ABSTRACTS
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96 Induced lactation in prepubertal Holstein heifers . S. Ball[1], K. Polson[1], J. Emeny[1], W. Eyestone[1], and R. M. Akers*[2], [1]*PPL Therapeutics, Inc., Blacksburg,* [2]*Virginia Tech, Blacksburg.*

Lactation was hormonally induced in six prepubertal Holstein heifers using seven daily injections of estrogen and progesterone, three injections of dexamethasone on d 18, 19, and 20 following by twice daily hand milking beginning on d 21. Heifers were about 6 mo old and weighed 162 kg at the beginning of the experiment. Secretions were obtained from 5 of 6 of heifers and twice daily milking continued for 75 d in 3 of 5 heifers. Volume of milk obtained on d 7 ranged from 32 to 500 ml and averaged 4.7, 4.1, and 3.7% lactose, protein, and fat, respectively. In first natural lactation, milk yield and composition was nearly identical for controls and induced heifers. Serum α-lactalbumin was increased in induced heifers after treatment with dexamethasone and was highest on d 10 after onset of milking. Our data suggest that sufficient secretions for extensive biochemical testing can be obtained following hormonal induction of lactation in a majority of prepubertal heifers. Moreover, hormonal induction of lactation had no apparent affect on reproduction or first natural lactation. While it is unlikely that hormonal induction of lactation in prepubertal heifers is practical from a dairy production viewpoint, the advent of biotechnology for production of therapeutic recombinant proteins in the mammary gland of transgenic livestock has made early detection of these transgenic proteins very desirable. We conclude that induction of lactation in prepubertal heifers is a viable technique for testing the expression of mammary-linked gene constructs in transgenic cattle.

Key Words: Induced lactation, Prepubertal heifer, Milk composition