

# NORTH CAROLINA FFA DAIRY CATTLE EVENT

## 07 November 2002

### SIRE SELECTION PROBLEM No. 1

Situation: Semen from these four bulls (A, B, C, D) 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 grade Holstein herd of 375 cows which is managed as a commercial herd with mostly year-round calving. The lactation herd average is currently 23,200 Lbs. Milk, 788 Lbs Fat and 696 Lbs Protein. Milk was previously marketed in an area that paid primarily for milk yield with small positive adjustments for milk fat percentage. However, the cooperative is now paying larger incentives for fat and protein. Type considerations revolve around sound udders and correct feet and legs. The herd owner has been greatly concerned about low herd fertility and would like to increase the productive life in the herd. He also prefers more moderate sized cows. Because the herd is a grade herd, the cows do not have linear scores available but the herd owner has noted that the particular cow to be mated is of average height, has a low rear udder attachment, long teats, and is slightly sickle-hocked.

COW TO BE MATED		BULLS		TO CONSIDER	
CURRENT RECORD		A	B	C	D
(2yr 2 mo ME)	<b>TRAITS</b>				
	RPT	88%	81%	85%	90%
25,380	MILK	1508	1384	2012	1463
3.25%	FAT %	.03	.02	-.05	.04
825	FAT	63	56	60	62
	Fluid Merit \$	\$471	\$291	\$514	\$461
2.90%	PROTEIN %	.05	.02	.02	.05
736	PROTEIN	58	47	64	56
	Productive Life	1.7	-1.2	1.4	1.9
	TPI	1678	1365	1643	1594
Standard Transmitting Ability for Sires					
	Stature	0.45 T	0.78 T	1.13 T	1.45 S
	Strength	0.18 S	0.51 S	0.71 F	1.58 F
	Body Depth	0.25 D	0.63 D	0.26 S	1.29 S
	Dairy Form	2.22 O	0.59 O	3.63 O	2.58 O
	Rump Angle	0.72 H	1.74 S	0.66 H	1.22 S
	Thurl Width	1.92 W	0.06 N	0.03 W	1.72 N
	Rear Legs (side)	0.09 S	2.17 S	1.96 C	2.61 S
	Foot Angle	1.36 S	2.68 S	1.11 L	2.48 S
	Fore Udder Attachment	1.15 S	0.70 S	1.48 S	0.46 S
	Rear Udder Height	0.93 H	1.75 H	2.85 H	2.20 H
	Rear Udder Width	1.67 W	1.27 W	2.47 W	1.99 W
	Udder Cleft	3.34 S	0.99 S	0.90 S	1.85 S
	Udder Depth	0.55 S	0.87 S	1.34 S	1.03 D
	Teat Placement	3.08 C	0.43 W	1.74 C	1.38 C
	Teat Length	0.37 S	0.18 S	0.99 S	0.72 L

Stature (T= Tall, S=Short); Strength (S= Strong, F= Frail); Body Depth (D= Deep, S= Shallow); Dairy Form (O= Open Ribbed, T= Tight Ribbed); Rump Angle (H= High, S= Sloped); Thurl Width (W= Wide, N= Narrow); Rear Legs (side- C= Curved, S= Straight); Foot Angle (S= Steep, L= Low); Fore Udder 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); Teat Placement (C= Close, W= Wide); Teat Length (L= Long, S= Short).

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SIRE SELECTION PROBLEM No. 2

Situation: Semen from these four bulls (A, B, C, D) 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 138 cows in which production for milk is emphasized but because breeding stock are marketed into areas where cheese is produced both milk components and type traits such as legs and udders receive some consideration. "The lactation herd average is currently 18,625M, 801F and 752P. Milk is marketed in an area that pays primarily for milk yield with small positive adjustments for increased milk fat percentage. In checking the pedigrees, it was found that bull A and bull B had the same maternal grandsire.

COW TO BE MATED		BULLS TO CONSIDER			
CURRENT RECORD		A	B	C	D
(4yr 2 Mo ME)	<b>TRAITS</b>				
	RPT	80%	87%	79%	89%
21,465	MILK	1450	1564	1408	1555
4.3%	FAT %	-.17	-.03	.05	-.01
945	FAT	31	58	59	65
	Net Merit	404	424	384	430
3.7%	PROT %	-.07	.03	.04	.04
794	PROT	41	66	52	69
	Productive Life	-1.0	1.2	-0.5	1.9
	PTI	235	270	252	278

LINEAR SCORE FOR COW

30	Stature	0.0	0.0	-0.4	0.4
25	Strength	0.2	0.4	0.2	0.6
30	Body Depth	1.5	0.3	0.5	0.9
24	Dairy Form	1.5	1.4	1.5	2.4
45	Rump Angle	S 1.4	H 1.0	S 1.1	H 1.1
24	Thurl Width	0.5	0.6	0.3	0.8
40	Rear Legs (side)	P 0.2	P 0.1	S 0.4	P 0.6
10	Foot Angle	L 1.8	S 0.5	L 0.3	S 0.4
08	Fore Udder Attachment	0.1	1.7	0.4	1.4
28	Rear Udder Height	1.4	1.4	0.4	1.1
32	Rear Udder Width	1.7	1.9	0.7	1.6
45	Udder Cleft	0.2	0.4	-0.5	1.1
25	Udder Depth	D 0.6	S 0.3	D 0.4	S 0.2
25	Teat Placement	C 0.2	C 2.0	C 0.6	C 1.7
23	Teat Length	L 0.3	L 0.7	S 0.4	L 0.2

Rump Angle (H= High, S= Sloped); Rear Legs (side- S= Sickle-Hocked, P= Posty); Foot Angle (S= Steep, L= Low); Udder Depth (D= Deep, S= Shallow); Teat Placement (C= Close, W= Wide); Teat Length (L= Long, S= Short).

SIRE SELECTION PROBLEM No. 1

The Holstein cow to be mated in problem 1 is a young cow that is generally sound physically but could have shorter teats, a higher rear udder, and straighter legs. However, improving such type traits in the next generation should be considered as secondary rather than primary selection factors. The sires for this cow are placed C-A-D-B with cuts of 6, 1, and 7. C was highest in predicted transmitting ability (PTA) for milk among all sires, the particular advantage by 504 pounds over A. D was also positive for productive life, albeit slightly lower than A and B. Although milk protein and fat percentages were lower for C than A, expected yields of fat and similar or greater than the other bulls available. D should also have a moderating effect on teat length and would increase rear udder height but I would grant that A would improve the legs more than C. A was placed over D in a very close placing as A had higher milk yield, fluid merit \$, TPI, and more desirable teat length whereas D had slightly longer productive life, was shorter in stature, and had the potential to improve leg structure, rear udder height. D was placed over B in the easiest placing of the class with advantages in milk, milk components, productive life, TPI, and fluid merit \$. Although sire B could improve some of the type traits, the lower yield potential and negative value on productive life would limit his use in this commercial herd.

SIRE SELECTION PROBLEM No. 2

The Jersey cow to be mated in problem 2 has an extremely sloped rump, a very low foot angle, and a loose fore udder attachment. Other than those traits, she is adequate to above average and she is a productive cow starting her fourth lactation. The fact that Bulls A and B are related is not relevant as no relationship to the cow is indicated. The sires for mating this cow are placed D-B-C-A with cuts of 3, 9, and 2. D is similar to B in milk and in potential to improve type traits but has higher fat and protein and a higher estimated productive life than B. In a rather easy placing, B ranks above C because of large advantages in milk, productive life, and complementary type traits (rump angle, foot angle, and fore udder attachment). Although fat and protein percentages do favor C, the other traits favoring B far outweigh those differences. C and A represent a much closer placing but C has an advantage in being less negative for productive life and has higher fat and protein percentages and yields whereas A is slightly higher in milk yield. Neither bull C or A would effectively improve the weak type traits of the cow to be mated. The A bull is very negative on productive life, has the second lowest milk yield and lowest milk components among the 4 bulls and would be the poorest choice for this mating.