12-21	54	1130	352.5	267.0	-----
1-31-24	80	1698	270.0	270.0	-----	1-11-22	55	1206	320.0	265.0	-----
3- 1-24	81	1722	270.0	270.0	-----	2-10-22	56	1203	387.5	234.5	-----
3-31-24	82	1719	270.0	270.0	-----	3-12-22	57	1252	404.5	269.5	-----
4-30-24	83	1730	270.0	270.0	-----	4-11-22	58	1227	344.0	202.0	-----
5-30-24	84	1781	270.0	270.0	-----	5-11-22	59	1258	300.0	150.0	-----
6-29-24	85	1771	270.0	270.0	-----	6-10-22	60	1291	318.0	150.0	-----
7-29-24	86	1614	103.0	100.0	-----	7-10-22	61	1321	330.0	150.0	-----
8-28-24	87	1547	21.0	36.0	-----	8- 9-22	62	1342	330.0	150.0	-----
Steer						9- 8-22	63	1372	330.0	150.0	-----
578						10- 8-22	64	1392	330.0	150.0	-----
8- 5-17	1	252	25.0	99.5	152.5	11- 7-22	65	1416	330.0	150.0	-----
9- 4-17	2	268	44.3	111.0	216.4	12- 7-22	66	1424	330.0	150.0	-----
10- 4-17	3	279	72.0	130.8	54.5	1- 6-23	67	1442	330.0	150.0	-----
11- 3-17	4	314	90.0	140.4	-----	2- 5-23	68	1467	330.0	150.0	-----
12- 3-17	5	317	76.1	194.0	-----	3- 7-23	69	1468	330.0	150.0	-----
1- 2-18	6	331	81.0	164.5	-----	4- 6-23	70	1506	330.0	150.0	-----
2- 1-18	7	365	81.6	165.0	-----	5- 6-23	71	1539	330.0	150.0	-----
3- 3-18	8	383	29.0	164.0	-----	6- 5-23	72	1529	330.0	150.0	-----
4- 2-18	9	378	21.5	165.5	-----	7- 5-23	73	1528	330.0	150.0	-----
5- 2-18	10	411	10.0	192.0	-----	8- 4-23	74	1498	267.0	129.0	-----
6- 1-18	11	418	-----	196.0	-----	9- 3-23	75	1441	138.0	104.5	-----
7- 1-18	12	413	-----	195.0	-----	10- 3-23	76	1370	262.0	147.5	-----
7-31-18	13	402	-----	195.0	-----	11- 2-23	77	1377	330.0	150.0	-----
8-30-18	14	393	-----	208.0	-----	12- 2-23	78	1396	330.0	150.0	-----
9-29-18	15	383	-----	210.0	-----	1- 1-24	79	1378	330.0	150.0	-----
10-29-18	16	372	2.0	210.0	-----	1-31-24	80	1434	330.0	150.0	-----
11-28-18	17	375	-----	233.5	-----	2- 1-24	81	1447	330.0	150.0	-----
12-28-18	18	395	-----	226.5	-----	3-31-24	82	1477	330.0	150.0	-----
1-27-19	19	409	-----	240.0	-----	4-30-24	83	1492	330.0	150.0	-----
2-26-19	20	432	-----	240.0	-----	5-30-24	84	1503	330.0	150.0	-----
3-28-19	21	438	-----	240.0	-----	6-29-24	85	1459	330.0	150.0	-----
4-27-19	22	455	-----	240.0	-----	7-29-24	86	1428	330.0	150.0	-----
5-27-19	23	458	-----	241.5	-----	8-28-24	87	1452	330.0	173.5	-----
6-26-19	24	457	-----	245.0	-----	9-27-24	88	1484	330.0	240.0	-----
7-26-19	25	466	17.0	269.0	-----	10-27-24	89	1491	300.0	240.0	-----
8-25-19	26	490	30.0	270.0	-----	11-26-24	90	1504	300.0	240.0	-----
9-24-19	27	496	30.5	270.0	-----	12-26-24	91	1495	300.0	240.0	-----
10-24-19	28	512	30.0	270.0	-----	1-25-25	92	1507	300.0	240.0	-----
11-23-19	29	519	30.0	270.0	-----	2-24-25	93	1555	256.0	202.0	-----
12-23-19	30	541	30.0	270.0	-----						

Table 7.—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
Steer							
528							
1	3.9	2.4	7.3	9	1.0	14.5	15.4
2	19.0	2.5	40.2	5.8	4.7	67.4	72.1
3	31.7	2.6	57.1	19.5	10.7	110.9	121.6
4	38.6	4.4	101.3	28.4	13.8	172.7	186.5
5	48.8	6.1	136.5	39.4	17.7	230.8	248.5
6	53.3	7.5	147.8	44.5	19.3	253.1	272.3
7	37.5	6.8	117.0	41.4	15.3	203.8	219.1
8	35.9	7.7	116.0	41.6	14.2	201.1	215.3
9	35.8	7.3	118.6	41.3	13.9	202.4	216.3
10	35.5	7.7	117.9	41.6	14.0	203.2	217.2
11	35.6	7.8	118.3	41.6	14.0	203.2	217.2
12	35.6	7.8	118.3	41.6	14.0	203.2	217.2
13	35.6	7.8	118.3	41.6	14.8	214.2	229.0
14	36.2	7.8	123.1	47.1	16.5	229.9	246.4
15	38.9	8.5	129.0	53.5	16.4	257.3	273.7
16	39.9	9.3	145.6	74.6	18.4	284.6	303.0
17	42.9	9.8	157.4	68.6	20.9	282.9	303.9
18	44.6	10.2	159.6	70.4	21.4	290.3	311.7
19	45.6	10.4	163.9	73.4	22.7	306.6	329.4
20	47.0	10.8	175.4	71.1	22.6	304.7	327.5
21	45.3	10.3	178.0	70.9	22.5	303.6	326.1
22	45.3	10.3	177.0	71.0	22.8	303.3	326.1
23	44.9	10.2	177.3	73.6	23.1	304.6	327.8
24	45.3	9.1	176.7	73.6	23.1	304.6	327.8
25	45.3	9.1	176.7	77.0	21.6	306.5	328.1
26	43.2	8.8	177.6	73.5	19.7	295.4	315.1
27	40.7	8.4	172.8	73.5	19.7	295.8	315.6
28	40.7	8.4	172.8	77.5	20.9	315.6	336.5
29	43.6	9.1	185.4	83.9	22.0	325.8	347.9
30	45.2	9.8	186.9	88.4	22.8	331.3	354.1
31	46.2	10.5	186.2	82.5	24.2	332.7	356.9
32	48.0	10.7	191.5	82.7	25.7	341.6	367.3
33	50.0	11.0	197.9	82.4	25.6	340.7	366.3
34	49.8	11.0	197.8	82.6	25.7	340.2	366.8
35	49.9	11.0	197.8	82.6	25.6	341.1	366.7
36	49.9	10.8	197.8	82.1	26.0	353.8	379.8
37	51.6	10.8	209.4	79.9	25.3	342.6	367.9
38	49.7	10.2	202.7	79.9	25.3	342.6	367.9
39	49.7	10.2	202.7	81.0	25.8	351.2	376.9
40	51.1	10.6	208.5	84.8	27.0	367.2	394.2
41	53.4	11.0	217.9	83.9	26.5	376.0	402.5
42	54.8	12.3	225.0	87.8	27.3	392.7	420.1
43	56.5	11.6	236.8	81.3	27.8	394.7	422.5
44	59.9	10.9	242.5	78.6	27.6	392.9	420.5
45	61.6	10.6	242.0	78.6	27.6	392.9	420.5
46	61.6	10.6	242.0	78.6	27.6	392.9	420.5
47	61.6	10.6	242.0	76.1	29.4	393.9	423.3
48	63.5	10.9	243.4	76.1	29.7	375.7	405.4
49	52.7	9.4	205.3	108.3	30.3	347.8	378.1
50	45.1	8.6	181.9	112.3	35.5	295.1	330.6
51	43.2	8.3	148.1	95.5	35.5	296.9	332.5
52	43.6	8.5	149.2	95.9	35.1	297.8	332.9
53	43.9	8.8	149.2	97.6	35.6	302.6	338.6
54	44.7	9.0	151.6	98.8	37.4	348.3	385.7
55	52.4	11.7	185.4	99.1	41.3	377.0	419.0
56	59.0	16.7	202.9	100.6	41.7	379.2	420.9
57	59.1	16.6	202.9	101.3	41.9	380.8	422.8
58	59.3	16.7	203.5	102.6	43.0	406.5	449.4
59	63.1	18.4	222.3	102.6	43.0	406.0	449.0
60	63.0	18.3	222.0	95.9	41.4	409.2	450.5
61	68.2	18.9	226.2	94.5	38.1	413.6	451.7
62	68.2	18.3	232.7	96.0	37.0	411.5	448.5
63	65.7	16.8	233.0	96.5	37.2	414.3	451.5
64	66.2	17.4	234.2	96.4	37.2	414.4	451.6
65	66.1	17.6	234.4	96.4	37.2	414.4	451.6
66	66.1	17.6	234.4	96.4	37.2	414.4	451.6
67	63.7	15.1	229.6	109.0	35.0	417.3	452.2
68	62.2	14.6	228.0	112.9	34.9	417.6	452.5
69	62.4	14.7	229.0	113.0	34.9	419.0	453.9
70	62.4	14.7	229.0	113.0	34.9	419.0	453.9
71	62.4	14.7	229.0	113.0	34.9	419.0	453.9
72	62.4	14.7	229.0	113.0	35.2	422.0	457.2
73	63.8	13.1	231.7	113.4	35.2	421.6	456.8
74	64.2	12.2	231.7	113.6	35.3	423.8	459.1
75	64.6	12.3	233.3	113.6	35.6	423.3	458.9
76	64.5	12.0	233.7	113.1	35.6	423.3	458.9
77	64.9	10.2	236.5	113.0	36.5	426.1	463.2

Table 7. (Continued).—Weight of Nutrients Consumed—In Pounds

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
78	65.2	11.5	242.4	116.1	37.0	435.2	472.2
79	63.1	12.7	233.4	111.5	36.3	420.7	457.0
80	65.3	13.8	240.5	115.7	37.1	435.2	472.4
81	63.0	13.7	231.2	110.8	35.7	418.6	454.3
82	66.6	13.9	238.4	115.7	37.9	435.2	473.0
83	68.8	13.1	241.7	121.7	37.9	445.3	483.1
84	69.6	13.4	249.4	124.7	38.0	457.2	495.1
85	70.1	13.2	252.8	124.8	38.2	460.9	498.9
86	70.1	13.2	252.8	124.8	38.2	460.9	498.9
87	69.7	13.8	250.9	124.9	38.0	459.3	497.2
88	63.1	13.2	244.3	127.2	34.1	447.8	481.9
89	61.6	11.6	253.5	138.2	33.8	464.9	498.7
90	50.1	11.7	213.0	79.2	22.4	353.9	376.3
91	25.9	6.3	112.3	34.4	10.6	178.9	189.5
Steer							
579							
1	6.9	5.3	12.0	.9	1.7	25.1	26.8
2	14.1	1.9	30.1	5.6	3.7	51.8	55.4
3	22.5	1.8	52.6	16.3	8.1	93.3	101.4
4	24.8	2.5	62.0	21.7	9.6	111.0	120.7
5	29.6	3.2	70.7	27.0	11.5	130.5	142.1
6	31.8	4.0	82.0	31.2	12.7	149.0	161.7
7	24.6	4.3	72.3	34.3	11.5	135.5	147.0
8	24.0	4.7	70.4	37.8	11.6	137.0	148.6
9	24.0	4.7	71.4	37.9	11.6	138.0	149.5
10	24.2	5.0	72.0	38.5	11.7	139.6	151.3
11	23.9	4.9	71.3	37.9	11.5	138.0	149.5
12	23.9	4.9	71.3	37.9	11.5	138.0	149.5
13	23.9	4.9	71.3	37.9	11.5	138.0	149.5
14	23.9	4.9	78.8	40.6	11.7	148.2	159.9
15	30.4	6.4	97.5	48.8	14.3	183.1	197.4
16	34.2	7.4	111.8	63.2	17.0	216.6	233.6
17	29.9	4.4	108.1	70.6	15.7	213.1	228.8
18	30.6	6.1	102.5	64.1	18.0	203.3	221.3
19	31.7	6.4	107.3	65.9	18.5	211.3	229.8
20	41.1	9.0	151.9	70.9	21.4	272.9	294.3
21	32.3	7.1	120.9	66.8	19.8	227.1	247.0
22	32.3	7.0	119.9	66.7	19.7	225.9	245.6
23	32.1	6.9	120.0	66.7	19.8	225.7	245.6
24	32.6	5.8	119.0	69.1	21.0	226.6	247.5
25	32.4	5.8	118.0	68.7	19.9	224.9	244.7
26	28.1	5.1	110.0	66.9	17.0	210.1	227.1
27	28.1	5.2	115.0	69.1	16.5	217.3	233.8
28	28.1	5.2	115.0	69.1	16.5	217.3	233.8
29	28.1	5.2	115.0	69.1	16.5	217.3	233.8
30	28.9	5.5	122.6	72.5	17.1	229.5	246.6
31	30.0	6.0	118.8	73.9	17.6	228.7	246.3
32	33.7	6.7	132.0	71.8	19.7	244.2	263.9
33	36.0	7.0	140.2	73.7	21.6	256.9	278.5
34	35.9	7.1	140.0	72.3	21.3	255.3	276.5
35	39.1	7.8	152.7	77.5	22.9	277.1	300.0
36	37.8	7.3	146.9	76.8	22.5	268.8	291.3
37	38.0	7.1	150.1	77.2	22.7	272.3	295.1
38	37.1	6.8	147.0	75.2	22.2	266.1	288.4
39	34.8	6.2	136.9	74.5	21.7	252.4	274.1
40	34.8	6.2	136.9	74.5	21.7	252.4	274.1
41	36.4	6.6	143.8	75.1	22.1	261.9	283.9
42	45.2	6.7	182.8	80.4	24.2	318.1	342.3
43	46.0	9.2	188.2	85.8	25.2	329.2	354.4
44	50.6	8.9	197.6	80.3	26.2	337.4	363.6
45	54.9	9.1	208.8	78.9	26.7	351.8	378.5
46	49.0	7.9	181.3	77.1	25.4	315.4	340.7
47	41.7	6.4	147.5	74.2	23.6	269.8	293.4
48	44.6	5.6	153.1	72.8	25.7	276.0	301.7
49	30.7	4.2	123.3	102.1	25.3	264.4	289.8
50	37.5	4.4	116.4	104.8	26.2	256.4	282.6
51	37.5	7.1	124.1	89.9	32.9	258.6	291.6
52	43.7	8.7	147.9	89.9	32.9	258.6	291.6
53	41.0	7.9	135.1	96.5	35.3	296.8	332.1
54	30.3	6.1	99.1	71.8	35.0	281.1	316.1
55	36.1	10.1	110.0	80.1	26.1	207.3	233.4
56	39.1	10.9	119.2	86.8	32.0	236.3	268.3
57	41.6	11.6	127.0	86.8	34.7	256.0	290.7
58	42.7	11.9	130.0	92.5	36.9	272.7	309.7
59	42.7	11.9	130.0	94.7	37.8	279.3	317.1
60	47.3	12.3	133.8	94.7	37.8	279.3	317.1
61	38.5	9.6	112.9	87.2	36.2	280.0	316.8
62				68.5	26.7	229.5	256.3

Table 7. (Continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
63	40.7	9.6	129.3	80.4	29.3	259.9	289.3
64	44.8	10.5	142.4	88.5	32.3	286.3	318.5
65	44.9	10.6	142.8	88.8	32.4	287.1	319.4
66	46.1	11.0	148.0	89.2	32.6	294.3	326.9
67	50.8	10.8	174.0	104.3	32.0	340.0	372.1
68	50.0	10.2	173.5	108.3	31.7	342.0	373.7
69	46.5	9.6	161.9	99.4	29.2	317.4	346.6
70	50.0	10.2	173.5	108.3	31.7	342.0	373.7
71	50.0	10.2	173.5	108.3	31.7	342.0	373.7
72	50.0	10.2	173.5	108.3	31.7	342.0	373.7
73	50.6	9.6	174.7	108.5	31.8	343.3	375.1
74	47.0	8.6	162.5	99.1	29.2	317.2	346.4
75	51.5	9.1	177.9	109.9	32.7	348.5	381.2
76	53.1	9.1	185.3	111.7	34.8	359.2	393.9
77	63.1	9.1	185.3	111.7	34.8	359.2	393.9
78	52.4	9.5	184.9	111.4	34.5	358.3	392.8
79	52.5	9.3	184.8	111.4	34.5	357.9	392.4
80	51.7	9.4	181.9	109.5	33.8	352.6	386.4
81	53.7	10.1	189.2	111.6	34.6	364.5	399.1
82	57.4	11.0	201.4	112.5	35.6	382.6	418.3
83	59.1	10.5	201.1	118.3	35.5	388.9	424.4
84	61.6	11.2	212.9	121.7	35.9	407.3	443.2
85	61.7	11.0	214.7	121.7	36.0	409.2	445.1
86	61.7	11.0	214.7	121.7	36.0	409.2	445.1
87	61.6	11.4	213.9	121.8	35.9	408.7	444.4
88	56.6	10.9	213.2	129.6	33.2	410.4	443.6
89	53.4	9.5	215.1	135.0	31.7	413.0	444.7
90	52.9	10.0	207.5	140.0	32.6	410.0	443.0
91	55.0	10.6	217.2	140.8	33.1	423.6	456.7
92	55.2	9.5	220.4	152.3	30.9	437.4	468.2
93	55.0	9.7	219.2	154.6	30.7	438.5	469.2
94	53.6	11.6	224.0	146.3	30.5	435.5	466.0
95	52.0	12.2	223.1	138.8	29.8	426.2	456.0
96	53.0	12.3	226.8	141.2	30.3	433.2	463.5
97	64.9	14.6	281.7	146.3	33.0	507.5	540.5
98	66.0	14.6	284.4	146.5	33.1	511.4	544.6
99	72.9	16.4	317.0	142.7	33.9	548.9	582.8
100	78.3	22.1	340.1	127.2	33.1	567.7	600.8
101	77.7	22.7	345.7	124.8	33.2	570.9	604.1
102	76.9	21.4	345.7	125.1	33.0	569.1	602.1
103	76.7	21.1	345.7	125.1	33.0	568.6	601.6
104	84.0	21.5	342.5	117.6	35.2	565.6	600.8
105	60.7	13.7	211.5	98.7	30.8	384.5	415.3
106	90.4	23.4	340.5	109.3	37.9	563.5	601.5
107	90.4	23.3	340.4	109.3	38.0	563.4	601.4
108	89.1	21.0	326.8	108.8	37.8	545.7	583.5
109	31.3	7.2	113.0	40.9	13.8	192.8	206.1
110	.3	.1	1.0	.4	.1	1.7	1.8
Steer							
585							
1	10.0	8.3	19.1	3.2	2.7	40.6	43.2
2	11.9	1.9	26.2	5.9	3.2	45.9	49.1
3	16.2	1.2	36.7	19.4	7.4	73.6	81.0
4	19.8	1.9	49.5	30.2	10.4	101.3	111.7
5	21.7	2.2	54.6	34.9	9.3	113.4	122.8
6	23.3	2.9	59.8	39.1	12.8	125.2	138.0
7	20.5	3.5	56.7	43.7	12.8	124.5	137.3
8	21.1	4.0	53.9	44.5	12.6	123.5	136.1
9	21.1	4.0	53.9	44.5	12.6	123.5	136.1
10	21.1	4.0	53.9	44.5	12.6	123.5	136.1
11	21.1	4.0	53.9	44.5	12.6	123.5	136.1
12	21.1	4.0	53.9	44.5	12.6	123.5	136.1
13	21.1	4.0	53.9	44.5	12.6	123.5	136.1
14	20.7	3.8	57.4	49.1	13.0	131.0	144.0
15	22.3	4.2	64.1	49.2	13.3	139.9	153.2
16	26.3	5.3	82.5	56.1	14.5	170.2	184.6
17	23.3	4.6	83.3	58.4	12.8	169.6	182.4
18	27.6	5.6	93.6	55.3	15.7	182.1	197.7
19	30.3	6.1	102.9	64.1	18.0	203.6	221.6
20	28.8	6.2	104.1	64.3	18.0	204.3	222.4
21	28.5	6.2	105.7	61.2	18.0	201.6	219.6
22	28.0	6.0	102.6	60.9	17.8	197.5	215.3
23	24.7	5.1	88.4	59.9	17.2	178.0	195.2
24	24.6	4.0	84.7	61.9	17.0	175.1	192.2
25	24.6	4.0	84.7	61.9	17.0	175.1	192.2
26	23.0	3.8	86.6	65.2	14.6	178.6	193.1

Table 7 (continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
27	23.8	4.1	95.8	67.6	15.4	191.3	206.8
28	23.8	4.1	95.8	67.6	15.4	191.3	206.8
29	22.5	3.9	90.5	63.8	14.6	180.7	195.3
30	24.6	4.3	97.5	70.5	16.0	196.8	212.8
31	26.0	4.7	101.7	75.9	17.1	208.3	225.4
32	29.2	5.2	112.8	72.7	19.2	219.9	239.1
33	34.9	6.5	134.8	75.5	21.8	251.7	273.5
34	32.9	6.1	126.8	72.9	20.9	238.6	259.5
35	30.4	5.5	116.8	69.5	19.8	222.1	242.0
36	28.0	4.7	106.6	68.4	19.2	207.8	226.9
37	26.8	4.3	102.5	67.6	18.9	201.2	220.0
38	26.1	4.1	99.5	67.2	18.7	196.9	215.6
39	24.5	3.7	92.7	66.2	18.2	187.1	205.3
40	25.8	3.9	97.4	70.0	19.2	197.1	216.3
41	29.4	4.8	113.0	72.5	20.4	219.8	240.1
42	34.4	6.9	135.5	74.8	21.2	251.5	272.7
43	34.7	6.8	137.6	77.2	21.5	256.3	277.9
44	38.9	6.6	145.3	73.0	22.7	263.9	286.6
45	41.0	6.4	147.1	70.5	22.6	265.1	287.7
46	35.6	5.3	121.9	68.4	21.3	231.2	252.5
47	36.8	5.6	128.5	67.7	21.3	238.6	259.9
48	30.3	2.5	93.5	60.9	20.4	187.2	207.6
49	24.5	2.5	83.9	77.4	18.9	188.4	207.3
50	23.9	3.5	90.5	81.2	20.4	199.1	219.5
51	28.6	5.4	94.5	68.5	25.1	197.0	222.1
52	28.6	5.4	94.5	68.5	25.1	197.0	222.1
53	30.3	5.8	99.8	72.4	26.1	208.4	234.5
54	30.6	5.9	100.7	73.0	26.3	210.1	236.4
55	31.6	6.3	103.2	74.8	27.2	215.9	243.1
56	32.9	9.2	100.4	73.2	29.2	215.7	244.9
57	38.9	10.9	118.7	86.4	34.5	254.9	289.4
58	37.6	10.5	114.5	83.4	33.3	246.0	279.3
59	39.1	10.9	119.2	86.8	34.7	256.0	290.7
60	39.1	10.9	119.2	86.8	34.7	256.0	290.7
61	42.0	11.0	118.9	77.6	32.3	249.4	281.7
62	43.1	10.6	128.7	78.5	30.2	260.9	291.1
63	41.8	9.8	132.9	82.6	30.1	267.1	297.2
64	44.9	10.6	142.8	88.8	32.4	287.0	319.4
65	44.9	10.6	142.8	88.8	32.4	287.0	319.4
66	43.9	10.8	144.7	79.6	29.5	279.0	308.5
67	48.8	10.4	167.7	99.5	30.6	326.4	356.9
68	38.1	7.9	133.1	78.2	22.9	257.2	280.2
69	47.0	9.7	163.6	100.7	29.5	321.0	350.6
70	50.0	10.2	173.5	108.3	31.7	342.0	373.7
71	50.0	10.2	173.5	108.3	31.7	342.0	373.7
72	50.0	10.2	173.5	108.3	31.7	342.0	373.7
73	50.6	9.6	174.6	108.4	31.8	343.3	375.0
74	50.8	9.3	174.9	108.2	31.7	343.2	374.9
75	50.9	9.3	175.3	108.5	31.8	344.0	375.8
76	51.4	9.1	177.6	109.6	32.6	347.7	380.3
77	53.1	9.1	185.3	111.7	34.8	359.2	393.9
78	52.4	9.5	184.9	111.4	34.5	358.3	392.8
79	52.2	9.2	184.0	110.8	34.4	356.2	390.6
80	51.1	9.3	179.9	108.0	33.3	348.3	381.7
81	51.3	9.5	180.1	108.5	33.5	349.4	382.9
82	52.9	9.6	183.2	110.9	34.5	356.8	391.3
83	53.7	9.0	178.4	116.4	34.1	357.5	391.7
84	48.7	8.2	161.5	106.7	30.6	325.1	355.7
85	45.9	7.7	153.6	99.3	28.6	306.5	335.1
86	45.9	7.7	153.6	99.3	28.6	306.5	335.1
87	45.8	7.9	153.1	99.4	28.5	306.3	334.8
88	41.8	7.4	152.9	105.9	26.3	307.8	334.2
89	39.1	6.5	153.7	110.4	25.0	309.7	334.7
90	38.6	6.8	147.9	114.6	25.7	308.0	333.8
91	40.7	7.4	157.6	115.4	26.3	321.2	347.5
92	41.4	6.6	162.2	125.6	24.6	335.8	360.4
93	43.5	7.4	171.8	128.0	25.0	350.6	375.5
94	44.0	9.5	183.6	121.6	25.2	358.7	383.9
95	42.7	10.0	182.9	115.4	24.7	351.0	375.7
96	43.5	10.0	186.0	117.4	25.1	356.8	381.9
97	41.6	9.1	178.9	109.9	23.4	339.5	362.9
98	38.5	8.3	164.7	95.5	20.7	306.9	327.7
99	38.4	8.3	164.8	95.5	20.7	307.0	327.7
100	31.9	7.7	136.8	91.6	20.7	307.0	327.7
101	35.9	9.7	161.3	91.2	19.1	268.0	287.1
102	38.0	10.0	171.4	92.0	20.2	298.1	318.3
					20.7	311.4	332.1

Table 7 (Continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
103	37.9	9.9	171.3	92.1	20.7	311.2	331.9
104	43.7	10.3	168.8	86.1	22.5	308.9	331.4
105	51.0	11.7	180.0	79.9	25.3	322.6	347.2
106	55.7	13.4	199.8	81.6	26.4	350.6	376.3
107	57.1	13.8	205.6	82.0	35.4	358.6	393.9
108	57.6	13.0	203.7	82.2	26.9	356.5	383.4
109	59.3	13.5	211.0	82.8	27.3	366.6	393.9
110	56.9	13.1	204.0	76.8	25.6	350.8	376.4
111	61.4	13.4	223.4	84.8	28.1	382.9	410.7
112	48.1	10.4	175.2	66.5	22.0	300.0	321.9
113	26.9	6.6	99.2	36.7	12.1	169.1	181.1
114	33.6	8.5	124.8	44.9	14.9	211.5	226.2
115	37.2	9.4	139.4	49.0	16.8	234.7	251.5
116	6.9	1.8	25.7	8.7	3.0	42.8	46.0
117	6.6	1.7	24.1	8.4	2.9	40.5	43.5
Steer							
571							
1	14.8	2.2	51.0	26.2	8.2	94.1	102.2
2	15.7	2.8	61.5	34.0	9.9	114.0	123.8
3	22.1	4.9	90.3	40.4	10.9	157.7	168.6
4	27.4	5.6	115.1	41.1	12.9	189.2	202.1
5	29.5	5.2	135.6	38.5	13.3	208.8	222.1
6	31.2	5.3	120.4	42.8	14.7	199.8	214.5
7	31.5	5.3	121.1	43.3	14.8	201.2	216.0
8	31.3	5.3	120.5	42.9	14.7	199.9	214.6
9	33.6	6.5	133.6	34.7	14.2	208.4	222.5
10	29.8	5.1	114.8	65.0	17.5	214.8	232.2
11	28.7	5.7	116.2	66.8	18.6	217.3	235.9
12	33.7	6.7	125.2	59.6	22.9	225.2	248.1
13	36.9	7.7	138.3	60.7	23.7	243.5	267.2
14	35.7	8.9	129.6	63.2	24.1	237.4	261.4
15	36.0	8.0	130.4	63.8	24.2	238.1	262.4
16	38.0	8.9	138.2	63.9	24.8	248.9	273.8
17	32.1	9.1	115.3	47.5	20.3	204.0	224.3
18	34.0	9.6	120.7	52.3	22.1	216.6	238.7
19	37.0	10.4	129.9	59.4	24.8	236.7	261.6
20	37.1	10.8	131.0	60.0	25.2	238.9	264.1
21	37.2	10.9	130.1	60.0	25.2	238.2	263.4
22	38.7	10.7	127.4	55.5	29.6	232.4	261.9
23	40.1	10.8	137.2	55.3	22.3	243.4	265.7
24	38.3	9.8	136.3	55.7	21.4	240.1	261.5
25	39.0	10.2	138.0	56.5	21.8	243.7	265.6
26	38.9	10.4	138.2	56.4	21.8	243.8	265.6
27	39.3	10.5	139.4	57.1	22.0	246.3	268.3
28	39.8	9.4	143.1	69.3	22.1	261.7	283.8
29	40.5	9.3	147.2	75.3	23.1	272.3	295.4
30	40.2	9.3	146.5	74.8	22.9	270.7	293.6
31	38.7	9.0	141.2	71.3	26.8	260.2	287.0
32	38.9	9.0	142.1	71.4	26.8	261.5	288.3
33	38.9	9.0	142.1	71.4	26.8	261.5	288.3
34	30.6	6.1	105.1	68.3	24.7	210.1	234.8
35	40.2	7.6	144.7	71.8	27.1	264.4	291.4
36	40.2	7.6	144.7	71.8	27.1	264.4	291.0
37	42.0	7.7	150.9	76.1	23.8	276.7	300.5
38	43.0	7.7	155.8	77.3	25.1	283.8	308.9
39	42.0	8.3	155.2	76.9	24.7	282.4	307.1
40	42.1	8.3	154.7	76.8	24.8	281.9	306.7
41	42.2	8.8	154.4	76.7	24.5	282.0	306.5
42	41.7	8.8	151.8	76.0	24.3	278.3	302.6
43	42.8	8.8	152.7	76.4	24.8	280.7	305.5
44	44.5	8.4	155.5	80.7	24.9	289.1	314.0
45	46.6	9.0	167.0	83.3	25.4	305.8	331.1
46	46.8	8.8	168.7	83.4	25.5	307.7	333.1
47	46.7	8.8	168.5	83.2	25.5	307.3	332.6
48	46.6	9.2	167.9	83.5	25.4	307.2	332.5
49	43.1	9.0	167.2	88.9	23.5	308.2	331.7
50	41.1	7.7	169.0	92.1	22.5	309.9	332.4
51	40.7	8.2	163.6	95.5	23.1	308.0	331.1
52	42.8	8.8	173.1	96.1	23.6	320.8	344.4
53	43.6	8.2	178.5	104.6	22.3	335.0	357.3
54	43.4	8.5	177.0	105.7	22.3	334.6	356.8
55	42.4	9.8	180.1	100.2	22.1	332.6	354.6
56	46.6	11.7	202.8	97.1	23.0	358.1	381.2
57	50.1	12.5	218.7	99.8	24.1	381.1	405.2
58	55.0	12.7	241.2	100.9	24.8	409.8	434.5
59	53.0	11.9	230.1	101.2	24.3	396.2	414.1
60	52.9	11.9	230.2	101.3	24.3	396.3	420.6
61	53.7	14.8	232.6	98.8	24.3	399.9	424.2

Table 7 (Continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
62	53.2	15.3	237.1	96.9	24.4	402.5	426.9
63	52.7	14.5	237.1	97.0	24.3	401.3	425.6
64	52.5	14.3	237.1	97.1	24.3	401.0	425.3
65	58.4	14.6	234.5	91.1	26.0	398.6	424.6
66	63.3	15.5	234.5	84.1	28.2	397.3	425.5
67	63.4	15.9	233.5	84.3	28.2	397.0	425.2
68	63.4	15.8	233.4	84.3	28.2	397.0	425.2
69	64.0	14.8	231.0	84.5	28.5	395.0	423.5
70	64.0	14.8	231.0	84.5	28.5	395.0	423.5
71	64.0	14.8	231.0	84.5	28.5	395.0	423.5
72	62.8	13.8	229.6	85.3	28.5	391.4	419.9
73	65.2	14.3	240.6	86.5	29.1	406.3	435.3
74	65.3	16.3	243.7	85.2	28.5	410.0	438.5
75	65.2	16.7	244.0	84.9	28.4	410.2	438.6
76	64.8	16.3	243.0	85.2	29.3	408.9	438.1
77	66.1	16.7	244.6	85.5	29.5	412.9	442.4
78	67.0	17.3	245.1	85.5	29.6	414.9	444.5
79	66.6	19.1	240.1	84.5	29.2	410.3	439.5
80	66.6	19.1	240.1	84.5	29.2	410.3	439.5
81	65.8	19.4	239.6	85.0	29.1	409.8	438.9
82	63.8	19.5	235.3	82.4	28.2	401.0	429.2
83	65.2	19.7	239.4	85.3	29.1	409.7	438.8
84	65.6	19.7	241.2	84.5	29.2	411.2	440.2
85	66.0	15.8	248.8	85.2	29.9	415.8	445.8
86	67.5	14.7	258.1	85.9	30.5	426.2	456.7
87	71.9	17.1	282.2	87.0	31.0	458.8	486.8
88	73.5	18.6	288.3	86.6	30.6	467.0	497.6
89	73.0	17.3	286.3	86.0	30.9	462.6	493.6
90	73.0	17.3	286.5	86.1	30.9	462.9	493.8
91	66.6	17.1	283.0	95.8	30.2	462.5	492.7
92	65.2	17.8	283.2	96.3	30.0	462.5	492.5
93	59.4	16.3	258.8	86.9	27.2	421.4	448.6
Steer							
572							
1	17.4	1.3	49.5	23.6	8.2	91.8	100.0
2	14.5	2.2	52.7	30.1	8.9	99.5	108.3
3	17.7	3.5	68.9	41.0	11.4	131.1	142.5
4	18.9	3.7	74.2	44.3	12.2	141.0	152.2
5	21.8	3.6	79.6	43.7	13.4	148.8	162.2
6	23.2	3.5	80.8	43.1	13.5	150.6	164.1
7	21.9	3.2	73.9	43.6	13.5	142.7	156.1
8	19.7	2.7	63.7	42.9	13.0	129.0	142.0
9	20.2	1.7	62.6	40.6	13.6	125.2	138.8
10	16.4	1.7	56.0	51.6	12.6	125.8	138.4
11	15.1	2.3	56.6	50.2	13.0	124.2	137.2
12	17.9	3.4	59.1	42.8	15.7	123.2	138.8
13	17.9	3.4	59.1	42.8	15.7	123.2	138.8
14	19.8	3.8	65.1	47.2	17.0	135.9	152.9
15	19.8	3.8	65.1	47.2	17.0	136.0	153.0
16	21.5	4.3	70.6	50.8	17.7	147.2	164.9
17	21.6	6.0	71.2	47.9	19.2	146.7	165.9
18	21.3	6.0	70.4	47.4	18.9	145.1	164.0
19	22.2	6.2	73.1	49.2	19.7	150.7	170.3
20	24.9	6.9	82.2	55.3	22.1	169.2	191.3
21	24.9	6.9	82.2	55.3	22.1	169.2	191.3
22	27.8	7.3	81.1	51.3	21.1	167.4	188.5
23	27.2	6.7	81.2	49.5	19.0	164.7	183.7
24	26.3	6.2	83.5	51.9	18.9	167.8	186.8
25	26.2	6.2	83.3	51.8	18.9	167.5	186.3
26	26.2	6.2	83.3	51.8	18.9	167.5	186.3
27	26.2	6.2	83.3	51.8	18.9	167.5	186.3
28	23.6	4.5	76.7	56.2	16.8	161.0	177.8
29	26.0	4.5	85.1	65.6	18.4	181.3	199.7
30	28.0	4.9	91.6	70.5	19.8	195.0	214.8
31	29.5	5.1	96.3	74.2	20.8	205.1	225.9
32	31.3	5.9	102.4	78.9	22.2	218.4	240.6
33	31.3	5.9	102.4	78.9	22.2	218.4	240.6
34	27.7	4.8	90.4	69.7	19.5	192.6	212.1
35	31.3	5.5	102.4	78.9	22.1	218.4	240.6
36	31.3	5.5	102.4	78.9	22.1	218.4	240.6
37	31.8	5.3	104.5	79.9	22.8	221.5	244.3
38	32.9	5.3	109.9	81.2	24.3	229.4	253.8
39	32.9	5.3	109.9	81.2	24.3	229.4	253.8
40	32.9	5.0	110.2	81.2	24.3	229.4	253.8
41	39.3	7.2	137.9	83.4	25.7	267.8	293.5
42	49.2	10.7	180.7	86.0	27.8	326.6	354.4
43	55.5	12.2	201.4	88.5	29.7	357.6	387.3

Table 7 (Continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
44	57.7	11.5	207.3	92.4	29.7	368.9	398.6
45	60.0	12.3	223.8	94.3	30.0	390.4	420.4
46	61.0	12.4	231.2	92.6	30.0	397.2	427.2
47	64.7	13.2	246.4	96.4	31.4	420.8	452.0
48	66.7	14.6	254.3	99.1	32.1	434.6	466.7
49	63.5	14.8	257.0	105.6	30.1	440.9	471.1
50	63.5	13.3	271.7	110.3	29.8	458.7	488.5
51	64.0	14.4	268.2	114.1	30.7	460.7	491.4
52	66.2	15.0	278.2	114.9	31.2	474.3	505.5
53	69.9	15.1	296.9	124.7	30.4	506.6	536.9
54	73.0	17.1	311.7	124.1	30.9	526.0	556.9
55	73.7	19.8	324.3	109.1	30.0	526.9	556.9
56	73.1	19.5	323.4	112.4	30.8	528.5	559.3
57	78.3	20.5	346.2	118.4	32.7	563.4	596.1
58	82.8	20.0	370.4	102.8	30.5	576.1	606.5
59	80.1	19.0	355.2	81.8	26.8	536.2	563.0
60	79.9	19.0	355.6	81.9	26.7	536.4	563.0
61	81.9	24.8	357.9	74.8	26.9	539.4	566.8
62	81.6	25.2	360.8	76.5	26.9	544.1	571.0
63	80.5	23.5	360.7	76.9	36.7	541.6	568.3
64	70.6	20.1	317.5	73.6	24.3	481.8	506.1
65	67.1	18.2	283.9	67.4	23.7	436.6	460.3
66	70.3	19.1	283.1	63.2	25.1	435.7	460.8
67	70.5	19.7	281.4	63.6	25.1	435.3	460.4
68	70.6	19.7	281.3	63.6	25.1	435.2	460.3
69	71.5	18.0	277.4	63.9	25.4	430.8	456.1
70	71.5	18.0	277.4	63.9	25.4	430.8	456.1
71	71.5	18.0	277.4	63.9	25.4	430.8	456.1
72	70.9	16.7	280.1	65.7	25.7	433.0	458.8
73	68.3	15.9	271.1	63.8	24.9	418.7	444.0
74	50.8	13.3	198.8	53.4	19.5	315.8	335.2
75	51.6	14.1	201.3	56.3	20.1	323.8	343.4
76	52.9	14.2	207.6	57.8	21.6	332.0	353.7
77	54.2	14.6	209.1	58.1	21.8	336.0	357.8
78	55.1	15.1	209.7	58.1	21.8	338.0	359.8
79	54.7	17.0	204.6	57.1	21.4	333.4	354.8
80	54.7	17.0	204.6	57.1	21.4	333.4	354.8
81	58.2	19.0	222.3	59.0	22.4	358.0	380.5
82	53.2	17.6	203.8	58.0	21.3	332.7	353.8
83	53.3	17.6	204.0	57.9	21.3	332.8	354.1
84	53.7	17.5	205.7	57.1	21.5	334.0	355.5
85	54.1	13.7	213.4	57.8	22.1	339.0	361.1
86	63.1	13.9	245.1	75.6	27.5	397.7	425.2
87	71.9	17.1	282.2	87.0	30.9	458.2	489.1
88	73.5	18.6	288.3	86.6	30.5	467.0	497.5
89	64.6	15.3	253.0	76.6	27.3	409.5	436.8
90	15.6	3.6	60.1	20.0	6.9	99.3	106.2
91	5.2	1.1	19.9	11.8	3.1	38.0	41.1
92	9.5	2.0	36.5	23.4	6.1	71.4	77.5
93	10.3	2.1	39.0	26.5	6.8	77.9	84.7
Steer							
573							
1	16.2	1.7	45.0	21.1	7.5	83.9	91.4
2	24.2	2.9	73.2	33.9	11.7	134.1	145.8
3	24.1	4.9	94.0	38.2	12.0	161.2	173.3
4	28.7	6.0	119.6	46.3	14.2	200.6	214.8
5	29.7	5.2	115.9	46.3	15.2	197.1	212.3
6	30.9	5.9	113.4	49.4	16.2	199.6	215.7
7	29.6	4.7	107.7	49.0	15.9	191.0	206.9
8	25.2	3.8	87.0	47.3	14.8	163.2	178.0
9	26.3	2.9	89.4	46.1	16.0	160.7	180.7
10	22.9	2.8	81.1	83.7	16.5	190.5	207.0
11	20.8	3.1	80.0	69.4	17.2	173.2	190.5
12	25.0	4.7	82.7	59.9	22.0	172.4	194.3
13	25.0	4.7	82.7	59.9	22.0	172.4	194.3
14	26.8	5.1	88.0	63.8	23.1	183.7	206.7
15	27.0	5.2	88.8	64.4	23.2	185.4	208.6
16	25.6	5.1	83.6	60.6	22.0	174.9	197.0
17	21.2	5.9	66.4	44.6	17.9	138.1	156.0
18	25.6	7.2	83.6	49.1	20.0	165.5	185.5
19	30.4	8.5	98.4	59.9	24.3	197.2	221.6
20	30.3	8.6	98.4	59.9	24.3	197.2	221.5
21	31.0	8.9	103.1	57.3	23.8	200.4	224.2
22	36.0	9.9	115.2	54.1	23.2	215.2	238.4
23	36.3	9.5	120.1	54.3	21.6	220.2	241.8
24	35.7	8.9	123.1	56.9	21.5	224.5	246.1
25	34.6	8.9	119.5	54.6	20.7	217.5	238.3
26	34.7	9.0	119.9	54.8	20.8	218.4	239.2

Table 7 (Continued).—Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
27	34.2	8.9	118.4	53.9	20.4	215.3	235.7
28	32.1	7.2	113.3	59.8	18.7	212.5	231.1
29	32.7	7.2	116.7	64.5	19.4	221.0	240.4
30	32.6	7.2	116.4	64.3	19.3	220.5	239.8
31	32.6	7.2	116.6	64.5	19.4	220.9	240.3
32	32.6	7.2	116.6	64.5	19.4	220.9	240.3
33	32.6	7.2	116.6	64.5	19.4	220.9	240.3
34	33.2	6.6	117.8	64.6	19.5	222.2	240.3
35	33.5	6.2	118.4	64.7	19.5	222.8	241.7
36	33.5	6.2	118.4	64.7	19.5	222.8	242.3
37	33.9	6.2	120.0	65.5	20.0	225.5	242.3
38	34.8	6.2	124.2	66.6	21.3	231.8	245.5
39	34.1	6.5	123.8	66.3	21.0	230.7	253.0
40	34.2	6.5	123.5	66.2	21.0	230.4	251.7
41	34.2	6.7	123.1	66.2	20.8	230.2	251.4
42	35.5	7.3	128.2	66.9	21.2	237.9	251.0
43	37.8	7.8	134.8	67.1	21.8	247.7	259.1
44	38.3	7.1	133.2	70.4	21.6	247.0	269.5
45	38.8	7.3	137.2	72.1	21.7	255.3	270.6
46	40.0	7.5	143.7	72.5	22.1	263.7	277.0
47	42.1	8.1	154.5	71.5	22.2	272.3	285.7
48	42.0	8.5	153.6	71.6	22.1	275.7	298.4
49	39.7	8.5	155.3	78.3	21.0	281.7	297.8
50	37.9	7.3	157.3	81.2	20.2	281.7	302.7
51	37.5	7.7	152.0	83.8	20.6	281.0	303.9
52	36.5	7.6	148.2	79.7	19.8	272.0	301.7
53	39.8	7.7	163.8	91.4	19.9	302.6	291.8
54	45.9	9.9	191.8	94.7	21.5	342.3	322.5
55	51.0	13.0	221.5	93.0	23.0	378.5	363.8
56	50.4	13.1	221.7	88.4	22.7	373.7	401.5
57	52.8	13.6	232.4	88.9	23.3	387.6	396.4
58	63.0	14.9	279.5	95.5	25.6	452.8	410.9
59	64.8	15.0	284.2	95.9	25.8	459.9	478.4
60	64.7	14.9	284.5	95.9	25.7	460.0	485.7
61	66.0	19.0	286.9	92.7	25.9	464.6	485.8
62	65.5	19.5	290.9	91.0	25.9	466.9	490.5
63	64.8	18.3	290.8	91.3	25.8	465.2	492.8
64	64.6	18.0	290.8	91.3	25.7	464.7	491.0
65	69.7	18.3	288.6	86.1	27.3	462.7	490.4
66	74.0	19.3	288.1	80.0	29.2	461.4	490.0
67	74.2	19.8	286.5	80.4	29.2	461.0	489.6
68	74.3	19.8	286.4	80.4	29.2	460.9	490.1
69	75.2	18.3	282.9	80.6	29.6	457.0	486.6
70	75.2	18.3	282.9	80.6	29.6	457.0	486.6
71	75.2	18.3	282.9	80.6	29.6	457.0	486.6
72	74.4	17.0	285.3	82.3	29.8	458.9	488.6
73	77.8	17.7	301.0	83.9	30.7	480.2	511.1
74	78.1	20.9	306.4	82.2	29.9	487.6	517.5
75	64.0	16.9	244.6	76.8	26.5	402.3	428.8
76	77.4	20.9	305.5	82.2	31.1	486.0	517.1
77	79.3	21.5	307.8	82.5	31.3	491.1	522.4
78	63.1	16.6	233.3	76.4	27.0	389.4	416.4
79	62.6	18.4	228.2	75.3	26.6	384.6	411.2
80	75.3	22.5	276.4	87.3	31.3	461.5	492.8
81	74.3	22.9	275.9	87.9	31.2	460.5	491.6
82	73.5	23.2	275.4	88.5	31.1	460.7	491.5
83	73.5	23.2	275.7	88.4	31.2	460.9	492.1
84	74.1	23.2	277.8	87.4	31.4	462.5	493.9
85	74.6	18.3	287.4	88.2	32.2	468.5	500.7
86	64.1	14.2	251.2	74.2	27.5	403.7	431.2
87	57.0	13.6	223.9	68.2	24.4	362.7	387.1
88	68.3	17.2	267.5	81.0	28.5	434.0	462.5
89	73.0	17.3	286.3	86.0	30.9	462.6	493.5
90	73.0	17.3	286.5	86.1	30.9	462.5	492.5
91	66.7	17.1	283.6	95.8	30.2	463.2	493.4
92	65.2	17.8	283.2	96.3	30.0	462.5	492.5
93	59.2	16.2	257.3	87.5	27.2	420.2	447.4
Steer							
574							
1	19.1	2.0	54.1	25.6	8.4	100.8	109.2
2	18.6	1.8	52.8	28.8	9.6	101.9	111.5
3	19.0	3.3	69.3	41.2	11.8	132.7	144.4
4	21.6	4.3	86.1	47.1	13.3	159.0	172.3
5	24.5	4.2	91.6	45.7	14.2	165.9	180.2
6	28.0	4.4	99.8	48.3	15.5	180.4	195.9
7	28.1	4.4	100.5	48.4	15.5	181.4	196.9
8	22.6	3.2	75.1	46.3	14.2	147.2	161.4
9	23.0	2.1	72.1	44.9	15.2	142.1	157.2

Table 7 (Continued).—Weight of Nutrients Consumed.—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
10	19.1	2.0	65.1	59.6	14.7	145.7	160.3
11	17.3	2.5	65.6	59.0	14.8	144.3	159.1
12	21.5	4.1	70.9	51.4	18.8	147.8	166.6
13	21.5	4.1	70.9	51.4	18.8	147.8	166.6
14	21.9	4.2	72.2	52.3	18.9	150.7	169.6
15	23.4	4.5	77.0	55.8	20.1	160.7	180.8
16	25.2	5.1	82.4	59.7	21.7	172.4	194.1
17	27.4	7.7	89.8	52.3	21.4	177.2	198.6
18	29.2	8.2	100.3	49.4	20.5	187.1	207.5
19	29.7	8.3	101.8	50.6	21.0	190.4	211.4
20	29.5	8.5	101.8	50.5	20.9	190.3	211.3
21	29.5	8.5	101.8	50.5	21.0	190.3	211.3
22	32.0	9.2	105.9	48.1	20.2	195.4	215.6
23	32.0	8.5	107.3	46.5	18.6	194.2	212.8
24	31.0	7.8	108.2	47.6	18.1	194.6	212.8
25	31.0	8.0	108.0	47.5	18.1	194.5	212.6
26	30.9	8.1	108.0	47.4	18.1	194.5	212.6
27	30.9	8.1	108.0	47.4	18.1	194.5	212.6
28	29.7	6.8	105.6	79.3	17.0	221.5	238.5
29	29.2	6.6	105.2	55.7	16.9	196.6	213.5
30	29.2	6.6	105.4	55.8	17.0	197.1	214.0
31	29.1	6.6	105.2	55.7	16.9	197.1	214.0
32	29.1	6.6	105.2	55.7	16.9	197.1	214.0
33	29.1	6.6	105.2	55.7	16.9	197.1	214.0
34	27.7	6.0	106.4	55.9	17.0	196.0	218.0
35	30.0	5.6	107.0	56.0	17.1	199.0	216.1
36	30.0	5.6	107.0	56.0	17.1	199.0	216.1
37	30.3	5.6	108.3	56.7	17.5	201.0	218.4
38	31.1	5.5	112.0	57.5	18.6	206.2	224.8
39	30.5	5.9	111.6	57.3	18.3	205.3	223.6
40	30.5	5.9	111.3	57.2	18.3	204.9	223.2
41	30.5	6.2	110.9	57.1	18.1	204.7	222.8
42	32.0	6.8	116.6	58.0	18.5	213.2	231.8
43	34.2	7.2	122.8	58.5	19.2	222.7	241.9
44	34.5	6.6	121.1	60.9	18.9	223.0	242.0
45	35.0	6.7	125.7	62.4	19.0	229.9	248.9
46	36.3	6.9	132.1	62.9	19.4	238.2	257.5
47	39.2	7.7	145.4	64.0	20.2	256.3	276.4
48	39.0	8.1	144.6	64.1	20.1	255.8	275.8
49	36.3	8.0	143.5	67.8	18.5	255.6	274.1
50	34.9	6.9	145.9	67.3	17.9	255.0	272.9
51	34.6	7.3	141.3	73.0	18.4	256.2	274.5
52	34.6	7.3	141.3	73.0	18.4	256.2	274.5
53	36.7	7.3	152.3	79.9	17.8	276.3	294.1
54	43.5	9.7	183.2	83.8	19.6	320.2	339.9
55	48.4	12.5	211.0	81.7	21.0	353.6	374.6
56	47.8	12.6	211.0	77.8	20.7	349.4	370.1
57	50.6	13.1	223.5	79.9	21.6	367.1	388.7
58	60.3	14.4	268.2	84.4	23.5	427.2	450.7
59	62.1	14.4	273.0	84.7	23.7	434.2	457.9
60	61.9	14.4	273.3	84.8	23.7	434.4	458.1
61	63.2	18.5	275.4	81.7	23.8	438.8	462.6
62	62.9	18.9	278.8	80.3	23.8	440.9	464.7
63	62.1	17.7	278.8	80.5	23.7	439.1	462.8
64	61.9	17.4	278.8	80.5	23.6	438.6	462.2
65	66.3	17.7	276.9	76.0	25.0	436.9	461.9
66	70.0	18.5	276.3	70.9	26.6	435.7	462.3
67	70.3	19.1	274.7	71.2	26.6	435.3	461.9
68	70.3	19.1	274.6	71.2	26.6	435.2	461.9
69	71.2	17.5	271.1	71.5	27.0	431.3	458.3
70	71.2	17.5	271.1	71.5	27.0	431.3	458.3
71	71.2	17.5	271.1	71.5	27.0	431.3	458.3
72	70.5	16.3	273.5	73.1	27.2	433.2	460.5
73	73.9	17.0	289.2	74.8	28.2	454.5	483.0
74	64.7	16.5	247.1	76.9	26.7	405.2	431.9
75	61.8	16.1	233.7	77.0	26.2	388.6	414.8
76	48.2	12.5	185.2	57.6	20.6	303.2	323.8
77	66.1	16.7	244.6	85.5	29.5	412.9	442.5
78	51.2	14.4	197.9	49.0	19.3	312.5	331.8
79	50.7	16.2	192.8	47.9	18.9	307.6	326.5
80	70.2	21.0	258.0	81.5	29.2	430.7	459.9
81	74.3	22.9	275.9	87.9	31.2	461.0	492.2
82	73.5	23.2	275.4	88.5	31.1	460.7	491.5
83	73.5	23.2	275.7	88.4	31.2	460.9	491.5
84	74.1	23.2	277.8	87.4	31.4	462.7	494.1
85	74.6	18.3	287.4	88.2	32.2	468.5	500.7
86	48.5	10.9	194.1	51.3	19.9	304.8	324.7
87	50.3	12.3	201.7	55.4	20.5	320.4	340.5

Table 7 (Continued). Weight of Nutrients Consumed—In Pounds

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
88	66.9	17.4	268.6	71.3	26.3	424.2	450.5
89	72.5	17.2	284.7	84.8	30.5	459.6	489.4
90	73.0	17.3	286.5	86.1	30.9	462.9	493.8
91	66.7	15.8	283.6	95.8	30.2	461.9	492.1
92	65.2	17.8	283.2	96.3	30.0	462.5	492.5
93	59.9	16.4	260.3	88.3	27.5	424.9	452.4
Steer							
575							
1	17.9	1.8	49.9	24.5	8.5	94.1	102.7
2	15.9	1.2	41.2	23.6	8.1	81.9	90.0
3	13.9	5.3	47.6	34.5	13.9	101.4	115.3
4	17.1	3.2	66.3	43.8	11.8	130.4	142.2
5	22.8	3.7	82.7	45.7	14.0	154.9	168.9
6	25.0	3.8	86.6	47.0	14.7	162.4	177.1
7	23.5	3.4	79.5	46.6	14.4	153.1	167.4
8	19.7	2.7	63.7	42.9	13.0	129.1	142.0
9	20.2	1.7	62.3	40.6	13.6	124.7	138.3
10	16.4	1.7	56.0	51.6	12.6	125.6	138.2
11	14.9	2.2	56.5	50.9	12.7	124.5	137.2
12	17.9	3.4	59.1	42.8	15.7	123.2	138.8
13	17.9	3.4	59.1	42.8	15.7	123.2	138.8
14	19.4	3.7	63.7	46.2	16.7	133.0	149.7
15	19.8	3.8	65.2	47.2	17.0	136.0	153.0
16	22.2	4.9	77.0	44.5	16.7	148.6	165.3
17	25.5	7.2	87.9	42.5	17.7	162.9	180.6
18	25.8	7.2	89.7	42.2	17.6	164.9	182.5
19	26.1	7.4	94.9	42.8	17.8	171.1	189.0
20	25.9	7.5	95.0	42.6	17.8	171.1	188.9
21	25.9	7.5	95.0	42.6	17.8	171.1	188.9
22	27.3	7.8	92.7	39.8	17.3	167.6	184.9
23	28.5	7.6	97.0	40.2	16.2	173.4	189.6
24	30.9	7.8	107.7	47.4	18.1	193.9	211.9
25	31.0	8.0	108.0	47.5	18.1	194.5	212.6
26	30.9	8.1	108.0	47.4	18.1	194.5	212.6
27	30.9	8.1	108.0	47.4	18.1	194.5	212.6
28	29.7	6.8	105.6	53.7	17.0	195.9	212.9
29	29.1	6.6	105.2	55.7	16.9	196.6	213.5
30	29.2	6.6	105.4	55.8	17.0	197.0	214.0
31	29.1	6.6	105.2	55.7	16.9	197.0	214.0
32	29.1	6.6	105.2	55.7	16.9	197.0	214.0
33	29.1	6.6	105.2	55.7	16.9	197.0	214.0
34	29.7	6.0	106.4	55.9	17.0	198.0	214.0
35	30.0	5.6	107.0	56.0	17.1	198.6	215.0
36	30.0	5.6	107.0	56.0	17.1	198.6	215.7
37	30.3	5.6	108.3	56.7	17.4	200.9	218.3
38	31.1	5.5	112.0	57.5	18.6	201.0	218.4
39	30.5	5.9	111.6	57.3	18.3	206.2	224.8
40	30.5	5.9	111.3	57.2	18.3	205.3	223.6
41	30.5	6.2	110.9	57.1	18.1	204.9	223.2
42	31.9	6.7	116.2	58.0	18.5	212.8	222.8
43	34.2	7.2	122.8	58.5	19.2	222.7	231.4
44	34.5	6.6	121.1	60.9	18.9	223.1	241.9
45	35.0	6.7	125.7	62.4	19.0	229.9	242.0
46	36.3	6.9	132.1	62.9	19.4	238.2	248.9
47	39.2	7.7	145.4	64.0	20.2	256.3	257.5
48	39.0	8.1	144.6	64.1	20.1	255.8	276.4
49	36.3	8.0	143.8	67.8	18.5	256.0	275.8
50	34.9	6.9	145.9	70.7	17.9	258.3	274.5
51	34.6	7.3	141.3	73.0	18.4	256.2	274.5
52	34.6	7.3	141.3	73.0	18.4	256.2	274.5
53	34.2	6.6	140.5	79.7	17.2	261.0	278.3
54	33.5	6.7	137.4	79.7	17.0	257.3	274.2
55	32.8	7.7	139.7	75.5	16.8	255.7	272.6
56	32.0	7.9	138.7	71.7	16.5	250.2	266.7
57	32.5	7.9	141.0	72.9	16.8	254.3	271.1
58	32.6	7.3	141.8	73.2	16.6	255.0	271.6
59	33.0	7.3	142.2	73.3	16.6	255.8	272.4
60	32.9	7.3	142.3	73.3	16.5	255.8	272.3
61	33.3	8.8	143.9	71.8	16.6	257.8	274.4
62	32.9	9.2	147.3	70.4	16.6	259.8	276.4
63	32.7	8.8	147.3	70.5	16.6	259.3	275.9
64	32.6	8.7	147.3	70.5	16.6	259.1	275.7
65	37.0	8.9	145.4	66.0	17.9	257.3	275.2
66	40.6	9.5	145.6	60.7	19.5	256.3	275.8
67	40.7	9.7	145.0	60.8	19.5	256.2	275.7
68	40.7	9.7	145.0	60.8	19.5	256.2	275.7
69	41.0	9.2	143.7	60.9	19.7	254.8	274.5
70	42.7	9.6	151.0	61.5	20.1	264.8	284.9

Table 7 (Continued).—Weight of Nutrients Consumed—In Pounds

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
71	45.3	10.3	161.9	62.4	20.7	279.9	300.6
72	45.0	9.8	163.0	63.1	20.8	280.8	301.4
73	48.5	10.6	178.5	64.7	21.7	302.1	323.7
74	49.0	12.2	182.8	63.9	21.4	307.9	329.3
75	45.3	11.4	166.8	62.4	20.5	285.9	306.4
76	44.5	10.9	163.7	62.4	20.9	281.2	302.0
77	45.4	11.2	165.3	62.6	21.0	284.5	305.5
78	56.7	14.7	208.0	71.6	24.9	351.0	375.9
79	66.6	19.1	240.1	84.5	29.2	410.3	439.5
80	75.3	22.5	276.4	87.3	31.3	461.5	492.8
81	74.3	22.9	275.9	87.9	31.2	461.0	492.2
82	73.5	23.2	275.4	88.5	31.1	460.7	491.5
83	73.5	23.2	275.7	88.4	31.2	460.9	492.1
84	74.1	23.2	277.8	87.4	31.4	462.5	493.9
85	74.6	18.3	287.4	88.2	32.2	468.5	500.7
86	74.6	16.5	290.9	88.5	32.4	470.5	502.9
87	72.8	17.3	286.0	87.3	31.2	463.4	494.6
88	73.5	18.6	288.3	86.6	30.6	467.0	497.6
89	73.0	17.3	286.3	86.0	30.9	462.6	493.5
90	73.0	17.3	286.5	86.1	30.9	462.9	493.8
91	64.8	16.8	276.9	89.5	28.7	448.0	476.7
92	63.5	17.4	276.1	93.9	29.2	450.9	480.1
93	61.9	17.0	269.5	90.2	28.3	438.6	466.9
94	63.3	17.6	276.9	90.4	28.6	448.2	476.8
95	65.2	17.8	283.2	96.3	30.0	462.5	492.5
Steer							
577	17.9	2.2	58.0	26.1	9.3	104.2	113.5
1	23.7	2.9	73.4	34.4	11.7	134.3	146.0
2	25.0	5.0	95.9	41.1	13.8	166.9	180.7
3	28.5	5.8	117.8	49.6	14.9	201.8	216.7
4	38.0	6.6	147.2	61.4	20.0	253.3	272.3
5	35.4	5.9	134.5	51.2	17.3	227.0	244.3
6	35.8	6.0	136.3	51.5	17.4	229.6	247.0
7	37.6	6.3	144.3	52.2	17.8	240.3	258.2
8	38.8	6.2	144.9	50.5	19.0	240.4	259.4
9	33.9	5.9	131.3	71.4	19.5	242.5	262.0
10	32.3	6.5	132.4	71.4	19.9	242.6	262.5
11	37.6	7.5	140.8	64.3	25.0	250.2	275.3
12	37.8	8.1	140.4	64.4	25.5	250.7	276.2
13	39.7	9.0	145.0	68.2	26.2	261.8	287.9
14	39.7	9.0	145.8	68.8	26.3	263.6	289.9
15	40.0	9.0	145.3	65.6	25.8	271.4	297.1
16	41.6	9.9	154.3	66.2	26.2	266.3	292.6
17	42.0	11.9	151.1	61.4	26.2	264.7	290.9
18	41.7	11.7	149.6	61.8	26.2	264.7	290.9
19	44.1	12.4	156.9	67.3	28.4	287.6	309.1
20	44.7	13.1	160.3	69.5	29.4	287.6	316.9
21	44.7	13.1	160.3	69.5	29.4	287.6	316.9
22	46.4	13.1	157.9	62.2	27.1	279.7	306.7
23	48.2	13.0	167.2	64.1	26.0	292.5	318.6
24	47.0	12.1	168.9	65.6	25.5	293.7	319.2
25	46.8	9.0	167.7	65.3	25.4	288.9	314.3
26	46.8	12.6	168.1	65.0	25.3	292.5	317.8
27	43.4	11.7	155.5	61.3	23.8	271.9	295.7
28	47.4	11.4	172.1	78.8	25.4	309.7	335.2
29	47.9	11.3	176.3	85.1	26.5	320.6	347.0
30	47.8	11.4	176.3	85.1	26.5	320.6	347.1
31	47.8	11.4	176.3	85.1	26.5	320.6	347.1
32	47.8	11.4	176.3	85.1	26.5	320.6	347.1
33	47.8	11.4	176.3	85.1	26.5	320.6	347.1
34	36.8	7.4	127.0	80.9	23.6	252.1	275.7
35	49.6	9.5	179.8	85.6	26.8	324.5	351.3
36	49.6	9.5	179.8	85.6	26.8	324.5	351.3
37	50.1	9.3	181.9	86.7	27.4	328.0	355.4
38	51.2	9.3	187.3	88.0	29.0	335.9	364.9
39	49.9	10.1	186.6	87.5	28.5	334.1	362.6
40	50.1	10.1	185.8	87.3	28.5	333.4	361.9
41	50.0	10.7	185.0	87.2	28.1	332.9	361.0
42	50.4	11.0	185.0	87.9	28.4	334.2	362.6
43	51.1	10.8	183.5	87.3	28.7	332.7	361.4
44	52.6	10.1	185.2	91.7	28.6	339.6	368.2
45	54.4	10.6	197.2	94.4	29.0	356.7	385.7
46	54.6	10.5	199.1	94.4	29.2	358.6	387.7
47	54.5	10.5	198.8	94.4	29.2	358.2	387.2
48	54.4	11.0	198.0	94.5	29.0	357.9	386.9
49	49.4	10.5	193.0	98.0	26.3	350.9	377.2
50	48.2	9.3	199.7	104.4	25.9	361.6	387.4
51	47.7	9.8	192.9	108.0	26.5	358.3	384.8

Table 7 (Continued). Weight of Nutrients Consumed—In Pounds.

Period of No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
52	48.2	9.9	195.0	108.2	26.6	361.3	387.9
53	49.0	9.2	200.4	117.6	25.1	376.2	401.3
54	51.6	10.6	212.7	116.7	25.4	391.6	417.0
55	53.3	12.8	228.0	114.9	26.3	408.9	435.3
56	57.2	14.6	250.1	111.0	27.2	432.9	460.0
57	60.9	15.4	266.7	114.0	28.4	457.0	485.4
58	61.1	14.1	268.5	114.8	27.9	458.5	486.4
59	61.9	14.0	269.3	114.8	27.9	460.0	487.9
60	61.8	14.0	269.5	114.9	27.9	460.2	488.1
61	62.8	17.4	272.3	111.9	28.0	464.4	492.4
62	62.3	18.0	277.3	109.8	28.0	467.4	495.4
63	61.6	17.0	277.3	110.0	27.9	465.9	493.8
64	61.5	16.7	277.3	110.0	27.9	465.5	493.4
65	68.1	17.1	274.4	103.3	29.8	462.9	492.7
66	73.5	18.1	274.4	95.4	32.3	461.4	493.7
67	73.7	18.6	273.1	95.6	32.3	461.1	493.4
68	73.7	18.6	273.0	95.7	32.3	461.0	493.3
69	74.5	17.3	270.1	95.9	32.6	457.8	490.4
70	74.5	17.3	270.1	95.9	32.6	457.8	490.4
71	74.5	17.3	270.1	95.9	32.6	457.8	490.4
72	73.9	16.3	272.1	97.2	32.8	459.4	492.2
73	73.8	16.1	272.4	97.4	32.9	459.7	492.6
74	73.5	18.4	274.1	95.9	32.1	461.9	494.0
75	73.4	18.8	274.5	95.6	32.0	462.3	494.3
76	72.9	18.4	273.2	95.9	33.0	460.4	493.4
77	74.3	18.8	275.1	96.1	33.2	464.3	497.5
78	75.4	19.5	275.8	96.1	33.3	466.8	500.1
79	74.9	21.5	270.1	93.7	32.8	460.4	493.1
80	74.9	21.5	270.1	93.7	32.8	460.4	493.1
81	74.0	21.9	269.6	94.9	32.7	460.8	493.5
82	73.3	22.2	269.2	96.1	32.7	460.8	493.5
83	73.3	22.2	269.4	96.0	32.7	461.0	493.1
84	73.8	22.2	271.3	95.1	32.9	462.4	495.3
85	74.2	17.8	279.9	95.8	33.6	467.7	501.3
86	28.0	6.1	105.9	35.7	12.7	175.7	188.4
87	7.6	1.7	27.2	12.0	3.9	48.5	52.4
Steer							
578							
1	19.4	2.6	62.7	32.5	10.3	117.2	127.6
2	26.7	3.4	84.2	37.1	12.8	151.4	164.2
3	26.1	5.2	101.1	45.1	13.8	177.6	191.5
4	27.9	5.7	114.7	49.4	14.7	197.6	212.3
5	34.2	7.4	128.7	59.2	19.0	229.4	248.4
6	32.1	5.2	119.2	49.9	16.5	206.5	222.9
7	32.3	5.2	119.8	89.9	16.5	247.3	263.8
8	25.0	3.7	86.3	47.2	14.8	162.3	177.1
9	25.2	2.7	82.5	45.8	15.8	156.2	172.0
10	22.6	2.6	78.5	65.6	16.6	169.4	185.9
11	22.2	3.9	76.2	59.1	19.3	161.4	180.7
12	23.2	4.4	76.8	55.6	20.4	160.1	180.5
13	23.2	4.4	76.8	55.6	20.4	160.1	180.5
14	24.9	4.8	82.1	59.5	21.5	171.3	192.8
15	25.2	4.8	82.9	60.1	21.6	173.1	194.7
16	25.5	5.1	56.1	59.7	21.7	146.4	168.1
17	27.7	7.7	83.4	61.4	24.5	180.2	204.7
18	26.8	7.5	81.8	59.6	23.8	175.7	199.5
19	28.4	7.9	86.7	63.2	25.2	186.2	211.4
20	28.4	7.9	86.7	63.2	25.2	186.2	211.4
21	28.4	7.9	86.7	63.2	25.2	186.2	211.4
22	31.8	8.3	90.0	58.6	24.3	188.7	213.0
23	31.9	7.9	95.2	58.0	22.3	193.0	215.3
24	30.6	7.2	97.2	60.4	22.0	195.3	217.4
25	36.0	8.7	117.1	67.2	24.7	228.9	253.6
26	37.9	9.3	125.4	68.1	25.2	240.8	266.0
27	38.0	9.3	125.7	68.1	25.3	241.2	266.4
28	35.6	7.4	99.3	77.5	23.6	219.8	243.4
29	35.5	6.9	120.9	80.4	23.2	243.7	266.9
30	35.4	6.9	120.9	80.4	23.2	243.7	266.9
31	35.4	6.9	120.9	80.4	23.2	243.7	266.9
32	35.4	6.9	120.9	80.4	23.2	243.7	266.9
33	35.4	6.9	120.9	80.3	23.2	243.7	266.9
34	32.7	6.0	118.6	79.3	22.5	236.6	259.1
35	35.9	6.5	121.8	80.4	23.3	244.7	268.0
36	35.9	6.5	121.8	80.4	23.3	244.7	268.0
37	36.4	6.3	123.8	81.6	23.9	248.1	272.1
38	37.5	6.3	129.3	82.9	25.5	256.1	281.6
39	37.2	6.5	129.1	82.8	25.4	255.6	281.0
40	37.2	6.3	129.1	82.8	25.4	255.4	280.8

Table 7 (Continued). Weight of Nutrients Consumed—In Pounds.

Period No.	Weight of Protein	Weight of Fat	Weight of Nitrogen Free Extract	Weight of Crude Fibre	Weight of Ash	Weight of Organic Nutrients	Weight of Dry Matter
41	42.8	8.4	153.5	84.7	26.5	289.3	315.8
42	51.8	11.5	191.3	88.5	28.7	343.0	371.8
43	55.7	12.2	202.1	89.0	29.8	359.0	388.8
44	58.2	11.6	208.5	93.6	30.0	371.9	401.9
45	60.3	12.3	224.2	95.9	30.4	392.6	423.0
46	62.9	12.7	237.2	97.6	31.3	410.3	441.5
47	65.3	13.3	248.3	98.5	32.0	425.4	457.2
48	66.7	14.6	254.5	99.3	32.2	435.1	467.1
49	64.4	15.1	261.2	106.2	30.4	446.9	477.3
50	63.5	13.3	271.7	110.3	29.8	458.8	488.5
51	64.0	14.4	268.2	114.1	30.7	460.7	491.4
52	65.1	14.8	274.1	111.3	30.4	465.3	495.7
53	70.0	15.1	297.6	125.5	30.5	508.3	538.8
54	73.2	17.0	311.6	127.3	31.3	529.2	560.5
55	76.1	20.0	332.8	122.2	32.2	551.1	583.2
56	64.4	17.0	284.1	103.5	27.7	469.0	496.7
57	79.0	20.6	349.0	120.8	33.1	569.4	602.5
58	64.9	15.4	288.8	93.6	25.7	462.8	488.5
59	55.2	12.9	243.1	72.0	20.6	383.1	403.7
60	57.6	13.5	254.5	73.0	21.2	398.6	419.8
61	60.5	17.9	264.0	70.7	21.7	413.1	434.8
62	60.2	18.3	266.8	69.5	21.7	414.8	436.5
63	59.5	17.1	266.8	69.7	21.6	413.1	434.7
64	59.3	16.8	266.8	69.8	21.6	412.7	434.3
65	62.9	17.0	265.2	66.0	22.7	411.1	433.8
66	66.1	17.8	264.4	61.8	24.0	410.1	434.1
67	66.3	18.4	262.9	62.1	24.0	409.7	433.4
68	66.3	18.3	262.6	62.1	24.1	409.6	433.2
69	67.2	16.8	259.2	62.4	24.4	405.6	430.0
70	67.2	16.8	259.2	62.4	24.4	405.6	430.0
71	67.2	16.8	259.2	62.4	24.4	405.6	430.0
72	66.5	15.6	261.6	64.0	24.7	407.6	432.3
73	66.4	15.4	262.0	64.3	24.7	408.0	432.7
74	54.4	14.7	216.6	52.9	19.9	338.6	358.5
75	33.1	8.8	127.1	38.6	15.5	207.6	221.1
76	55.6	15.1	220.1	58.2	25.2	349.0	371.2
77	67.1	18.7	265.3	62.7	25.1	415.8	438.9
78	68.4	19.4	266.2	62.8	25.2	416.8	442.0
79	67.7	22.0	259.2	61.3	24.7	410.2	434.9
80	67.7	22.0	259.2	61.3	24.7	410.2	434.9
81	66.7	22.4	258.6	62.0	24.6	409.7	434.3
82	65.8	22.8	258.1	62.7	24.5	409.3	433.7
83	65.8	22.8	258.4	62.5	24.5	409.6	433.8
84	66.4	22.7	260.7	61.4	24.8	411.2	436.0
85	67.0	17.4	271.2	62.3	25.6	417.9	443.5
86	67.4	15.4	276.1	63.4	26.1	422.3	448.4
87	67.9	16.8	278.1	68.3	26.5	431.1	457.6
88	77.7	19.8	307.6	87.9	31.6	493.0	524.6
89	73.0	17.3	286.3	86.0	30.9	462.6	493.5
90	73.0	17.3	286.3	86.1	30.9	462.9	493.8
91	66.7	17.1	283.6	95.8	30.2	463.2	493.4
92	65.2	17.8	283.2	96.3	30.0	462.5	492.5
93	55.3	15.2	240.6	81.2	25.4	392.3	417.7

TABLE 8.—MEASUREMENTS OF STEERS

Steer No. 528

Age by calendar months	1*	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	72	75	78	81	84	87	89†
Height at withers	82	85	95	103	111	115	115	120	124	126	129	136	133	134	134	136	139	140	139	141	140	145	144	143	145	145	146	146	147	146	146
Length of withers to ischium	80	83	95	104	107	108	122	126	129	131	136	143	146	150	155	157	160	159	154	154	159	161	161	165	162	160	155	156	163	165	162
Length of shoulders to ischium	92	92	118	118	125	128	134	135	146	151	152	154	156	159	161	164	166	176	173	176	173	174	173	176	182	185	183	185	184	188	187
Width of hips	23	25	32	35	36	38	40	41	43	44	46	48	50	51	52	53	53	55	55	55	56	59	59	57	60	61	60	60	61	61	61
Length of foreleg, elbow to ground	51	54	60	62	62	67	70	69	69	71	72	75	75	75	76	77	77	75	81	80	80	81	82	81	82	79	79	78	79	81	79
Length of face poll to point of muzzle	28	30	35	38	38	40	45	45	47	49	51	54	53	55	56	56	56	56	55	56	57	57	57	57	57	59	58	59	58	62	59
Width of forehead	13	13	15	16	17	18	18	19	19	18	20	20	20	20	20	20	21	22	20	20	23	20	20	21	20	25	24	22	22	24	25

*June 12, 1914.

†October 6, 1921.

Steer No. 577

Age by calendar months	4*	7	10	13	16	20	22	25	28	31	35	37	40	43	46	49	52	55	59	62	65	69	71	74	77	80	83	86	89†			
Height at withers	88	96	103	111	117	123	126	127	131	132	136	137	137	138	141	140	141	141	144	144	145	144	144	145	145	145	147	147	145	148	147	150
Length of withers to ischium	86	95	103	113	118	125	131	131	135	135	141	150	141	137	143	142	153	145	145	146	147	154	167	159	159	164	162	166	166	167		
Length of shoulder to ischium	96	106	109	126	131	140	144	149	147	154	156	153	169	164	169	173	174	170	171	177	177	190	185	190	186	195	206	198	198	198		
Width of hips	24	27	30	34	36	39	40	42	44	44	46	48	48	49	50	51	51	53	55	55	54	55	56	57	56	59	59	58	60	60		
Length of foreleg, elbow to ground	56	59	63	68	68	75	76	77	79	80	81	81	75	82	78	80	83	83	79	82	78	79	82	79	81	81	80	78	80	80		
Length of face, poll to point of muzzle	31	36	39	42	45	48	48	50	51	51	52	53	55	55	56	56	60	57	55	57	56	59	59	50	59	59	58	59	57	57		
Width of forehead	13	14	16	18	19	20	20	20	20	20	20	21	23	23	21	22	22	22	25	25	22	22	22	22	24	22	21	23	22			

*July 6, 1917.

†August 1, 1924.

Steer No. 571

Age by calendar months	4*	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90	93†
Height at withers.....	77	79	87	96	102	---	107	111	116	118	115	118	121	122	121	123	125	121	125	124	125	129	130	130	131	131	131	132	132	131	132
Length of withers to ischium.....	77	78	89	103	110	---	116	119	125	129	129	128	137	127	133	133	137	136	132	133	135	136	143	148	148	148	146	154	153	155	153
Length of shoulder to ischium.....	82	84	96	113	117	---	127	134	137	141	139	139	149	152	155	152	164	164	153	154	154	162	172	170	175	178	176	183	182	175	176
Width of hips.....	21	22	26	30	33	---	36	37	37	40	41	42	42	43	44	45	45	46	47	49	50	50	52	53	53	54	54	55	56	57	58
Length of foreleg, elbow to ground.....	50	50	53	58	62	---	66	68	70	72	71	71	71	68	72	73	71	73	73	73	73	69	75	72	76	72	74	73	71	70	
Length of face, poll to point of muzzle.....	28	31	33	38	40	---	43	45	44	47	49	48	49	51	51	54	54	52	53	53	53	54	55	53	53	53	55	54	55	55	
Width of forehead.....	13	13	15	17	18	---	19	19	21	19	19	18	20	23	22	23	22	23	25	24	24	24	22	23	24	23	23	22	21	22	

*July 8, 1917.
†March 7, 1925.

Steer No. 572

Age by calendar months	3*	6	9	12	15	19	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	72	75	78	81	84	87	90	93	95†
Height at withers.....	84	89	93	98	100	102	102	105	107	106	107	108	110	112	113	118	121	124	125	129	132	133	136	136	138	138	136	138	138	138	139	137
Length of withers to ischium.....	86	88	92	100	103	100	103	104	108	105	109	111	115	115	119	126	134	129	132	135	137	143	151	147	152	151	155	158	155	152	155	148
Length of shoulder to ischium.....	94	98	99	108	111	112	115	117	121	116	119	123	129	136	144	150	158	153	157	164	168	170	174	175	179	182	184	184	191	195	186	186
Width of hips.....	24	24	27	29	30	30	30	30	32	32	32	34	36	35	37	41	45	48	51	51	54	53	57	58	56	54	57	58	57	59	59	58
Length of foreleg, elbow to ground.....	54	56	57	59	62	60	63	64	67	67	68	69	67	67	69	71	70	72	75	72	76	72	74	75	75	74	74	79	74	78	74	
Length of face, poll to point of muzzle.....	31	34	36	37	39	39	41	41	42	42	42	44	44	46	46	46	52	52	52	50	53	54	54	53	53	54	55	53	53	54	55	
Width of forehead.....	13	13	14	14	15	15	15	16	17	17	17	17	19	19	19	19	21	23	23	23	23	23	23	25	22	20	21	21	19	20	20	

*July 8, 1917.
†March 7, 1925.

Steer No. 573

Age by calendar months	3*	6	9	12	15	19	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	72	75	78	81	84	87	90	93	95†
Height at withers.....	86	91	93	101	105	107	107	107	111	113	114	117	120	119	120	121	120	124	125	128	130	133	134	135	137	135	136	137	138	137	138	137
Length of withers to ischium.....	90	90	94	103	104	104	105	110	112	114	117	119	121	122	125	127	127	125	126	124	136	136	146	145	151	147	149	151	155	152	152	156
Length of shoulder to ischium.....	91	93	102	111	113	116	113	120	130	126	131	128	137	143	144	144	150	146	148	149	155	160	171	175	177	177	179	178	183	184	181	190
Width of hips.....	24	26	29	31	32	32	32	33	35	36	37	37	39	39	40	41	42	43	45	47	50	49	53	52	56	55	56	57	58	56	61	59
Length of foreleg, elbow to ground.....	52	54	56	59	58	62	65	63	67	77	70	70	70	67	69	67	70	71	70	70	70	73	74	75	72	74	74	72	75	70	70	
Length of face, poll to point of muzzle.....	32	34	36	39	40	41	41	43	44	44	44	46	46	49	49	48	52	57	51	51	61	53	54	53	54	54	55	53	53	55	55	
Width of forehead.....	13	14	15	15	16	16	17	17	17	17	17	17	19	19	20	19	20	22	22	22	21	22	20	20	20	20	20	20	21	21	21	

*July 8, 1917.
†March 7, 1925.

Steer No. 574

Age by calendar months	3*	6	9	12	15	19	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	72	75	78	81	84	87	90	93	95†
Height at withers.....	87	91	95	98	100	102	104	104	106	108	110	111	113	114	116	117	117	118	121	122	126	131	131	134	135	132	134	135	136	133	136	134
Length of withers to ischium.....	92	94	100	107	108	104	108	110	114	119	119	121	124	115	121	125	123	135	124	131	130	137	142	144	142	146	147	150	152	152	148	150
Length of shoulder to ischium.....	96	101	106	111	113	114	112	122	130	130	130	132	143	138	144	150	137	146	146	152	158	170	167	173	170	172	173	173	170	175	170	170
Width of hips.....	26	27	29	31	31	31	31	32	35	35	35	36	38	38	39	39	40	41	43	44	47	47	52	50	51	54	54	53	55	52	55	55
Length of foreleg, elbow to ground.....	54	54	56	59	59	60	62	61	64	64	66	68	61	65	67	65	68	69	70	68	69	70	72	72	71	71	70	72	71	74	70	70
Length of face, poll to point of muzzle.....	33	35	37	39	39	41	41	42	45	45	44	46	49	49	48	46	51	53	50	51	52	52	53	53	52	53	54	51	54	53	55	55
Width of forehead.....	14	15	15	16	16	16	17	17	17	17	18	18	20	19	20	19	20	22	22	22	23	22	22	22	21	21	20	20	21	20	20	20

*July 7, 1917.

†March 7, 1925.

Steer No. 578

Age by calendar months	3*	6	9	12	15	19	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	72	75	78	81	84	87	90	93	95†
Height at withers.....	92	95	100	106	108	110	111	111	114	114	117	119	119	121	123	127	128	132	135	139	139	141	140	142	142	142	143	143	145	143	146	146
Length of withers to ischium.....	94	98	101	111	112	113	113	117	113	121	122	128	126	122	125	131	135	134	140	142	145	148	155	159	156	160	158	164	165	155	155	155
Length of shoulder to ischium.....	102	103	109	120	123	125	127	133	133	130	132	136	144	147	142	159	165	167	167	169	175	185	180	185	182	182	190	190	192	190	192	195
Width of hips.....	27	28	31	33	34	34	34	35	36	37	35	41	41	41	41	43	46	49	49	53	56	56	55	58	58	60	57	58	59	58	59	62
Length of foreleg, elbow to ground.....	57	57	61	64	64	64	66	66	68	69	71	69	68	69	71	73	73	72	73	73	72	75	76	78	81	77	80	76	77	76	80	78
Length of face, poll to point of muzzle.....	32	35	37	40	40	41	40	42	43	44	46	44	49	48	48	48	55	52	53	55	52	55	54	55	54	50	55	52	53	55	55	56
Width of forehead.....	14	14	15	15	16	16	16	16	16	16	17	18	20	19	20	20	22	23	22	24	25	24	21	24	21	22	22	22	22	20	19	21

Steer No. 575

Age by calendar months	3*	6	9	12	15	19	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	68	72	75	78	81	84	87	90	93	96	98	109†
Height at withers.....	87	91	94	99	101	103	101	105	109	111	113	114	116	116	117	120	123	123	125	127	130	132	129	133	134	135	136	137	139	140	139	141	141	148
Length of withers to ischium.....	86	89	93	100	100	99	102	104	110	112	117	119	120	122	121	129	127	126	127	130	130	135	136	139	140	144	146	150	150	154	153	155	166	166
Length of shoulder to ischium.....	93	97	98	107	112	115	116	123	124	125	131	132	135	142	146	150	151	149	146	150	160	160	165	165	167	170	176	171	178	180	186	190	199	199
Width of hips.....	23	24	26	27	28	28	30	32	33	33	36	37	38	38	40	40	42	44	45	46	46	47	49	49	50	51	53	54	54	57	58	56	61	61
Length of foreleg, elbow to ground.....	53	56	56	60	59	62	62	64	68	70	70	70	70	72	68	72	70	72	72	70	74	75	77	75	74	75	75	75	74	78	76	74	76	
Length of face, poll to point of muzzle.....	31	34	36	38	38	40	40	42	45	44	46	47	48	50	50	50	54	53	52	52	54	55	56	56	56	57	55	55	58	57	58	58	59	59
Width of forehead.....	13	14	15	15	16	16	16	16	16	16	17	17	20	18	18	18	21	22	22	22	22	21	22	22	20	20	20	20	21	20	20	21	22	22

*July 6, 1917.

†May 15, 1926.

Steer No. 579

Age by calendar months	1*	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	68	72	75	78	81	84	87	90	93	96	99	103	105	108†	
Height at withers	82	87	96	101	104	108	109	110	116	119	121	122	127	128	130	134	136	135	136	137	138	138	138	137	140	139	139	140	141	141	137	143	142	141	143	144	141	
Length of withers to ischium	79	84	96	98	100	106	114	114	122	123	127	131	137	144	143	150	152	150	150	151	153	152	155	154	148	148	150	148	150	150	150	151	151	152	166	159	158	
Length of shoulder to ischium	86	93	108	113	115	121	123	129	132	137	140	142	146	151	152	157	157	159	161	163	165	168	162	161	169	170	178	178	175	175	167	170	176	180	190	186	188	
Width of hips	22	23	26	30	30	31	33	34	37	38	39	40	41	43	44	46	47	47	47	48	47	48	48	48	48	49	50	50	51	52	52	53	54	55	54	57	58	55
Length of foreleg, elbow to ground	51	54	60	60	63	66	69	70	68	69	72	73	72	75	76	79	79	77	83	81	83	82	83	85	83	77	81	81	79	82	79	77	77	76	78	78	81	
Length of face, poll to point of muzzle	28	30	34	35	36	37	42	43	44	46	47	49	50	51	52	53	52	52	53	53	53	52	52	53	53	54	54	53	54	55	55	54	53	54	54	54	54	54
Width of forehead	12	13	15	16	17	17	17	17	18	18	18	18	18	18	18	19	19	19	19	19	19	18	17	18	19	18	21	19	20	20	22	23	23	22	20	22	20	20

*June 3, 1914.

†May 7, 1923.

Steer No. 585

Age by calendar months	1*	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	50	54	57	60	63	66	68	72	75	78	81	87	90	93	96	99	103	105	108	111	114†	
Height at withers	80	85	88	90	91	93	96	100	105	109	110	112	117	118	119	119	122	123	122	122	124	126	125	125	128	130	130	132	133	134	134	135	134	135	134	138	137	139	
Length of withers to ischium	71	81	84	84	86	91	95	98	108	109	113	115	125	125	129	128	132	129	128	130	134	134	137	136	143	132	135	139	145	142	143	146	144	147	151	150	154	151	
Length of shoulders to ischium	82	88	100	98	100	101	107	111	119	123	118	115	125	125	129	128	136	129	138	138	144	146	145	147	148	150	150	150	158	154	158	160	151	166	161	162	169	169	
Width of hips	20	24	27	27	28	29	31	33	35	35	36	38	40	38	39	41	42	41	41	42	43	44	44	44	44	48	46	49	50	52	52	54	54	58	53	54	53	56	55
Length of foreleg, elbow to ground	49	52	52	54	54	58	60	60	62	63	62	65	67	69	66	71	72	70	73	75	72	76	74	75	75	75	72	77	75	74	76	77	72	75	75	76	75	75	
Length of face, poll to point of muzzle	25	30	32	31	31	32	36	37	39	41	42	43	45	46	46	47	49	48	48	48	50	49	49	49	49	50	50	50	52	52	52	51	52	52	52	52	51	53	
Width of forehead	12	12	14	14	15	15	16	15	16	17	16	16	17	17	17	18	18	18	18	18	18	18	18	18	18	21	21	20	21	22	22	22	22	22	22	21	22	20	

*June 3, 1914.

†November 7, 1923.