

2017 Virginia FFA Dairy Cattle Evaluation and Management Career Development Event

Team Activity

Scenario: William Elliott Hokie is a dairy farmer located in the southern part of Virginia. He calls you for assistance in evaluating his records because his cows are not producing as well as he would like. He has provided you with a DHI-202 Herd Summary to help troubleshoot herd issues related to feeds and nutrition. He also supplied the following background information.

- The herd consists of 590 milking and dry cows plus 593 replacement heifers.
- The herd is housed in freestall barns bedded with sawdust and is milked three times a day in a double-8 parallel parlor. The freestall barns are older and have low roofs.
- Production is the primary criterion used for grouping, but a single TMR is fed to all milking cows.
- Cows are in relatively good body condition.
- Mature cows in the herd weigh about 1,800 pounds. Bodyweights of first lactation cows average 1,300 pounds.
- Heifers and cows calve in a pasture and then enter the milking herd directly.
- Heifers are confinement reared until confirmed pregnant and then are kept on pasture.
- The herd works with a nutritionist and routinely tests forages.
- The herd is registered and the farmer merchandises cattle on a regular basis.

Assignment: Briefly discuss the strengths and weaknesses you detect in herd management related to feeds and nutrition. Support this by citing specific items to support your conclusions. List in order of priority (influence on production and potential herd profit) the problems and your recommendations for management approaches to correct these problems. In addition, the farmer has a few specific questions for you:

- Should he be concerned with heat stress in the herd? Are there any signs of heat stress evident in the records?
- What changes could be made to nutrition management that would have: A) an immediate impact; and B) a long-term impact?

HERD SUMMARY

DHI-202

Test Date Samples at Lab Processed
05-29-2017 05-30-2017 05-30-2017

Electronic Meters **Breed** **HO** **Type Test** **DHIR-APCS** **Assoc.** **Supv.** **String** **All Strings**

Production, Income & Feed Cost Summary

Total Cows	Daily Average per Cow on Test Day		Rolling Yearly Herd Averages			
	Number	%	Number	%		
	590		589.7			
Cows in Milk	519	88	524.8	89		
Milk Lbs (All Cows)	64.1		23230			
Fat Lbs (All Cows)	2.65		1000			
Fat %	4.1		4.3			
Protein Lbs (All Cows)	1.90		690			
Protein %	3.0		3.0			
Milk Lbs (Milking Cows)	72.9					
	Milking Cows	All Cows				
Silage	Lbs Consumed		Lbs Consumed	%ENE		
Other Succulents or Blended Rations	Lbs Consumed		Lbs Consumed	%ENE		
Dry Forage	Lbs Consumed		Lbs Consumed	%ENE		
Other Feeds	Lbs Consumed		Lbs Consumed	%ENE		
Pasture			Days	%ENE		
Concentrates	Lbs Consumed		Lbs Consumed	%ENE		
Value of Product \$	13.21	11.49	4389			
Cost of Concentrates \$						
Total Feed Cost \$						
Income Over Feed Cost \$						
Feed Cost per CWT Milk \$						
Milk Blend Price	Per CWT	% Fat	% Pro	Per CWT	% Fat	% Pro
	18.27	4.2		18.25	4.0	

Reproductive Summary Of Current Breeding Herd

Total Cows Breeding Herd	Voluntary Waiting Period (VWP)	Days to 1st Service	Cows With No Service Dates or Diag. Open			Cows Bred But Not Diag. Preg.			
			Open VWP to 100 Days	Open Over 100 Days	Number Diag. Open	Days Open at Last Service			
						Under VWP	VWP to 100 Days	101 to 130 Days	Over 130 Days
169	85	103	18	20		4	27	40	60
			11	12		2	16	24	36

Reproductive Summary Of Total Herd

	Days Open at 1st Service			Avg. Days to 1st Service	Services per Pregnancy		Projected Minimum		Service or Heat Interval		Services for Past 12 Months			
	Number Under VWP	Number VWP to 100	Number Over 100		Preg. Cows	All Cows	Calving Interval	Days Open	Interval Length	Number Intervals	Service Number	Number Services	Conception Rate	Service Sire Merit \$
1st Lact	13	62	105	106	2.0	2.4	14.1	148	< 18	30	1st	535	43	+713
2nd Lact	6	61	77	105	2.1	2.5	14.1	149	18 - 24	176	2nd	283	42	+707
3+ Lacts	10	47	98	108	2.1	2.6	14.1	150	36 - 48	212	3rd +	292	43	+706
All Lacts	29	170	280	107	2.1	2.5	14.1	149	Other	346	Total	1110	43	+709
% of All 1st Services	6	35	58		Current Actual Calving Interval		13.8				Abortions	This Test	Past Year	
											Actual	1		
											Apparent	4	32	

Birth Summary

Dam's Lact Num	Offspring Born									
	Males		Females		Calving Difficulty Score					%4-5
	Alive	Dead	Alive	Dead	1	2	3	4-5		
1	77	13	128	5	186	10	16	6	3	
2+	188	17	178	6	334	6	16	4	1	
Total	265	30	306	11	520	16	32	10	2	

Cows To Be Milking, Dry, Calving By Month

	Jun	Jul	Aug	Sep	Oct	Nov
* Milking	496	506	506	513	514	525
Dry	96	83	86	89	96	94
Cows to Calve	26	50	44	50	41	57
Heifers to Calve	26	16	22	29	28	29

* Assumes 3.2% per month culling rate.

Yearly Reproductive Summary

Test Date	% Heats Obs.	Conception Rate	Preg Rate	Number Services	Number Confirm Preg	Number Calving	Total Preg Cows
Test Dropped	74	56	32	75	50	30	310
6-25-16	67	32	17	81	53	57	320
7-27-16	53	20	8	54	23	56	308
8-24-16	45	19	7	58	18	46	292
9-23-16	68	27	14	106	12	47	270
10-27-16	73	40	28	142	24	63	250
11-29-16	68	46	25	103	53	70	250
12-27-16	75	48	31	96	55	71	262
1-26-17	72	43	27	96	42	58	251
2-27-17	71	56	39	110	61	61	269
3-29-17	64	52	29	97	43	37	290
4-26-17	63			74	51	19	325
5-29-17	68			109	40	25	348
Averages	66	38	24	94	40	51	286
Totals				1126		610	

Miscellaneous Herd Information

	Shipped-Test Day Comparison		Milking Times	Wgh	Spl	
	Test Day	Yearly Avg.				
Sum of Test Day Wts	37799	37027	1st	3:00pm	Y	N
Reported Avg. Daily Bulk Tank Wts	37850	37344	2nd	3:30am	Y	Y
% Deviation	-.1	-.8	3rd			

Remarks:

Cows milked 3 times daily for all or part of this yearly period.

Herd Code	Test Date	05-29-2017	Breed	HO	String	All Strings
-----------	-----------	------------	-------	----	--------	-------------

Identification And Genetics (Genetic Data Source: CDCB)

Stage Of Lactation Profile

		Stage of Lactation (Days)						Total or Average
		1 - 40	41 - 100	101 - 199	200 - 305	306 +		
		Number Milking	1st Lact	11	30	49	64	
Number Milking	2nd Lact	4	20	54	37	29	144	
	3+ Lacts	4	14	74	39	26	157	
	All Lacts	19	64	177	140	113	513	
	Average Daily Milk	1st Lact	73	80	71	67	59	68
Average Daily Milk	2nd Lact	73	93	84	66	52	74	
	3+ Lacts	81	103	90	70	50	79	
	All Lacts	75	89	83	68	55	73	
% Fat & Pro	1st Lact	% Fat	4.7	4.3	4.4	4.2	4.5	4.4
		% Pro	2.8	2.8	3.0	3.1	3.3	3.1
	2nd Lact	% Fat	5.3	4.2	4.0	4.2	4.1	4.1
		% Pro	3.2	2.8	3.0	3.2	3.3	3.1
	3+ Lacts	% Fat	5.8	4.2	3.8	4.0	4.4	4.0
		% Pro	3.1	2.7	2.8	3.0	3.2	2.9
All Lacts	% Fat	5.1	4.2	4.0	4.1	4.4	4.2	
SCC SCR	1st Lact	% Pro	2.9	2.8	2.9	3.1	3.3	3.0
		% Fat	3.6	2.9	3.0	2.5	3.1	2.9
	2nd Lact	4.2	2.1	2.0	2.6	4.0	2.6	
	3+ Lacts	2.2	3.3	3.3	3.4	4.9	3.6	
SCC Score >= 4.0	All Lacts	3.4	2.7	2.8	2.8	3.7	3.0	
	Number	7	14	49	27	48	145	
Percent	37	22	28	19	42	28		

Age Group	Number Animals	Avg. Age (Yr-Mo)	Num. Ident. By		Number ID Changes	No. Animals with Merit \$	Average Merit \$		Herd Merit \$ Option	Genetic Profile of Service Sires			
			Sire	Dam			Animal	Sire		A.I. Progeny Tested	A.I. Genomic Tested	All Other A.I. Bulls	Non A.I. Bulls
0 - 12	314	0-06	313	314		312	+444	+673	NM				
13+	279	1-06	279	279		279	+353	+568					
Replacements	593	0-11	592	593		591	+401	+623					
1st Lact	227	2-00	227	227		186	+301	+457	% of Herd Bred to	57	43		
2nd Lact	173	3-01	173	173		173	+252	+433	Number of Bulls Used	10	21		
3+ Lacts	190	5-01	190	190	5	190	+131	+205	Average Merit \$	+672	+693	+0	DCR Milk
All Lacts	590	3-04	590	590	5	549	+227	+371	Avg. Percentile Rank (Net Merit)	88	88		104
% Identified (Producing Females)			100	100	No. Heifers Age Over 30 Months								

Production By Lactation Summary

Lactation	Number of Cows	Avg. Age (Mo)	Peak Milk	Summit Milk	Proj 305 Day ME			Difference From Herdmates			Avg. Body Wt.
					Milk	Fat	Pro	Milk	Fat	Pro	
					1st Lact	227	24	75	71	26155	
2nd Lact	173	37	94	91	26038	1119	758	+1376	+23	+41	1630
3+ Lacts	190	61	103	99	25057	1051	721	+474	-35	+7	1780
All Lacts	590	40	90	87	25759	1112	748	+1078	+20	+30	1560

Somatic Cell Summary

	% Cows SCC Score				
	0,1,2,3	4	5	6	7,8,9
	Below 142,000	142,000 - 283,000	284,000 - 565,000	566,000 - 1.13 M	Over 1.13 M
66	13	11	7	3	
66	14	13	5	1	
53	18	11	6	12	
62	15	12	6	5	
Herd Production Lost From SCC This Test Period					
Milk	25691	Dollars (\$)	4694		

Dry Cow Profile

Lact.	Number Dry Periods	Avg. Days Dry	Number Dry by Days		
			< 40	40-70	> 70
1					
2	173	49	37	124	12
3+	189	64	24	104	61
All	362	57	61	228	73

Yearly Summary Of Cows Entered And Left The Herd

Lact.	Number Entered	Cows %	Cows Left	Number of Cows Left the Herd													
				Cows Entered		Cows Left		Dairy	Low Prod	Repro	Mast	Udder	Feet & Legs	Injury Other	Disease	Died	Not Rptd
				Num.	%	Num.	%										
1	234	40	69	12	27	4	16	6	1	1	7	1	6				
2			46	8	7	8	9	8	1	4	3	1	5				
3+	189		100	17	15	11	14	23	1	10	10	6	10				
All	234	40	215	36	49	23	39	37	3	15	20	8	21				
				24 % Left Herd For Involuntary Reasons													

Yearly Production And Mastitis Summary

Test Date	Days In Test Period	Number Cows In Herd On Test Day	Test Day Averages (Milking Cows)		150 Day Milk	Test Period Persist. Index	Test Day Averages (All Cows)				Rolling Yearly Herd Average			Somatic Cell Count Summary						Number Left Herd			
			DIM	Milk			% In Milk	Milk	%Fat	%Pro	Milk	Fat	Pro	% Cows SCC Score					Avg. SCC Linear Score	Wt. Avg. Actual SCC	MUN	Died	Sold
Test Dropped	27	569	181	80.5	84.5	107	89	71.5	3.8	2.9	22987	951	691	68	14	7	7	4	2.9	263	8.9	1	11
6-25-16	31	577	178	80.6	86.2	103	88	71.0	3.5	2.8	23097	949	694	60	15	10	7	9	3.3	458	9.5	3	10
7-27-16	32	585	180	71.2	77.9	92	89	63.1	4.0	2.7	23236	948	696	59	14	9	7	11	3.5	501	11.9	1	15
8-24-16	28	586	184	68.6	75.9	99	90	61.9	4.2	2.8	23316	952	696	49	17	12	10	12	3.8	537	7.7		13
9-23-16	30	586	186	67.4	75.4	99	88	59.6	4.2	2.9	23370	956	695	53	20	10	8	9	3.5	429	9.4	3	17
10-27-16	34	596	182	65.0	72.9	96	86	56.0	4.5	3.1	23309	959	692	56	16	12	7	8	3.4	366	11.5	7	13
11-29-16	33	594	169	66.7	73.1	99	86	57.0	4.7	3.1	23217	962	689	59	14	12	7	9	3.4	407	12.7	2	25
12-27-16	28	592	162	69.8	74.6	101	86	60.2	4.6	3.1	23145	964	687	60	17	9	4	10	3.3	446	10.3		34
1-26-17	30	585	161	71.8	75.1	100	89	63.8	4.6	3.0	23120	968	686	64	17	7	7	5	3.0	283			16
2-27-17	32	590	168	76.0	79.1	106	93	70.7	4.6	3.0	23245	982	691	66	13	9	7	5	3.0	295			17
3-29-17	30	590	180	75.6	79.0	99	92	69.9	4.5	3.0	23382	996	695	67	15	8	6	5	2.9	251			18
4-26-17	28	586	195	73.9	78.3	100	91	67.2	4.4	3.0	23399	1001	695	65	15	9	5	5	2.9	266		2	9
5-29-17	33	590	210	72.9	80.4	102	88	64.1	4.1	3.0	23230	1000	690	62	15	12	6	5	3.0	274		3	7
Averages	31	588	180	71.6	77.3	100	89	63.7	4.3	3.0				60	16	10	7	8	3.3	376	6.1	21	194

Test Period Avg. Milk Lbs	Added	65.2	Dropped	70.6
---------------------------	-------	------	---------	------

DHI and Herd Management Goals - HOLSTEINS - September 2016

Prepared by David R. Winston, Extension Dairy Scientist, Virginia Tech

Milk and Components

Parameter	Unit	Regional Average	Suggested Goal
Daily milk - milking cows	lb	69.5	
Daily milk - all cows	lb	60.0	
Summit milk - 1st lactation	lb	73	
Summit milk - 2nd lactation	lb	93	
Summit milk - 3rd+ lactations	lb	101	
Peak milk - 1st lactation	lb	78	
Peak milk - 2nd lactation	lb	98	
Peak milk - 3rd+ lactations	lb	107	
Rolling yearly herd average - milk	lb	22,635	
Rolling yearly herd average - fat	lb	855	
Rolling yearly herd average - protein	lb	690	
Fat percent	%	3.6	≥ 3.7
Protein percent	%	3.0	≥ 3.0
Persistency after peak - 1st lactation*	%		~ 95
Persistency after peak - older cows*	%		~ 90
% 1st lactation ≤ 40 lbs on 1st test day*	%		0
% older cows ≤ 50 lbs on 1st test day*	%		0

Production Rules of Thumb

First lactation peaks should be ~75% of older cows.
 First lactation 305 day ME milk should be within 500 pounds of second lactation.
 Standardized 150 day milk declines > 5 pounds are indicative of a problem.

Reproduction

Parameter	Unit	Regional Average	Suggested Goal
Pregnancy rate	%	19.4	≥ 20
Days open	days	142	≤ 130
Projected calving interval	months	13.9	≤ 13.6
Average days to 1st service	days	88	≤ 75
Percent of all 1st services < VWP	%	17.5	≤ 10
Percent of all 1st services > 100 days	%	25.8	≤ 10
Heats observed	%	47.7	≥ 65
Yearly successful services	%	**	≥ 40
Successful 1st services	%	40.9	≥ 45
Services per pregnancy	number	**	≤ 2.5
Difficult births - 1st lactation (scores 4+5)	%	3.9	≤ 5
Cows culled for reproduction	%	6.5	≤ 6
Abortions (actual + apparent)	%	2.7	≤ 5
Retained placentas*	%		≤ 10
Uterine infections*	%		≤ 10

Genetics

Parameter	Unit	Regional Average	Suggested Goal
Percent of herd bred AI	%	80.9	100
Percent of herd bred with AI genomic tested sires	%	**	≥ 30
Percentile rank - proven AI sires	percentile	50.1	≥ 90
Percentile rank - AI genomic tested sires	percentile	**	≥ 90
Cows with sire ID	%	75.4	100
Heifers with sire ID	%	90.7	100

Udder Health

Parameter	Unit	Regional Average	Suggested Goal
Average SCC score	score	2.6	≤ 3.0
Weighted average actual SCC	cells/ml	251,000	≤ 200,000
1st lactation SCS, days 1-40	score	**	≤ 2.0
Cows culled for mastitis	%	4.3	≤ 3
Incidence of clinical mastitis (monthly)*	cases/100 cows		≤ 3

Desirable Herd Distribution of Somatic Cell Scores

Lactation	Somatic Cell Score			Average SCS
	0-3	4-5	6+	
1	> 80%	~ 20%	0%	≤ 2.5
2	> 70%	~ 25%	< 5%	≤ 2.8
3+	> 65%	~ 30%	< 5%	≤ 3.1
Total Herd	> 65%	~ 30%	< 5%	≤ 3.0

Replacements

Parameter	Unit	Regional Average	Suggested Goal
Average age at first calving	months	25.6	22-24
Calves dead at birth	%	**	≤ 5
Mortality, birth to 3 months*	%		≤ 5
Mortality, 3 months to calving*	%		≤ 2
Average daily gain*	lbs/day		1.6-1.8
Bodyweight at 1st breeding*	% mature BW		≥ 55
Average age at first breeding*	days		~ 420
Average age at first conception*	days		~ 450
Services per pregnancy*	number		≤ 1.8
Postcalving bodyweight*	% mature BW		≥ 82

Culling

Parameter	Unit	Regional Average	Suggested Goal
Cows left herd	%	35.3	≤ 30
Voluntary cull rate	%	**	10-20
Involuntary cull rate	%	**	≤ 15
Cow mortality	%	4.6	≤ 2
Cows left herd, 1-30 days in milk*	%		≤ 4
Cows left herd, 1-60 days in milk*	%		≤ 6

Miscellaneous

Parameter	Unit	Regional Average	Suggested Goal
Average days dry	days	**	55-60
Dry periods < 40 days	%	**	0
In milk on test day	%	86.5	85-88
Average days in milk	days	180.3	~ 150

Data obtained through DairyMetrics (DRMS) on September 12, 2016.

* Information is not found on a Herd Summary DHI-202.

** Regional averages not available through DairyMetrics.