

7 CHAPTER

NATIONAL FFA

DAIRY CATTLE EVALUATION

CAREER DEVELOPMENT EVENT

A Special Project of the National FFA Foundation

IMPORTANT NOTE

Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.

I. PURPOSE

To provide a competitive event for agricultural education students, emphasizing skills in dairy cattle evaluation, selection and dairy herd management.

II. OBJECTIVES

1. To provide agricultural students with interest in dairy cattle a practical experience which will serve them well in industry positions or in management of a modern dairy herd.
2. To develop students' skills in observation, analysis, communication and team collaboration.
3. To provide experience in the evaluation of dairy cattle type, production records and dairy herd management.

4. To encourage agriculture instructors to seek assistance from various resources in the dairy industry. (Example: dairy breed associations, artificial breeding associations, state extension dairy specialists, state DHI Associations, dairy equipment manufacturers, local dairy farmers and breeders, etc.)

III. EVENT RULES

1. Participants will report to the event superintendent for instructions at the time and place shown in the current year's team orientation packet.
2. The most current and updated information, (DHI, Linear, Body Scoring, etc.) will be used as industry standards change.
3. Computer score sheets will be used in the event to record all responses. These forms

must be completed within the time allotted for each section of the event. No additional time will be permitted to transfer responses to computer scoring sheets. Responses that are not correctly recorded on the computer score sheets cannot be considered due to the large number of participants' responses that must be processed.

IV. EVENT FORMAT

A. EQUIPMENT

Materials student must provide—Each participant must have a clean, free of notes clipboard, two sharpened No. 2 pencils and an electronic calculator. Calculators used in this event should be battery operated, non-programmable and silent with large keys and displays. Calculators should have only these functions— addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. No other calculators are allowed to be used during the event.

B. TEAM ACTIVITY

1. Herd Record Evaluation

- a. Members of a team will collaborate to analyze individual cow production records (DHI) from a 50-75-cow herd. Individual cows are to be selected according to their appropriate status for culling, breeding or other management decision categories. Answers will be recorded on the team's answer form provided. (See sample herd production form and questions at end of Dairy Cattle CDE information.)
- b. Each cow will have an assigned point value, which will accumulate points toward team score only. Individual scores and rankings will not be affected.

- c. The Herd Record Evaluation exercise is worth a maximum of 150 points. Members will have 30 minutes to complete this exercise.

C. INDIVIDUAL ACTIVITIES

1. Dairy Management Exercise (150 points)

- a. The exercise will consist of a 50-question written test involving dairy management practices and DHI records. Students will analyze individual cow production records and/or herd management summaries answering 15 questions concerning their use in making management decisions. The remaining 35 questions will be concerned with various dairy management and industry related topics.
- b. Appropriate information necessary to answer the DHI questions will be provided.
- c. Participants will have 30 minutes to complete the exercise.

2. Pedigree Class (50 points)

- a. One class of pedigrees (no animals present) will be ranked as to their indication of the animals' ability to transmit superior production and type traits to offspring.
- b. Other factors include completeness (number of daughters or records), accuracy (reliability), level of performance (type and production) and profitability.
- c. See the examples in this handbook. These pedigrees were placed 2-1-3-4 with cuts of 4-3-7.

3. Sire Selection Exercise (100 points)

- a. The sire selection exercise requires members to utilize linear descriptive traits for two cows and sire summary information to make corrective mating. Participants will rank four potential mates for each cow.
- b. Linear evaluation and production information on the cows will be provided along with the transmitting ability estimates of the sires.
- c. A maximum of 100 points can be earned in this section.
- d. A minimum of 15 minutes will be allowed for this exercise.

4. Linear Evaluation (150 points)

- a. Five Holstein cows will be evaluated using the 15 major traits recognized in the Holstein-Association Linear Descriptive Traits Worksheet.
- b. Cows will be numbered by their scorecard designation 10 to 14.
- c. Participants will be allowed a close-up view of each cow as she is paraded near them. Evaluations will be completed at a distance of approximately ten feet from each cow. Participants will not be permitted to handle the cows.
- d. Participants will be allowed 35 minutes for the linear evaluation.
- e. Correct evaluation of the 15 traits of each cow is worth 30 points.
 - (1) Two points will be awarded for each trait scored within four points of the official judges' score. One point will be awarded for each trait scored within five to six points of the official judges' score.
 - (2) Example: If the cow's trait is rated 25 by the official judges, points

would be awarded to participants as follows:

- 19-20:1 point
- 21-29:2 points
- 30-31:1 point

5. Evaluation and Selection (300 points)

- a. Six classes of four dairy animals will each be placed on type. Classes will be selected from the recognized breeds of dairy cattle. The class selection committee, however, shall give priority to selecting quality cattle in the breeds available and not be obligated to having all breeds represented in the judging classes. Classes will consist of heifers, young cows or mature cows.
- b. Participants will be permitted to view the animals from all angles but will not be permitted to handle them.
- c. Animals will be numbered 4-3-2-1 left-to-right as viewed from the rear. The handlers/cattle will wear numbers, which identify the animals.
- d. Each class is allowed 50 points for a correct placing.
- e. Participants will have 12 minutes to place each class. For classes on which oral reasons will be given, participants will be given 15 minutes.

6. Oral Reasons (150 points)

- a. Oral reasons will be required on three classes. These three classes will be designated by the event superintendent prior to the actual judging of the class.
- b. Oral reasons will be given in another location immediately following the judging classes.
- c. Participants may not use notes during delivery of reasons, with the exception

- of a card showing only their placing order.
- d. Each class is allowed 50 points for a perfect set of reasons.
 - e. Participants will have 12 minutes to prepare each set of oral reasons. No more than two minutes may be used to deliver the reasons before the judges.

V. SCORING

Individual	Maximum Points
Dairy Management exercise	150
Pedigree class	50
Sire selection	100
Linear evaluation	150
Judging	300
Oral reasons	150
Total possible score	900

Team	Maximum Points
Herd record evaluation	150
Top 3 of 4 members	2,700
Total possible score	2,850

VI. TIEBREAKERS

Category awards will include all activities related to each category, i.e., placing and oral reasons if given. If ties occur, the following events will be used in order to determine award recipients:

1. Total oral reasons score.
2. Dairy Management exercise score.
3. Total linear evaluation score.

VII. AWARDS

Awards will be presented at an awards ceremony. Awards are presented to teams as well as individuals based upon their rankings. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

The high-scoring participant in each of the following categories will receive a certificate recognizing their accomplishment:

- High Breed total (High individual of each breed- Holstein, Jersey, Guernsey, Brown Swiss, etc.) with associated oral reasons scores as applicable.
- High Pedigree placing.
- Total oral reasons score.
- Linear evaluations.
- Sire selection.
- Dairy Management exercise.
- Team—Herd record evaluation.

VIII. REFERENCES

This list of references is not intended to be inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Hoard's Dairyman

P.O. Box 801, Fort Atkinson, WI 53538-0801
(920-951-563-5551)

www.hoards.com

Annual Cow Judging Contest official entry form and booklet. Free

"Judging Guide," 1999 edition booklet, featuring Linear, analysis of scorecard, & 15 practice classes. \$7.

"Focus on Linear Scoring," 1998 reference guide to linear instruction.

CEV Multimedia, Inc.

P.O. Box 65265, Lubbock, TX 79464 1-800-922-9965

www.cev-inc.com

“Dairy Cattle Judging: Cows - Video Active” # 486 \$95.

“Dairy Cattle Judging: Heifers - Video Active” # 487 \$95

“Dairy Cattle Judging: Oral Reasons” # 489 \$95.

“Judging Dairy Cows” 1987 # 501 \$79

“Judging Dairy Heifers” 1987 # 502 \$69.

“Practice Dairy Cow Judging” 1989 # 506 \$ 49.

“Practice Dairy Heifer Judging” 1989 # 507 \$49.

“Linear Evaluation of Dairy Cattle” #510 \$89.

“Practice Dairy Cow Judging” 1993 I-#511; 1994 III-#514, #515; \$49. Ea.

“Practice Linear Evaluation I” 1994 # 516 \$59.

“Linear Classification: Scoring of Linear Traits” # 517 \$ 89.

“Practice Linear Evaluation II” 1995 #520 \$59.

NCR (North Central Regional)

Publications Distribution, Printing & Pub.
Bldg., Iowa State University,

Ames, IA 50011-3171 (515) 294-5247

pubdist@exnet.iastate.edu

“Learning about Dairy... a Resource Guide for the 4-H Dairy Project”

Extension Bulletin NCR 593

Instructional Materials Service (IMS)

Texas A&M Univ. 2588 TAMUS, College Station, TX 77843-2588 (979) 845-6652, or 6653.

www-ims@tamu.edu

“Dairy Cattle Judging Cows” Video # 9552 \$99.

“Dairy Cattle Judging Heifers” Video # 9553 \$99.

“Dairy Cattle Judging Fundamentals” Video # 9554A \$99.

“Dairy Cattle Judging Oral Reasons” Video # 9554B \$99.

Dennis Hartman

2709 Mt. Vernon Lane, Blacksburg, VA 24060
(540) 951-8047; “Techniques of Judging Dairy Cattle” 5th Edition, \$8.

Holstein Association

1 Holstein Place, Brattleboro, VT 05302-0808 (802) 254-4551

www.holstein.com; “Linear Classification Program,” \$2.00

“Pedigree Questions & Answers” and “Build Your Knowledge of Sire Summaries” for pdf files of the workbooks go to www.holsteinfoundation.org and then link to “programs” and then “workbooks” and scroll to “Pedigree Questions & Answers” and “Build Your Knowledge of Sire Summaries.”

Agri-Graphics

109 5th Ave., New Glarus, WI 53574 (608) 527-5663

“Judging Slides and Audio Tapes, 15 classes” \$80 per set; \$150 for both sets

Additional Website Resource List

American Dairy Science Association
www.adsa.org

National Association of Animal Breeders
www.naab-css.org

Dairy Herd Improvement
www.dhia.org

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Somatic Cell Count (1000's)	H Heat Date	Body Condition Score	Somatic Cell Score (linear)	Status Codes
P Pregnant			1 Cow Freshened	4 Enter Herd in Milk
O Open			2 Heifer Freshened	5 Aborted
			3 Enter Herd Dry	6 Dry
				7 Sold for Dairy
				8 Sold for Beef
				9 Died

“BEST ANSWERS” FOR
DAIRY CATTLE EVALUATION - HERD RECORD EVALUATION
(Collaborative Team Exercise)

After evaluating the individual cow records which are provided, select the best answers for the following questions. Cows may be listed in any order within an answer.

A. Select those cows which will be the next five to calve, assuming that breeding dates are accurate.

1. 377 2. 434 3. 443 4. 445 5. 450

B. Indicate the cows which are most likely to become candidates for culling due to their reproductive status.

6. 433 7. 452 8. 453 9. 688 10. 710

C. Indicate the cows most likely to be considered as donors in an embryo transfer program when their reproductive status is appropriate.

11. 708 12. 404 13. 405 also: 455, 460

D. Indicate those cows which are significantly overweight.

14. 374 15. 430 16. 434 also: 660

E. Indicate which cows are most significantly underweight.

17. 405 18. 467 19. 481 20. 713

F. Indicate which cows may become candidates for culling because their current production level is significantly low.

21. 349 22. 374 23. 527

G. Indicate those cows which are contributing the most to a high somatic cell count in the bulk tank.

24. 405 25. 739

DAIRY CATTLE EVALUATION - HERD RECORD EVALUATION

Rationale

Note: The answers provided would yield the maximum points for this activity. Other answers would yield lesser values or partial credit.

- A. This question asked specifically for the next 5 cows expected to calve. This is rather straight forward to solve since the “days bred” indicates the time since the last service, i.e. the gestation length to date. (If no breeding date has been reported or if the cow was declared “open”, this figure is “zero”.) Since the expected gestation length is 279 days for Holsteins, #337 and #443 are “overdue” as of the reported date (5-11-94) and those cows expected to calve within the next 45 days beyond that date are #434, #445 and #450. None other is due within over 90 days so no other cow (answer) will generate points. This question could also be answered directly from the reported breeding dates, but with greater difficulty as the Pregnant or Open status would also have to be checked.
- B. The answers to this question can also be found most easily in the “days bred” column IF there are “Open” cows with high “days in milk”. Cows with a high discrepancy between “days in milk” and “days bred” but currently “Pregnant” would be less likely to be culled as the days bred gets higher. They were “problem breeders” but are currently pregnant. Answers which would generate fewer points than those given above include #432, #505, #528, #536, #714 and #717. Cow #721 would not generate any points because she was reported “sold for beef” on 4-1 1, possibly because she was not pregnant.
- C. To answer this question, one should look to the genetic statistics (Predicted Transmitting Ability for Milk/Dollars) and possibly adjust for current Relative Value. Since this is additional information (more current) to the cow’s records included in the index, they may modify the PTA’s to some extent, especially for those cows with only one (or a partial) record available when the PTA’s were calculated nearly 6 months previous. Cow #708 ranks high in both PTA\$ and in current Relative Value. The highest PTA\$ cow, #402, is producing at 15% below herd average in her current lactation with a significant portion of the lactation completed. Other cows which may be candidates are #404, #405, #455 and #460. Fewer points would be earned with answers of #420, #437 or #481. #542 died so she could not be considered. Minor points could be earned for answers including #43 1, #443, #452, #526 and #717 whose indexes are relatively high but current production is mediocre or poor. #710 and #711 are doing well currently but each has a modest PTA\$.
- D. Overweight cows can be identified by the “Body Condition Scores” which are too high. Any lactating cow greater than 3.5 is considered overweight. Dry cows in this range are also considered overweight by most nutritionists, although some managers are not concerned unless the score exceeds 4. Cows (#374, #430, #434 and #660) earn maximum points with #377 at slightly fewer points because she is dry and overdue.
- E. Lactating cows which are scored below 1.5 are generally considered too thin. Cows scoring at 1.5 are also considered too thin, especially if they are past their early lactation period and should be in positive energy balance and gaining weight. Cows should score about 3.5 at calving time. Cows (#405, #467, #481 and #713) earned maximum points while cows (#404, #479, #529, #543, #698, #708 and #71 1) earned slightly lower values as answers (they were too thin but not as extreme as others.)
- F. Culling on current production should begin with those cows significantly below the current herd average, i.e. low Relative Value. It is generally agreed that cows about 75% Relative Value and lower should be scrutinized severely when making up a culling list. Cows (#349, #374, #527) earned maximum points, but meriting consideration were #450, #463, #526 and #536. A lesser case could be made for other cows ranked in the 80’s in Relative Value.
- G. Contributions to the Somatic Cell Count in the bulk tank result from a combination of production level and somatic cell count of the individual cow’s milk. Cow #405 is contributing the greatest level of somatic cells and is a high producing cow. Similarly high levels of SCC are found in #539 and #739. However, #739 is out producing #539 by about 50% (73.2 vs. 54.4 lbs.) so she is contributing a greater number of cells to the bulk tank.

SAMPLE
NATIONAL FFA DAIRY CATTLE EVENT
DAIRY MANAGEMENT EXERCISE

For questions 1 through 15, use the herd reports attached to the quiz.

1. Which herd currently has the lowest average genetic level for protein yield?
2. Which herd shows the greatest change in genetic milk producing ability from current sires to service sires?
3. In which herd will calves born over the next year have the highest estimated genetic merit for fat yield?
4. In which herd did the cows have the lowest average milk fat test for the last year?
5. Which herd has the highest percentage of cows with low somatic cells?
6. Which herd currently has the most successful breeding program in terms of getting cows pregnant again in the least time after calving?
7. Which herd shows the poorest mammary health within the oldest cows?
8. Which herd has had the least success in getting heifers to calve at an early age?
9. Which herd is projected to have the longest calving interval for the coming year?
10. Which herd produced the most energy-corrected milk per lactating cow in the month of September?
11. Which compartment of the dairy cow's stomach is known as the "manyplies"?
a) abomasum, b) reticulum, c) rumen, d) omasum, e) duodenum.
12. The hormone which "kills" the corpus luteum is called
a) Adrenalin, b) Estrogen, c) Oxytocin, d) Progesterone, e) Prostaglandin.
13. Which system of the cow's body is most affected by Johnes' disease?
a) Circulatory, b) Respiratory, c) Reproductive, d) Endocrine, e) Digestive.
14. Which system of the cow's body is most affected by BSE?
a) Nervous, b) Respiratory, c) Reproductive, d) Endocrine, e) Digestive.
15. What product is the result of rapid degradation of adipose tissue in the cow's body?
a) Amino acids, b) Ammonia, c) Fatty acids, d) Peptides, e) Ketones

SAMPLE FORM

(5 herd summaries provided to answer test questions)

Average ALL Cows	Lactation		Herd Number: A		Month of Test: Sep				
	1st	2nd	3rd	Total	365-day Herd Average				
Total Cow Months	91	80	121	292	205				
% Days in Milk	85	90	87	87	87				
Pounds Milk	63.9	72.3	70.7	69	26,301				
% Fat	3.3	3.29	3.41	3.34	3.49				
Pounds Fat	2.11	2.36	2.41	2.3	918				
% Protein	3.47	3.33	3.31	3.36	3.18				
Pounds Protein	2.22	2.4	2.34	2.32	836				
Pounds 3.5% FCM	61.8	69.6	69.6	67.2					
Ave. Milking Cows	Lactation		Genetic Information		(PTA)				
	1st	2nd	3rd	Total	Cow				
Cow Months	78	72	105	255	1st	2nd	3rd	Total	
Pounds Milk	75.1	80.7	80.9	79.1	Milk	356	276	28	191
Pounds Fat	2.48	2.64	2.76	2.64	Fat	22	3	-4	5
Pounds Protein	2.6	2.68	2.68	2.66	Prot.	17	11	4	10
Pounds 3.5% FCM	7		79.7	7					
Ext. 305 day Ave.	Lactation				Sire				
	1st	2nd	3rd	Total	1st	2nd	3rd	Total	
Pounds Milk	23511	26193	27077	25713	Milk	670	708	357	557
Pounds Fat	828	888	935	889	Fat	41	15	8	21
Pounds Protein	783	846	883	842	Prot.	30	21	16	22
ME Pounds Milk	29303	29134	27588	28554					
ME Pounds Fat	1026	985	952	984					
MEounds Protein	1019	981	921	968					
SCC Summary	Lactation				Service	Sire			
	1st	2nd	3rd	Total	1st	2nd	3rd	Total	
% Cows					Milk	1359	1227	1291	1297
Low 0-4	83	87	76	81	Fat	49	31	40	40
Med 5-6	12	13	21	16	Protein	42	40	40	41
High 7-9	5	0	3	3					
Reproductive Status	Lactation								
	1st	2nd	3rd	Total					
Days @ 1 st Brdg	90	88	98	92					
Svcs./Conception	2.31	2.41	1.71	2.11					
Days Open	171	149	150	156					
Last Calving Int.	---	15	13.9	14.3					
Next Calving Int.	15.2	14.5	14.7	14.8					
Age @ Last Calving	26.7	42.3	68.6	48.2					

NATIONAL FFA DAIRY CATTLE EVALUATION

Official reasons for placing pedigree class:

This class of pedigrees for high quality, Holstein heifers is placed 2-4-3-1 with cuts of 6-4-2.

In placing # 2 over # 4, the pedigree shows an advantage in the overall PTPI (average of the sire's TPI and the CTPI of the dam) for # 2. The TPI values for the dam and sire of #2 are significantly higher than those for # 4. These reflect the genetic values (PTA) for the various production and type traits for themselves, which are an accumulation of their ancestors, collateral relatives and their own performance.

In placing # 4 over # 3, when the overall PTPI's of the pedigrees are calculated they show favor for # 4. The sire's TPI value is higher with the PTAs being higher in nearly every category and the dam's transmitting values are higher in every category (except FLC) than those for the dam of # 3. The individual records for # 3's dam appear very impressive at first glance, due to her longevity and final type score at 6 years of age. However, most of the transmitting values are not as high as for the dam of #4.

In placing # 3 over # 1, the TPI values of the sires are similar but they are dissimilar in the specific genetic values which make up the calculated indexes; each set gains strength from opposite areas (type versus production.) The PTA values for most yield traits are superior for # 1, while the type traits are higher for # 3. The genetic values for the dam of # 1 are not listed in the pedigree but the PTPI for the heifer (pedigree) is given. The calculated value of the PTPI for # 3 (sire's value +1121 plus dam's +937 divided by 2) indicates a value of +1029 which exceeds the stated value for #1 by 65.

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Pedigree #1

PTA +1486M +31F +40PTPI +964
PTA +.04T +.02UDC -.02FLC 8/99

SIRE
EX-90-5Y "CM"

PTA +2264M +38F +55P TPI +1141
PTA +211\$MFP -.20%F -.07%P
PTA +147NM -0.0PL +3.21SCS
PTA +.65T +.24UDC -.49FLC 8/99

DAM
EX-90-8Y VEEVE

AGE	X	DAY	MILK	%	FAT	%	PRT
DHR 3-04	2	365	29620	3.7	1084	3.1	933
DHR 6-07	2	357	29130	4.0	1151	3.2	930
DHR 4-06	2	350	6020	3.8	995	3.2	838
DHR 5-07	2	328	23140	3.9	907	3.4	779
*** 8-09	2	293	24940	3.7	920	3.3	814
*** 7-09	2	305	24010	3.8	919	3.1	747
LIFE:	2368179,440	3.8	6,867	3.25,766			

PATERNAL GRANDSIRE
EX-93-Y"CM"

PTA +858M +21F +29P TPI +1052
PTA +1.85T +1.30UDC +.76FLC 8/99

PATERNAL GRANDDAM
VG-86+3Y VVVWDOM

AGE	X	DAY	MILK	%	FAT	%	PRT
DHR 2-02	2	365	21748	3.6	787	3.2	693

MATERNAL GRANDSIRE
EX-92-10Y"CM"

PTA +959M +49F +33P TPI +969
PTA +.13T +.03UDC +.62FLC 8/99

MATERNAL GRANDDAM
GP-84-5Y+E++

AGE	X	DAY	MILK	%	FAT	%	PRT
DHR 6-00	2	329	27480	2.9	790	3.0	811
DHR 5-00	2	304	25550	3.1	797	2.9	731
DHR 4-00	2	282	23430	3.0	713	2.9	682
DHR 3-01	2	302	20450	3.1	634	2.9	603
DHR 2-00	2	315	17860	3.3	591	2.9	516
LIFE	15322114,770	3.1	3,525	2.93,343			

Pedigree #2

PATERNAL GRANDSIRE
EX-933-7Y "GM"

PTA +858M +21F +29P TPI +1052
PTA +1.85T +1.30UDC +.76FLC 8/99

PATERNAL GRANDDAM
VG-88-4Y+EEE DOM

AGE	X	DAY	MILK	%	FAT	%	PRT
DHR 3-07	2	365	31400	3.4	1080	3.0	941

DHR 2-04 2 365 29530 3.4 1018 2.9 64
LIFE: 1639109,130 3.5 3,794 3.03,235

MATERNAL GRANDSIRE
EX-96-13Y"GM"

PTA +1180M +19F +43P TPI +1100
PTA +1.09T +1.07UDC +1.02FLC 8/99

MATERNAL GRANDDAM
CP-82-4Y+E++G

AGE	X	DAY	MILK	%	FAT	%	PRT
DHR 3-00	3	295	26900	3.5	934	3.3	883
DHR 4-00	3	316	26410	3.6	945	3.2	838
DHR 2-00	3	313	22120	3.6	793	3.3	730
PTA +1043M +44F CTPI +1077							

NATIONAL FFA DAIRY CATTLE EVENT

SIRE SELECTION PROBLEM No. 1

Situation: Semen from these four bulls has been purchased. The bulls were selected to improve the next generation of this herd. RANK the four bulls as they best meet the following objectives in mating with the cow described below. This herd owner has a purebred Holstein herd of 250 cows which is operated as a commercial herd. The lactation herd average is currently 25,650M, 1,022F and 798P. Milk is marketed in an area that pays a bonus for protein yield. Type considerations revolve around sound udders and correct feet and legs.

COW TO BE MATED			BULLS TO CONSIDER			
CURRENT RECORD	TRAITS		1	2	3	4
(2yr 2+A51mo ME)						
RPT			71	77	81	81
27960	MILK		3267	2645	3055	3109
4.42	FAT %		-0.34	-0.19	-0.04	-0.19
1237	FAT		39	52	102	69
	MFP\$		328	292	340	368
3.11	PROT %		-0.02	0	-0.06	0.04
870	PROT		98	84	82	108
	cm		235	218	252	275
	TPI		1618	1561	1626	1794
LINEAR SCORE						
27	STATURE		0.83T	0.66T	1.74T	1.53T
18	STRENGTH		0.615	0.01 F	0.145	1.535
1.9	BODY DEPTH		0.7	0.16	0.58	1.44
26	DAIRY FORM		2.08	1.57	3.18	2.81
22	RUMP ANGLE		0.055	0.28H	1.325	1.1 8H
1.2	RUMP WIDTH		1.26W	0.15N	0.50W	1.93W
20	LEGS-SIDE VIEW		0.695	0.08C	1.025	0.42C
35	FOOT ANGLE		2.575	1.895	1.385	1.545
20	FORE ATTACHMT		0.23L	1.355	0.955	0.235
18	REAR UDDER HT		0.82H	1.1 9H	2.34H	1.65H
22	REAR UDDER WD		1.29W	1.32W	2.57W	2.86W
26	UDDER CLEFT		0.605	2.665	0.575	2.905
26	UDDER DEPTH		0.71	1.185	0.145	1.08
25	T AT PLACEMENT		0.22C	2.28C	0.05W	1.23C
25	TEATLENGTH		0.89L	0.10L	0.51 L	0.09L

STATURE (T-TALL,S-SHORT)- STRENGTH(S-STRONG,F-FRIL) BODY DEPTH (D-DEEP,S-SHALLOW)
 DAIRY FORM(O-OPEN, T-TIGHT RIB)-, RUMP ANGLE (H-HIGH, L-LOW PINS)-, THURL WIDTH
 (W-WIDE,N-NARROW):REAR LEGS (C-CURVED,S-STRAIGHT)-I FOOT ANGLE (S-STEEP, L-LOW)-I
 FORE ATTACHMENT(S-STRONG,L-LOOSE)-,REAR UDDER HEIGHT(H-HIGH,L-LOW)-,
 REAR UDDER WIDTH(W-WIDE,N-NARROW);UDDER CLEFT(S-STRONG,W-WEAK);UDDER DEPTH
 (D-DEEP, S-SHALLOW); F TEAT PLACEMENT (W-WIDE, C-CLOSE)-I TEAT LENGTH (L-LONG, S-SHORT)

NATIONAL FFA DAIRY CATTLE EVENT**SIRE SELECTION PROBLEM No. 2**

Situation: Semen from these four bulls has been purchased. The bulls were selected to improve the next generation of this herd. RANK the four bulls as they best meet the following objectives in mating with the cow described below. This herd owner has a purebred Jersey herd of 394 cows in which production and type traits are emphasized equally because many offspring are sold through consignment sales. Milk is marketed for cheese production. The main type traits emphasized are udder support and attachments plus correct structure (including stature). Current rolling herd average is 18195M, 85OF and 690P.

COW TO BE MATED		BULLS TO CONSIDER			
CURRENT RECORD	TRAITS	1	2	3	4
(2yr 10mo ME)	RPT	87	86	84	95
20560	MILK	2064	2070	1688	2068
4.5	FAT %	-0.14	-0.3	0.5	-0.14
934	FAT	75	49	87	75
	PROT\$	264	263	250	242
3.8	PROT %	-0.05	0.01	0	-0.12
781	PROT	70	80	64	59
	CY\$	279	290	270	243
	PTI	315	346	324	311
LINEAR SCORE					
38	STATURE	-1.3	1.7	4.6	3.1
32	STRENGTH	-0.3	1.7	2.8	2.1
33	BODY DEPTH	0.5	2.3	3	2.6
20	DAIRY FORM	3	4	4.7	5
25	RUMP ANGLE	H2.6	LO. 1	L3.4	L2.6
26	THURL WIDTH	0.3	1.7	2.2	1.9
29	REAR LEGS	52.1	PO.4	50.1	50.5
2.1	FOOT ANGLE	L1.0	51.2	50.4	50.7
45	FORE UDDER	-0.2	1.7	0.1	0.7
38	REAR UDDER HT	1.6	3.3	2.9	2.9
36	REAR UDDER WD	1.8	3.5	3.7	3.8
33	UDDER CLEFT	0.3	0.4	1.3	2.1
38	UDDER DEPTH	2.2	1.2	1.5	1.4
14	TEAT PLACEMENT	CO.9	CI.9	C1.1	C2.5
26	TEAT LENGTH	LO. 8	L2.5	S0.2	S0.5

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

NATIONAL FFA DAIRY CATTLE EVALUATION

Sire Selections Rational

Official reasons for placing *sire selection* classes:

PROBLEM # 1:

From the scenario, it is determined that the breeder is concerned particularly with protein yield, but type traits become important from a soundness standpoint. They emphasize udders and correct feet and legs.

The cow to be mated is above the herd's rolling herd averages for fat, milk and protein yield. According to her linear information she is average in stature, tends to be narrow and weak in frame and is fairly shallow bodied. Her rump is narrow and her legs tend to be straight, but her foot angle is somewhat above average. Her fore udder attachment is somewhat loose and the rear udder attachment is not very high or wide with cleft and depth that are about average.

Considering the available bulls, # 4 has the highest PTA-P, followed by # 1, with # 2 and 3 being quite similar. All but # 2 are improvers in the fore udder, to a varying degree, and all four are improvers in rear udder attachments. # 4 and # 2 also sire daughters that have strong clefts. # 4 is likely to sire stronger and deeper cattle, # 3 and # 1 are somewhat so, but # 2 is nearly average (no change) in both categories. Additionally # 4 and # 1 will improve rump width while # 3 is less likely but # 2 is negative in this category.

Bull # 4 is the strongest in type components for this mating which adds to the strength of his being the best choice for the sire to be used. # 1 has some lesser type advantages but still remains the second best choice because of his production levels. The type advantages for # 3 are enough to place him over # 2 in the final ranking, but not enough to move ahead of # 1. In placing last, bull # 2 has less advantage in rear udder values and is particularly low in secondary areas of strength and depth, moving him into a close last place.

For these reasons, the best placing for this class of sires is 4-1-3-2, with cuts of 6-3-2.

PROBLEM # 2:

In the scenario, it is indicated that the dairyman is equally concerned with production and type. His milk market pays on cheese yield and his type market calls for udder support and attachments and correct overall structure (stature, feet and legs.)

The cow to be mated is above average for milk, fat and protein yields. According to her linear traits, the cow is fairly tall showing above average strength and depth. She is below average in dairy form with a level rump. Her legs are somewhat set and the foot angle is below average. Her fore udder is very strong and the rear udder attachment is quite high and wide with a good cleft, keeping the udder well above the hocks. Her teat placement is wide.

The Cheese Yield-\$ values for these four bulls are all fairly high, ranking 2-1-3 and 4 a bit behind the others. The type components for the bulls show that daughters of # 2, 3 and 4 all have exhibit above average stature, strength and depth of body, while # 1 does not. All bulls have strong numbers in dairy form. In leg set, bull # 1 shows strong tendency towards being sickled while the other three are near breed average. Foot angle is low for bull # 1, but the others are all steep in varying degrees. With equal emphasis on production and type, this moves # 3 over # 1. All of the differences in udder traits for these bulls become non-significant when viewing the high numbers for the cow.

Considering these points, the official placing for these sires is 2-3-1-4 with cuts of 5-2-6.

CONTESTANT NUMBER:					NAME:										
Cow	FORM				RUMP		LEGS & FEET		UDDER					TEATS	
	Stature	Strength	Body Depth	Dairy Form	Rump Angle	Thurl Width	Rear Legs Side View	Foot Angle	Fore Udder Attachment	Rear Udder Height	Rear Udder Width	Udder Depth	Udder Cleft	Front Teat Placement	Teat Length

DESCRIPTION OF TRAITS AND MEASUREMENT SCALE

FORM	RUMP	UDDER	
Stature	Rump Angle	Fore Udder Attachment	Udder Depth
50	50	50	50
45 - Extremely tall (59")	45 - Extremely sloped from hooks to pins (4.5")	45 - Extremely snug & strong attachment	45 - Extreme height of udder floor above hooks and shallow udder floor (6")
40	40	40	40
35 - Tall	35 - Moderate slope	35 - Very strong attachment	40
30	30	30	35 - Udder floor well above hooks
25 - Intermediate (55")	25 - Slight slope, hooks to pins (1.5")	25 - Intermediate strength attachment	30
20	20	20	25 - Udder floor above hooks (2")
15 - Short	15 - Pins slightly higher than hooks	15 - Loose attachment	20
10	10	10	15 - Udder floor at point of hooks
5 - Extremely short (51")	5 - Pins clearly higher than hooks (1.5")	5 - Extremely loose attachment	10
Strength	Rump Width	Rear Udder Height	5 - Very deep, udder well below hooks (2")
50	50	50	TEATS
45 - Extremely strong and wide	45 - Extremely wide pins (6.5")	45 - Extremely high (7.7" from vulva)	Front Teat Placement
40	40	40	50
35 - Very strong	35 - Wide pins	35 - Very high	45 - Extremely close, base of teats on inside of quarter
30	30	30	40
25 - Intermediate strength & width	25 - Intermediate width of pins (4.5")	25 - Intermediate height (10.5")	35 - Placement on inside of quarter
20	20	20	30
15 - Narrow and frail	15 - Slightly narrow pins	15 - Low	25 - Centrally placed on quarter
10	10	10	20
5 - Extremely narrow and frail	5 - Extremely narrow pins (2.5")	5 - Extremely low (13.3")	15 - Placement toward outside of quarter
Body Depth	LEGS & FEET	Rear Udder Width	10
50	Rear Legs, Side View	50	5 - Extremely wide, placement is on outside of quarter
45 - Extremely deep body	45 - Extremely sickle in hock	45 - Extremely wide (7.5")	Teat Length
40	40	40	50
35 - Deep body	35 - Slightly sickle hooked	35 - Very wide	45 - Extremely long (3.25")
30	30	30	40
25 - Intermediate in body depth	25 - Intermediate set in hock	25 - Intermediate width (5.5")	35 - Long
20	20	20	30
15 - Shallow body	15 - Nearly straight in hock	15 - Narrow	25 - Intermediate (2.25")
10	10	10	20
5 - Extremely shallow body	5 - Posty and straight legged	5 - Extremely narrow (3.5")	15 - Short
Dairy Form	Foot Angle	Udder Cleft	10
50	50	50	5 - Extremely short (1.25")
45 - Extremely open	45 - Extremely steep foot angle	45 - Extremely strong (2.5")	
40	40	40	
35 - Open	35 - Steep angle	35 - Strong	
30	30	30	
25 - Intermediate	25 - Intermediate angle (45°)	25 - Intermediate (1.25")	
20	20	20	
15 - Tight	15 - Low angle	15 - Weak	
10	10	10	
5 - Extremely tight	5 - Extremely low angle	5 - Extremely weak (flat)	