

DAIRY CATTLE

Purpose

The purpose of the State Dairy Cattle CDE is to enable students to develop skills in dairy animal selection and dairy herd management. Students should also learn to be able to evaluate the strengths and weaknesses of dairy animals and be able to communicate their assessment to others.

Objectives

Students participating in the State Dairy Cattle CDE should be able to:

- I. Evaluate and rank dairy animals based on visual factors of selection.
- II. Orally communicate their assessment of the rankings of a class of four dairy animals.
- III. Identify factors to consider in selecting superior dairy heifers and cows.

Crosswalk with Show-Me Standards

Objectives – Students participating in the Career Development Event should be able to:		Show-Me Standards	
		Knowledge Standards (Content Areas)	Performance Standards (Goals)
1.	Evaluate and rank dairy animals based on visual factors of selection.	CA.1, CA.4, CA.5, CA.6 SC.3	1.5, 1.8
2.	Orally communicate their assessment of the rankings of a class of four dairy animals.		2.1, 2.2
3.	Identify factors to consider in selecting superior dairy heifers and cows.		3.1, 3.5 4.1, 4.4, 4.8

Corresponding Secondary Agriculture Curriculum			
Course and/or Curriculum:	Agricultural Science I	Unit(s):	Introduction to Dairy Production
	Animal Science		Unit II – Genetics Unit III – Reproduction
	Advanced Livestock Production and Management		Unit III – Selection Unit IX - Herd/Flock Management

Event Format

1. The Dairy Cattle Evaluation CDE shall consist of the following components:
 - A. Live Animal Evaluation
 - B. Oral Reasons
 - C. Dairy Management Written Exam
 - D. Dairy Sire Selection Exercise
2. Contestants will judge five (5) classes of animals selected from the five (5) major dairy breeds. Only the final placing will be scored. No more than two (2) of the five (5) classes to be judged will be heifers.
3. Four (4) animals shall constitute a class. Animals will be identified by the numerals 1, 2, 3, or 4.
4. Contestants will be allowed 12 minutes to evaluate and place each class. Placing cards must be turned in at the end of the 12 minute period.
5. For reasons classes, an additional **four (4)** minutes will be allowed for contestants to take notes. The notes may be used to prepare for each contestant's oral reasons presentation, but may not be referred to when presenting reasons to the official judge.
6. Each team member will present oral reasons on at least two classes. The reasons presentation will be limited to two minutes per class.
7. A Dairy Management Written Test will consist of 50 questions involving dairy management practices. This section will be worth 50 points. Students will have a minimum of 30 minutes to complete the test.
8. A dairy herd select sire selection problem worth 50 points (see National FFA Career Development Events, Dairy Cattle Section, pages 14-16) (sample problem included on following pages).
 - (a) Sire Selection Exercise
 - (1) The sire selection exercise requires members to use linear descriptive traits for one cow and sire summary information to make corrective matings. Participants will rank four potential mates for each cow.
 - (2) Linear evaluation and production information on the cows will be provided along with the transmitting ability estimates of the sires.
 - (3) A maximum of 50 points can be earned in this section .
 - (4) A minimum of **10** minutes will be allowed for this exercise.

Event Scoring

Events	Points
Judging 5 classes of animals (50 points each)	250 points
Oral Reasons (Minimum of 2 sets @ 50 points each)	100 points
Dairy Management Written Test (50 questions @ 1 point each)	50 points
Sire Selection Exercise	50 points
TOTAL	450

1. **Tie scores among teams should be broken using the high individual team member's score.** In case the scores are tied, the scores of the second high individual on each team should be used.

Event Rules and Regulations

1. Contestants shall not place their hands upon the animals at any time while the animals are in the ring.
2. Each class to be judged will be selected by the State CDE Superintendent.
3. No contestant or teacher will be permitted to inspect the dairy cattle selected for the event prior to the event.
4. Contestants will not be allowed to communicate with one another. Infractions of this rule will be cause for elimination or a point penalty at the superintendent's discretion.
5. All teachers, coaches, alternates, and other persons, with the exception of the CDE Superintendent and designated assistants and judges, are not permitted in the Livestock Center while the event is in progress.
6. After the end of the event, the judge's official placing on all classes will be given and discussion allowed. Contestants, teachers, and others who are interested are encouraged to attend.
7. Each placing and reasons class will be scored on the basis of 50 points for a perfect score. The written test will be worth 50 points.
8. Official placing will be based on the dairy cow unified scorecard revised in 1994.

References

Advanced Livestock Production & Management (Instructor and Student Reference). University of Missouri, Instructional Materials Laboratory, 1400 Rock Quarry Rd. Q156, University of Missouri, Columbia, MO 65211. Phone: 800-669-2465, <http://www.iml-ag.missouri.edu>

Introduction to Dairy Production 10-4101-1, Aug. 1997 (Instructor and Student Reference). University of Missouri, Instructional Materials Laboratory, 1400 Rock Quarry Rd. Q156, University of Missouri, Columbia, MO 65211. Phone: 800-669-2465, <http://www.iml-ag.missouri.edu>

National FFA Career Development Events, Dairy Cattle Development Event. National FFA Organization, 1532 Mt. Vernon Memorial Highway, Alexandria, VA 22309.

Hoard's Dairyman's Test, December issue of current year, Hoard's Dairyman, Box 801, Fort Atkinson, WI 53538; (414) 563-5551. <http://www.hoards.com/>

Linear Classification; Holstein Association, 1 Holstein Place, Brattleboro, VT. 05302-0808. <http://www.holstein.com/>

"Dairy Cattle Judging Made Easy Interactive CD", Babcock Institute, 2004. Available at <http://babcock.cals.wisc.edu/?q=node/4>

The following resources found on <http://www.extension.org/>

1. http://www.extension.org/pages/Dairy_Calf_and_Dairy_Heifer_Management
2. http://www.extension.org/pages/Dairy_Cattle_Mastitis_and_Milking_Management
3. http://www.extension.org/pages/Dairy_Cattle_Reproduction
4. http://www.extension.org/pages/Dairy_Cattle_Health_and_Diseases
5. http://www.extension.org/pages/Dairy_Cattle_Nutrition_of_Milking_and_Dry_Dairy_Cows

Forms

See Sire Selection Samples with explanations below.

See Appendix A: Unified Dairy Cow Scorecard

FFA DAIRY CATTLE CONTEST
SIRE SELECTION - SAMPLE PROBLEM # 1

SITUATION:

Semen is available from each of these four bulls at similar prices. All bulls rank in the top 15% of the breed for Production-Type Index. Rank the four bulls as they best meet the following objectives in the mating of this cow.

This New England herd has two-hundred purebred Jersey cows. The milk is processed through their own bottling plant and sold through various retail routes. Whole milk is standardized at 3.8% and excess milk fat is sold as heavy cream to an ice cream plant. Fat test is not of high concern due to its low value. Cows are housed in a free stall barn and very functionally correct cattle are most desirable. Emphasis is placed on correct feet and legs and well attached udders with strong support. The lactation average is 18,500 lbs. milk, 780 lbs. fat and 690 lbs. protein.

COW TO BE MATED		BULLS TO CONSIDER			
CURRENT RECORD	TRAITS	1	2	3	4
(1YR 10MO-ME)					
17,600 M	REL	99	70	89	94
4.5	PTA-MILK	2277	1756	1883	2210
792 F	PTA-FAT%	-.35	.03	.05	-.21
3.7	PTA-FAT	54	88	95	72
651 P	PTA-PRO%	-.15	-.02	-.07	.04
	PTA-P	62	62	59	88
	PTA-MFP\$	239	238	244	288
	NET MERIT	232	256	251	329
	PTI	372	365	356	495
LINEAR SCORES					
32	STATURE	2.1	2.0	2.4	1.1
30	DAIRY FORM	5.8	0.3	4.4	5.5
24	STRENGTH	-.1	1.2	1.8	-.4
22	THURL WIDTH	.4	1.2	1.9	-.3
15	PELVIC ANGLE	L1.1	L0.5	L2.3	L0.3
35	REAR LEGS	P1.1	P0.6	P1.2	P0.8
18	FOOT ANGLE	S0.8	0.0	S0.8	S2.0
25	FORE UDDER	-.4	1.0	-.4	-.4
22	R UDDER HEIGHT	3.9	.2	1.6	3.9
23	R UDDER WIDTH	3.8	0.1	2.6	3.3
22	SUSP LIGAMENT	1.1	-.1	1.3	1.3
18	UDDER DEPTH	S0.2	S1.5	D1.2	S0.2
15	FRONT TEAT	C0.2	W0.2	C1.3	C2.0
18	PLACEMENT	L0.6	L0.5	L2.2	L1.5
	TEAT LENGTH				

PELVIC ANGLE (H-HIGH, L-LOW) REAR LEGS (S-SICKLE, P-POSTY)
 FOOT ANGLE (S-STEEP, L-LOW) UDDER DEPTH (D-DEEP, S-SHALLOW)
 FRONT TEAT PLACEMENT (W-WIDE, C-CLOSE) TEAT LENGTH (L-LONG, S-SHORT)

FFA DAIRY CATTLE CONTEST
SIRE SELECTION - SAMPLE PROBLEM # 2

SITUATION:

Semen is available from each of these four bulls at similar prices. All bulls rank in the top 15% of the breed for Production-Type Index. Rank the four bulls as they best meet the following objectives in the mating of this cow.

This Midwestern dairyman has a one hundred cow herd of Holsteins. His milk is marketed under a component pricing system. Thus he wants to increase the total pounds of protein that he ships. The cows are housed in a free stall setup and he wants his cattle to be very functional in their type. He does market an animal occasionally for show purposes so he is concerned about more than just function. Cows must have correct feet and legs and well attached udders. While fat test no longer carries a high premium, he believes that cattle with pedigrees with solid component tests command more money. The RHA is 23,000 lbs. milk, 850 lbs. fat and 760 lbs. protein.

COW TO BE MATED		BULLS TO CONSIDER			
CURRENT RECORD	TRAITS	1	2	3	4
(1YR 11MO-ME)					
24,500	REL	99	59	80	74
3.7	PTA-MILK	2330	2506	1800	3062
906	PTA-FAT%	-.05	-.06	.26	-.05
3.2	PTA-FAT	73	78	119	98
784	PTA-PRO%	.04	.07	.12	-.03
	PTA-P	79	93	79	87
	PTA-MFP\$	281	314	287	345
	NET MERIT	270	303	361	331
	TPI	1341	1437	1267	1245
LINEAR SCORES					
30	STATURE	.60	1.67	1.54	1.36
38	DAIRY FORM	-.10	2.29	3.26	1.12
27	STRENGTH	-.10	-.44	1.90	-.04
32	THURL WIDTH	-1.02	-.29	1.35	-.99
28	PELVIC ANGLE	-2.48	.26	-2.99	-.41
29	REAR LEGS	-1.53	-.12	-.20	-.92
30	FOOT ANGLE	.68	.34	.68	1.61
18	FORE UDDER	2.06	2.35	-.14	.07
22	R UDDER HEIGHT	5.00	1.70	2.42	1.14
18	R UDDER WIDTH	4.34	1.35	3.51	.27
40	SUSP LIGAMENT	1.68	2.20	.63	.79
23	UDDER DEPTH	2.76	2.66	-1.63	1.28
30	FRONT TEAT	.58	.73	.57	-1.82
20	PLACEMENT	.47	-.05	-.56	1.25
	TEAT LENGTH				

FFA DAIRY CATTLE CDE

Official reasons for placing sire selection classes:

Problem # 1: In the scenario, it is determined that the main concern of the breeder is production, both milk and protein, from functionally sound cattle.

The cow to be mated is slightly below the herd's lactation average for both milk and protein yield. According to her linear information she is high in the pins and has considerable set to the hock with a low foot angle. She is also somewhat lacking in rear udder height and width and too deep in the udder with somewhat widely set, short teats.

Considering the available bulls, #4 has the highest level for protein yield and PTA-MFP\$. The other bulls are very similar to each other for MFP\$ and protein yield. # 3 is slightly ahead of the other two bulls for MFP\$ which gives one an idea of the economically weighted value of the yields of milk, fat and protein.

Bull # 4 has type components which complement the weaknesses of the cow. The foot angle is steep, the rear udder components are very significantly high and the teat pattern is corrective for this cow. Though not significantly so, the rear leg pattern is in the correct direction as is udder depth.

In comparing the other 3 bulls, # 1 and # 3 are corrective for the rump angle, rear legs and rear udder components. # 3 is corrective for the teat placement but has daughters with deeper than average udders. However, the correction of this trait by bull # 1 is only a tendency as the values are near zero for both udder depth and teat placement. This would indicate "no change" or "breed average". Bull # 2 is not as corrective for the rear udder traits, pelvic angle or rear legs. His daughters also have a tendency to be wide in teat placement.

Considering these several points, the best placing for the bulls is 4-3-1-2. Due to the different traits for each bull, the cuts are 5-2-3.

Problem # 2: In the scenario, it is indicated that the dairyman is mostly concerned with protein yield due to his milk market. His concern for functionally sound type is reinforced with the additional income potential from sale of show stock.

The cow to be mated is above herd average for all yield traits. According to her linear traits, the cow is somewhat loose in the fore udder attachment, low and narrow in the rear attachment, but structurally sound and having a strong median support.

The differences in protein yields of these four bulls (79 to 93#) are not significant, particularly given the lower reliability of three of them. Bull # 2 has the highest protein yield and complements the weak points of the linear scores very well. However, he is a relatively “young” sire with a less reliable proof. Sire # 1 has a highly reliable proof, is only slightly lower in protein yield and meets the deficiencies in the linear scores without great sacrifice in the other linear traits. He is a slightly better choice for the mating.

Bull # 3 and # 4 are also younger bulls but of higher reliability than # 2. While # 3 has rear udder traits that will be corrective, the fore udder PTA is not helpful. Sire # 4 does have the second highest protein level but the udder components (except for RU height) are not as well suited for this mating as the other bulls.