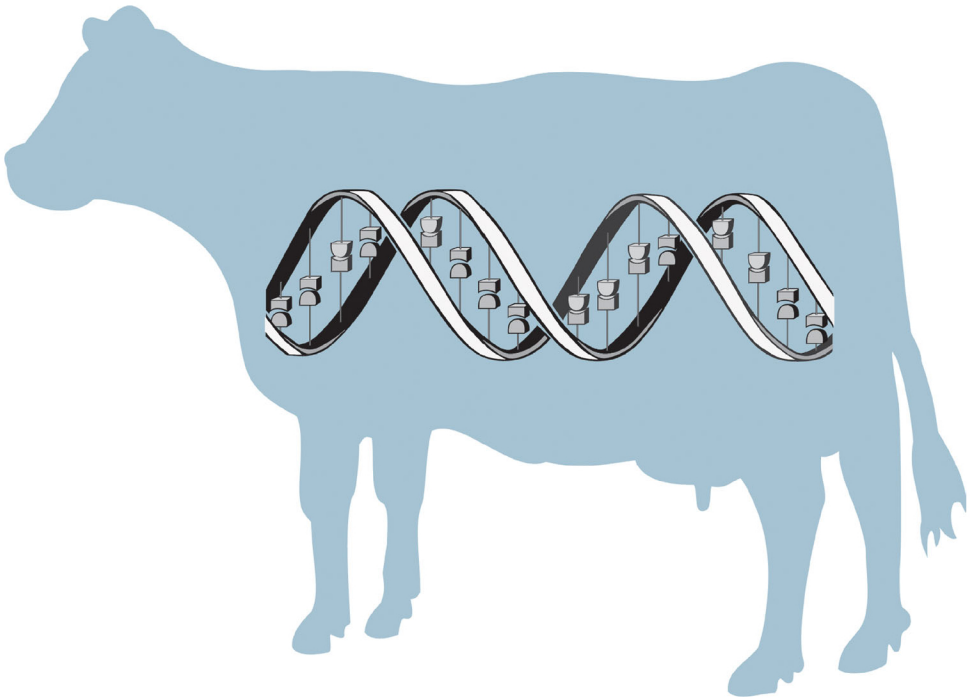
Dairy Genetic Benchmarks



THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

Table of Contents

Genetic Benchmarks

J.W. Smith, A.M. Chapa, W.D. Gilson and L.O. Ely
Animal and Dairy Science Department

Introduction

The Dairy Records Management Systems (DRMS), Raleigh, North Carolina, provides information and resources for use in dairy herd management analysis. The Dairy Herd Improvement (DHI)-202 Herd Summary Report is a valuable source of information when evaluating milk production. Many herd management strengths and weaknesses, including genetic evaluation of the herd, can be revealed by using herd summary data.

The level of milk production is affected by both genetic and environmental (non-genetic) factors. Genetics accounts for about 25 percent of the variation in milk production with environmental factors making up the remaining 75 percent. Environmental factors include weather conditions, feed quantity and quality, herd health, reproductive efficiency and other management factors. Whereas the genetic potential of a herd of milking cows is fixed, environmental factors often can be changed or modified. For example, the quality of feed might be increased or the effects of heat stress might be reduced by using fans. Both of these environmental changes should result in more milk production. However, if cows are producing at their maximum genetic potential, management changes will not result in higher production.

The genetic makeup of an individual cow will affect her ability to consume feed and efficiently convert that feed into milk. The upper limit on a herd's production is set by the genetic makeup of the herd. In some instances, this may severely restrict productivity regardless of the level of management. Genetic ability of the herd may restrict productivity in some herds if genetics rather than management or feeding is limited. Evaluation of a herd's genetic information can help ensure that genetic ability is not the factor that limits production.

A thorough herd evaluation requires knowledge of management practices and herd genetic potential. The Dairy Records Management Systems DHI 202 Herd Summary Report provides information on herd genetic values that can help evaluate a herd's milk production potential. A complete evaluation should also include other production and management information. Georgia Extension Service Bulletins 1193 and 1194 provide benchmark values for production and somatic cell count evaluations, respectively. (1, 2)

The purpose of this bulletin is to provide genetic benchmarks for Holstein herds processed by DRMS. Examples for using and applying benchmark values are provided. However, view this bulletin primarily as a comprehensive resource of genetic bench-mark values. These values will be useful to dairy producers, dairy managers, consultants, veterinarians and agri-business representatives as a first step in the evaluation of the genetic program of a herd.

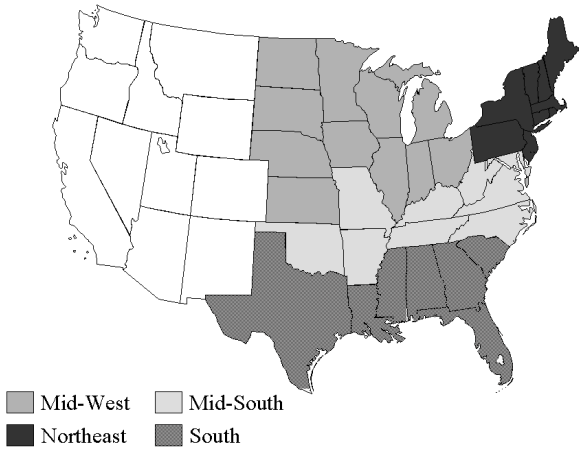


Figure 1. U.S. Map Showing Four Regions

Methods and Procedures

Herd Summary information was obtained from DRMS, Raleigh, North Carolina, for Holstein herds last tested in November and December, 2000. Data analysis was performed using the Statistical Analysis System (3). Since research has shown that management variables differ by region of the country, herd size and milk production level, values are analyzed for Northeast, Midsouth, Midwest and South regions (Figure 1). Within regions, genetic variables were listed by herd size or by rolling herd averages for milk production with values listed, limited to herds with a minimum of 25 cows and a minimum milk production for herds included in percentile tables of 12,000 pounds. Percen-

tile rankings were restricted to herds using the milk, fat and protein (MFP) predicted transmitting ability (PTA) option and less than 30 percent non-AI sires. Previous analysis had indicated that the MFP PTA option was selected by over 96 percent of the herds.

Regional Distribution of Sire Usage by Milk Production Level

Tables 1 through 4 (beginning on page 6) show the distribution of sire usage by region and level of herd milk production. The overall trend across regions is an increase in use of AI sires (% Proven Sires plus % Young Sires) and a decrease in herd sire usage as rolling herd average increases. This demonstrates the importance of AI usage in relation to herd production. These tables also provide a means of evaluating the relative use of proven sires compared to young sires. Young sires are normally considered an inexpensive means of improving the genetics of a herd if used judiciously. Their use also guarantees a steady supply of new proven sires from which to select. For most herds, a distribution of 75-80 percent proven sires and 20-25 percent young sires is recommended. This distribution helps ensure the availability of genetically superior sires.

Evaluation Using Mature Equivalents

Herds using a high percentage of natural service herd sires are difficult to evaluate genetically since no measure of sire genetic merit is usually available. One method of evaluating natural service herds as well as herds using AI sires is to examine the mature equivalent (ME) production of cows by lactation group. Mature equivalent records are lactation records that have been adjusted for age at freshening, frequency of milking and season of the year at calving. These records do not predict how much a cow or group of cows will produce in the future. Mature equivalent records simply estimate how much a cow or group of cows would have produced if she (they) were of mature age, calved during an average month, and were milked twice a day.

Mature equivalent production values by lactation groups and by region and level of milk production are shown in Tables 5 through 8 (beginning on page 8). The ME lactation ratios provide the opportunity to compare average ME production between lactation groups. One might expect the highest ME production for first lactation cows since they should posses the highest genetic merit. When comparing lactation groups, however, second lactation cows tend to have higher MEs since they have been selected for production more intensively compared to first lactation cows.

The ME production ratios between lactation groups provide a convenient method of comparing the relative difference between groups. Herds with ratios which differ significantly from those in the tables should be evaluated further regarding the reasons for the deviations. Factors to consider are variations in culling rates, genetic merit and management among the three lactation groups. Health problems affecting a specific lactation group can also contribute to differences.

As an example, Mr. I.M. Producer in New York is concerned with the production of his first lactation cows although his rolling herd average is 24,321 pounds. The average MEs for his cows are 25,224; 27,826 and 26,327 pounds for first, second and third or more lactation cows. The ratio for the first lactation cows' ME to second lactation cows' ME production is 0.91 (25,224/27,826). The ratio of his first lactation cows' ME to third lactation cows' ME is 0.96 (25,224/26,327). Based on his production level, the average ME production of his first lactation cows is lower than expected (25,224 pounds vs 27,033 pounds) (Table 5, page 8).

Furthermore, when comparing second lactation and third and more lactation cows, both ratios were lower than expected (Table 5). This indicates that first lactation cows are not producing at expected levels relative to older cows. Determining the specific reasons for these differences will require further evaluation as noted previously.

Evaluation of Predominately AI Herds

The most accurate genetic evaluation is possible only when predicted transmitting ability (PTA) values are available for a high percentage of the cows in a herd. A PTA is an estimate of the genetic superiority or inferiority of an animal that is transmitted by a sire or dam to its offspring. PTA values are calculated by the USDA using production information obtained from Dairy Record Processing Centers.

PTA values for production, longevity and somatic cell score are combined into an index called Net Merit$. The Net Merit$ index combines genetic evaluation for somatic cell score, productive life, udder composite, feet and legs, body size, and product value adjusted for feed costs. This combination of traits and economic values makes selection of this index a good choice for most herds.

Not all cows in a herd necessarily have a PTA calculated. In order to obtain a PTA calculation, cows must be properly identified by sire and dam and cows must have at least one test completed by 40 days of the lactation.

The first step in evaluation is to determine the percentage of cows with a calculated PTA for Net Merit$. Tables 9 through 12 (beginning on page 10) show the percentage of cows with a PTA calculated by region, herd size, and lactation group. An individual dairy producer's DHI-202 Herd Summary Report lists only the actual number of cows in the herd with PTA values. These numbers must be converted to a percentage for comparison purposes. To convert to a percentage, divide the number of cows in a specific lactation group that have a PTA by the total number of cows in that group and multiply by 100.

There is no specific number or percentage of cows with a PTA required to perform a genetic evaluation of a herd. However, if the percentage of cows with a calculated PTA is below about 50 percent, an analysis is probably less meaningful. Herds with more than 50 percent of the cows with a calculated PTA should continue to the next step.

PTA values for each lactation group are shown by region and herd size in Tables 9 through 12. Accurate identification of an animal's parentage (sire and dam) is essential for a PTA calculation. The percent cows identified by sire and dam also are also listed in Table 9 through 12 by region and herd size. If the percentage of cows identified is low, the percentage with a PTA calculated will also be low. The level of identification of replacement heifers can be similarly evaluated. This provides the opportunity to evaluate identification when animals are young. If proper identification is not available when heifers are young, it is unlikely to be available when they calve. The percent proven sires in a herd and the percentile rank of proven sires are shown in Tables 9 through 12. This information can help evaluate the genetic merit of sires used in a herd.

For example, Mr. I.M. Producer has a herd of 282 cows in New York and calculates that 75 percent of his first lactation cows have a PTA. He refers to Table 9 (page 10) (250 to 349 cows). The 75 percent for his first lactation cows is above the 70 percent in the table which places his herd in the 90th percentile.

Mr. I. M. Producer continues the PTA evaluation for the first lactation cows in his herd. The average PTA (Net Merit$) for his first lactation cows is 97. Referring again to Table 9, he notes this value is at the 50th percentile. His first lactation cows are in the top 50 percent of all herds of similar size in the Northeast region. A similar procedure would be followed to analyze percent proven AI sires and the percentile rank of AI sires.

Table 13 (page 23) shows the percentage of cows with a PTA calculated by region and by production level. The average PTA for cows by lactation group and by region and production level are in Table 14 (page 25). Values in both tables show the relationship between PTA level and average herd production. High producing herds tend to have a higher percentage with a PTA calculated. These herds also have cows with a higher average PTA. The average PTA values increase as average herd production increases and as the lactation number decreases.

An analysis of the genetic benchmarks can help determine if productivity may be limited by genetic ability. Herds below the 50th percentile in numerous categories may be limited by genetic ability and managers should consider improving the quality of the sires being used. Moreover, levels below the 50th percentile in specific lactation groups indicates that genetic ability may be limiting the productivity of those groups. However, many herds even in the upper 50th percentile may have opportunities for significant genetic improvement.

Conclusion

The genetic makeup of a herd dictates the upper limit for production and performance of a herd. Actual production is determined by genetics and environmental (non-genetic) factors. Evaluating a herd's genetic benchmarks indicates whether a herd is performing at its genetic potential. If herd genetic values are lower than expected, more detailed analysis must be performed to determine whether genetic or environmental factors are limiting performance.

References

1. *Dairy Production and Management Benchmarks,* Cooperative Extension Service, The University of Georgia College of Agricultural and Environmental Sciences, Bulletin 1193, February, 2001.
2. *Somatic Cell Count Benchmarks,* Cooperative Extension Service, The University of Georgia College of Agricultural and Environmental Sciences, Bulletin 1194, January, 2001.

3. SAS/STAT User's Guide: Statistics, Version 6.12. 1996. SAS Inst., Inc., Cary, NC.
4. DHI-202 Herd Summary Fact Sheet A-1. 1997. Dairy Records Management Systems, Raleigh, NC.

Additional Information

For additional information on dairy production and management, refer to the following website:

http://www.ads.uga.edu/groups/dairy

Table 1. Percent of Herd Bred to Proven Sires, Young Sires and Herd Sires in the Northeast Region by Milk Production.

	Northeast			
Herd Avg. (lbs)	Proven Sires (a)	Young Sires (b)	Herd Sires	Total AI Usage (a + b)
	%			%
14000- 14999	48.5	15.1	36.4	63.6
15000- 15999	47.4	13.8	35.8	61.2
16000- 16999	50.0	17.7	28.8	67.8
17000- 17999	50.9	18.8	29.8	69.7
18000- 18999	54.0	18.8	26.6	72.8
19000- 19999	56.5	20.0	22.5	76.5
20000- 20999	61.0	19.2	19.2	80.2
21000- 21999	63.8	19.8	15.9	83.7
22000- 22999	64.6	20.7	14.4	85.2
23000- 23999	66.7	20.5	12.3	87.2
24000- 24999	65.7	21.1	13.0	86.8
25000- 25999	70.8	19.7	9.5	90.6
26000- 26999	69.2	21.2	8.6	90.4
27000+	71.4	18.3	8.3	89.8

Table 2. Percent of Herd Bred to Proven Sires, Young Sires and Herd Sires in the Midwest Region by Milk Production.

Midwest				
Herd Avg. (lbs)	Proven Sires (a)	Young Sires (b)	Herd Sires	Total AI Usage (a + b)
		%		%
14000- 14999	40.4	7.0	40.5	47.4
15000- 15999	35.4	6.8	42.4	42.2
16000- 16999	42.2	11.2	33.6	53.4
17000- 17999	40.5	11.4	36.2	51.8
18000- 18999	44.5	12.6	31.8	57.1
19000- 19999	52.1	13.7	25.4	65.8
20000- 20999	53.3	14.9	25.5	68.2
21000- 21999	55.1	13.1	24.1	68.2
22000- 22999	58.2	13.6	20.2	71.8
23000- 23999	63.2	13.6	17.5	76.8
24000- 24999	60.5	16.6	17.6	77.0
25000- 25999	62.1	17.2	14.7	79.4
26000- 26999	63.3	15.4	20.0	78.8
27000+	69.7	14.9	11.1	84.6

Table 3. Percent of Herd Bred to Proven Sires, Young Sires and Herd Sires in the Midsouth Region by Milk Production.

Midsouth				
Herd Avg. (lbs)	Proven Sires (a)	Young Sires (b)	Herd Sires	Total AI Usage (a + b)
		%		%
14000- 14999	36.2	5.4	54.4	41.5
15000- 15999	32.8	7.6	52.5	40.4
16000- 16999	34.8	9.4	48.5	44.2
17000- 17999	39.8	11.2	43.1	51.0
18000- 18999	52.9	10.4	33.2	63.3
19000- 19999	55.7	10.9	29.8	66.6
20000- 20999	61.4	13.9	23.2	75.3
21000- 21999	64.0	15.9	19.0	80.0
22000- 22999	69.4	15.5	14.3	85.0
23000- 23999	74.6	14.6	10.8	89.2
24000+	65.3	19.7	15.0	85.1

Table 4. Percent of Herd Bred to Proven Sires, Young Sires and Herd Sires in the South Region by Milk Production.

South				
Herd Avg. (lbs)	Proven Sires (a)	Young Sires (b)	Herd Sires	Total AI Usage (a + b)
	%			%
14000- 14999	27.6	4.8	63.8	32.5
15000- 15999	31.7	5.3	57.5	37.0
16000- 16999	40.6	11.4	45.4	52.0
17000- 17999	44.8	10.7	41.0	55.6
18000- 18999	49.8	13.0	36.0	62.8
19000- 19999	56.2	14.8	27.7	71.0
20000- 20999	49.3	14.5	34.8	63.8
21000- 21999	61.8	16.8	21.6	78.5
22000+	62.8	15.0	22.3	77.8

Table 5. Projected Mature Equivalent (ME) Milk Production by Lactation Group in the Northeast Region by Milk Production Level.

Northeast							
	Lactation				Lactation Ratio		
Herd Avg. (lbs)	1st	2nd	3rd+	All	1:2	2:3	1:3
14000- 14999	16646	16475	16113	16378	1.01	1.02	1.03
15000- 15999	17370	17097	16896	17085	1.02	1.01	1.03
16000- 16999	18466	18532	18006	18328	1.00	1.03	1.02
17000- 17999	19634	19792	19106	19441	0.99	1.04	1.03
18000- 18999	20751	20754	19978	20441	1.00	1.04	1.04
19000- 19999	21844	21894	21035	21548	1.00	1.04	1.04
20000- 20999	22761	23022	22046	22558	0.99	1.04	1.03
21000- 21999	23773	24122	22972	23564	0.99	1.05	1.03
22000- 22999	24907	25304	23775	24591	0.98	1.06	1.05
23000- 23999	25980	26368	24901	25722	0.99	1.06	1.04
24000- 24999	27033	27367	25695	26690	0.99	1.06	1.05
25000- 25999	28014	28224	26563	27603	0.99	1.06	1.05
26000- 26999	29125	29321	27700	28695	0.99	1.06	1.05
27000+	30301	30693	28577	29881	0.99	1.07	1.06

Table 6. Projected Mature Equivalent (ME) Milk Production by Lactation Group in the Midwest Region by Milk Production Level.

Midwest							
	Lactation				Lactation Ratio		
Herd Avg. (lbs)	1st	2nd	3rd+	All	1:2	2:3	1:3
14000- 14999	16602	16437	16213	16398	1.01	1.01	1.02
15000- 15999	17294	17308	17105	17253	1.00	1.01	1.01
16000- 16999	18342	18345	17950	18214	1.00	1.02	1.02
17000- 17999	19551	19600	19100	19389	1.00	1.03	1.02
18000- 18999	20548	20617	19888	20320	1.00	1.04	1.03
19000- 19999	21488	21853	21074	21457	0.98	1.04	1.02
20000- 20999	22435	22854	21882	22375	0.98	1.04	1.02
21000- 21999	23450	23965	22871	23398	0.98	1.05	1.02
22000- 22999	24197	24910	23791	24271	0.97	1.05	1.02
23000- 23999	25101	25758	24540	25124	0.97	1.05	1.02
24000- 24999	26065	26925	25560	26152	0.97	1.05	1.02
25000- 25999	26961	27964	26326	27039	0.96	1.06	1.02
26000- 26999	28014	29029	27630	28194	0.97	1.05	1.01
27000+	29330	30420	28508	29411	0.96	1.07	1.03

Table 7. Projected Mature Equivalent (ME) Milk Production by Lactation Group in the Midsouth Region by Milk Production Level.

Midsouth							
	Lactation				Lactation Ratio		
Herd Avg. (lbs)	1st	2nd	3rd+	All	1:2	2:3	1:3
14000- 14999	16750	16710	16491	16646	1.00	1.01	1.02
15000- 15999	16955	17452	17169	17235	0.97	1.02	0.99
16000- 16999	18262	18533	18320	18368	0.98	1.01	1.00
17000- 17999	19120	19351	19078	19197	0.99	1.01	1.00
18000- 18999	20424	20863	20365	20533	0.98	1.02	1.00
19000- 19999	21147	21697	21038	21291	0.97	1.03	1.00
20000- 20999	22324	22930	22091	22410	0.97	1.04	1.01
21000- 21999	23151	23929	23044	23347	0.97	1.04	1.00
22000- 22999	24029	24711	23731	24135	0.97	1.04	1.01
23000- 23999	24773	25774	24782	25031	0.96	1.04	1.00
24000+	26535	26978	25565	26359	0.98	1.06	1.04

Table 8. Projected Mature Equivalent (ME) Milk Production by Lactation Group in the South Region by Milk Production Level.

South							
	Lactation				Lactation Ratio		
Herd Avg. (lbs)	1st	2nd	3rd+	All	1:2	2:3	1:3
14000- 14999	16802	16597	16522	16633	1.01	1.00	1.01
15000- 15999	17906	17516	17473	17626	1.02	1.00	1.02
16000- 16999	18742	18652	18323	18562	1.00	1.02	1.02
17000- 17999	19699	19775	19098	19519	1.00	1.04	1.03
18000- 18999	20892	21106	20274	20739	0.99	1.04	1.03
19000- 19999	21769	22028	21299	21706	0.99	1.03	1.02
20000- 20999	22459	22654	21656	22245	0.99	1.05	1.04
21000- 21999	22875	23413	22556	22928	0.98	1.04	1.01
22000+	24729	24984	23884	24550	0.99	1.05	1.04

Table 9. Genetic Measures in the Northeast Region by Herd Size

Northeast								
Up to 50 Cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	1004	72	28	25	59	80	94	100
Percentile Rank AI Sires	962	63	17	39	51	66	76	82
% Cows with Merit$ 1st Lactation	842	55	23	20	40	58	71	82
% Cows with Merit$ 2nd Lactation	854	79	25	38	67	88	100	100
% Cows with Merit$ 3rd Lactation	900	75	28	24	61	87	100	100
% Cows with Merit$ All Lactation	928	66	26	19	51	74	86	91
Cows Merit$ 1st Lactation	839	72	81	-18	30	79	118	155
Cows Merit$ 2nd Lactation	849	47	75	-45	6	53	89	135
Cows Merit$ 3rd Lactation	894	-3	78	-100	-45	4	47	85
Cows Merit$ All Lactation	922	24	80	-64	-11	32	68	104
% Cows with Dam ID	1004	78	29	29	65	91	100	100
% Cows with Sire ID	1004	77	28	32	64	90	99	100
% Heifers with Dam ID	961	90	22	65	93	100	100	100
% Heifers with Sire ID	969	81	19	55	71	87	96	100

Table 9. (*continued)*

Northeast								
50 to 99 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	1615	72	25	35	61	78	91	98
Percentile Rank AI Sires	1578	64	16	42	54	66	77	83
% Cows with Merit$ 1st Lactation	1523	56	20	26	44	59	71	80
% Cows with Merit$ 2nd Lactation	1529	80	24	41	69	90	100	100
% Cows with Merit$ 3rd Lactation	1560	79	25	40	69	89	97	100
% Cows with Merit$ All Lactation	1578	70	23	35	61	78	86	91
Cows Merit$ 1st Lactation	1520	75	70	-10	36	76	119	158
Cows Merit$ 2nd Lactation	1523	54	70	-29	14	56	96	136
Cows Merit$ 3rd Lactation	1550	6	73	-83	-39	10	54	93
Cows Merit$ All Lactation	1571	34	71	-50	-6	39	75	119
% Cows with Dam ID	1615	85	24	50	81	96	100	100
% Cows with Sire ID	1615	83	24	47	75	94	99	100
% Heifers with Dam ID	1564	97	11	94	98	100	100	100
% Heifers with Sire ID	1566	82	17	58	73	88	96	99
100 to 149 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	426	69	24	35	56	74	86	96
Percentile Rank AI Sires	418	67	14	47	58	69	78	84
% Cows with Merit$ 1st Lactation	408	54	20	26	42	58	68	78
% Cows with Merit$ 2nd Lactation	415	77	26	36	68	86	97	100
% Cows with Merit$ 3rd Lactation	418	78	25	39	70	87	97	100
% Cows with Merit$ All Lactation	422	68	23	35	58	75	84	89
Cows Merit$ 1st Lactation	408	76	68	-3	38	81	117	151
Cows Merit$ 2nd Lactation	415	57	71	-19	21	63	100	132
Cows Merit$ 3rd Lactation	412	12	72	-75	-26	14	56	96
Cows Merit$ All Lactation	420	39	73	-50	4	43	87	115
% Cows with Dam ID	426	86	23	57	84	96	100	100
% Cows with Sire ID	426	83	24	47	77	93	99	100
% Heifers with Dam ID	415	97	9	94	99	100	100	100
% Heifers with Sire ID								

Table 9. (*continued)*

Northeast								
150 to 249 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	252	67	24	34	58	70	84	96
Percentile Rank AI Sires	249	70	14	51	62	73	80	85
% Cows with Merit$ 1st Lactation	248	53	19	24	40	57	67	74
% Cows with Merit$ 2nd Lactation	249	74	25	38	56	83	95	100
% Cows with Merit$ 3rd Lactation	250	78	24	37	64	84	95	99
% Cows with Merit$ All Lactation	250	66	21	38	53	74	83	88
Cows Merit$ 1st Lactation	247	84	52	23	55	87	115	142
Cows Merit$ 2nd Lactation	248	65	62	-12	33	70	101	138
Cows Merit$ 3rd Lactation	248	21	63	-58	-14	20	63	93
Cows Merit$ All Lactation	249	52	58	-17	20	58	87	118
% Cows with Dam ID	252	84	24	50	75	94	99	100
% Cows with Sire ID	252	82	22	54	73	92	98	100
% Heifers with Dam ID	247	96	10	90	97	99	100	100
% Heifers with Sire ID	247	80	17	55	70	84	94	98
250 to 349 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	104	68	21	47	58	74	83	90
Percentile Rank AI Sires	103	71	13	51	65	73	81	85
% Cows with Merit$ 1st Lactation	98	48	20	20	32	52	63	70
% Cows with Merit$ 2nd Lactation	100	66	31	13	42	75	94	98
% Cows with Merit$ 3rd Lactation	102	65	30	20	39	73	91	98
% Cows with Merit$ All Lactation	103	57	26	13	37	65	81	85
Cows Merit$ 1st Lactation	98	83	63	-7	55	94	123	152
Cows Merit$ 2nd Lactation	100	64	77	-16	40	76	107	137
Cows Merit$ 3rd Lactation	102	23	68	-61	-11	31	66	110
Cows Merit$ All Lactation	103	53	64	-24	17	59	90	132
% Cows with Dam ID	104	74	29	24	60	87	98	100
% Cows with Sire ID	104	73	28	27	52	83	98	100
% Heifers with Dam ID	102	91	16	77	92	98	100	100
% Heifers with Sire ID	101	76	19	47	61	79	93	98

Table 9. (*continued)*

Northeast								
350+ cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	150	60	26	10	46	67	79	88
Percentile Rank AI Sires	150	70	14	50	63	72	79	84
% Cows with Merit$ 1st Lactation	148	45	21	14	33	46	60	71
% Cows with Merit$ 2nd Lactation	148	62	26	21	42	64	86	96
% Cows with Merit$ 3rd Lactation	148	60	27	23	41	65	83	94
% Cows with Merit$ All Lactation	149	54	23	22	38	55	75	83
Cows Merit$ 1st Lactation	148	78	50	15	48	81	108	136
Cows Merit$ 2nd Lactation	148	70	48	21	43	67	102	126
Cows Merit$ 3rd Lactation	148	28	54	-37	-6	34	62	88
Cows Merit$ All Lactation	147	59	46	5	29	58	88	111
% Cows with Dam ID	150	67	29	12	50	76	91	99
% Cows with Sire ID	150	71	25	35	53	80	92	98
% Heifers with Dam ID	139	84	26	48	83	94	99	100
% Heifers with Sire ID	141	73	19	50	63	74	88	93

Table 10. Genetic Measures in the Midwest Region by Herd Size.

Midwest								
Up to 50 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	546	66	35	0	53	79	93	100
Percentile Rank AI Sires	453	59	17	36	48	60	72	79
% Cows with Merit$ 1st Lactation	446	53	23	20	36	54	69	82
% Cows with Merit$ 2nd Lactation	458	77	26	33	64	85	100	100
% Cows with Merit$ 3rd^{+} Lactation	472	75	28	31	57	86	100	100
% Cows with Merit$ All Lactation	488	64	26	22	49	73	85	90
Cows Merit$ 1st Lactation	444	74	71	-11	35	78	115	158
Cows Merit$ 2nd Lactation	458	49	74	-48	2	56	95	136
Cows Merit$ 3rd^{+} Lactation	472	-2	77	-100	-50	-1	50	95
Cows Merit$ All Lactation	485	29	72	-59	-10	32	73	118
% Cows with Dam ID	546	80	28	31	73	94	100	100
% Cows with Sire ID	546	75	60	23	59	88	98	100
% Heifers with Dam ID	506	90	20	72	90	98	100	100
% Heifers with Sire ID	495	78	23	46	65	87	96	100
50 to 99 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	1210	65	32	0	53	76	89	97
Percentile Rank AI Sires	1034	61	14	43	52	62	72	80
% Cows with Merit$ 1st Lactation	1052	50	22	19	34	53	66	77
% Cows with Merit$ 2nd Lactation	1068	74	28	26	60	85	95	100
% Cows with Merit$ 3rd^{+} Lactation	1090	74	28	26	58	85	97	100
% Cows with Merit$ All Lactation	1117	62	26	20	47	71	82	89
Cows Merit$ 1st Lactation	1050	79	73	-5	40	85	125	155
Cows Merit$ 2nd Lactation	1063	58	71	-24	21	59	99	136
Cows Merit$ 3rd^{+} Lactation	1084	11	75	-83	-35	11	57	101
Cows Merit$ All Lactation	1111	40	71	-44	3	44	80	120
% Cows with Dam ID	1210	79	28	30	71	92	99	100
% Cows with Sire ID	1210	74	30	24	60	87	98	100
% Heifers with Dam ID	1141	92	17	76	92	98	100	100
% Heifers with Sire ID	1105	77	22	46	65	84	95	98

Table 10 ***(continued)***

Midwest

100 to 149 cows

				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	471	66	30	0	57	76	88	96
Percentile Rank AI Sires	414	64	14	47	55	63	74	81
% Cows with Merit$ 1st Lactation	413	79	21	19	36	53	64	74
% Cows with Merit$ 2nd Lactation	417	73	28	28	59	84	96	100
% Cows with Merit$ 3rd^{+} Lactation	431	71	30	20	51	84	97	100
% Cows with Merit$ All Lactation	441	60	27	14	44	68	82	88
Cows Merit$ 1st Lactation	412	86	82	3	57	92	126	163
Cows Merit$ 2nd Lactation	417	67	70	-13	32	71	111	151
Cows Merit$ 3rd^{+} Lactation	426	17	79	-80	-27	24	68	113
Cows Merit$ All Lactation	441	47	76	-41	10	53	90	127
% Cows with Dam ID	471	78	29	27	64	91	99	100
% Cows with Sire ID	471	74	30	24	57	88	98	100
% Heifers with Dam ID	443	90	20	72	89	98	100	100
% Heifers with Sire ID	431	75	23	43	61	82	94	98

150 to 249 cows

				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	232	68	26	29	60	75	87	94
Percentile Rank AI Sires	215	65	14	45	56	65	76	82
% Cows with Merit$ 1st Lactation	208	52	20	23	41	56	66	75
% Cows with Merit$ 2nd Lactation	209	77	24	42	65	86	96	100
% Cows with Merit$ 3rd^{+} Lactation	215	75	27	30	62	84	97	100
% Cows with Merit$ All Lactation	215	65	23	22	55	71	83	88
Cows Merit$ 1st Lactation	208	84	64	3	54	88	118	159
Cows Merit$ 2nd Lactation	209	72	57	5	41	71	103	139
Cows Merit$ 3rd^{+} Lactation	213	26	59	-47	-8	22	62	99
Cows Merit$ All Lactation	214	55	57	-15	21	56	87	116
% Cows with Dam ID	232	81	26	38	71	92	98	100
% Cows with Sire ID	232	77	28	26	66	89	98	100
% Heifers with Dam ID	223	90	18	72	88	97	100	100
% Heifers with Sire ID	219	75	20	49	64	79	93	98

Table 10. ***(continued)***

Midwest								
250+ cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	154	64	26	13	57	70	81	93
Percentile Rank AI Sires	147	63	13	46	56	63	72	81
% Cows with Merit$ 1st Lactation	142	35	23	5	15	34	56	66
% Cows with Merit$ 2nd Lactation	149	48	33	2	20	48	77	96
% Cows with Merit$ 3rd^{+} Lactation	147	55	31	9	30	56	87	96
% Cows with Merit$ All Lactation	153	42	28	4	17	40	68	82
Cows Merit$ 1st Lactation	141	79	62	25	57	86	108	136
Cows Merit$ 2nd Lactation	149	61	58	9	43	65	94	125
Cows Merit$ 3rd^{+} Lactation	144	23	62	-55	-8	28	60	92
Cows Merit$ All Lactation	153	50	58	-17	28	56	84	112
% Cows with Dam ID	154	60	33	7	38	66	93	99
% Cows with Sire ID	154	57	32	7	35	58	88	98
% Heifers with Dam ID	150	84	22	51	79	92	99	100
% Heifers with Sire ID	149	62	24	27	48	66	80	92

Table 11. Genetic Measures in the Midsouth Region by Herd Size.

Midsouth								
Up to 50 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	110	73	29	10	68	81	93	100
Percentile Rank AI Sires	99	58	18	33	47	58	70	83
% Cows with Merit$ 1st Lactation	100	53	23	17	35	54	68	85
% Cows with Merit$ 2nd Lactation	102	73	28	27	53	85	100	100
% Cows with Merit$ 3rd^{+} Lactation	105	76	28	33	60	89	100	100
% Cows with Merit$ All Lactation	107	64	25	24	51	70	83	92
Cows Merit$ 1st Lactation	100	20	141	-112	-44	42	98	150
Cows Merit$ 2nd Lactation	101	12	108	-88	-41	18	69	120
Cows Merit$ 3rd^{+} Lactation	104	-23	88	-126	-81	-18	34	79
Cows Merit$ All Lactation	107	-5	104	-120	-61	6	53	95
% Cows with Dam ID	110	81	26	36	71	95	100	100
% Cows with Sire ID	110	78	28	26	65	92	100	100
% Heifers with Dam ID	105	93	13	79	93	98	100	100
% Heifers with Sire ID	100	73	26	36	58	79	96	100
50 to 99 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	397	72	26	40	63	78	90	100
Percentile Rank AI Sires	373	59	14	41	50	59	69	77
% Cows with Merit$ 1st Lactation	362	50	21	20	35	50	66	75
% Cows with Merit$ 2nd Lactation	365	75	27	35	61	86	95	100
% Cows with Merit$ 3rd^{+} Lactation	371	73	29	25	58	84	96	100
% Cows with Merit$ All Lactation	384	62	25	21	45	72	81	88
Cows Merit$ 1st Lactation	359	53	92	-55	17	66	105	143
Cows Merit$ 2nd Lactation	365	34	84	-64	-5	45	86	126
Cows Merit$ 3rd^{+} Lactation	368	-12	87	-117	-52	-9	41	85
Cows Merit$ All Lactation	381	16	80	-82	-31	25	62	104
% Cows with Dam ID	397	80	28	30	72	93	99	100
% Cows with Sire ID	397	76	29	29	66	89	98	100
% Heifers with Dam ID	389	92	15	77	92	99	100	100
% Heifers with Sire ID	378	78	22	44	67	86	96	99

Table 11. ***(continued)***

Midsouth								
100 to 149 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	264	71	27	29	64	77	92	97
Percentile Rank AI Sires	247	58	13	41	51	60	67	76
% Cows with Merit$ 1st Lactation	245	52	23	16	36	57	70	79
% Cows with Merit$ 2nd Lactation	245	75	26	31	62	84	96	100
% Cows with Merit$ 3rd^{+} Lactation	255	72	31	18	49	86	96	100
% Cows with Merit$ All Lactation	259	63	27	19	45	75	84	89
Cows Merit$ 1st Lactation	245	48	108	-43	13	65	108	149
Cows Merit$ 2nd Lactation	243	35	92	-54	-5	48	92	120
Cows Merit$ 3rd^{+} Lactation	252	-18	95	-121	-63	-10	47	86
Cows Merit$ All Lactation	258	10	98	-90	-31	22	74	106
% Cows with Dam ID	264	79	28	32	68	92	99	100
% Cows with Sire ID	264	75	30	23	60	89	98	100
% Heifers with Dam ID	255	94	12	83	94	99	100	100
% Heifers with Sire ID	252	77	23	42	65	84	95	100
150 to 249 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	141	72	24	43	62	79	89	95
Percentile Rank AI Sires	134	58	13	42	50	58	66	72
% Cows with Merit$ 1st Lactation	135	52	20	22	41	54	66	77
% Cows with Merit$ 2nd Lactation	135	76	25	34	62	87	95	100
% Cows with Merit$ 3rd^{+} Lactation	136	78	26	31	65	90	97	99
% Cows with Merit$ All Lactation	137	67	23	31	54	76	83	89
Cows Merit$ 1st Lactation	135	54	120	-42	16	69	118	152
Cows Merit$ 2nd Lactation	135	49	88	-37	7	54	105	131
Cows Merit$ 3rd^{+} Lactation	136	7	74	-77	-34	6	60	99
Cows Merit$ All Lactation	136	26	99	-64	-6	40	80	119
% Cows with Dam ID	141	81	27	34	75	95	99	100
% Cows with Sire ID	141	78	27	39	66	92	98	100
% Heifers with Dam ID	137	95	12	88	95	99	100	100
% Heifers with Sire ID	137	78	19	52	67	83	93	98

Table 11. ***(continued)***

Midsouth								
250 + cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	54	69	22	38	62	72	84	91
Percentile Rank AI Sires	52	60	14	41	52	60	69	79
% Cows with Merit$ 1st Lactation	52	51	22	13	41	58	67	74
% Cows with Merit$ 2nd Lactation	50	79	27	29	71	87	98	100
% Cows with Merit$ 3rd^{+} Lactation	53	75	31	14	67	90	96	100
% Cows with Merit$ All Lactation	54	63	29	4	54	76	85	88
Cows Merit$ 1st Lactation	51	86	71	27	60	94	122	160
Cows Merit$ 2nd Lactation	50	62	79	9	41	76	106	147
Cows Merit$ 3rd^{+} Lactation	52	20	77	-70	-12	32	70	94
Cows Merit$ All Lactation	54	48	80	-46	16	58	98	134
% Cows with Dam ID	54	79	31	24	69	96	100	100
% Cows with Sire ID	54	75	31	20	66	92	99	100
% Heifers with Dam ID	52	96	8	87	94	99	100	100
% Heifers with Sire ID	52	75	20	45	62	81	92	98

Table 12. Genetic Measures in the South Region by Herd Size.

South								
Up to 100 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven AI Sires	89	75	26	44	65	82	96	100
Percentile Rank AI Sires	84	56	18	31	44	55	71	81
% Cows with Merit$ 1st Lactation	68	51	22	18	39	51	68	78
% Cows with Merit$ 2nd Lactation	69	78	27	22	68	89	100	100
% Cows with Merit$ 3rd^{+} Lactation	75	76	30	14	62	86	100	100
% Cows with Merit$ All Lactation	77	62	28	7	54	73	82	100
Cows Merit$ 1st Lactation	68	43	88	-34	16	58	100	120
Cows Merit$ 2nd Lactation	68	17	107	-76	-8	36	72	106
Cows Merit$ 3rd^{+} Lactation	74	-26	92	-143	-71	-16	30	66
Cows Merit$ All Lactation	76	-4	105	-80	-36	16	58	84
% Cows with Dam ID	89	74	34	0	61	92	99	100
% Cows with Sire ID	89	72	33	7	65	86	98	100
% Heifers with Dam ID	85	94	18	85	96	100	100	100
% Heifers with Sire ID	84	79	20	53	68	84	94	100
100 to 149 cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven A I Sires	80	72	24	42	64	76	86	96
Percentile Rank AI Sires	77	57	17	34	48	57	71	77
% Cows with Merit$ 1st Lactation	71	48	21	10	35	54	63	73
% Cows with Merit$ 2nd Lactation	73	73	26	36	58	80	96	98
% Cows with Merit$ 3rd^{+} Lactation	75	73	28	25	63	83	95	98
% Cows with Merit$ All Lactation	76	62	25	16	50	74	78	88
Cows Merit$ 1st Lactation	70	77	77	-6	41	70	112	141
Cows Merit$ 2nd Lactation	73	42	75	-33	3	45	78	114
Cows Merit$ 3rd^{+} Lactation	74	-11	73	-91	-60	-8	38	65
Cows Merit$ All Lactation	76	19	79	-57	-18	24	63	94
% Cows with Dam ID	80	76	32	8	74	90	98	100
% Cows with Sire ID	80	75	31	11	66	89	98	99
% Heifers with Dam ID	77	96	7.5	86	95	99	100	100
% Heifer with Sire ID	76	76	22	53	64	84	95	98

Table 12. ***(continued)***

South

150 to 249 cows

				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven A I Sires	98	70	26	40	59	75	89	97
Percentile Rank AI Sires	92	59	15	41	50	60	72	78
% Cows with Merit$ 1st Lactation	75	45	22	12	27	50	62	70
% Cows with Merit$ 2nd Lactation	81	67	33	9	42	79	96	100
% Cows with Merit$ 3rd^{+} Lactation	91	63	34	3	40	74	93	100
% Cows with Merit$ All Lactation	92	52	32	2	24	64	79	86
Cows Merit$ 1st Lactation	75	74	56	10	43	67	117	143
Cows Merit$ 2nd Lactation	81	30	106	-45	2	48	81	112
Cows Merit$ 3rd^{+} Lactation	90	-21	84	-104	-57	-10	22	77
Cows Merit$ All Lactation	89	3	96	-112	-30	21	48	109
% Cows with Dam ID	98	67	37	3	40	84	97	100
% Cows with Sire ID	98	62	36	1	31	74	93	100
% Heifers with Dam ID	96	94	11	84	92	98	100	100
% Heifer with Sire ID	92	69	24	35	53	72	91	96

250 to 499 cows

				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven A I Sires	67	65	27	9	54	73	82	96
Percentile Rank AI Sires	62	54	13	39	43	53	63	72
% Cows with Merit$ 1st Lactation	56	42	19	14	32	42	57	66
% Cows with Merit$ 2nd Lactation	57	64	27	11	50	72	84	93
% Cows with Merit$ 3rd^{+} Lactation	62	57	29	7	36	63	80	90
% Cows with Merit$ All Lactation	63	49	26	4	38	56	68	78
Cows Merit$ 1st Lactation	56	63	62	17	39	71	94	118
Cows Merit$ 2nd Lactation	57	53	54	-10	21	47	84	124
Cows Merit$ 3rd^{+} Lactation	62	-4	76	-80	-34	2	31	77
Cows Merit$ All Lactation	63	23	78	-40	-5	31	65	103
% Cows with Dam ID	67	65	32	3	45	73	91	97
% Cows with Sire ID	67	58	32	3	25	67	83	94
% Heifers with Dam ID	62	93	8.2	82	90	97	99	100
% Heifer with Sire ID	62	72	18	44	56	73	87	93

Table 12. ***(continued)***

South								
500 + cows								
				Percentile Rank				
	N	Mean	SD	10th	25th	50th	75th	90th
% Proven A I Sires	62	66	26	35	53	72	85	91
Percentile Rank AI Sires	59	49	16	31	41	51	59	68
% Cows with Merit$ 1st Lactation	44	25	23	1	3	22	41	57
% Cows with Merit$ 2nd Lactation	44	35	32	1	3	25	66	81
% Cows with Merit$ 3rd^{+} Lactation	57	26	29	1	2	13	47	71
% Cows with Merit$ All Lactation	59	23	26	0	1	10	49	69
Cows Merit$ 1st Lactation	44	32	128	-33	6	52	88	133
Cows Merit$ 2nd Lactation	44	43	74	-37	10	54	80	125
Cows Merit$ 3rd^{+} Lactation	57	-48	135	-228	-72	-16	27	57
Cows Merit$ All Lactation	59	-19	120	-164	-65	23	60	85
% Cows with Dam ID	62	44	33	1	10	40	76	88
% Cows with Sire ID	62	36	30	1	8	32	59	79
% Heifers with Dam ID	58	79	28	25	77	91	97	100
% Heifer with Sire ID	55	64	19	38	51	66	77	88

Table 13. Percent of Cows with a Net Merit$ Calculated by the Animal Improvement Programs Laboratory by Region by Production Level

Northeast				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	%			
14000-14999	49.7	67.6	68.7	59.2
15000-15999	53.3	72.8	70.1	60.4
16000-16999	46.4	68.9	67.6	58.1
17000-17999	54.7	75.6	76.6	67.0
18000-18999	51.1	70.0	70.9	62.3
19000-19999	52.6	75.6	73.8	65.1
20000-20999	54.0	77.3	74.7	65.6
21000-21999	55.4	77.8	77.1	68.1
22000-22999	55.1	78.9	77.9	67.7
23000-23999	57.7	82.3	81.4	72.0
24000-24999	57.9	80.9	79.2	71.0
25000-25999	58.0	84.9	84.3	74.0
26000-26999	58.0	86.7	84.8	74.1
27000+	57.8	83.6	81.3	72.2
Midwest				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	%			
14000-14999	43.0	55.5	60.3	48.4
15000-15999	49.6	68.4	62.7	53.2
16000-16999	42.2	64.0	60.9	50.5
17000-17999	49.2	64.9	65.3	55.7
18000-18999	47.4	69.2	67.2	56.9
19000-19999	47.8	67.5	69.0	58.6
20000-20999	49.7	72.6	72.9	61.7
21000-21999	49.1	75.4	72.6	61.3
22000-22999	52.8	78.9	77.4	66.4
23000-23999	53.3	79.0	80.9	68.2
24000-24999	51.6	79.5	79.8	66.6
25000-25999	52.3	75.6	78.7	66.1
26000-26999	56.3	85.6	85.4	72.5
27000+	56.2	85.5	85.9	73.9

Table 13. ***(continued)***

Midsouth				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	%			
14000-14999	43.1	52.5	54.5	45.0
15000-15999	33.1	51.2	49.8	40.3
16000-16999	40.7	56.3	56.2	47.9
17000-17999	51.3	68.9	64.8	57.1
18000-18999	49.1	71.5	72.0	61.1
19000-19999	50.8	76.0	75.1	65.1
20000-20999	53.0	76.7	77.8	66.2
21000-21999	55.0	82.9	80.6	71.2
22000-22999	57.5	87.8	87.4	75.9
23000-23999	53.3	87.3	84.4	72.0
24000+	56.6	85.3	85.1	73.1

South				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	%			
14000- 14999	27.1	26.4	36.4	23.8
15000- 15999	32.7	48.7	39.6	30.6
16000- 16999	36.2	57.0	46.9	41.0
17000- 17999	39.3	63.6	57.1	46.6
18000- 18999	47.9	66.8	65.1	55.6
19000- 19999	42.0	68.4	59.6	51.4
20000- 20999	41.3	59.5	64.2	51.0
21000- 21999	48.9	78.1	74.6	63.6
22000+	50.0	76.3	75.1	64.9

Table 14. Average Net Merit$ for Cows by Region and Production Level

Northeast				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	Net Merit$			
14000-14999	22.0	11.3	-59.4	-32.9
15000-15999	20.3	-14.5	-64.2	-44.6
16000-16999	39.4	3.2	-48.5	-19.1
17000-17999	48.6	23.9	-32.1	-1.9
18000-18999	52.5	32.7	-19.0	8.1
19000-19999	52.8	37.9	-14.5	13.8
20000-20999	70.4	50.8	3.8	32.4
21000-21999	79.3	56.0	11.2	38.9
22000-22999	86.5	64.2	23.0	49.2
23000-23999	101.0	86.8	42.9	71.1
24000-24999	103.9	84.8	41.2	71.1
25000-25999	117.2	89.5	48.9	79.0
26000-26999	111.6	96.5	61.9	85.0
27000+	124.2	108.6	68.9	97.5

Midwest				
	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	Net Merit$			
14000-14999	17.1	23.8	-29.5	-5.8
15000-15999	44.1	9.1	-36.0	-2.0
16000-16999	36.6	11.6	-36.1	-9.1
17000-17999	51.1	35.0	-21.2	12.0
18000-18999	55.6	35.3	-20.2	10.1
19000-19999	72.8	46.8	1.7	31.0
20000-20999	80.6	51.8	8.2	39.1
21000-21999	85.9	65.2	15.8	48.4
22000-22999	86.7	70.0	22.1	52.4
23000-23999	106.6	88.5	47.1	75.3
24000-24999	101.3	96.5	49.2	76.5
25000-25999	105.1	88.3	41.1	72.7
26000-26999	130.5	109.3	76.8	100.5
27000+	131.1	106.1	65.7	97.6

Midsouth

	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	Net Merit$			
14000-14999	-81.9	-59.5	-63.0	-77.8
15000-15999	-48.6	-28.2	-85.7	-60.1
16000-16999	-7.3	-26.6	-46.2	-38.4
17000-17999	1.3	2.3	-63.2	-35.4
18000-18999	37.6	23.4	-34.4	-0.2
19000-19999	52.9	40.4	-8.4	22.6
20000-20999	60.2	37.7	-6.4	23.3
21000-21999	85.1	61.7	19.9	49.8
22000-22999	89.9	70.6	27.7	57.8
23000-23999	92.2	71.9	21.9	55.9
24000+	104.9	97.5	55.6	76.1

South

	Lactation			
Herd Avg. (lbs)	1st	2nd	3rd+	All
	Net Merit$			
14000-14999	24.4	-22.8	-50.5	-44.6
15000-15999	17.1	-70.3	-42.8	-52.0
16000-16999	60.2	27.6	-44.0	-12.8
17000-17999	29.0	22.5	-23.1	-15.9
18000-18999	49.8	35.8	-29.6	-0.5
19000-19999	73.9	34.3	-24.0	14.0
20000-20999	57.9	44.6	3.0	24.3
21000-21999	67.1	61.6	-3.0	32.1
22000+	88.2	72.1	16.2	52.0

Learning for Life

Bulletin 1203 **Reviewed April, 2009**