Of the 41 cows, 10 had weak calves and 13 had RFM. No significant effects on the cotyledonary and calf birth weights, incidences of neonatal weakness or RFM were linked to parity, bull, lactation length, milk yield, gestation length, cows' body weights or gender of calves.

Plasma NEFA started to increase from 255 days of pregnancy to day of parturition, showing a drastic increase for a last few days. A rapid in plasma glucose was also shown for the last few days. Conversely, plasma TP, cholesterol and BUN showed a gradual decrease during the same period. Cows showing low plasma glucose and TP concentrations at 90 to 210 days had lower birth weights and cotyledonary weights, and a higher incidence of neonatal weakness. Likewise, cows with low glucose, cholesterol and Ca concentrations in plasma at 255 days and later had a higher incidence of RFM.

A group of cows with BCS of 3.25 to 3.75 during the dry period showed fewer RFM, compared to other groups with BCS of 3.0 or lower and 3.75 or higher.

Results indicate that low intake of energy and protein in mid- and late-gestation adversely affects fetal development, leading to neonatal weakness. Low intake of energy and Ca in late gestation may cause RFM.

Parenteral Vitamin E for Prevention of Retained Placenta in Dairy Cows

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Introduction

Immune function is suppressed in periparturient dairy cows, and risk of infectious and metabolic disease is increased. Several studies have shown that transition cows supplemented with vitamin E in feed and/or parenterally had decreased risk of retained placenta (RP) or mastitis. However, these benefits are not universally reproducible and may depend on the animals baseline vitamin E and selenium status and other factors. Additionally, a fraction of animals will have hypersensitive reactions to parenterally administered vitamin E. This study investigated the effect of vitamin E on the incidence of periparturient health problems when administered subutaneously to prepartum cows.

Materials and Methods

Approximately one week prior to expected calving date, 1166 cows in 19 herds were randomly allocated to receive either a single SC injection of 3000 IU Vitamin E (d-α-tocopherol) or placebo. Incidence of peripartum disease (retained placenta, milk fever, metritis, ketosis, displaced abomasum, clinical mastitis, and lameness) was recorded. Data were analyzed in SAS using the GENMOD procedure, including herd as a random effect.

There was no evidence of clustering of results by herd. However, the risk factors for RP and the effect of Vitamin E on RP were different between primiparous and multiparous cows, so these parity groups were modeled separately. Having twins was so strongly associated with RP that it overwhelmed the effect of other variables. Therefore, 29 animals delivering twins were removed from the models (2 in parity 1, 27 in parity ≥2). Occurrence of dystocia was offered to the models but was not a significant effect.

Results and Conclusions

Among primiparous animals, both treatment and the interval from treatment to calving (treatment*week interaction) had significant effects ($P<0.01$) on probability of RP. Heifers appear to benefit from vitamin E by reduced risk of RP, but when administered by SC injection, vitamin E should be given approximately 2 weeks prepartum.

Among multiparous cows, occurrence of milk fever was significantly associated with increased risk of

Lactation	Treatment	Treatment to calving interval	Probability of RP
1	Vitamin E	0 – 7 days	17.4%
		8 – 15 days	4.6%
	Placebo	0 – 7 days	15.1%
		8 – 15 days	14.9%

RP. Controlling for this effect, there was no significant effect of vitamin E on rate of RP in parity ≥2. However, cows that had 8-15 d from treatment to calving tended to have a lower probability of RP (P=0.06) than cows that calved within 7 d of injection, despite absence of a treatment effect. This may reflect an advantage to spending more time in a close-up, dry cow feeding program.

Incidence and Impact of Clinical Endometritis in Dairy Cows

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Introduction

Endometritis is a localized inflammation and/or infection of the uterus, characterized by subinvolution, and associated with chronic bacterial uterine infection and purulent discharge. Diagnosis and treatment of endometritis is a source of controversy among practitioners fueled by lack of large-scale clinical trials with objective case definitions and economically meaningful outcomes. Objectives of this study were to assess diagnostic criteria for endometritis and quantify its impact on reproductive performance.

Materials and Methods

On 20 farms 1532 cows were examined once between 20-33 days in milk (DIM). Each cow was examined vaginoscopically, followed by rectal palpation of the

Clinical status	n	Pregnant by 120 DIM			OR	*P*
		Yes	No*	%		
No visible discharge	1044	401	643	38	-	
Endometritis Dx'ed 20-26 DIM	317	113	204	36	0.89	0.41
Endometritis Dx'ed 27-33 DIM	171	51	120	30	0.68	0.04

* Includes animals whose pregnancy status is currently unconfirmed