

CLOVER VS. ALFALFA FOR MILK
PRODUCTION

OHIO
Agricultural Experiment
Station

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BULLETIN 327



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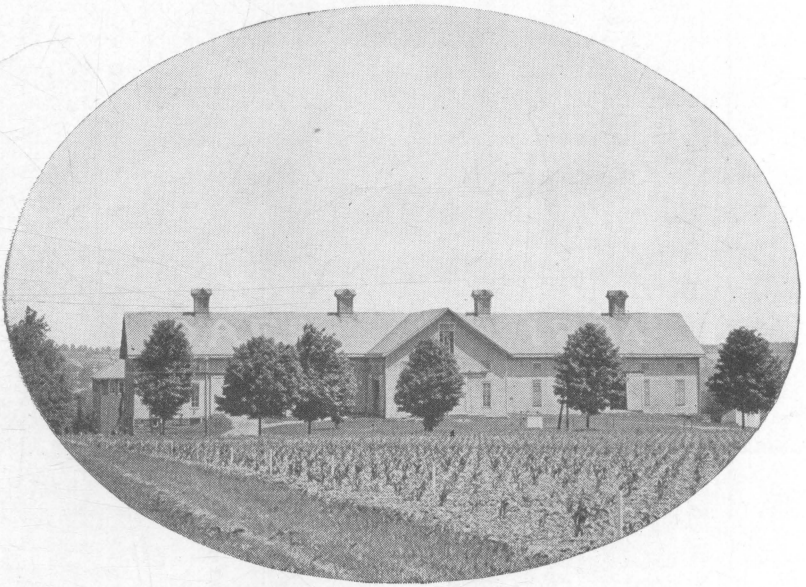
¹In cooperation with the College of Agriculture, Ohio State University, Columbus.

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BULLETIN

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NUMBER 327

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CLOVER VS. ALFALFA FOR MILK PRODUCTION

C. C. HAYDEN

Legumes are second only to corn in importance as feeds for milk production. There are at least three good reasons why the dairyman should grow legumes: They assist in furnishing the necessary amount of protein in the rations for his cattle; they contain a relatively high percentage of mineral matter, essential in milk production; they collect nitrogen from the air and reduce or eliminate the necessity of buying this element in commercial fertilizers. There are various legumes which may be used, but clover and alfalfa are the two most commonly advocated for hay.

OBJECT OF EXPERIMENT

Tests conducted at this Station have shown the value of soybeans and alfalfa in milk production.¹ The tests reported in this bulletin were planned to determine the relative value of clover and alfalfa. Alfalfa has been proclaimed a great feed for dairy cattle. Many campaigns have been waged and much writing has been done to stimulate the growing of more alfalfa on Ohio farms. Is this agitation justified by the superiority of alfalfa over the clovers, since the clovers can be grown more easily and fit into crop rotations better? The foregoing question is frequently asked by dairymen who find some difficulty in producing alfalfa.

The soil in the western half of Ohio generally contains more lime than that in the eastern half and is better adapted to growing alfalfa. The lack of lime, the character of the soil, and the lack of proper drainage are the main factors which operate against growing alfalfa in much of the eastern half of the State. This is especially true of the northeastern part, which is the most intensive dairy section. On most of the land, clover can be grown quite readily if

¹Ohio Agr. Exp. Sta. Bul. 267, *The Value of Soybean and Alfalfa Hay in Milk Production* (1913), by R. E. Caldwell.

sufficient lime is used; and, since this is true, it is important that we know somewhat definitely the relative feeding value of these two legumes.

Some observing feeders have claimed that they obtained no better results from feeding a ton of alfalfa than from feeding a ton of clover. Were they correct in their conclusions or was the effect of the larger amount of protein in the alfalfa concealed by an excess of protein supplied by a liberal use of high-protein grains?

Table I sets forth the digestible nutrients which these legumes contain, as shown by the average of many analyses.

TABLE I.—DIGESTIBLE NUTRIENTS IN 100 POUNDS OF HAY
(Henry and Morrison)

Legume hay	Crude protein	Carbo- hydrates	Fats	Total digestible nutrients
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Alfalfa	10.6	39.0	0.9	51.6
Red clover	7.6	39.3	1.8	50.9
Alsike	7.9	36.9	1.1	47.3

(H. P. Armsby)

	Crude protein	True protein	Net energy
	<i>Pounds</i>	<i>Pounds</i>	<i>Therms</i>
Alfalfa	10.6	7.1	34.23
Red clover	7.6	4.9	38.68
Alsike	7.9	5.3	34.42

These figures show small differences among the percentages of total nutrients digested, but the alfalfa contains nearly 40 percent more digestible crude protein than the red clover and more than 34 percent more than the alsike. The alfalfa contains, according to Armsby, nearly 45 percent more digestible true protein than the red clover and nearly 34 percent more than the alsike. Where protein is the limiting factor in the ration, one would expect a difference in production somewhat in accord with the protein content of the two feeds, or, in these experiments, a marked difference in favor of the alfalfa. Therefore, the rations were planned to use home-grown feeds along with the clover and alfalfa and to make protein the limiting factor by reducing the amount in the rations below that called for by the common feeding standards. This should bring out the full effect of the protein in both hays.

PLAN OF THE EXPERIMENTS

The plan of the work reported herein was as follows: As many cows as were available were used each year. They were divided into two lots as nearly comparable as convenient. The alfalfa and

the clover were fed alternately to each lot, making the periods of feeding as long as possible. Exclusive of the hays the rations were identical in quality. To prevent the cows selecting certain feeds and leaving others, thus changing the composition of the rations, the various feeds were kept as nearly as possible in definite proportions. Each cow was allowed all she would clean up of the entire ration. If any part was left, all parts were reduced until the whole was eaten. Some difficulty was experienced in getting hay of the quality desired. A part of the clover consisted of a mixture of medium red and alsike and at times a small amount of timothy and other grasses. No mammoth clover was used.

TEST I (1914)

Plan.—Ten cows were used in the first test. They were divided into two lots of five cows each. The lots were not quite evenly balanced as to production, but this did not matter materially since the alternate method of feeding was used. The cows used were Holsteins and Jerseys and were divided as shown in Table II.

TABLE II.—DATA REGARDING COWS USED

Lot I				Lot II			
Herd number	Breed	Date of freshening	Daily milk yield	Herd number	Breed	Date of freshening	Daily milk yield
			<i>Pounds</i>				<i>Pounds</i>
40	Jersey	Oct. 31, 1913	23.1	44	Jersey	Oct. 8, 1913	18.7
57	Holstein	Nov. 30, 1913	39.1	65	Holstein	Dec. 25, 1913	38.1
62	Jersey	Dec. 20, 1913	31.6	69	Jersey	Dec. 12, 1913	20.4
68	Jersey	Dec. 10, 1913	22.9	76	Holstein	Nov. 17, 1913	25.7
55	Holstein	Dec. 5, 1913	32.2	63	Holstein	Jan. 7, 1914	32.5
Average.....			29.7				27.1

The rations fed in this test consisted of ground corn, corn silage, and clover or alfalfa hay, in the proportions of 1 to 4 to 2, respectively. The silage was of good quality and made largely of Blue Ridge silage corn. The corn consisted of shelled corn, ground as needed. The alfalfa was choice western alfalfa; and the clover, bought and shipped in, was coarse and of poor quality, some of the bales being slightly moldy, and some difficulty was encountered in getting the cows to eat it well. Lot I was fed alfalfa during the first period and clover during the second period. Lot II was fed clover during the first period and alfalfa during the second period. The first period of feeding began January 7 and continued until March 8. The second period continued from March 9 to May 13. The first period covered about 8½ weeks and the second period about 9½

weeks. In making the comparison, the data for the first 2 weeks of each period and the change week were excluded, and those for 6 consecutive weeks of each period were used. Complete records of feed consumed and milk produced were kept, and composite samples from all milkings were kept and tests were made for fat four times a month.

Results.—The production of milk and the quantities of feed consumed by each lot are summarized in Tables III to V.¹

TABLE III.—PRODUCTION AND FEED CONSUMPTION FOR LOT I—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	1,040.5	40.539	297.5	1,126.5	.....	572.4
5.....	924.1	37.369	279.5	1,068.6	.....	525.1
6.....	946.3	38.809	290.0	1,108.6	.....	554.2
7.....	941.3	38.325	294.0	1,146.5	.....	579.1
8.....	951.1	38.913	291.5	1,110.4	.....	558.3
9.....	916.6	38.082	286.0	1,089.3	.....	545.0
Total.....	5,719.9	232.038	1,738.5	6,649.9	.....	3,334.1
CLOVER PERIOD—						
13.....	691.9	29.186	266.0	910.9	406.9	.....
14.....	657.0	29.032	265.5	940.3	386.7	.....
15.....	677.9	29.877	266.0	977.6	442.4	.....
16.....	693.9	30.087	265.0	997.1	474.4	.....
17.....	745.1	32.180	258.0	936.3	422.8	.....
18.....	730.5	28.876	238.0	880.5	378.4	.....
Total.....	4,196.3	179.238	1,558.5	5,642.7	2,511.6	.....

TABLE IV.—PRODUCTION AND FEED CONSUMPTION FOR LOT II—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	853.0	29.093	249.0	906.0	378.9	.....
5.....	834.5	28.554	253.0	968.5	449.5	.....
6.....	773.5	27.023	252.0	974.0	408.6	.....
7.....	710.5	25.473	251.5	969.0	450.0	.....
8.....	711.2	25.780	252.0	923.8	358.2	.....
9.....	700.4	25.550	252.0	948.7	351.2	.....
Total.....	4,583.1	161.473	1,509.5	5,690.0	2,396.4	.....
ALFALFA PERIOD—						
13.....	838.7	29.280	260.0	1,011.5	.....	486.2
14.....	838.5	30.217	260.0	1,018.8	.....	496.2
15.....	843.1	30.404	266.0	1,042.3	.....	509.8
16.....	847.1	29.429	266.0	1,054.8	.....	510.1
17.....	877.5	31.658	261.0	1,006.8	.....	486.4
18.....	867.9	29.151	250.0	963.3	.....	456.1
Total.....	5,112.8	180.139	1,563.0	6,097.5	.....	2,944.8

¹Individual summary tables are given for this lot in the Appendix—Tables 1 to 10.

TABLE V.—SUMMARY FROM LOTS I AND II—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIODS—						
4.....	1,879.2	69.819	557.5	2,138.0	.....	1,058.6
5.....	1,762.6	67.586	539.5	2,087.4	.....	1,021.3
6.....	1,789.4	69.213	556.0	2,150.9	.....	1,064.0
7.....	1,788.4	67.755	560.0	2,201.3	.....	1,089.2
8.....	1,828.6	70.571	552.5	2,117.2	.....	1,044.7
9.....	1,784.5	67.233	536.0	2,052.6	.....	1,001.1
Total.....	10,832.7	412.177	3,301.5	12,747.4	.....	6,278.9
CLOVER PERIODS—						
13.....	1,544.9	58.279	515.0	1,816.9	785.8	.....
14.....	1,491.5	57.586	518.5	1,908.8	836.2	.....
15.....	1,451.4	56.900	518.0	1,951.6	851.0	.....
16.....	1,404.4	55.560	516.5	1,967.1	924.4	.....
17.....	1,456.3	57.960	510.0	1,860.1	781.0	.....
18.....	1,430.9	54.426	490.0	1,829.2	729.6	.....
Total.....	8,779.4	340.711	3,068.0	11,333.7	4,908.0	.....
Difference.....	2,053.3	71.466	233.5	1,413.7	.....	1,370.9
Percentage of difference.....	23.4	20.9	7.6	12.5	.....	27.9

Table V shows that while on alfalfa the cows produced 23.4 percent more milk and 20.9 percent more fat than while on clover, but that they consumed 7.6 percent more grain, 12.5 percent more silage and 27.9 percent more hay. The quantity of milk produced appears to be greatly in favor of the alfalfa, but this advantage disappears when the quantities of feed consumed per unit of product are considered, as in Table VI.

TABLE VI.—FEED CONSUMED PER UNIT OF PRODUCT—Pounds

Hay	Feed consumed per 100 pounds of milk			Feed consumed per pound of fat		
	Corn	Silage	Hay	Corn	Silage	Hay
Clover.....	34.9	129.1	55.9	9.0	33.2	14.4
Alfalfa.....	30.4	117.6	57.9	8.0	30.9	15.2
Difference.....	4.5	11.5	-2.0	1.0	2.3	-.8

Less clover than alfalfa was consumed per 100 pounds of milk produced, but more grain and silage were consumed with the clover. The alfalfa appeared to be a better appetizer, causing a larger consumption of food and larger production, although very little less food nutrients were required per unit of product.

While on the clover hay the cows used 8.2 pounds of digestible protein¹ and 72.9 pounds of digestible carbohydrates and fats per 100 pounds of milk produced, and while on the alfalfa they used 9.72 pounds of protein and 67.1 pounds of carbohydrates and fats, a difference of less than 4 pounds of nutrients per 100 pounds of milk produced. The nutritive ratios were 1:8.8 and 1:6.9, respectively.

The gain or loss in weight of the cows should be taken into consideration. They lost in weight while on clover and gained while on alfalfa.

TEST II (1914-15)

Plan.—A second test was begun December 16, 1914. The first period extended from December 16 to February 15; and the second period from February 16 to April 19, 1915. Lot I received the clover during the first period and alfalfa during the second period. The hays were fed in the reverse order to Lot II. The basal ration consisted of ground corn, wheat bran, corn silage and stover, fed in these proportions: 10 parts of hay, 6 parts of corn, 3 parts of bran, 30 parts of silage and 6 parts of stover. Records of the product were kept and tests for butterfat made as in Test I. The hays used in the first part of the test were grown on the Station farm, and the alfalfa was of better quality than the clover. During the latter part of the test purchased hay of both kinds and of good quality was used.

Twelve cows divided into two lots as follows were used in this test:

TABLE VII.—DATA REGARDING COWS USED

Lot I				Lot II			
Herd number	Breed	Date of freshening	Daily milk yield	Herd number	Breed	Date of freshening	Daily milk yield
			<i>Pounds</i>				<i>Pounds</i>
40	Jersey	Sept. 19, 1914	20.0	65	Holstein	Nov. 9, 1914	38.7
44	Jersey	Oct. 5, 1914	22.5	68	Jersey	Nov. 16, 1914	28.8
76	Holstein	Nov. 4, 1914	33.5	100	Jersey	Sept. 6, 1914	19.1
79	Holstein	Sept. 27, 1914	34.6	73	J & G	Sept. 19, 1914	23.4
88	Jersey	Oct. 2, 1914	19.0	97	Jersey	Oct. 4, 1914	15.1
69	Jersey	Nov. 26, 1914	23.0	101	Jersey	Sept. 13, 1914	16.0
Average.	.....	.....	25.4	.....	.....	.....	23.5

Results.—For the comparison the data for the first 2 weeks of each period were excluded and those used for the next 6 consecutive weeks. The results for each lot are shown in Tables VIII to X.²

¹In calculating digestible nutrients the figures for all analyses as shown in the 16th edition of "Feeds and Feeding" (1917) by Henry and Morrison were used.

²Tables 11 to 22 in the Appendix set forth the individual records of the cows used in this test.

CLOVER VS. ALFALFA FOR MILK PRODUCTION

TABLE VIII.—PRODUCTION AND FEED CONSUMPTION OF LOT I—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	847.5	36.776	193.2	96.6	929.5	82.6	245.5	.....
4.....	790.9	34.308	167.4	83.7	806.5	103.4	231.0	.....
5.....	773.3	33.658	155.4	77.7	774.5	96.7	257.0	.....
6.....	680.4	30.871	165.4	82.7	719.5	99.4	261.0	.....
7.....	718.7	32.103	172.2	86.1	861.0	99.2	270.5	.....
8.....	743.4	31.245	172.2	86.1	859.0	125.2	276.0	.....
Total.....	4,554.2	198.961	1,025.8	512.9	4,950.0	606.5	1,541.0	.....
ALFALFA PERIOD—								
11.....	811.4	34.008	204.0	102.0	1,018.0	110.0	.....	340.0
12.....	825.7	34.756	211.2	105.6	1,056.0	128.2	.....	352.0
13.....	819.3	34.206	218.4	109.2	1,092.0	135.2	.....	364.0
14.....	811.3	33.814	218.4	109.2	1,090.0	124.9	.....	361.0
15.....	806.1	33.972	218.4	109.2	1,092.0	131.5	.....	364.0
16.....	839.0	35.261	218.4	109.2	1,092.0	148.9	.....	364.0
Total.....	4,912.8	206.017	1,288.8	644.4	6,440.0	778.7	.....	2,145.0

TABLE IX.—PRODUCTION AND FEED CONSUMPTION OF LOT II—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	928.4	39.856	211.2	105.6	1,052.1	72.7	.....	348.0
4.....	922.3	39.975	205.8	102.9	1,020.5	104.8	.....	342.0
5.....	924.5	38.793	205.8	102.9	1,028.5	102.3	.....	343.0
6.....	818.6	36.138	197.8	98.9	856.5	94.3	.....	338.0
7.....	888.1	39.180	205.8	102.9	1,029.0	84.8	.....	341.0
8.....	921.9	38.359	205.8	102.9	1,029.0	116.8	.....	343.0
Total.....	5,403.8	232.301	1,232.2	616.1	6,015.6	575.7	.....	2,055.0
CLOVER PERIOD—								
11.....	798.2	34.398	193.2	96.6	966.0	87.7	309.5	.....
12.....	776.8	33.749	193.2	96.6	966.0	94.7	319.0	.....
13.....	780.5	33.238	193.2	96.6	966.0	91.4	322.0	.....
14.....	797.2	34.068	193.2	96.6	966.0	97.9	309.0	.....
15.....	789.6	34.377	193.2	96.6	966.0	94.6	322.0	.....
16.....	793.5	33.607	193.2	96.6	966.0	117.7	322.0	.....
Total.....	4,735.8	203.437	1,159.2	579.6	5,796.0	584.0	1,903.5	.....

TABLE X.—SUMMARY FROM LOTS I AND II—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIODS—								
3.....	1,645.7	71.174	386.4	193.2	1,895.5	170.3	555.0	.....
4.....	1,567.7	68.057	360.6	180.3	1,772.5	198.1	550.0	.....
5.....	1,553.8	66.896	348.6	174.3	1,740.5	188.1	579.0	.....
6.....	1,477.6	64.939	358.6	179.3	1,685.5	197.3	570.0	.....
7.....	1,508.3	66.480	365.4	182.7	1,827.0	193.8	592.5	.....
8.....	1,536.9	64.852	365.4	182.7	1,825.0	242.9	598.0	.....
Total.....	9,290.0	402.398	2,185.0	1,092.5	10,746.0	1,190.5	3,444.5	.....
ALFALFA PERIODS—								
11.....	1,739.8	73.864	415.2	207.6	2,070.1	182.7	.....	688.0
12.....	1,748.0	74.731	417.0	208.5	2,076.5	233.0	.....	694.0
13.....	1,743.8	72.999	424.2	212.1	2,120.5	237.5	.....	707.0
14.....	1,629.9	69.952	416.2	208.1	1,946.5	219.2	.....	699.0
15.....	1,694.2	73.152	424.2	212.1	2,121.0	216.3	.....	705.0
16.....	1,760.9	73.620	424.2	212.1	2,121.0	265.7	.....	707.0
Total.....	10,316.6	438.318	2,521.0	1,260.5	12,455.6	1,354.4	.....	4,200.0
Difference.....	1,026.6	35.92	336.0	168.0	1,709.6	163.9	.....	755.5
Percentage of difference	11.0	8.9	15.4	15.4	15.9	13.8	.....	21.9

While on alfalfa the cows produced 11 percent more milk and 8.9 percent more fat than while on clover. However, they consumed more of all the feeds per 100 pounds of milk produced. They consumed 21.9 percent more alfalfa than clover and 10 percent more alfalfa per 100 pounds of milk produced. While on clover the cows used 7.59 pounds of digestible protein and 64.9 pounds of digestible carbohydrates and fats per 100 pounds of milk produced, and while on the alfalfa they consumed 9.27 pounds of digestible protein and 67.4 pounds of digestible carbohydrates and fats per 100 pounds of milk.

TABLE XI.—FEED CONSUMED PER UNIT OF PRODUCT—Pounds

Hay	Feed consumed per 100 pounds of milk				Feed consumed per pound of fat			
	Grain	Silage	Stover	Hay	Grain	Silage	Stover	Hay
Alfalfa.....	36.6	120.7	13.1	40.7	8.6	28.4	3.1	9.6
Clover.....	35.2	115.6	12.8	37.0	8.1	26.7	2.9	8.5
Difference.....	1.4	5.1	.3	3.7	.5	1.7	.2	1.1

The nutritive ratio of the clover ration was 1:8.5 and that of the alfalfa ration was 1:7.2.

The cows all lost in weight except Lot I during their alfalfa period. During the latter part of February some of the cows used

in the test scoured badly for a few days; the disorder was apparently epidemic in the herd.

TEST III (1915-16)

Plan.—Six cows, divided as shown in Table XII, were used in the third test, which began November 15, 1915. The cows were not all started at the same date, and the changes were not made on the same date. The cows in Lot I were fed clover during the first period and alfalfa during the second period; those in Lot II were fed in the reverse order. In this test the basal ration was the same as in Test II, and the records were kept in the same manner. The alfalfa hay used was home grown and of good quality. The clover hay for the first part of the period was old hay of good quality which had been bought. Later, home-grown clover of the first cutting and of good quality was used.

TABLE XII.—DATA REGARDING COWS USED

Lot I				Lot II			
Herd number	Breed	Date of freshening	Daily milk yield	Herd number	Breed	Date of freshening	Daily milk yield
88	Jersey	Oct. 12, 1915	<i>Pounds</i> 29.0	101	Jersey	Sept. 29, 1915	<i>Pounds</i> 23.8
79	Holstein	Dec. 8, 1915	32.9	76	Holstein	Nov. 12, 1915	45.5
68	Jersey	Nov. 26, 1915	27.0	97	Jersey	Nov. 1, 1915	20.0
Average.....			29.6				29.7

Results.—The results obtained in this test are shown in Tables XIII to XV.¹

TABLE XIII.—PRODUCTION AND FEED CONSUMPTION OF LOT I—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	538.9	23.895	121.8	60.9	604.0	78.9	191.0	.....
4.....	529.6	23.190	121.8	60.9	609.0	83.4	191.2	.....
5.....	513.9	22.379	121.8	60.9	609.0	89.6	198.0	.....
6.....	485.9	21.190	121.8	60.9	609.0	78.8	202.1	.....
7.....	480.9	20.243	121.8	60.9	592.0	74.2	197.0	.....
8.....	457.0	20.293	121.8	60.9	569.0	85.3	188.5	.....
Total.....	3,006.2	131.190	730.8	365.4	3,592.0	490.2	1,167.8	.....
ALFALFA PERIOD—								
11.....	450.7	19.181	113.4	56.7	567.0	71.4	.....	186.0
12.....	446.6	18.985	113.4	56.7	567.0	74.8	.....	189.0
13.....	444.3	18.785	113.4	56.7	567.0	70.5	.....	189.0
14.....	438.5	18.452	113.4	56.7	567.0	76.6	.....	189.0
15.....	434.7	18.127	113.4	56.7	559.5	77.7	.....	189.0
16.....	432.5	17.954	113.4	56.7	564.0	69.9	.....	189.0
Total.....	2,647.3	111.484	680.4	340.2	3,391.5	440.9	.....	1,131.0

¹Tables 23 to 28 in the Appendix contain the individual records for the cows in this test.

TABLE XIV.—PRODUCTION AND FEED CONSUMPTION OF LOT II—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	517.3	20.742	121.8	60.9	609.0	74.6	.....	199.4
4.....	495.0	19.851	121.8	60.9	609.0	78.1	.....	197.0
5.....	477.9	19.759	121.8	60.9	609.0	73.9	.....	196.4
6.....	475.8	19.606	121.8	60.9	609.0	84.2	.....	201.3
7.....	478.7	19.266	121.8	60.9	609.0	77.2	.....	201.0
8.....	486.4	20.076	121.8	60.9	609.0	72.6	.....	201.0
Total.....	2,931.1	119.300	730.8	365.4	3,654.0	460.6	.....	1,196.1
CLOVER PERIOD—								
11.....	444.8	18.635	113.4	56.7	566.0	66.7	177.7	.....
12.....	442.4	18.538	113.4	56.7	567.0	56.9	181.0	.....
13.....	434.6	19.714	113.4	56.7	555.0	58.7	185.0	.....
14.....	397.5	18.111	95.4	47.7	542.7	57.3	182.4	.....
15.....	429.7	18.751	101.4	50.7	567.0	59.3	188.0	.....
16.....	436.6	18.563	113.4	56.7	563.1	49.1	189.0	.....
Total... .	2,585.6	112.312	650.4	325.2	2,360.8	348.0	1,103.1	.....

TABLE XV.—SUMMARY FROM LOTS I AND II—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIODS—								
3.....	983.7	42.530	235.2	117.6	1,170.0	145.6	368.7	.....
4.....	972.0	41.728	235.2	117.6	1,176.0	140.3	372.2	.....
5.....	948.5	42.093	235.2	117.6	1,164.0	148.3	383.0	.....
6.....	883.4	39.301	217.2	108.6	1,151.7	136.1	384.5	.....
7.....	910.6	38.994	223.2	111.6	1,159.0	133.5	385.0	.....
8.....	893.6	38.856	235.2	117.6	1,132.1	134.4	377.5	.....
Total.....	5,591.8	243.502	1,381.2	690.6	6,952.8	838.2	2,270.9	.....
ALFALFA PERIODS—								
11.....	968.0	39.923	235.2	117.6	1,176.0	146.0	.....	385.4
12.....	941.6	38.836	235.2	117.6	1,176.0	152.9	.....	386.0
13.....	922.2	38.544	235.2	117.6	1,176.0	144.4	.....	385.4
14.....	914.3	38.058	235.2	117.6	1,176.0	160.8	.....	390.3
15.....	913.4	37.393	235.2	117.6	1,168.5	154.9	.....	390.0
16.....	918.9	38.030	235.2	117.6	1,173.0	142.5	.....	390.0
Total.....	5,578.4	230.784	1,411.2	705.6	7,045.5	901.5	.....	2,327.1
Difference.....	13.4	12.718	30.0	15.0	92.7	63.3	.....	56.2
Percentage of difference	.2	5.5	2.1	2.1	1.3	7.0	.....	2.4

In this test the difference in milk production was less than 1 percent. There was a difference of 5 percent in fat in favor of the lot fed clover.

Table XVI shows that slightly more feed was consumed per unit of product when the alfalfa was fed.

TABLE XVI.—FEED CONSUMED PER UNIT OF PRODUCT—Pounds

Hay	Feed consumed per 100 pounds of milk				Feed consumed per pound of fat			
	Grain	Silage	Stover	Hay	Grain	Silage	Stover	Hay
Alfalfa.....	37.9	126.3	16.1	41.8	9.1	30.5	3.9	10.1
Clover.....	37.0	124.3	14.9	40.6	8.4	28.5	3.4	9.3
Difference.....	.9	2.0	1.2	1.2	.7	2.0	.5	.8

While on clover the cows consumed 8.1 pounds of digestible protein and 70 pounds of digestible carbohydrates and fat, and while on alfalfa they consumed 9.6 pounds of digestible protein and 71 pounds of digestible carbohydrates and fats per 100 pounds of milk produced.

The nutritive ratio of the clover ration was 1:8.6 and that of the alfalfa ration 1:7.3.

During the first period the cows on clover lost about 0.4 pound daily, but those on clover the second period gained about 0.45 pound daily. Those on alfalfa during the first period gained about 0.3 and during the second period lost an equal amount.

TEST IV (1916-17)

Plan.—The rations used in the fourth test were the same as those used in the first test, namely, corn 1 part, hay 2 parts and silage 4 parts by weight. The alfalfa was home grown, of first and second cuttings and of fine quality except that it contained some bluegrass. The clover was home grown, of second cutting and of fine quality and contained a little grass.

The test began November 1, 1916, and the change was made February 15, 1917. The second period continued until the 22d of April.

Eight cows were used in this test and were divided as shown in Table XVII.

TABLE XVII.—DATA REGARDING COWS USED

Lot I				Lot II			
Herd number	Breed	Date of freshening	Daily milk yield	Herd number	Breed	Date of freshening	Daily milk yield
			<i>Pounds</i>				<i>Pounds</i>
107	Holstein	June 30, 1916	36.3	70	Holstein	June 14, 1916	24.9
79	Holstein	Dec. 1, 1916	44.5	110	Holstein	Aug. 10, 1916	40.2
137	Jersey	Oct. 9, 1916	20.0	140	Jersey	Oct. 18, 1916	17.3
127	Jersey	July 7, 1916	14.6	42	Jersey	July 1, 1916	14.0
Average.....			28.8				24.1

Results.—The results of this test are shown in Tables XVIII to XX.¹

TABLE XVIII.—PRODUCTION AND FEED CONSUMPTION OF LOT I—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
10.....	783.0	29.152	200.0	800.0	400.0	.....
11.....	744.1	28.132	196.0	784.0	392.0	.....
12.....	735.6	27.897	196.0	784.0	392.0	.....
13.....	767.3	28.215	196.0	784.0	392.0	.....
14.....	775.0	29.559	196.0	784.0	392.0	.....
15.....	758.9	28.895	196.0	784.0	392.0	.....
Total.....	4,563.9	171.850	1,180.0	4,720.0	2,360.0	.....
ALFALFA PERIOD—						
18.....	729.9	27.771	186.0	744.0	.....	354.3
19.....	728.3	27.200	173.0	692.0	.....	346.0
20.....	717.4	27.612	168.0	672.0	.....	336.0
21.....	691.8	27.165	168.0	672.0	.....	336.0
22.....	671.0	25.841	164.0	656.0	.....	328.0
23.....	654.8	25.992	161.0	644.0	.....	322.0
Total.....	4,193.2	161.581	1,020.0	4,080.0	.....	2,022.3

TABLE XIX.—PRODUCTION AND FEED CONSUMPTION OF LOT II—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
10.....	571.5	21.802	189.5	758.0	.....	379.0
11.....	539.6	21.137	185.5	742.0	.....	371.0
12.....	538.2	21.198	185.5	730.0	.....	371.0
13.....	567.3	22.357	185.5	742.0	.....	371.0
14.....	566.1	22.545	185.5	742.0	.....	371.0
15.....	567.7	22.485	185.5	742.0	.....	371.0
Total.....	3,350.4	131.524	1,117.0	4,456.0	.....	2,234.0
CLOVER PERIOD—						
18.....	546.7	21.549	170.5	682.0	326.9	.....
19.....	507.9	19.425	152.0	584.0	296.0	.....
20.....	526.9	20.136	161.0	644.0	322.0	.....
21.....	535.4	20.085	161.0	644.0	322.0	.....
22.....	516.2	19.436	159.0	636.0	318.0	.....
23.....	507.0	19.746	154.0	616.0	308.0	.....
Total.....	3,140.1	120.377	957.5	3,806.0	1,892.9	.....

¹Tables 29 to 36 in the Appendix present the individual records for the cows used in this test.

TABLE XX.—SUMMARY FROM LOTS I AND II—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIODS—						
3.....	1,329.7	50.701	370.5	1,482.0	726.9	.....
4.....	1,252.0	47.557	348.0	1,368.0	688.0	.....
5.....	1,262.5	48.033	357.0	1,428.0	714.0	.....
6.....	1,302.7	48.300	357.0	1,428.0	714.0	.....
7.....	1,291.2	48.995	355.0	1,420.0	710.0	.....
8.....	1,265.9	48.641	350.0	1,400.0	700.0	.....
Total.....	7,704.0	292.227	2,137.5	8,526.0	4,252.9	.....
ALFALFA PERIODS —						
11.....	1,301.4	49.573	375.5	1,502.0	.....	733.3
12.....	1,267.9	48.337	358.5	1,434.0	.....	717.0
13.....	1,255.6	48.810	353.5	1,402.0	.....	707.0
14.....	1,259.1	49.522	353.5	1,414.0	.....	707.0
15.....	1,237.1	48.386	349.5	1,398.0	.....	699.0
16.....	1,222.5	48.477	346.5	1,386.0	.....	693.0
Total.....	7,543.6	293.105	2,137.0	8,536.0	.....	4,256.3
Difference.....	160.4	.9	.5	10.0	.....	3.4
Percentage of difference.....	2.1	.....	.....	.....	.....	.....

In this test the cows produced 2.1 percent more milk on the clover ration and practically the same amount of fat on each ration. The quantities of feeds and the amounts of product are almost the same from the use of both rations.

Slightly more feed was used per unit of product by the cows on alfalfa, but the difference was very small.

TABLE XXI.—FEED CONSUMED PER UNIT OF PRODUCT—Pou nd

Hay	Feed consumed per 100 pounds of milk			Feed consumed per pound of fat		
	Corn	Silage	Hay	Corn	Silage	Hay
Alfalfa	28.3	113.0	56.4	7.2	29.1	14.5
Clover.....	27.7	110.6	55.2	7.3	29.2	14.5
Difference.....	.6	2.4	1.2	-.1	-.1	.....

While on clover they consumed 7.49 pounds of digestible protein and 64 pounds of digestible carbohydrates and fats, and while on alfalfa they consumed 9.35 pounds of protein and 64 pounds of carbohydrates and fats per 100 pounds of milk produced.

The nutritive ratio of the clover ration was 1:8.53 and that of the alfalfa ration 1:6.84.

In this test the gain or loss in weight was about the same for both lots.

SUMMARY OF FOUR TESTS

Table XXII shows that, on the whole, more feed was consumed and more milk produced while the cows were on the alfalfa rations, but that the difference in the quantity of feed consumed was greater than the difference in quantity of product. The greatest difference in milk was during the first test when the clover was of the poorest quality.

TABLE XXII.—GRAND SUMMARY OF PRODUCTION AND FEED CONSUMPTION OF COWS USED IN FOUR TESTS—Pounds

Test	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIODS—								
First.....	8,779.4	340.7	3,068.0	.....	11,334.0	.....	4,908.0	.....
Second.....	9,290.0	402.4	2,185.0	1,092.5	10,746.0	1,190.5	3,444.5	.....
Third.....	5,591.8	243.5	1,381.2	690.6	6,952.8	838.2	2,271.0	.....
Fourth.....	7,704.0	292.2	2,137.5	.....	8,526.0	.....	4,253.0	.....
Total.....	31,365.2	1,278.8	8,771.7	1,783.1	37,558.8	2,028.7	14,876.5	.. ....
ALFALFA PERIODS—								
First.....	10,832.7	412.2	3,301.5	.....	12,747.4	.....	.....	6,279.0
Second.....	10,316.6	438.3	2,521.0	1,260.5	12,455.6	1,354.4	.....	4,200.0
Third.....	5,578.4	230.7	1,411.2	705.6	7,045.5	901.5	.....	2,327.1
Fourth.....	7,543.6	293.1	2,137.0	.....	8,536.0	.....	.....	4,256.3
Total.....	34,271.3	1,374.3	9,370.7	1,966.1	40,784.5	2,255.9	.....	17,062.4
Difference.....	2,906.1	95.5	599.0	183.0	3,225.7	227.2	.....	2,185.9
Percentage of difference	9.3	7.5	6.8	10.3	8.6	11.2	.....	14.7

The alfalfa rations contained 31.8 percent more protein than the clover rations, and 8.2 percent more carbohydrates and fat, but the cows on alfalfa produced only about 9.5 percent more milk; and this difference would have been less if the clover in the first test had been of good quality.

The average nutritive ratio during the four tests was 1:8.6 for the clover rations and 1:7 for the alfalfa rations. Both of these rations were lower in protein than the accepted standard and, therefore, there was not an oversupply of protein with the alfalfa. Theoretically the alfalfa should have caused greater production per unit of hay, especially when the quality of the two hays is considered.

TABLE XXIII.—DIGESTIBLE NUTRIENTS CONSUMED—Pounds

Feed	Protein	Carbohydrates	Fats	Carbohydrates + 2½ fats	Protein per 100 lb. milk	Carbohydrates + 2½ fats per 100 lb. milk
CLOVER PERIODS—						
Corn.....	657.9	5,947.2	403.5			
Bran.....	222.9	741.8	53.5			
Silage.....	413.1	5,633.8	262.9			
Clover.....	1,130.6	5,846.5	267.8			
Stover.....	42.6	860.2	14.2			
Total.....	2,467.1	19,029.5	1,001.9	21,283.8	7.86	67.9
ALFALFA PERIODS—						
Corn.....	702.8	6,353.3	431.0			
Bran.....	245.8	817.9	59.0			
Silage.....	448.6	6,117.7	285.5			
Alfalfa.....	1,808.6	6,654.3	153.6			
Stover.....	47.4	956.5	15.8			
Total.....	3,253.2	20,899.7	944.9	23,025.7	9.49	67.19

The gain or loss in weight of the cows should be taken into consideration. In Test I the cows on clover lost in weight about 1 pound daily in both periods while those on alfalfa gained about 0.7 pound daily in both periods. In Test II the cows on clover lost about 0.7 pound daily, while those on alfalfa gained in the first period and lost in the second period with an average loss of about 0.1 pound daily. In Test III the cows on clover lost during the first period and gained about an equal amount during the second period, while those on alfalfa gained during the first period and lost about an equal amount during the second period. In Test IV both lots lost slightly in the first period and gained slightly in the second period.

The heaviest loss in weight was by the cows on the clover ration during the first test, when the clover was of the poorest quality. In the last test, in which the clover was of better quality than the alfalfa, there was almost no difference in loss or gain in weight. In this last test the clover was of the second cutting harvested in full bloom. The foregoing gains or losses are not given in exact figures because the time covered by weights was not exactly the same as that covered by the period selected for comparison of production. The weights covered the entire feeding periods and were taken weekly or monthly.

It is evident that the alfalfa rations maintained weights better than the clover rations, which accounts in part for the larger use of nutrients per unit of product from the alfalfa rations. These tests were conducted with cows in the early part of their lactation periods when the tendency to draw from their bodies is strongest if the

supply of nutrients is short in the feeds. This tendency would operate in favor of the rations more deficient in nutrients, especially protein, which in these tests were the clover rations.

CONCLUSIONS

Alfalfa appears to be a better appetizer than clover.

When the hays are of equal quality neither can be said to be greatly superior for milk production.

The alfalfa showed a stronger tendency to maintain the weight of the animals.

The clover rations show a smaller amount of digestible protein consumed per 100 pounds of milk produced. Possibly the cows may have drawn some from their bodies.

The total nutrients consumed per 100 pounds of milk were also a little greater with the alfalfa rations.

The superiority of alfalfa over clover appears to lie in the greater tonnage which can be produced per acre and its appetizing effect rather than in its higher protein content.

The results of these tests indicate that a unit of clover protein is more efficient in milk production than a unit of alfalfa protein.

APPENDIX—INDIVIDUAL SUMMARIES

TEST I—LOT I

TABLE 1.—PRODUCTION AND FEED CONSUMPTION OF COW 40—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	168.4	7.925	56.0	174.5	.....	94.8
5.....	154.2	7.300	56.0	198.3	.....	97.3
6.....	157.9	7.851	56.0	186.0	.....	92.6
7.....	153.4	7.793	56.0	197.0	.....	105.1
8.....	151.9	7.766	53.5	175.3	.....	87.0
9.....	137.3	7.140	48.0	144.0	.....	80.1
Total.....	923.1	45.776	325.5	1,075.1	.....	556.9
CLOVER PERIOD—						
13.....	103.7	5.500	42.0	96.0	61.0	.....
14.....	99.1	5.197	41.5	113.5	57.5	.....
15.....	91.2	4.996	42.0	119.0	67.8	.....
16.....	88.4	4.668	42.0	133.0	70.0	.....
17.....	93.3	5.136	40.0	129.0	60.1	.....
18.....	91.1	4.035	35.0	116.5	52.3	.....
Total.....	566.8	29.532	242.5	707.0	368.7	.....

TABLE 2.—PRODUCTION AND FEED CONSUMPTION OF COW 57—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	249.9	8.301	66.5	266.0	.....	133.0
5.....	180.4	5.829	48.5	175.0	.....	81.0
6.....	213.5	6.965	59.0	236.0	.....	118.0
7.....	215.6	7.222	63.0	252.0	.....	126.0
8.....	227.0	7.701	63.0	249.0	.....	123.8
9.....	231.1	7.907	63.0	252.0	.....	125.8
Total.....	1,317.5	43.925	363.0	1,430.0	.....	707.6
CLOVER PERIOD—						
13.....	179.3	5.931	56.0	201.8	69.0	.....
14.....	179.2	6.028	56.0	215.0	72.6	.....
15.....	190.6	6.576	56.0	224.0	97.5	.....
16.....	192.9	6.461	56.0	224.0	103.5	.....
17.....	203.3	7.115	56.0	224.0	93.3	.....
18.....	206.0	6.500	56.0	224.0	83.0	.....
Total.....	1,151.3	38.611	336.0	1,312.8	518.9	.....

TABLE 3.—PRODUCTION AND FEED CONSUMPTION OF COW 62—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	200.3	9.027	56.0	214.5	.....	107.8
5.....	190.4	9.288	56.0	221.0	.....	109.8
6.....	185.1	9.519	56.0	217.3	.....	110.6
7.....	177.9	8.917	56.0	221.5	.....	110.0
8.....	179.5	8.741	56.0	211.1	.....	110.0
9.....	170.0	8.573	56.0	217.3	.....	101.1
Total.....	1,103.2	54.065	336.0	1,302.7	.....	649.3
CLOVER PERIOD—						
13.....	144.3	6.965	49.0	185.8	92.6	.....
14.....	141.8	7.554	49.0	191.0	92.8	.....
15.....	137.1	7.540	49.0	185.5	91.3	.....
16.....	135.9	7.949	49.0	191.0	95.6	.....
17.....	146.6	7.842	48.0	179.5	91.0	.....
18.....	137.9	6.907	42.0	159.9	81.3	.....
Total.....	843.6	44.757	286.0	1,092.7	544.6	.....

TABLE 4.—PRODUCTION AND FEED CONSUMPTION OF COW 68—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	178.3	7.983	56.0	219.5	.....	111.0
5.....	168.3	7.716	56.0	222.3	.....	111.0
6.....	165.3	7.579	56.0	217.3	.....	107.5
7.....	161.3	7.480	56.0	224.0	.....	112.0
8.....	158.6	7.516	56.0	223.0	.....	112.0
9.....	155.1	7.334	56.0	224.0	.....	112.0
Total.....	986.9	45.608	336.0	1,330.1	.....	665.5
CLOVER PERIOD—						
13.....	134.3	6.715	56.0	205.8	102.0	.....
14.....	130.5	6.501	56.0	214.8	104.0	.....
15.....	130.7	6.404	56.0	213.1	110.5	.....
16.....	130.9	6.346	56.0	221.3	111.8	.....
17.....	140.4	6.880	55.0	204.8	104.8	.....
18.....	135.2	6.574	52.5	194.1	104.5	.....
Total.....	802.0	39.420	331.5	1,253.9	637.6	.....

TABLE 5.—PRODUCTION AND FEED CONSUMPTION OF COW 55—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
4.....	243.6	7.302	63.0	252.0	.....	125.8
5.....	230.8	7.236	63.0	252.0	.....	126.0
6.....	224.5	6.895	63.0	252.0	.....	125.5
7.....	233.1	6.914	63.0	252.0	.....	126.0
8.....	234.1	7.189	63.0	252.0	.....	125.5
9.....	223.1	7.128	63.0	252.0	.....	126.0
Total.....	1,389.2	42.664	378.0	1,512.0	.....	754.8
CLOVER PERIOD—						
13.....	130.3	4.075	63.0	221.5	82.3	.....
14.....	106.4	3.752	63.0	206.0	59.8	.....
15.....	128.3	4.361	63.0	236.0	75.3	.....
16.....	145.7	4.663	62.0	227.8	93.5	.....
17.....	161.5	5.207	59.0	199.0	73.6	.....
18.....	160.3	4.860	52.5	186.0	57.3	.....
Total.....	832.5	26.918	362.5	1,276.3	441.8	.....

TEST I—LOT II

TABLE 6.—PRODUCTION AND FEED CONSUMPTION OF COW 44—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	123.7	5.717	45.5	176.0	73.1	.....
5.....	121.1	5.848	45.5	173.5	88.0	.....
6.....	112.7	5.698	45.5	171.5	66.0	.....
7.....	106.8	5.376	45.5	171.0	81.8	.....
8.....	110.0	5.397	45.5	168.3	75.3	.....
9.....	107.5	5.515	45.5	171.5	67.0	.....
Total.....	681.8	33.551	273.0	1031.8	451.2	.....
ALFALFA PERIOD—						
13.....	107.3	5.380	45.5	169.5	.....	78.1
14.....	106.6	5.469	45.5	177.3	.....	85.5
15.....	108.4	5.745	45.5	174.3	.....	86.3
16.....	110.4	5.579	45.5	173.0	.....	85.0
17.....	117.8	6.242	44.5	157.0	.....	78.8
18.....	114.8	5.630	42.0	155.8	.....	72.0
Total.....	665.3	34.045	268.5	1006.9	.....	485.7

TABLE 7.—PRODUCTION AND FEED CONSUMPTION OF COW 65—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	224.3	6.255	63.0	229.5	79.0	.....
5.....	221.4	5.763	63.0	234.0	87.8	.....
6.....	211.9	5.605	63.0	242.5	86.5	.....
7.....	196.1	5.573	63.0	250.0	108.8	.....
8.....	196.7	5.620	63.0	234.5	62.3	.....
9.....	197.5	5.583	63.0	242.7	55.0	.....
Total.....	1247.9	34.401	378.0	1433.2	479.4	.....
ALFALFA PERIOD—						
13.....	264.1	7.279	63.0	236.0	.....	121.8
14.....	259.3	7.276	63.0	237.5	.....	124.1
15.....	260.8	7.417	63.0	241.0	.....	125.1
16.....	265.9	6.912	63.0	251.8	.....	125.0
17.....	268.2	7.636	59.0	219.5	.....	113.0
18.....	262.2	7.787	52.5	190.5	.....	98.5
Total.....	1580.5	43.307	363.5	1376.3	.....	707.5

TABLE 8.—PRODUCTION AND FEED CONSUMPTION OF COW 69—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	130.6	6.641	45.5	181.0	74.4	.....
5.....	127.6	6.577	45.5	179.5	68.3	.....
6.....	117.1	6.314	45.5	181.0	74.5	.....
7.....	103.4	5.736	45.5	181.0	75.1	.....
8.....	108.8	5.918	45.5	181.0	63.0	.....
9.....	108.8	5.854	45.5	182.0	76.8	.....
Total.....	696.3	37.040	273.0	1085.5	432.1	.....
ALFALFA PERIOD—						
13.....	112.6	5.790	45.5	182.0	.....	78.8
14.....	107.1	5.818	45.5	180.0	.....	80.0
15.....	104.2	5.883	45.5	182.0	.....	77.8
16.....	107.7	5.866	45.5	182.0	.....	78.5
17.....	115.5	5.944	45.5	182.3	.....	74.0
18.....	108.5	5.354	43.5	174.0	.....	67.1
Total.....	655.6	34.655	271.0	1082.3	.....	456.2

TABLE 9.—PRODUCTION AND FEED CONSUMPTION OF COW 76—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	184.2	5.387	42.0	168.0	78.1	.....
5.....	176.4	5.228	42.0	168.0	88.1	.....
6.....	163.1	4.590	42.0	168.0	82.3	.....
7.....	154.6	4.446	42.0	168.0	83.0	.....
8.....	155.6	4.712	42.0	168.0	79.3	.....
9.....	148.7	4.335	42.0	167.5	74.1	.....
Total.....	982.6	28.698	252.0	1,007.5	484.9	.....
ALFALFA PERIOD—						
13.....	172.8	4.945	50.0	200.0	.....	100.0
14.....	172.9	5.134	50.0	200.0	.....	100.0
15.....	180.2	5.582	56.0	223.0	.....	112.0
16.....	179.1	5.277	56.0	224.0	.....	112.0
17.....	188.6	5.936	56.0	224.0	.....	112.0
18.....	191.1	5.688	56.0	224.0	.....	112.0
Total.....	1,084.7	32.562	324.0	1,295.0	.....	648.0

TABLE 10.—PRODUCTION AND FEED CONSUMPTION OF COW 63—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
4.....	190.2	5.093	53.0	151.5	74.3	.....
5.....	188.0	5.138	57.0	213.5	117.3	.....
6.....	168.7	4.816	56.0	211.0	99.3	.....
7.....	149.6	4.340	55.5	199.0	101.3	.....
8.....	140.1	4.133	56.0	172.0	78.3	.....
9.....	137.9	4.263	56.0	185.0	78.3	.....
Total.....	974.5	27.783	333.5	1,132.0	548.8	.....
ALFALFA PERIOD—						
13.....	181.9	5.886	56.0	224.0	.....	107.5
14.....	192.6	6.520	56.0	224.0	.....	106.6
15.....	189.5	5.777	56.0	222.0	.....	108.6
16.....	184.1	5.795	56.0	224.0	.....	109.6
17.....	187.4	5.900	56.0	224.0	.....	108.6
18.....	191.3	5.692	56.0	219.0	.....	106.5
Total.....	1,126.8	35.570	336.0	1,337.0	.....	647.4

TEST II—LOT I

TABLE 11.—PRODUCTION AND FEED CONSUMPTION OF COW 40—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	105.4	5.478	33.6	16.8	150.5	6.1	49.0	.....
4.....	100.8	5.382	27.6	13.8	121.5	13.1	38.0	.....
5.....	96.7	5.044	25.2	12.6	124.5	10.5	42.0	.....
6.....	91.9	4.900	25.2	12.6	117.0	11.7	42.0	.....
7.....	89.7	4.962	25.2	12.6	126.0	9.2	42.0	.....
8.....	91.5	5.112	25.2	12.6	126.0	14.2	42.0	.....
Total.....	576.0	30.878	162.0	81.0	765.5	64.8	255.0	.....
ALFALFA PERIOD—								
11.....	94.0	5.026	29.4	14.7	145.0	13.4	.....	49.0
12.....	93.9	5.262	29.4	14.7	147.0	15.4	.....	49.0
13.....	91.6	5.150	29.4	14.7	147.0	15.4	.....	49.0
14.....	89.7	4.958	29.4	14.7	145.0	15.4	.....	49.0
15.....	87.5	5.250	29.4	14.7	147.0	16.7	.....	49.0
16.....	91.2	5.237	29.4	14.7	147.0	21.9	.....	49.0
Total.....	547.9	30.883	176.4	88.2	878.0	98.2	.....	294.0

TABLE 12.—PRODUCTION AND FEED CONSUMPTION OF COW 44—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	111.4	6.533	33.6	16.8	156.0	7.8	42.0	.....
4.....	97.1	5.726	27.6	13.8	124.0	11.6	37.0	.....
5.....	90.0	5.331	25.2	12.6	125.0	10.7	42.0	.....
6.....	88.2	5.145	24.6	12.3	115.0	8.7	40.0	.....
7.....	88.7	5.032	25.2	12.6	126.0	7.2	42.0	.....
8.....	81.9	4.409	25.2	12.6	126.0	14.7	42.0	.....
Total.....	557.3	32.176	161.4	80.7	772.0	60.7	245.0	.....
ALFALFA PERIOD—								
11.....	88.5	4.670	29.4	14.7	147.0	11.4	.....	49.0
12.....	88.2	4.531	29.4	14.7	147.0	14.4	.....	49.0
13.....	81.1	4.296	29.4	14.7	147.0	19.7	.....	49.0
14.....	82.9	4.599	29.4	14.7	147.0	13.9	.....	49.0
15.....	83.8	4.398	29.4	14.7	147.0	16.4	.....	49.0
16.....	95.8	5.149	29.4	14.7	147.0	18.4	.....	49.0
Total.....	520.3	27.643	176.4	88.2	882.0	94.2	.....	294.0

TABLE 13.—PRODUCTION AND FEED CONSUMPTION OF COW 76—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	195.9	6.139	33.6	16.8	168.0	23.1	38.5	.....
4.....	183.8	5.852	27.6	13.8	138.0	25.6	38.5	.....
5.....	180.9	5.684	25.2	12.6	126.0	25.2	42.0	.....
6.....	153.0	4.999	31.2	15.6	132.0	27.7	51.0	.....
7.....	181.2	6.057	33.6	16.8	168.0	31.6	56.0	.....
8.....	183.6	5.873	33.6	16.8	168.0	31.6	56.0	.....
Total.....	1,078.4	34.604	184.8	92.4	900.0	164.8	282.0	.....
ALFALFA PERIOD—								
11.....	210.0	6.567	43.2	21.6	216.0	25.2	.....	72.0
12.....	210.8	6.653	46.2	23.1	231.0	28.2	.....	77.0
13.....	206.9	6.322	46.2	23.1	231.0	29.7	.....	77.0
14.....	207.7	6.465	46.2	23.1	231.0	28.2	.....	77.0
15.....	204.6	6.544	46.2	23.1	231.0	28.3	.....	77.0
16.....	207.3	6.719	46.2	23.1	231.0	25.2	.....	77.0
Total.....	1,247.3	39.270	274.2	137.1	1,371.0	164.8	.....	457.0

TABLE 14.—PRODUCTION AND FEED CONSUMPTION OF COW 79—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	177.5	5.074	29.4	14.7	147.0	19.4	34.0	.....
4.....	159.1	4.680	27.6	13.8	138.0	22.6	38.0	.....
5.....	161.7	4.941	25.2	12.6	126.0	22.7	42.0	.....
6.....	141.0	4.368	31.2	15.6	132.0	26.2	46.0	.....
7.....	151.8	4.642	33.6	16.8	168.0	28.6	46.5	.....
8.....	166.1	5.020	33.6	16.8	166.0	27.1	48.0	.....
Total....	957.2	28.725	180.6	90.3	877.0	146.6	254.5	.....
ALFALFA PERIOD—								
11.....	189.9	5.752	43.2	21.6	216.0	28.2	.....	72.0
12.....	205.7	6.434	46.2	23.1	231.0	30.2	.....	77.0
13.....	209.6	6.644	46.2	23.1	231.0	29.2	.....	77.0
14.....	203.1	6.063	46.2	23.1	231.0	25.2	.....	74.0
15.....	210.4	6.098	46.2	23.1	231.0	28.5	.....	77.0
16.....	220.3	6.578	46.2	23.1	231.0	33.7	.....	77.0
Total.....	1,239.0	37.569	274.2	137.1	1,371.0	175.0	.....	454.0

TABLE 15.—PRODUCTION AND FEED CONSUMPTION OF COW 88—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	122.0	5.993	33.6	16.8	165.0	14.8	55.0	.....
4.....	118.6	5.860	31.8	15.9	159.0	17.3	46.5	.....
5.....	117.7	5.975	29.4	14.7	147.0	15.4	49.0	.....
6.....	95.8	5.321	28.0	14.0	115.5	14.9	48.0	.....
7.....	99.9	5.585	29.4	14.7	147.0	13.4	47.0	.....
8.....	109.4	5.307	29.4	14.7	147.0	20.9	49.0	.....
Total.....	663.4	34.041	181.6	90.8	880.5	96.7	294.5	.....
ALFALFA PERIOD—								
11.....	115.8	5.980	33.6	16.8	168.0	18.6	.....	56.0
12.....	114.6	5.890	33.6	16.8	168.0	19.6	.....	56.0
13.....	113.7	5.685	33.6	16.8	168.0	20.1	.....	56.0
14.....	112.3	5.638	33.6	16.8	168.0	21.6	.....	56.0
15.....	112.4	5.886	33.6	16.8	168.0	21.4	.....	56.0
16.....	116.8	5.864	33.6	16.8	168.0	26.1	.....	56.0
Total.....	685.6	34.943	201.6	100.8	1,008.0	127.4	.....	336.0

TABLE 16.—PRODUCTION AND FEED CONSUMPTION OF COW 69—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
3.....	135.3	7.559	29.4	14.7	143.0	11.4	27.0	.....
4.....	131.5	6.808	25.2	12.6	126.0	13.2	33.0	.....
5.....	126.3	6.683	25.2	12.6	126.0	12.2	40.0	.....
6.....	110.5	6.138	25.2	12.6	108.0	10.2	34.0	.....
7.....	107.4	5.825	25.2	12.6	126.0	9.2	37.0	.....
8.....	110.9	5.524	25.2	12.6	126.0	16.7	39.0	.....
Total.....	721.9	38.537	155.4	77.7	755.0	72.9	210.0	.....
ALFALFA PERIOD—								
11.....	113.2	6.013	25.2	12.6	126.0	13.2	.....	42.0
12.....	112.5	5.986	26.4	13.2	132.0	20.4	.....	44.0
13.....	116.4	6.109	33.6	16.8	168.0	21.1	.....	56.0
14.....	115.6	6.091	33.6	16.8	168.0	20.6	.....	56.0
15.....	107.4	5.796	33.6	16.8	168.0	20.2	.....	56.0
16.....	107.6	5.714	33.6	16.8	168.0	23.6	.....	56.0
Total.....	672.7	35.709	186.0	93.0	930.0	119.1	.....	310.0

TEST II—LOT II

TABLE 17.—PRODUCTION AND FEED CONSUMPTION OF COW 65—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	327.0	9.407	51.6	25.8	254.1	19.6	.....	85.0
4.....	324.8	9.480	54.6	27.3	264.5	38.6	.....	91.0
5.....	340.5	9.840	54.6	27.3	273.0	34.1	.....	91.0
6.....	304.4	8.917	54.6	27.3	214.5	29.6	.....	91.0
7.....	332.4	9.687	54.6	27.3	273.0	22.1	.....	91.0
8.....	348.8	9.263	54.6	27.3	273.0	29.6	.....	91.0
Total.....	1,977.9	56.594	324.6	162.3	1,552.1	173.6	.....	540.0
CLOVER PERIOD—								
11.....	279.0	7.450	42.0	21.0	210.0	25.0	57.5	.....
12.....	270.5	6.956	42.0	21.0	210.0	25.5	67.0	.....
13.....	280.3	7.006	42.0	21.0	210.0	24.7	70.0	.....
14.....	279.4	6.983	42.0	21.0	210.0	26.2	64.0	.....
15.....	281.3	7.030	42.0	21.0	210.0	28.0	70.0	.....
16.....	285.7	7.384	42.0	21.0	210.0	28.5	70.0	.....
Total.....	1,676.2	42.809	252.0	126.0	1,260.0	157.9	398.5	.....

TABLE 18.—PRODUCTION AND FEED CONSUMPTION OF COW 68—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	170.9	8.213	33.6	16.8	168.0	13.3	.....	56.0
4.....	167.2	7.820	33.6	16.8	168.0	17.1	.....	56.0
5.....	160.7	7.655	33.6	16.8	168.0	18.1	.....	56.0
6.....	150.1	7.363	33.6	16.8	156.0	15.1	.....	56.0
7.....	158.4	7.773	33.6	16.8	168.0	16.1	.....	56.0
8.....	157.9	7.663	33.6	16.8	168.0	21.6	.....	56.0
Total.....	965.2	46.487	201.6	100.8	996.0	101.3	.....	336.0
CLOVER PERIOD—								
11.....	141.3	7.000	33.6	16.8	168.0	14.1	56.0	.....
12.....	135.5	6.888	33.6	16.8	168.0	18.6	56.0	.....
13.....	132.4	6.655	33.6	16.8	168.0	19.1	56.0	.....
14.....	136.1	6.706	33.6	16.8	168.0	20.6	56.0	.....
15.....	129.0	6.576	33.6	16.8	168.0	18.4	56.0	.....
16.....	131.4	6.417	33.6	16.8	168.0	24.6	56.0	.....
Total.....	805.7	40.242	201.6	100.8	1,008.0	115.4	336.0	.....

TABLE 19.—PRODUCTION AND FEED CONSUMPTION OF COW 100—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	105.3	4.787	29.4	14.7	147.0	7.2	.....	46.0
4.....	106.9	5.127	25.2	12.6	126.0	6.7	.....	41.0
5.....	103.5	5.009	25.2	12.6	125.5	9.2	.....	42.0
6.....	82.8	4.015	25.2	12.6	99.0	12.7	.....	42.0
7.....	98.5	4.724	25.2	12.6	126.0	8.2	.....	42.0
8.....	102.7	4.612	25.2	12.6	126.0	10.7	.....	42.0
Total.....	599.7	28.274	155.4	77.7	749.5	54.7	.....	255.0
CLOVER PERIOD—								
11.....	88.5	4.075	25.2	12.6	126.0	7.2	42.0	.....
12.....	86.6	4.040	25.2	12.6	126.0	7.7	42.0	.....
13.....	88.9	4.092	25.2	12.6	126.0	6.7	42.0	.....
14.....	93.4	4.343	25.2	12.6	126.0	9.2	42.0	.....
15.....	90.1	4.231	25.2	12.6	126.0	8.7	42.0	.....
16.....	88.1	4.063	25.2	12.6	126.0	12.2	42.0	.....
Total.....	535.6	24.844	151.2	75.6	756.0	51.7	252.0	.....

TABLE 20.—PRODUCTION AND FEED CONSUMPTION OF COW 73—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	126.0	7.738	33.6	16.8	168.0	14.6	.....	56.0
4.....	125.8	7.772	33.6	16.8	168.0	20.1	.....	56.0
5.....	129.4	6.696	33.6	16.8	168.0	18.1	.....	56.0
6.....	118.9	7.359	33.6	16.8	156.0	18.6	.....	56.0
7.....	121.4	7.601	33.6	16.8	168.0	16.1	.....	56.0
8.....	124.0	7.356	33.6	16.8	168.0	23.6	.....	56.0
Total.....	745.5	44.522	201.6	100.8	996.0	111.1	.....	336.0
CLOVER PERIOD—								
11.....	115.6	6.936	33.6	16.8	168.0	16.1	56.0	.....
12.....	114.3	6.858	33.6	16.8	168.0	18.6	56.0	.....
13.....	112.5	6.782	33.6	16.8	168.0	18.1	56.0	.....
14.....	112.0	6.974	33.6	16.8	168.0	17.6	52.0	.....
15.....	111.7	7.146	33.6	16.8	168.0	16.9	56.0	.....
16.....	113.4	6.768	33.6	16.8	168.0	22.1	56.0	.....
Total.....	679.5	41.464	201.6	100.8	1,008.0	109.4	332.0	.....

TABLE 21.—PRODUCTION AND FEED CONSUMPTION OF COW 97—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	94.4	4.146	29.4	14.7	147.0	8.9	.....	49.0
4.....	98.3	4.446	29.4	14.7	147.0	11.4	.....	49.0
5.....	95.5	4.363	29.4	14.7	147.0	11.9	.....	49.0
6.....	86.8	4.067	25.4	12.7	105.0	9.4	.....	49.0
7.....	92.5	4.372	29.4	14.7	147.0	11.9	.....	48.0
8.....	95.7	4.404	29.4	14.7	147.0	16.4	.....	49.0
Total.....	563.2	25.798	172.4	86.2	840.0	69.9	.....	293.0
CLOVER PERIOD—								
11.....	92.0	4.366	29.4	14.7	147.0	12.9	49.0	.....
12.....	88.4	4.219	29.4	14.7	147.0	12.4	49.0	.....
13.....	86.4	4.164	29.4	14.7	147.0	10.4	49.0	.....
14.....	89.9	4.261	29.4	14.7	147.0	12.4	49.0	.....
15.....	90.5	4.525	29.4	14.7	147.0	10.9	49.0	.....
16.....	91.5	4.416	29.4	14.7	147.0	13.9	49.0	.....
Total.....	538.7	25.951	176.4	88.2	882.0	72.9	294.0	.....

TABLE 22.—PRODUCTION AND FEED CONSUMPTION OF COW 101—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
3.....	104.8	5.565	33.6	16.8	168.0	9.1	.....	56.0
4.....	99.3	5.330	29.4	14.7	147.0	10.9	.....	49.0
5.....	94.9	5.230	29.4	14.7	147.0	10.9	.....	49.0
6.....	75.6	4.417	25.4	12.7	126.0	8.9	.....	44.0
7.....	84.9	5.023	29.4	14.7	147.0	10.4	.....	48.0
8.....	92.8	5.061	29.4	14.7	147.0	14.9	.....	49.0
Total.....	552.3	30.626	176.6	88.3	882.0	65.1	.....	295.0
CLOVER PERIOD—								
11.....	81.8	4.571	29.4	14.7	147.0	12.4	49.0	.....
12.....	81.5	4.788	29.4	14.7	147.0	11.9	49.0	.....
13.....	80.0	4.539	29.4	14.7	147.0	12.4	49.0	.....
14.....	86.4	4.801	29.4	14.7	147.0	11.9	46.0	.....
15.....	87.0	4.869	29.4	14.7	147.0	11.7	49.0	.....
16.....	83.4	4.559	29.4	14.7	147.0	16.4	49.0	.....
Total.....	500.1	28.127	176.4	88.2	882.0	76.7	291.0	.....

TEST III—LOT I

TABLE 23.—PRODUCTION AND FEED CONSUMPTION OF COW 88—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
5.....	165.7	8.746	37.8	18.9	189.0	26.7	56.0	.....
6.....	163.5	8.710	37.8	18.9	189.0	25.1	56.0	.....
7.....	154.9	8.338	37.8	18.9	189.0	24.6	59.0	.....
8.....	143.1	7.539	37.8	18.9	189.0	22.1	63.0	.....
9.....	145.9	7.180	37.8	18.9	189.0	23.0	63.0	.....
10.....	142.2	7.579	37.8	18.9	189.0	22.5	63.0	.....
Total.....	915.3	48.092	226.8	113.4	1,134.0	144.0	360.0	.....
ALFALFA PERIOD—								
14.....	139.3	7.339	37.8	18.9	189.0	22.8	.....	63.0
15.....	139.3	7.024	37.8	18.9	189.0	20.6	.....	63.0
16.....	136.9	6.899	37.8	18.9	189.0	16.7	.....	63.0
17.....	132.3	6.790	37.8	18.9	189.0	20.4	.....	63.0
18.....	131.4	6.766	37.8	18.9	189.0	26.3	.....	63.0
19.....	124.9	6.649	37.8	18.9	189.0	18.4	.....	63.0
Total.....	804.1	41.467	226.8	113.4	1,134.0	125.2	.....	378.0

TABLE 24.—PRODUCTION AND FEED CONSUMPTION OF COW 79—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
5.....	204.3	6.656	50.4	25.2	247.0	34.7	79.0	.....
6.....	207.6	6.699	50.4	25.2	252.0	37.6	79.2	.....
7.....	208.5	6.937	50.4	25.2	252.0	41.2	83.0	.....
8.....	199.8	6.791	50.4	25.2	252.0	34.7	83.1	.....
9.....	191.0	6.299	50.4	25.2	235.0	35.5	78.0	.....
10.....	179.1	6.266	50.4	25.2	212.0	41.5	69.5	.....
Total.....	1,190.3	39.648	302.4	151.2	1,450.0	225.2	471.8	.....
ALFALFA PERIOD—								
11.....	181.2	5.717	42.0	21.0	210.0	29.6	.....	67.0
12.....	173.7	5.542	42.0	21.0	210.0	31.6	.....	70.0
13.....	174.0	5.564	42.0	21.0	210.0	38.8	.....	70.0
14.....	173.1	5.410	42.0	21.0	210.0	36.6	.....	70.0
15.....	172.3	5.154	42.0	21.0	202.5	35.1	.....	70.0
16.....	179.0	5.135	42.0	21.0	207.0	34.1	.....	70.0
Total.....	1,053.3	32.522	252.0	126.0	1,249.5	205.8	.....	417.0

TABLE 25.—PRODUCTION AND FEED CONSUMPTION OF COW 68—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
CLOVER PERIOD—								
5.....	168.9	8.493	33.6	16.8	168.0	17.5	56.0	.....
6.....	158.5	7.781	33.6	16.8	168.0	20.7	56.0	.....
7.....	150.5	7.104	33.6	16.8	168.0	23.8	56.0	.....
8.....	143.0	6.860	33.6	16.8	168.0	22.0	56.0	.....
9.....	144.0	6.764	33.6	16.8	168.0	15.7	56.0	.....
10.....	135.7	6.448	33.6	16.8	168.0	21.3	56.0	.....
Total.....	900.6	43.450	201.6	100.8	1,008.0	121.0	336.0	.....
ALFALFA PERIOD—								
14.....	130.2	6.125	33.6	16.8	168.0	19.0	.....	56.0
15.....	133.6	6.419	33.6	16.8	168.0	22.6	.....	56.0
16.....	133.4	6.322	33.6	16.8	168.0	15.0	.....	56.0
17.....	133.1	6.252	33.6	16.8	168.0	19.6	.....	56.0
18.....	131.0	6.207	33.6	16.8	168.0	16.3	.....	56.0
19.....	128.6	6.170	33.6	16.8	168.0	17.4	.....	56.0
Total.....	789.9	37.495	201.6	100.8	1,008.0	109.9	.....	336.0

TEST III—LOT II

TABLE 26.—PRODUCTION AND FEED CONSUMPTION OF COW 101—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
6.....	134.2	6.834	37.8	18.9	189.0	20.4	.....	63.0
7.....	131.7	6.675	37.8	18.9	189.0	21.4	.....	61.0
8.....	128.9	6.517	37.8	18.9	189.0	14.1	.....	56.4
9.....	125.3	6.320	37.8	18.9	189.0	20.8	.....	61.8
10.....	120.4	6.172	37.8	18.9	189.0	18.3	.....	63.0
11.....	126.1	6.554	37.8	18.9	189.0	18.9	.....	61.0
Total.....	766.6	39.072	226.8	113.4	1,134.0	113.9	.....	366.2
CLOVER PERIOD—								
14.....	114.3	6.209	37.8	18.9	188.0	15.5	51.7	.....
15.....	115.4	6.237	37.8	18.9	189.0	7.5	55.0	.....
16.....	114.2	6.313	37.8	18.9	189.0	8.0	59.0	.....
17.....	116.0	6.386	37.8	18.9	189.0	12.1	59.0	.....
18.....	117.2	6.328	37.8	18.9	189.0	11.5	63.0	.....
19.....	112.7	6.184	37.8	18.9	185.1	7.1	63.0	.....
Total.....	689.8	37.657	226.8	113.4	1,129.1	61.7	350.7	.....

TABLE 27.—PRODUCTION AND FEED CONSUMPTION OF COW 76—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
5.....	254.5	7.887	50.4	25.2	252.0	41.3	.....	82.4
6.....	246.0	7.725	50.4	25.2	252.0	39.9	.....	80.0
7.....	233.5	7.618	50.4	25.2	252.0	45.1	.....	84.0
8.....	235.4	7.765	50.4	25.2	252.0	46.9	.....	84.0
9.....	241.1	7.471	50.4	25.2	252.0	44.7	.....	82.0
10.....	243.3	8.026	50.4	25.2	252.0	40.8	.....	84.0
Total.....	1,453.8	46.492	302.4	151.2	1,512.0	258.7	.....	496.4
CLOVER PERIOD—								
13.....	220.6	6.873	42.0	21.0	210.0	37.8	70.0	.....
14.....	218.6	6.961	42.0	21.0	210.0	36.2	70.0	.....
15.....	209.0	7.707	42.0	21.0	198.0	36.5	70.0	.....
16.....	173.7	6.200	24.0	12.0	185.7	33.4	67.4	.....
17.....	203.4	6.879	30.0	15.0	210.0	31.0	70.0	.....
18.....	213.0	6.844	42.0	21.0	210.0	28.3	70.0	.....
Total.....	1,238.3	41.464	222.0	111.0	1,223.7	203.2	417.4	.....

TABLE 28.—PRODUCTION AND FEED CONSUMPTION OF COW 97—Pounds

Week	Production		Feed consumed					
	Milk	Fat	Corn	Bran	Silage	Stover	Clover	Alfalfa
ALFALFA PERIOD—								
8.....	128.6	6.021	33.6	16.8	168.0	12.9	.....	54.0
9.....	117.3	5.451	33.6	16.8	168.0	16.8	.....	56.0
10.....	115.5	5.624	33.6	16.8	168.0	14.7	.....	56.0
11.....	115.1	5.521	33.6	16.8	168.0	16.5	.....	55.5
12.....	117.2	5.623	33.6	16.8	168.0	14.2	.....	56.0
13.....	117.0	5.496	33.6	16.8	168.0	12.9	.....	56.0
Total.....	710.7	33.736	201.6	100.8	1,008.0	88.0	.....	333.5
CLOVER PERIOD—								
16.....	109.9	5.553	33.6	16.8	168.0	13.4	56.0	.....
17.....	108.4	5.340	33.6	16.8	168.0	13.2	56.0	.....
18.....	111.4	5.694	33.6	16.8	168.0	14.2	56.0	.....
19.....	107.8	5.525	33.6	16.8	168.0	11.8	56.0	.....
20.....	109.1	5.514	33.6	16.8	168.0	16.8	55.0	.....
21.....	110.9	5.535	33.6	16.8	168.0	13.7	56.0	.....
Total.....	657.5	33.161	201.6	100.8	1,008.0	83.1	335.0	.....

TEST IV—LOT I

TABLE 29.—PRODUCTION AND FEED CONSUMPTION OF COW 107—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
10.....	235.4	8.002	63.0	252.0	126.0	.....
11.....	217.3	7.779	63.0	252.0	126.0	.....
12.....	218.5	8.119	63.0	252.0	126.0	.....
13.....	228.3	8.151	63.0	252.0	126.0	.....
14.....	230.9	8.542	63.0	252.0	126.0	.....
15.....	230.8	8.538	63.0	252.0	126.0	.....
Total.....	1,361.2	49.131	378.0	1,512.0	756.0	.....
ALFALFA PERIOD—						
18.....	226.6	8.748	61.0	244.0	.....	113.5
19.....	220.8	8.387	54.0	216.0	.....	108.0
20.....	213.1	8.198	49.0	196.0	.....	98.0
21.....	199.8	7.589	49.0	196.0	.....	98.0
22.....	185.2	7.035	49.0	196.0	.....	98.0
23.....	178.0	7.013	49.0	196.0	.....	98.0
Total.....	1,223.5	46.97	311.0	1,244.0	.....	613.5

TABLE 30.—PRODUCTION AND FEED CONSUMPTION OF COW 79—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
10.....	321.7	9.094	56.0	224.0	112.0	.....
11.....	317.1	8.968	56.0	224.0	112.0	.....
12.....	310.7	8.563	56.0	224.0	112.0	.....
13.....	323.6	8.782	56.0	224.0	112.0	.....
14.....	325.8	9.121	56.0	224.0	112.0	.....
15.....	317.7	8.894	56.0	224.0	112.0	.....
Total.....	1,916.6	53.422	336.0	1344.0	672.0	.....
ALFALFA PERIOD—						
18.....	303.7	8.416	54.0	216.0	.....	98.8
19.....	305.3	7.936	49.0	196.0	.....	98.0
20.....	300.2	8.103	49.0	196.0	.....	98.0
21.....	287.0	8.320	49.0	196.0	.....	98.0
22.....	289.0	8.171	49.0	196.0	.....	98.0
23.....	289.4	8.515	49.0	196.0	.....	98.0
Total.....	1,774.6	49.461	299.0	1,196.0	.....	588.8

TABLE 31.—PRODUCTION AND FEED CONSUMPTION OF COW 137—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
10.....	117.9	6.572	39.0	156.0	78.0	.....
11.....	106.6	5.995	35.0	140.0	70.0	.....
12.....	107.6	6.056	35.0	140.0	70.0	.....
13.....	109.4	5.922	35.0	140.0	70.0	.....
14.....	109.7	6.047	35.0	140.0	70.0	.....
15.....	104.5	5.851	35.0	140.0	70.0	.....
Total.....	655.7	36.443	214.0	856.0	428.0	.....
ALFALFA PERIOD—						
18.....	101.4	5.677	35.0	140.0	.....	70.0
19.....	104.0	5.822	35.0	140.0	.....	70.0
20.....	100.5	6.030	35.0	140.0	.....	70.0
21.....	100.4	5.820	35.0	140.0	.....	70.0
22.....	94.2	5.527	31.0	124.0	.....	62.0
23.....	88.2	5.326	28.0	112.0	.....	56.0
Total.....	588.7	34.202	199.0	796.0	.....	398.0

TABLE 32.—PRODUCTION AND FEED CONSUMPTION OF COW 127—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
CLOVER PERIOD—						
10.....	108.0	5.484	42.0	168.0	84.0	.....
11.....	103.1	5.390	42.0	168.0	84.0	.....
12.....	98.8	5.159	42.0	168.0	84.0	.....
13.....	106.0	5.360	42.0	168.0	84.0	.....
14.....	108.6	5.849	42.0	168.0	84.0	.....
15.....	105.9	5.612	42.0	168.0	84.0	.....
Total.....	630.4	32.854	252.0	1,008.0	504.0	.....
ALFALFA PERIOD—						
18.....	98.2	4.930	36.0	144.0	.....	72.0
19.....	98.2	5.055	35.0	140.0	.....	70.0
20.....	103.6	5.281	35.0	140.0	.....	70.0
21.....	104.6	5.436	35.0	140.0	.....	70.0
22.....	102.6	5.108	35.0	140.0	.....	70.0
23.....	99.2	5.138	35.0	140.0	.....	70.0
Total.....	606.4	30.948	211.0	844.0	.....	422.0

TEST IV—LOT II

TABLE 33.—PRODUCTION AND FEED CONSUMPTION OF COW 70—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
10.....	181.1	5.717	56.0	224.0	.....	112.0
11.....	179.8	5.831	56.0	224.0	.....	112.0
12.....	177.3	5.755	56.0	224.0	.....	112.0
13.....	177.8	5.688	56.0	224.0	.....	112.0
14.....	187.6	6.002	56.0	224.0	.....	112.0
15.....	185.6	5.938	56.0	224.0	.....	112.0
Total.....	1,089.2	34.931	336.0	1,344.0	.....	672.0
CLOVER PERIOD—						
18.....	187.5	6.023	54.0	216.0	100.4	.....
19.....	183.9	6.065	49.0	196.0	98.0	.....
20.....	181.5	5.805	49.0	196.0	98.0	.....
21.....	180.2	5.942	49.0	196.0	98.0	.....
22.....	170.1	5.607	49.0	196.0	98.0	.....
23.....	158.0	5.532	49.0	196.0	98.0	.....
Total.....	1,061.2	34.974	299.0	1,196.0	590.4	.....

TABLE 34.—PRODUCTION AND FEED CONSUMPTION OF COW 110—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
10.....	235.8	7.711	59.5	238.0	.....	119.0
11.....	220.7	7.502	59.5	238.0	.....	119.0
12.....	222.5	7.462	59.5	238.0	.....	119.0
13.....	232.4	7.766	59.5	238.0	.....	119.0
14.....	224.0	7.999	59.5	238.0	.....	119.0
15.....	227.4	7.731	59.5	238.0	.....	119.0
Total.....	1,362.8	46.171	357.0	1,428.0	.....	714.0
CLOVER PERIOD—						
18.....	221.0	7.449	53.5	234.0	110.5	.....
19.....	217.1	6.945	56.0	224.0	112.0	.....
20.....	221.1	7.514	56.0	224.0	112.0	.....
21.....	221.3	6.857	56.0	224.0	112.0	.....
22.....	218.9	6.907	54.0	216.0	108.0	.....
23.....	221.6	7.248	49.0	196.0	98.0	.....
Total.....	1,321.0	42.920	329.5	1,318.0	652.5	.....

TABLE 35.—PRODUCTION AND FEED CONSUMPTION OF COW 140—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
10.....	100.0	5.256	42.0	168.0	.....	84.0
11.....	88.1	4.846	42.0	168.0	.....	84.0
12.....	87.3	5.061	42.0	156.0	.....	84.0
13.....	103.4	5.889	42.0	168.0	.....	84.0
14.....	101.4	5.517	42.0	168.0	.....	84.0
15.....	103.2	5.882	42.0	168.0	.....	84.0
Total.....	583.4	32.451	252.0	996.0	.....	504.0
CLOVER PERIOD—						
18.....	93.1	5.453	29.0	116.0	58.0	.....
19.....	*60.6	3.756	19.0	52.0	30.0	.....
20.....	77.4	4.099	28.0	112.0	56.0	.....
21.....	85.2	4.514	28.0	112.0	56.0	.....
22.....	81.6	4.293	28.0	112.0	56.0	.....
23.....	81.2	4.288	28.0	112.0	56.0	.....
Total.....	479.1	26.403	160.0	616.0	312.0	.....

*Off feed, scouring.

TABLE 36.—PRODUCTION AND FEED CONSUMPTION OF COW 42—Pounds

Week	Production		Feed consumed			
	Milk	Fat	Corn	Silage	Clover	Alfalfa
ALFALFA PERIOD—						
10.....	54.6	3.118	32.0	128.0	.....	64.0
11.....	51.0	2.958	28.0	112.0	.....	56.0
12.....	51.1	2.920	28.0	112.0	.....	56.0
13.....	53.7	3.014	28.0	112.0	.....	56.0
14.....	53.1	3.027	28.0	112.0	.....	56.0
15.....	51.5	2.934	28.0	112.0	.....	56.0
Total.....	315.0	17.971	172.0	688.0	.....	344.0
CLOVER PERIOD—						
18.....	45.1	2.624	29.0	116.0	58.0	.....
19.....	46.3	2.659	28.0	112.0	56.0	.....
20.....	46.9	2.718	28.0	112.0	56.0	.....
21.....	48.7	2.772	28.0	112.0	56.0	.....
22.....	45.6	2.629	28.0	112.0	56.0	.....
23.....	46.2	2.678	28.0	112.0	56.0	.....
Total.....	278.8	16.080	169.0	676.0	338.0	.....