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Dairy Lines

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DAIRY RESEARCH & EXTENSION NEWS

http://www.oznet.ksu.edu/dp_ansi/dairylin.htm

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Upcoming Events

May 4, 1999—10am–3pm
H.O.A. DHIA PCDART
Training for Producers,
OSU Animal Science Arena
Contact: Bryan Stout 1-800-888-0841

May 13, 1999—10am–3pm
Southwest Dairy Field Day,
Alan Ritchey, Inc. Dairy,
Yuba, OK
Contact: Dan Waldner 405-744-6058

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An alternative A.I.-breeding program for summer

by Jeff Stevenson

The frustrations of getting cows pregnant during the hot, and sometimes muggy days of summer in most of the United States will soon be upon us. What is your Artificial Insemination-breeding plan for the summer? What success have you had in past summers? What factors are working for and against you to increase your success in summer breeding?

Heat stress effects . . .

The probability of getting cows pregnant after early June will be much less than they are right now. Poorer results usually continue until early October in a typical year. Keep in mind that anything you can do to reduce heat stress as measured by increased milk yield also will improve reproductive performance! During summer months when temperature and humidity rise, a number of factors negatively affect the comfort and fertility of your dairy cows.

Decreased feed intake. Why? Net energy of maintenance (NEm) increases by as much as 32% when outside temperatures increase from 68 to 104F°. Maintenance is that portion of the ration that supports the cow's ability to sustain her life without any extra nutrients left over for growth, reproduction, or milk production. Maintenance requirements increase because the cow must expend nutrients to help her get rid of excess body heat. The combination of decreased feed intake and increased maintenance results in less milk but also delays the onset of ovulation and normal estrous cycles after calving.

Reduced efficiency of heat detection. Heat detection becomes a greater challenge because cows are less prone to show heat. When they do show heat, its duration is less and the number of standing events usually decline. More cows have silent heats during summer.

Decreased pregnancy rates. More embryonic death occurs during the early stages of pregnancy. The early cleavage stages of the fertilized egg are particularly sensitive to high temperatures when it begins to divide into more cells. As a result, more embryos die and early pregnancy losses increase.

Decreased blood flow to reproductive and mammary glands. Blood flow priorities are changed to accommodate cooling of the cow. Because blood flow is reduced to the uterus, early pregnancies are at risk. Reduced blood flow to the mammary glands reduces nutrient availability for milk production.

Harm to dry cows. Birth weights are reduced when calves are born during or after periods of heat stress during late pregnancy. Uterine involution (repair of the uterus and reduction in its size) subsequently is delayed.

Remedies for heat stress. . .

Housing. Shade and sprinklers are a must to reduce the effects of temperature and humidity on cows. Cow comfort is increased when sprinklers are available in holding pens, above feed bunks, and in exit lanes from the parlor. Fans located in the holding pen and above feed bunks and free stalls also are recommended.

Nutrition. Feed more often and during the cooler parts of the day (67% of feed is consumed during the evening hours). If the feed bunk is not shaded, rations will dry out quickly in the summer sun. Moisture in the ration can be increased to 45 to 50% from a typical moisture content of 35 to 40%. Energy density can be increased by incorporating some fat into the diet. You also can decrease the heat of rumen fermentation by feeding your highest quality forage to reduce ADF (minimum of 19%) and

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Heart of America Dairy Herd Improvement Summary (April)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Your Herd
Ayrshire					
Rolling Herd Average	15,648	14,964	12,649	10,893	
Summit Milk Yield 1st	51.5	51.7	0.0	41.7	
Summit Milk Yield 2nd	32.0	64.0	0.0	47.0	
Summit Milk Yield 3rd	68.5	66.7	70.0	54.3	
Summit Milk Yield Avg.	60.5	61.3	70.0	50.3	
Income/Feed Cost	1,356	1,373	692	894	
SCC Average	417	324	224	268	
Days to 1st Service	70	74	0	116	
Days Open	124	121	230	187	
Projected Calving Interval	13.3	13.2	16.8	15.4	
Brown Swiss					
Rolling Herd Average	19,306	16,161	14,585	13,407	
Summit Milk Yield 1st	59.0	52.8	47.5	47.6	
Summit Milk Yield 2nd	63.2	67.2	58.2	58.7	
Summit Milk Yield 3rd	82.7	70.3	65.8	64.1	
Summit Milk Yield Avg.	73.2	64.5	57.7	57.1	
Income/Feed Cost	1,852	1,670	1,534	1,278	
SCC Average	336	327	256	322	
Days to 1st Service	81	69	67	87	
Days Open	158	185	138	199	
Projected Calving Interval	14.4	15.3	13.7	15.8	
Holstein					
Rolling Herd Average	22,306	19,458	17,460	14,201	
Summit Milk Yield 1st	71.1	63.6	58.7	49.0	
Summit Milk Yield 2nd	90.9	80.3	71.8	59.8	
Summit Milk Yield 3rd	96.1	85.7	77.6	65.9	
Summit Milk Yield Avg.	85.0	76.5	70.0	59.8	
Income/Feed Cost	2,151	1,830	1,606	1,225	
SCC Average	340	395	391	515	
Days to 1st Service	90	87	91.4	85	
Days Open	161	169	172	198	
Projected Calving Interval	14.5	14.8	14.9	15.7	
Jersey					
Rolling Herd Average	16,754	14,175	12,347	10,063	
Summit Milk Yield 1st	45.5	45.3	44.2	34.0	
Summit Milk Yield 2nd	61.7	56.5	47.7	37.3	
Summit Milk Yield 3rd	70.5	63.3	56.2	47.0	
Summit Milk Yield Avg.	62.7	55.4	50.9	41.5	
Income/Feed Cost	1,812	1,732	1,248	924	
SCC Average	332	284	337	476	
Days to 1st Service	70	91	66	75	
Days Open	146	129	158	146	
Projected Calving Interval	14.0	13.4	14.4	14.0	
Guernseys					
Rolling Herd Average	15,537	14,660	14,246	12,486	
Summit Milk Yield 1st	54.0	46.3	49.5	48.3	
Summit Milk Yield 2nd	64.5	77.0	63.0	56.3	
Summit Milk Yield 3rd	65.5	64.3	66.0	38.0	
Summit Milk Yield Avg.	60.0	62.3	59.5	54.0	
Income/Feed Cost	1,518	1,469	1,358	1,320	
SCC Average	195	180	334	408	
Days to 1st Service	74	106	117	54	
Days Open	159	181	251	215	
Projected Calving Interval	14.4	15.1	17.5	16.3	
Milking Shorthorn					
Rolling Herd Average	14,467	14,076	13,153	10,734	
Summit Milk Yield 1st	46.0	45.0	52.0	39.0	
Summit Milk Yield 2nd	51.0	55.0	64.0	42.5	
Summit Milk Yield 3rd	77.0	70.0	70.0	53.5	
Summit Milk Yield Avg.	63.0	59.0	63.0	45.0	
Income/Feed Cost	1,481	1,759	1,495	922	
SCC Average	149	291	153	306	
Days to 1st Service	0	86	0	57	
Days Open	166	124	286	139	
Projected Calving Interval	14.7	13.3	18.6	13.8	

NDF (minimum of 28%). Some of the minerals in the diet should be increased such as potassium (from 1.5 to 1.6%, sodium (from 0.45 to 0.6%), and magnesium (from 0.35 to 0.4%).

Provide plenty of water. Water should be available at several places in housing facilities to allow cows easy access in free stall barns, cross overs within the barn, and exit lanes from parlors.

One solution for summer A.I.-breeding program. . .

During the summer of 1998, we conducted an experiment to determine if a timed breeding program such as Ovsynch would increase pregnancy rates of cows at first service when the submission rate of cows for A.I.-breeding was not dependent on heat detection. This experiment was conducted on three dairy farms in north-central Kansas. Cows in the control group were treated with GnRH (100 µg of Fertagyl®) on Monday afternoon and prostaglandin PGF2a (25 mg of Lutalyse®) on the following Monday afternoon. Cows were then inseminated based on signs of estrus. The Ovsynch cows were treated as the controls except they were given a second injection of GnRH (100 µg of Fertagyl®) on Wednesday afternoon and inseminated on Thursday morning without regard to signs of estrus. All cows were between 50 and 70 days in milk when inseminated for the first time after calving.

The results are shown in the table below. Only 62% of the control cows were detected in heat during the target breeding week (7 days after Lutalyse). Conception rates (percentage of all cows inseminated that became pregnant) were not different. Because all cows in the Ovsynch group were inseminated, the pregnancy rates (percentage of all cows attempted to be bred that became pregnant) were significantly greater. These results emphasize that heat detection is limiting the number of cows that can conceive if inseminated at the proper time. Because heat expression of cows is poor during summer months, the use of a programmed-breeding system is recommended. We know that heat detection also is a limiting factor during more optimal breeding periods of the year and breeding protocols such as Ovsynch have merit for consideration in your breeding program during the entire year. Happy A.I.-ing!

A.I.-breeding after GnRH + Prostaglandin + Heat Detection (Control) vs. Ovsynch

Item	Control	Ovsynch
Cows attempted to A.I.	185	188
A.I submission rate, %	62	100
Conception rate, %	28.4	31.3
Pregnancy rate, %	17.5	31.3

Source: Cartmill et al. (1999) Proceedings of the annual meeting of American Dairy Science Association, Memphis, TN.

May 26, 1999—10am
Dairymen of Oklahoma Golf Tournament
Fire Lake GC, Shawnee, OK
Contact: Dan Kinnett 918-484-2393 or Jennifer Starkey 405-424-4519

June 3, 1999
4-H Dairy Quiz Bowl, OK 4-H State Roundup—OSU Campus
Contact: Dan Waldner 405-744-6058

June 29, 1999—9:00am
Grady Co. Dairy Cattle Judging Clinic & Milking Shorthorn Field Day—Grady Co. Fairgrounds, Chickasha, OK

July 1, 1999—9:00am
Brown Swiss/Jersey Field Day—Evans Ag. Center, Perkins, OK

July 6, 1999—9:00am
Holstein Field Day, JSJRW Holsteins—Lawton OK

July 8, 1999—9:00am
Ayrshire/Guernsey Field Day—Mayes Co. Fairgrounds, Pryor, OK

July 29–31
Sooner State Dairy Show—Payne Co. Fairgrounds, Stillwater, OK

Small Grain Silage

by Dan N. Waldner, OSU and John E. Shirley, KSU

Due to last summers drought, producers are finding themselves in a bind as silage supplies are quickly running low. Many are considering harvesting wheat for silage instead of grazing or producing grain. Depending on the stage of maturity at harvest, small grain (wheat) silage can have protein levels ranging from 10 to 16 percent and NEL values ranging from .60 to .72 Mcal/lb. Based on current corn and soybean meal prices, small grain silage may be worth $22 to $35 per ton, again depending on stage of maturity at harvest. Below are a few key points to remember concerning the proper harvesting, storing and feeding of small grain silages.

1. **Maturity and moisture:** As a general rule, small grains should be harvested for silage at the boot to soft dough stage. Depending on maturity of the forage and type of storage structure, the forage can be direct cut or should be wilted in the field. Moisture content of forage for bunker or trench silos should be 65 to 70 percent; for upright conventional, silos 60 or 70 percent. Moisture levels above 70 percent can cause excessive seepage and loss of nutrients and result in undesirable fermentation end products. Conversely, when forage moisture is too low, packing of the ensiled materials becomes difficult and air can be trapped within the silage resulting in excessive heating, loss of available protein and promotion of mold and yeast growth.
2. **Length of cut:** The recommended theoretical length of cut for small grain silages ranges from ¼ to ⅜ inch. Forage chopped too coarse packs poorly and traps oxygen that can result in excessive heating and mold and yeast growth. Generally, higher dry matter forage requires a shorter crop length because there is less moisture to exclude oxygen. However, forages chopped too fine can cause milkfat depression, decreased rumination time, increased incidence of displaced abomasum and rumen acidosis. To circumvent possible problems, a good rule of thumb when formulating rations is to ensure that the ration contains at least 5 pounds of fiber that is 1.5 inches long.
3. **Filling, packing, sealing and feeding:** Regardless of the type of storage structure used, filling, packing and sealing should be done as quickly as possible to achieve ideal anaerobic conditions and minimize dry matter loss. Bunker or trench silos should be covered with 6 mil plastic and tires or sandbags to seal the edges and hold down the plastic. Research has demonstrated a net return of 2:1 to 4:1 for covered silos.

   The ensiling process requires a minimum of 3 weeks and may take as long as several months. Material that has undergone complete fermentation will usually have a pH of 4.5 or lower, depending on the buffering capacity of the ensiled crop. Removal from the storage structure should occur at the rate of at least 3 to 4 inches per day to maintain freshness. Slower removal rates result in excessive spoilage and can result in reduced feed intake and associated off-feed problems.
4. Additives: Most silage additives are designed to aid fermentation by providing fermentation bacteria, enzymes or fermentable substrate. Although not a replacement for good management, they are useful tools to help ensure that the ensiling process proceeds normally. Additives can be classified into four categories and include bacterial inoculants, enzymes, carbohydrate sources, nonprotein nitrogen and acids. Although each additive has advantages and disadvantages, bacterial inoculants are the most widely used with research demonstrating a benefit to cost ratio of nearly 8:1. Regardless of the additive selected, it is imperative to achieve uniform distribution of the product to realize maximum benefit.
5. **Additional considerations:** While some changes in nutrient profile can occur during the ensiling process, samples for nutrient analysis can be retrieved during filling of the storage structure. While early analysis will allow for adjustments in feed inventory prior to feeding, it is a good idea to continually sample the silage during feed-out to ensure the ration has been properly balanced. This is especially important if excessive seepage or heating has occurred during the ensiling process. Additionally, sampling for dry matter determination should be performed on a weekly basis and adjustments to the ration made to accommodate for changes in dry matter content.

Small grain silage can be an excellent compliment to many forage programs. Producers interested in using small grain silage as a part of their forage program are encouraged to consult a nutritionist or contact their county extension office for more information and assistance.

Feed Stuffs Prices

	Location	Price ($/ton)
SBM 48%	Kansas City	132–136
Cotton Seed Meal	Kansas City	128–130
Whole Cottonseed	Memphis	153
Pork—Meat and Bone Meal	Texas Panhandle	132–135
Blood Meal	Central United States	300–310
Corn Hominy	Kansas City	74–78
Corn Gluten Feed	Kansas City	60–62
Corn Gluten Meal 60%	Kansas City	200
Distillers Dried Grain	Central Illinois	68–70
Wheat Middlings	Kansas City	37–41

Source: USDA Weekly Feed Stuffs Report, *Week ending April 28, 1999*

Hay Prices*—Kansas

	Location	Quality	Price ($/ton)
Alfalfa	Southwestern Kansas	Premium	75
Alfalfa	Southwestern Kansas	Good	65–75
Alfalfa	South Central Kansas	Premium	75–95
Alfalfa	South Central Kansas	Good	55–70
Alfalfa	Southeastern Kansas	Premium	85–100
Alfalfa	Southeastern Kansas	Good	75–85
Alfalfa	Northwestern Kansas	Premium	80–90
Alfalfa	Northwestern Kansas	Good	70–80
Alfalfa	North Central Kansas	Premium	85–95
Alfalfa	North Central Kansas	Good	70–80

Source: USDA Weekly Hay Report, *Week ending April 27, 1999*

*Premium Hay RFV = 170–200
Good Hay RFV = 150–170

Hay Prices—Oklahoma

	Location	Quality	Price ($/ton)
Alfalfa	Central/Western, OK	Premium	95–120
Alfalfa	Central/Western, OK	Good	85–100
Alfalfa	Panhandle, OK	Premium	95–110
Alfalfa	Panhandle, OK	Good	85–95

Source: Oklahoma Department of Agriculture, *April 1, 1999*

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For more information or questions, please contact 785.532.5654 (K-State) or 405.744.6058 (OSU).

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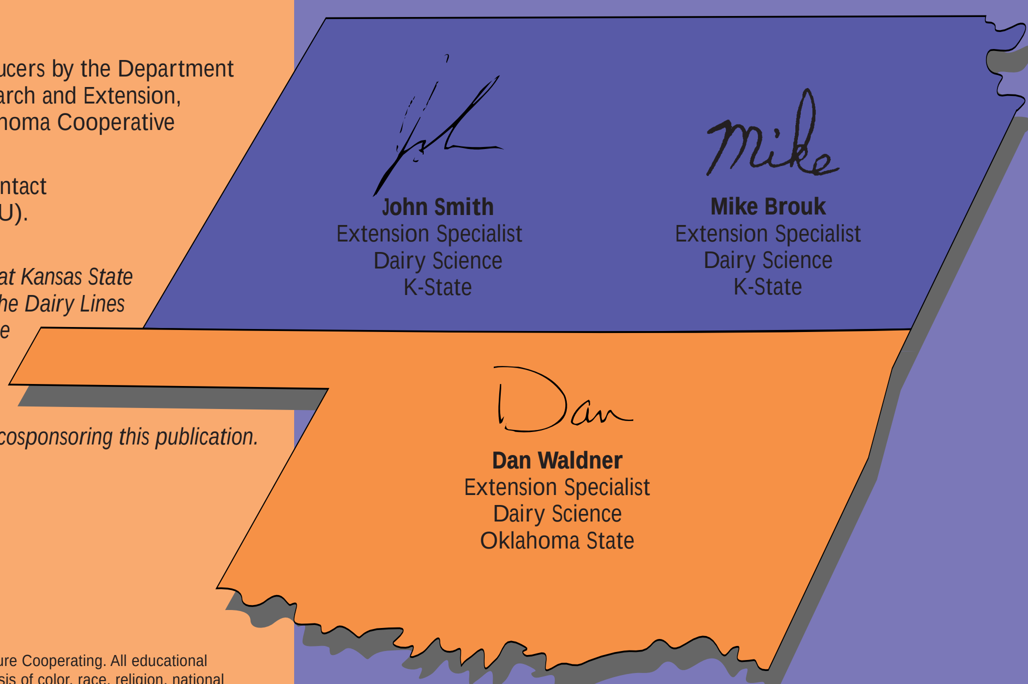

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