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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
Kansas

Area DHIA Meetings

January 26
Franklin County
K-State Research and Extension Office, Ottawa, Kansas

January 27
Valentino's, Seneca, Kansas

February 3
Holidome, Hays, Kansas

February 4
Amish Community Bldg., Whiteside, Kansas

Thaw Semen Correctly!

by Jeff Stevenson

Once your A.I. representative delivers semen to the dairy farm, you are responsible for correctly thawing straws to maximize sperm viability. When sperm are rudely awakened by dumping them into a warm 90 to 95°F water bath, about 60 to 80 percent of sperm (good quality semen) survive this mammoth >400°F rise in temperature. You might think that it is best to awaken these sleeping cells more slowly to increase their survivability. Not true . . . read on. In the old days, when semen was packaged in glass ampules, it was correct to thaw semen in ice water; but with the change in packaging of semen from glass ampules to the plastic straw, the thawing characteristics are markedly different. The physics and chemistry of thawing a cylindrical shape of frozen liquid containing living cells is best done very quickly to promote maximum survival of those cells.

In the figure on page 2, a study conducted by Clif Marshall of Select Sires is illustrated. French straws from six different bulls were thawed in warm water (99°F), ice water (41°F), or at two different air temperatures (41 or 72°F). Two post-thaw characteristics of the sperm were measured after a 3-hour incubation at 99°F: (1) percentage motility and (2) percentage of intact acrosome membranes. The acrosome (a membrane-bound sac of proteolytic enzymes) surrounds the sperm nucleus and eventually functions by assisting the sperm in penetrating the egg. Upon examination of frozen-thawed sperm under a microscope, one can determine their motility (movement) and whether the sperm have intact acrosome membranes. These tests assess whether or not the sperm are normal and capable of fertilizing an egg after insemination.

The Select Sires experimental results clearly demonstrate that thawing egg-yolk extended semen in warm water is the best thawing procedure to maximize sperm motility and promote intact sperm membranes. Both of these measures of sperm viability far exceeded those of sperm thawed any other way. The second part of the experiment was a cold-shock test. After thawing semen from the six bulls using the four previously described thawing procedures (air and water), the straws were exposed to four cold-shock treatments. After thawing, the straws of semen received no further treatment (control), were placed in ice water (41°F) for 1 or 3 minutes, or in a freezer (0°F) for 1 or 3 minutes. Following cold shock, sperm were then incubated for 3 hours and

continued on page 2

Heart of America Dairy Herd Improvement Summary (November)

	Quartiles				Your Herd
	1	2	3	4	
Ayrshire					
Rolling Herd Average	16,657	14,357	12,567	8,840	
Peak Milk Yield 1st	61.5	53.5	54.0	38.5	
Peak Milk Yield 2nd	79.5	67.0	63.5	50.0	
Peak Milk Yield 3rd	84.5	73.5	67.0	56.5	
Peak Milk Yield Avg.	76.0	65.0	62.0	48.5	
Income/Feed Cost	1,033	911.5	791.5	150	
SCC Average	261.5	415.5	321	637.5	
Days to 1st Service	74.0	95	100	130.5	
Days Open	123	145.5	146.5	148.5	
Projected Calving Interval	13.25	14.0	14.05	14.10	
Brown Swiss					
Rolling Herd Average	19,490	15,158	14,302	13,260	
Peak Milk Yield 1st	67.0	55.5	54.5	50.1	
Peak Milk Yield 2nd	86.3	71.1	63.5	62.2	
Peak Milk Yield 3rd	94.6	77.5	70.0	69.5	
Peak Milk Yield Avg.	82.3	69.1	63.5	61.2	
Income/Feed Cost	1,394	1,303	1,107	798	
SCC Average	340	255	444	225	
Days to 1st Service	78.5	70.8	76.6	85	
Days Open	138	175	138	163	
Projected Calving Interval	13.7	15.0	13.7	14.5	
Holstein					
Rolling Herd Average	22,246	19,362	17,262	14,029	
Peak Milk Yield 1st	77.8	69.2	63.7	54.3	
Peak Milk Yield 2nd	97.3	86.8	78.4	66.9	
Peak Milk Yield 3rd	104.4	93.6	85.2	72.1	
Peak Milk Yield Avg.	92.2	82.9	76	65.3	
Income/Feed Cost	1,726	1,491	1,258	950	
SCC Average	334	366	402	497	
Days to 1st Service	88	90	83	76	
Days Open	151	154	161	179	
Projected Calving Interval	14.2	14.2	14.5	15.1	
Jersey					
Rolling Herd Average	15,155	13,162	11,385	9,320	
Peak Milk Yield 1st	54.2	46.4	44.3	38.5	
Peak Milk Yield 2nd	64.2	61.1	52.1	46.1	
Peak Milk Yield 3rd	70.8	59.8	56.4	47.7	
Peak Milk Yield Avg.	63.2	55.0	51.3	44.8	
Income/Feed Cost	1,441	1,051	870	418	
SCC Average	328	243	301	417	
Days to 1st Service	85	84	97	62	
Days Open	125	145	136	143	
Projected Calving Interval	13.3	14.0	13.7	13.9	

Area DHIA Meetings (continued)

February 5
Sedgwick County
K-State Research and Extension Office, Wichita, Kansas

February 6
United Methodist Church,
Hillsboro, Kansas

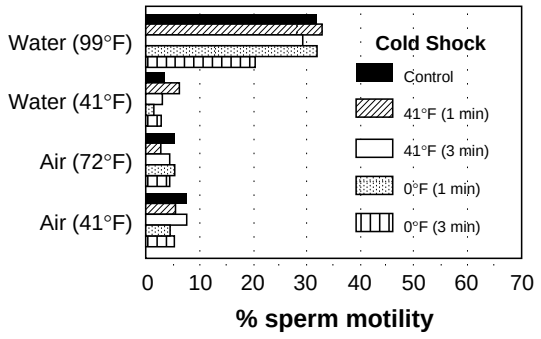
continued from page 1

evaluated for motility and acrosomal membrane integrity. The figure below clearly shows that the four cold-shock treatments had only marginal effects on sperm quality except that the 0°F (3 minute), cold-shock treatment generally reduced the percentage of intact sperm membranes after all four thawing procedures. BUT more importantly, all four cold-shock treatments were NOT nearly as damaging to sperm viability as INCORRECTLY thawing the semen upon its removal from liquid nitrogen!

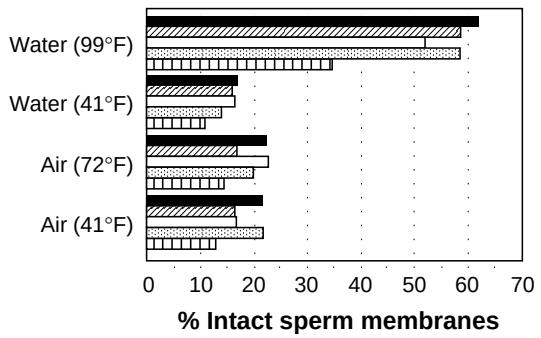
In the experiment described above, semen was thawed at 99°F (slightly higher temperature than what you should use when thawing semen before A.I.-breeding) as part of a stress test for good quality semen. Because different semen extenders may be used at each of the bull studs, you should always follow their recommendations for properly thawing semen. When in doubt, it is always SAFE to thaw semen in warm water (90 to 95°F) to maximize the total number of motile sperm and then protect them from cold shock before insemination. Water promotes a more uniform thawing rate than air or in-cow procedures. Thawing semen correctly is the most important step in reviving those slumbering sperm before depositing this genetic investment correctly into the uterus of the cow. Keep these pointers in mind as you more successfully A.I.-breed cows this winter.

Thawing Semen and Cold Shock

Thawing Procedure



Thawing Procedure



Unpublished data courtesy of Select Sires (C. Marshall)

Commodity Spotlight

by Dan Waldner

Two commodities that have received considerable attention lately are corn gluten feed (CGF) and malt sprouts. Based on current corn and soybean meal prices the relative value of CGF and malt sprouts is about $144 and $156 per ton, respectively. However, current quotes from handlers of these products range from $70 to $82 per ton for CGF and $75 to $120 per ton for malt sprouts, depending on quantities ordered.

Corn Gluten Feed: CGF is a by-product from the manufacture of cornstarch and corn syrup. CGF is available in wet and dry forms. The wet form consists of corn bran and steep liquor and contains about 45 percent dry matter. Dry CGF can be purchased in either meal or pelleted form. Published values for the nutrient content of CGF are as follows: CP=18.0–26%, NEL=.85–.87 Mcal/lb., ADF=10–12%, NDF=40–45%, NFC=19–27%, UIP=25–30% of crude protein.

Dry CGF can be used at levels up to 25 to 30 percent of the total ration dry matter or about 10 to 15 pounds per cow daily. However, since considerable variation occurs in color and quality of dry CGF, restricting the level to 20 to 25 percent of the total ration dry matter is suggested. A light-colored product is usually preferred since a darker colored product may indicate that heat damage has occurred during drying. In corn silage or corn-based rations, CGF should be limited to 30 percent of the concentrate mixture or 15 to 20 percent of dietary DM since the resulting lysine content of the ration may be too low. When used to replace corn, the amount of non-fiber carbohydrates (NFC) in the diet will also be lowered. CGF may be used as a forage replacer. The upper limit on forage replacement is 20 to 25 percent of the forage dry matter in the diet.

Feeding levels for wet CGF are generally in the range of 15 to 25 pounds per cow per day (as fed basis). The supply should be turned every 7 to 10 days to keep wet CGF fresh and acceptable to livestock.

Malt Sprouts: Malt sprouts consist of dried sprouts and rootlets produced during the germination of barley, rye, or wheat for beer manufacturing. The sprouts are separated from the malted cereals and pelleted. Published values for the nutrient content of malt sprouts are as follows: CP=26–28%, NEL=.72–.74 Mcal/lb., ADF=18%, DF=475%, NFC=16–20%, UIP=40–53% of crude protein.

Recommendations for the inclusion of malt sprouts in the diets of lactating dairy cows range from 10 to 20 percent of the total ration dry matter or about 5 to 10 pounds per cow daily. Malt sprouts can be used to reduce the NFC content of diets and as a forage replacer. The upper limit on forage replacement is 10 to 15 percent of the forage dry matter in the diet.

The nutrient composition of by-product feeds can be highly variable. Analysis by a reputable laboratory is highly recommended. Remember, developing the most economical feeding program involves more than looking for the least expensive protein and (or) energy supplement. In order to make proper ration adjustments, you must consider the nutrient composition of the various feeds available, how they might complement each other and limitations on their use.

For current commodity pricing information visit the following Internet addresses:
http://www.ansi.okstate.edu/exten/feedbull/
or
http://etcs.ext.missouri.edu:70/0/agebb/ansci/dairy/

If you do not have access to the Internet, you can contact your local Extension office for assistance.

Hay Prices*—Kansas

	Location	Quality	Price ($/ton)
Alfalfa	Southwestern Kansas	Premium	105–115
Alfalfa	Southwestern Kansas	Good	100–105
Alfalfa	South Central Kansas	Premium	100–115
Alfalfa	South Central Kansas	Good	90–100
Alfalfa	Southeastern Kansas	Premium	100–110
Alfalfa	Southeastern Kansas	Good	90–100
Alfalfa	Northwestern Kansas	Premium	100–110
Alfalfa	Northwestern Kansas	Good	90–100
Alfalfa	North Central Kansas	Premium	100–120
Alfalfa	North Central Kansas	Good	90–100

Source: USDA Weekly Hay Report, *Week ending November 28, 1997*

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

Hay Prices—Oklahoma

	Location	Quality	Price ($/ton)
Alfalfa	Central/Western, OK	Premium	100–120
Alfalfa	Central/Western, OK	Good	75–100
Alfalfa	Panhandle, OK	Premium	100–120
Alfalfa	Panhandle, OK	Good	75–100

Source: Oklahoma Department of Ag, *November 28, 1997*

Feed Stuffs Prices

	Location	Price ($/ton)
SBM 48%	Kansas City	244–246
Cotton Seed Meal	Kansas City	211–217
Whole Cottonseed	Memphis	145–150
Blood Meal	Central United States	430–460
Corn Hominy	Kansas City	96–102
Corn Gluten Feed	Kansas City	80–85
Corn Gluten Meal 60%	Kansas City	350–355
Distillers Dried Grain	Central Illinois	115–121
Brewers Dried Grain	St. Louis	108
Wheat Middlings	Kansas City	91–95

Source: USDA Weekly Feed Stuffs Report, *Week ending November 28, 1997*

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For more information or questions, please contact 913.532.5654 (K-State) or 405.744.6058 (OSU).

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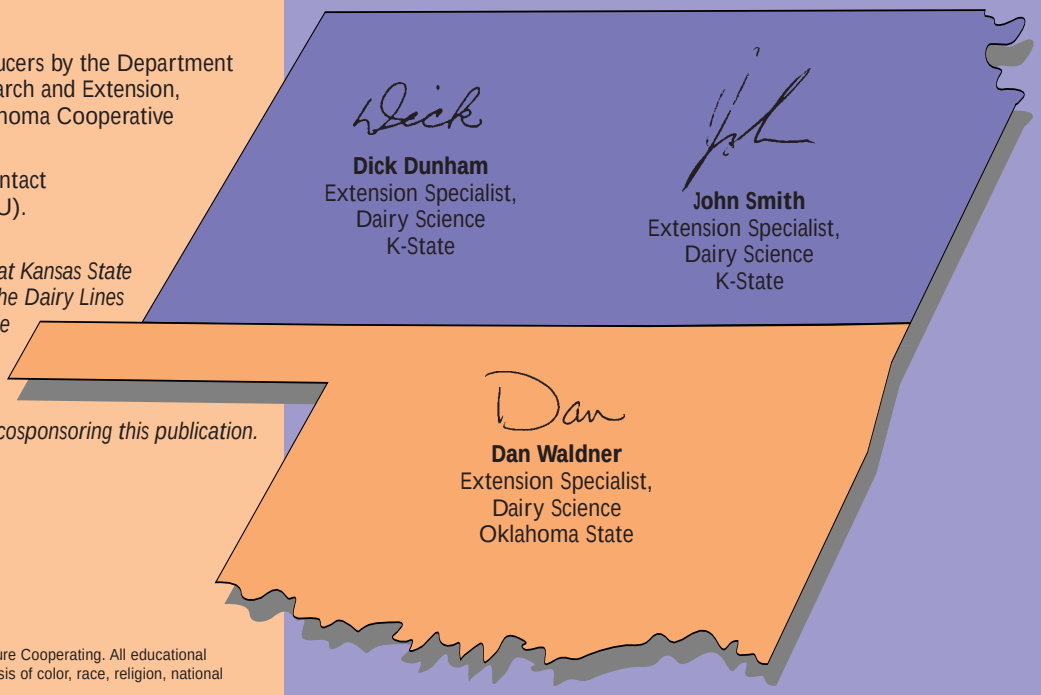

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