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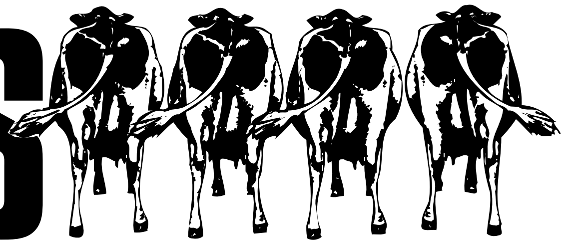

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Upcoming Events

OSU Dairy Day
October 27
Northeast Vo-Tech Center, Pryor, OK

October 28
Grady Co. Fairgrounds, Chickasha, OK

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Research Update From the 1999 American Dairy Science Association Meeting

Compiled by: Dan N. Waldner, OSU Extension Dairy Specialist

Effect of delayed breeding on reproduction, milk yield and lactation persistency in cows supplemented with POSILAC®

(M.F. McGrath1, S.E. Bettis[1], C.R. Bilby*[1], R.L. Hintz1, E.D. Plunkett[1], J.L. Vicini[1], D.V. Armstrong[2], K. Bailey[3], J.P. Fetrow[3], D.M. Galton[4], D.K. Hardin[5], J.K. Shearer[6], and J.F. Smith[7].

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This study examined the effect of delayed breeding on reproduction in cows supplemented with POSILAC®((P) (rbST, Monsanto Co.) in 26 US herds. Primiparous (965) and multiparous (505) lactating cows were blocked by season of calving and assigned to control (C) with a 60-day voluntary wait period (VWP), P supplemented with a 60-day VWP (P: VWP60), or P supplemented with a 165-day VWP (P: VWP165). Supplementation began 57–70 days in milk (DIM) for cows receiving P. Cows not conceiving 135 days following their VWP were considered open. Regardless of parity, delayed breeding reduced the number of days to first insemination after the VWP. Although there was no difference in days open past the VWP for primiparous cows which became pregnant, P: VWP165 and C: VWP60 multiparous cows had fewer days open compared to P: VWP60 cows. Pregnancy rate was greater in the primiparous P: VWP165 and C: VWP60 cows compared to the P: VWP60 group. P increased test day milk for both parities. Delayed breeding enhanced the milk response due to P in primiparous cows. P supplemented multiparous cows were more persistent from 100 through 195 days compared to non-supplemental cows while delayed breeding increased persistency in cows supplemented with P from 196 DIM through 315 DIM for both parities. These data indicate reproductive performance is not compromised and milk response to P is enhanced following an increased VWP.

Reproductive performance of lactating dairy cows receiving rbST supplementation beginning during weeks 9–10 or 17–18 postpartum.

W.J. Silvia*[1], R.W. Hemken[1], and J.L. Garrett[2]

1. University of Kentucky, Lexington, KY
2. Monsanto Dairy Business, St. Louis, MO

Lactating dairy cows (n=798) in 9 herds (8 Holstein herds, n=766; 1 Jersey herd, n=32) were assigned at random to receive rbST (Posilac®(, Monsanto Co.) supplementation every 2 weeks beginning weeks 9–10 (LABEL, n=399) or 17–18 (LATE, n=399) postpartum. Effect of rbST start time (LABEL vs. LATE) on days to first service, days open and services during the first 250 days postpartum were determined. Days open was affected by rbST start time and lactation number. In primiparous cows, days open were 25 days longer for LABEL vs. LATE starting group. In multiparous cows, days open were 6 days longer for LABEL vs. LATE starting group. No effect of rbST start time was observed on the percentage of cows pregnant at any stage postpartum in multiparous cows (LATE: 55, 70, 80% pregnant at 150, 200, 250 days, respectively vs. LABEL: 53, 67, 78%). In primiparous cows the percentage of cows pregnant were 52, 69, 80% at 150, 200, 250 days, respectively for cows in the LATE group vs. 46, 62, 73% for cows in the LABEL group.

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Heart of America Dairy Herd Improvement Summary (June)

	Quartiles 1	2	3	4	Your Herd
Ayrshire					
Rolling Herd Average	18,614	15,787	14,059	11,715	
Summit Milk Yield 1st	58.1	53.7	46.0	39.0	
Summit Milk Yield 2nd	67.7	66.5	55.8	50.8	
Summit Milk Yield 3rd	76.9	73.5	68.1	56.7	
Summit Milk Yield Avg.	73.5	66.6	62.5	54.4	
Income/Feed Cost	1,992	1,546	1,265	1,041	
SCC Average	236	286	313	384	
Days to 1st Service	72	82	87	73	
Days Open	134	147	135	159	
Projected Calving Interval	13.3	14.1	13.4	14.4	
Brown Swiss					
Rolling Herd Average	20,922	17,442	15,527	12,539	
Summit Milk Yield 1st	61.6	51.6	48.8	42.6	
Summit Milk Yield 2nd	81.1	68.5	65.5	49.0	
Summit Milk Yield 3rd	87.8	77.6	71.9	55.9	
Summit Milk Yield Avg.	79.4	69.2	64.5	52.7	
Income/Feed Cost	2,392	1,786	1,491	1,272	
SCC Average	258	284	341	345	
Days to 1st Service	92	78	92	74	
Days Open	169	160	169	169	
Projected Calving Interval	14.8	14.5	14.8	14.6	
Holstein					
Rolling Herd Average	23,872	20,730	18,590	14,896	
Summit Milk Yield 1st	75.6	68.2	63.0	53.2	
Summit Milk Yield 2nd	97.0	86.4	73.1	65.2	
Summit Milk Yield 3rd	103.2	92.5	84.8	70.9	
Summit Milk Yield Avg.	91.4	82.4	76.1	64.6	
Income/Feed Cost	2,485	2,092	1,857	1,435	
SCC Average	283	322	357	446	
Days to 1st Service	91	91	91	88	
Days Open	153	155	161	185	
Projected Calving Interval	14.2	14.3	14.5	15.3	
Jersey					
Rolling Herd Average	17,016	14,685	13,149	10,739	
Summit Milk Yield 1st	51.7	47.8	44.0	37.2	
Summit Milk Yield 2nd	62.7	58.2	52.7	43.6	
Summit Milk Yield 3rd	71.2	64.1	58.5	50.1	
Summit Milk Yield Avg.	65.2	59.0	53.9	47.1	
Income/Feed Cost	2,050	1,798	1,520	1,202	
SCC Average	296	323	335	426	
Days to 1st Service	85.1	85	82	79	
Days Open	137	133	141	169	
Projected Calving Interval	13.7	13.6	13.9	14.8	
Guernsey					
Rolling Herd Average	17,294	14,566	13,316	11,281	
Summit Milk Yield 1st	56.2	50.5	48.0	43.4	
Summit Milk Yield 2nd	68.3	62.2	60.0	51.0	
Summit Milk Yield 3rd	76.5	66.0	56.3	51.2	
Summit Milk Yield Avg.	68.2	59.6	58.0	51.1	
Income/Feed Cost	2,077	1,688	1,501	1,220	
SCC Average	250	359	337	384	
Days to 1st Service	84	87	75	70	
Days Open	176	170	183	182	
Projected Calving Interval	15.0	14.8	15.2	15.2	
Milking Shorthorn					
Rolling Herd Average	15,939	14,390	13,172	11,165	
Summit Milk Yield 1st	46.3	49.6	42.1	36.8	
Summit Milk Yield 2nd	50.0	62.3	50.4	56.0	
Summit Milk Yield 3rd	73.9	71.6	64.6	62.3	
Summit Milk Yield Avg.	68.0	62.3	59.4	53.8	
Income/Feed Cost	1,160	1,402	1,384	877	
SCC Average	214	189	316	323	
Days to 1st Service	52	97	47	82	
Days Open	126	130	177	131	
Projected Calving Interval	13.4	13.5	15.0	13.5	

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Starting rbST during weeks 9–10 postpartum may affect days open in primiparous cows but has no effect on reproductive performance in multiparous cows.

Evaluation of reproductive performance in lactating dairy cows using three systematic breeding protocols: 14 d $PGF_{2\alpha}$ timed AI, and GnRH-$PGF_{2\alpha}$

S.M. Jobst*, R.L. Nebel, M.L. McGilliard, and K.D. Pelzer, Virginia Polytechnic Institute and State University, Blacksburg.

Systematic breeding programs provide an organized approach for administrating AI at first service. Moreover, reproductive management is based on a methodical approach for the entire herd rather than focusing on individual cows. Seven hundred and thirty-four Holstein cows from 16 commercial dairy herds were used to evaluate three systematic breeding protocols: 14 day $PGF_{2\alpha}$ timed AI (TAI), and GnRH-$PGF_{2\alpha}$ relative to traditional breeding practices. The TAI protocol involved GnRH followed by $PGF_{2\alpha}$ 7 days later and a second administration of GnRH 2 days after $PGF_{2\alpha}$ (with timed AI 6 to 18 hours after GnRH. The GnRH-$PGF_{2\alpha}$ (protocol consisted of GnRH followed by $PGF_{2\alpha}$ 7 days later. Eight herds relied on visual observation to detect estrus, and 8 herds utilized the Heat Watch (DDx, Inc., Denver Co) electronic estrus detection system. The average days to first postpartum AI were 3 days longer for the untreated control and GnRH-$PGF_{2\alpha}$ protocols when compared to the other breeding protocols (76 days). First AI conception rates did not differ among control (46.9%), 14-d $PGF_{2\alpha}$ (42.2%), or GnRH-$PGF_{2\alpha}$ (45.7%) protocols, but were higher than the TAI protocol (30.1%). However, first AI pregnancy rates were higher for untreated controls (40.7%) versus hormonally treated cows (29.6%). Estrus characteristics including number of standing events, duration of estrus, estrus intensity, and the interval from estrus onset to AI associated with each protocol were also evaluated and no difference was detected across treatments. An economic analysis determining cost per pregnancy for each protocol when considering drug costs and pregnancy rates resulted in the highest cost per pregnancy for TAI ($61.67) followed by GnRH-$PGF_{2\alpha}$ ($45.00) and 14-d $PGF_{2\alpha}$ ($19.39). Different systematic breeding programs vary in effectiveness; however, these protocols should be explored as methods for maintaining a desired interval from parturition to first AI and achievement of efficient reproductive performance. Cost effectiveness must be calculated on an individual herd basis when deciding whether the use of a systematic breeding program is the appropriate management decision.

Prepartum milking of Holstein heifers: I. Effects on production, parturition, edema, and SCC.

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1. Purdue University
2. Livestock Behavior Research Unit, USDA–ARS, West Lafayette, IN.

The period around calving holds many stressors for first-calf heifers. The overall objective of this project was to investigate the effects of parlor acclimation and pre-milking on behavior, production, and health parameters. Forty-eight first-calf heifers were blocked according to expected calving date. Two heifers per block were randomly assigned to control (CTL), parlor acclimation (ACC), or pre-milk treatments (PRE). The ACC heifers were taken through the parlor without milking and the PRE heifers were milked for three weeks prior to expected calving. For all heifers, calving ease scores (1, easy to 5, severe), calf birth weights, and incidence of retained placenta were recorded. At first milking, udder edema was approximated by the area between teats before and after milking and the change in area. Milk weighs and SCC were collected and measured for the first 14 days of lactation. No differences were observed for calving ease, calf birth weights, or incidence of retained placenta.

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Reduction in udder area was significantly greater for PRE than for ACC or CTL heifers. Compared to ACC and CTL, PRE heifers produced significantly more milk in the first and second weeks. Daily SCS was less for PRE heifers, but geometric mean of daily SCS was significantly less only for the second week. Prepartum milking of heifers appeared to have beneficial effects on production and health of heifers near parturition.

Prevention and pirlimycin therapy strategies for a high somatic cell count herd: a case study.

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The herd (45 cows) involved in this case study was in danger of market loss due to high SCC and was running weekly individual cow SCC to avoid this. The initial inquiry from the herd veterinarian only provided a single Pro-Staph report showing 76% cows >400,000 SCC and 87% Pro-Staph positive (9% suspect). Individual quarter milk samples of all cows were cultured. Within 3 weeks, an on-site herd visit was conducted. Bacteriological analysis showed: Uninfected—7 cows (C); 76 quarters (Q); Staph aureus—19C, 39Q; Strep agalactiae—6C, 8Q; Strep dysgalactiae 22C, 38Q; Coagulase negative Staph—1C, 3Q. Herd information showed a 40 lb. per cow milk average with cows in good body condition and clean. Cows were housed on pasture and milked in a 2 × 2 parlor. Premilking sanitation consisted of pre-dipping as well as washing with a lot of water, drying with paper towels, no fore-stripping and excessive time to unit attachment. There was some machine stripping and individual quarters pulled off under vacuum, but vacuum was usually shut off before removal. Teat dipping with a .25 iodine dip provided fair coverage. Units were dipped in hot iodine water between cows. Teat end observations showed many cracks and lesions. Milking machine analysis showed adequate pump capacity, 53% regulator performance due to a dirty regulator and small pipe sizing, two non-functional pulsators, inadequate claw and milk-line size capacities, and single pulsation. The herd had not treated (dry or lactating) for 6 years. Strategies for preventing new mastitis infections were categorized as immediate (pulsators, regulator, teat dip, milking procedures), short, or long term. All Strep. infected quarters were treated 2 times 24 hr apart with one 10 ml plastet 50 mg Pirlimycin HCl, with Staph. aureus quarters treated 3 times with this series at 48 hrs between treatment series. Cultures 21 days post treatment showed the following C and Q cure rates: Strep ag. –100, 100; Strep dysgalactiae—77, 86; Staph aureus—74, 85%. Observations at this herd visit showed significantly improved teat end health and low new infection rate due to adoption of immediate proposed strategies. Herd SCC 14 days post treatment withdrawal was 256,000 cells / ml. The herd was monitored over the next year and SCC remains at 300,000 cells / ml.

Effect of end of milking detacher flow rate setting on yield, milking duration and somatic cell score.

J.S. Kikta*. G.W. Rogers, S.B. Spencer, C.W. Heald, and W.B. Roush, The Pennsylvania State University, University Park, PA.

Optimization of milking duration is of economic importance to dairy enterprises. Concerned producers are reducing milking duration by increasing the end of milking detacher flow rate setting in an effort to increase parlor and labor efficiency. The objective for this study is to determine the effect on milking duration, yield and udder health from changes in flow rate settings. Milk yield, milking duration and somatic cell score (SCS) from 1565 Holstein cows, of varying parity and stage of lactation, in a commercial dairy setting were measured over a 36-day treatment period and milk samples were taken prior to and at the conclusion of the treatment period. Cows were randomly assigned to 5 treatment groups with flow rate settings of 0.5 (n=310), 1.0 (n=313), 1.5 (n=317), 2.0 (n=316), and 2.5 (n=309) lbs. per min. Before treatment, milk yield, milking duration, somatic cell score, and days in milk were not different among treatment groups. Effects of changes in flow rate settings were evident during the treatment period where milk yield and milk yields per milking were different by treatment. Average milk yields per milking were 26.5, 26.1, 26.1, 25.9, and 25.0 lbs. and average milking duration times per milking were 5.75, 5.29, 5.00, 4.80, and 4.55 min for treatment groups with flow rates of 0.5, 1.0, 1.5, 2.0, and 2.5 lbs. per min respectively. Average SCS by treatment groups during the treatment period were not different with average scores of 2.48, 251, 2.71, 2.62 and 2.56 for the flow rate setting treatments, respectively. Conclusions: milking duration is shortened by increasing detacher flow rate, without a significant impact on SCS.

Hay Prices—Kansas*

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

Source: USDA Weekly Hay Report, *Week ending June 29, 1999*

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

Hay Prices—Oklahoma

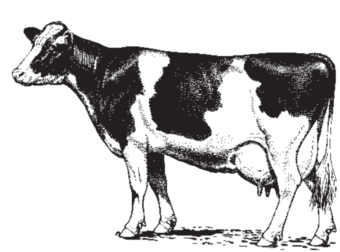
	Location	*Quality*	*Price ($/ton)*
Alfalfa	Central / Western, OK	Premium	85–100
Alfalfa	Central / Western, OK	Good	75–95
Alfalfa	Panhandle, OK	Premium	85–95
Alfalfa	Panhandle, OK	Good	80–95

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

Feed Stuffs Prices

	Location	*Price ($/ton)*
SBM 48%	Kansas City	137.40–140.80
Cotton Seed Meal	Kansas City	136–142
Whole Cottonseed	Memphis	135
Pork—Meat and Bone Meal	Texas Panhandle	148–150
Blood Meal	Central United States	256–265
Corn Hominy	Kansas City	68–71
Corn Gluten Feed	Kansas City	55–60
Corn Gluten Meal 60%	Kansas City	230–245
Distillers Dried Grain	Central Illinois	85
Wheat Middlings	Kansas City	37–40

Source: USDA Weekly Feed Stuffs Report, *Week ending June 30, 1999*



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