

OHIO STATE UNIVERSITY EXTENSION



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Department of Veterinary Preventive Medicine

Chair: Dr. William Saville

Research

Deelan, S. M., Ollivett, T. L., Haines, D. M., & Leslie, K. E. (2014). **Evaluation of a Brix refractometer to estimate serum immunoglobulin G concentration in neonatal dairy calves.** *Journal of Dairy Science*, 97(6), 3838-3844. doi: 10.3168/jds.2014-7939

BACKGROUND: Newborn calves depend on the success of passive transfer of maternal IgG from colostrum for protection. The radial immunodiffusion (RID) assay is the gold standard for measuring passive transfer, but it is expensive and not conducive to on-farm application as it requires submission to a laboratory and about 24 hours to determine results. Rapid and simple on-farm monitoring such as using a Brix refractometer is needed to evaluate colostrum quality and assess passive transfer in the calf. Previous research indicates that the Brix refractometry of calf serum provides a strong estimate of IgG, but did not compare results to the measurement of serum total protein (STP).

PURPOSE: The objective was to evaluate the utility of a digital Brix refractometer for the assessment of success of passive transfer of maternal immunoglobulin compared with the measurement of STP by refractometry.

RESULTS: Serum IgG was determined by RID, and STP and percentage Brix were determined by digital refractometry. Brix percentage was highly correlated with IgG ($r=0.93$). STP was also highly correlated with % Brix ($r=1.00$) and IgG ($r=0.93$). The optimal sensitivity (88.9%) and specificity (88.9%) was at 8.4% Brix. A value of <8.4% Brix most accurately predicted failure of passive transfer, providing a reasonable estimate of serum IgG concentration in the majority of calves tested.

CONCLUSIONS: The authors concluded that digital Brix refractometry is convenient and affordable, allowing producers to use the same digital refractometer to estimate IgG concentration of maternal colostrum and calf serum, thereby monitoring both colostrum quality and success of passive transfer.

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Kasimanickam, R. K., Firth, P., Schuenemann, G. M., Whitlock, B. K., Gay, J. M., Moore, D. A., Hall, J. B., & Whittier, W. D. (2014). **Effect of the first GnRH and two doses of PGF2 α in a 5-day progesterone-based CO-Synch protocol on heifer pregnancy.** *Theriogenology*, 81(6), 797-804.

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doi: 10.1016/j.theriogenology.2013.12.023

BACKGROUND: Although ovulation is increased by using the first GnRH injection in the time AI program in presynchronized heifers, this increase did not influence AI pregnancy or pregnancy loss rates. Eliminating the first GnRH injection may not be affecting the pregnancy rate in a 5-day CO-Synch + CIDR protocol. In addition, eliminating the first GnRH injection may also eliminate the need for the second dose of PGF2 α on Day 5 to regress any newly formed CLs. It was hypothesized that in heifers, eliminating the first GnRH injection at CIDR insertion on Day 0 will also eliminate the need for the second PGF2 α dose at CIDR removal on Day 5 without affecting AI-PR (pregnancy rates).

PURPOSE: The objectives were (1) to determine the effect of GnRH at CIDR insertion on Day 0 and two doses of PGF2 α at CIDR removal on Day 5 in a 5-day CO-Synch + CIDR program on AI-PR. The hypothesis is that the administration of GnRH at CIDR insertion will require a second dose of PGF2 α at CIDR removal; (2) to examine how the effect of systemic concentration of progesterone and size of follicles influenced treatment outcome.

RESULTS: Angus cross beef heifers (n = 1018) at eight locations and Holstein dairy heifers (n = 1137) at 15 locations were included in this study. Numerically higher AI-PRs were observed in beef and dairy heifers that exhibited high progesterone concentrations at the time of CIDR insertion (>1 ng/mL, with a CL). In addition, numerically higher AI-PRs were also observed in heifers receiving CIDR + GnRH with both high and low progesterone concentration (<1 ng/mL) initially compared with heifers receiving a CIDR only with low progesterone. In dairy heifers, there were no differences in the pregnancy loss between 35 and 70 days post-AI among the treatment groups.

CONCLUSIONS: The authors concluded that GnRH administration at the time of CIDR insertion is advantageous in beef heifers, but not in dairy heifers, to improve AI-PR in the 5-day CIDR + CO-Synch protocol. In addition, heifers receiving either one or two PGF2 α doses at CIDR removal resulted in similar AI-PR in this study, regardless of whether they received GnRH at CIDR insertion.

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Elkhoraihi, C., Blatchford, R. A., Pitesky, M. E., & Mench, J. A. (2014). **Backyard chickens in the United States: A survey of flock owners.** *Poultry Science*. Advance online publication. doi:10.3382/ps.2014-04154

BACKGROUND: In recent years, there has been a growing interest in keeping poultry in urban or suburban neighborhoods in the United States. Because this is a rather recent development in the US, very little is known about the demographic profile of backyard owners and information on flocks' characteristics, husbandry, and welfare is still lacking.

PURPOSE: The objectives were to survey backyard flock owners about their perceived flock health and welfare issues, obtain information about flocks' characteristics and husbandry practices, gain a better understanding of the reasons people keep backyard flocks and what resources they might benefit from to improve flock management, and obtain detailed demographic information about flock owners and an overview of their attitudes about chickens and chicken-derived products.

RESULTS: Respondents came from 47 states representing rural, urban, and suburban areas. Seventy-one percent owned less than 10 chickens and 70% began with the past 5 years. Reasons for ownership were food for home use (95%), gardening partners (63%), pets (57%), or a combination of these factors. Rural flocks tended to be larger and were more likely to use as a source of income or for show. Eighty-six percent thought that eggs and/or meat from their chickens were more nutritious, 84% believed it was safer to consume, and 95% believed it tasted better than store-bought products and that health and welfare of their flock was better than commercial farms. There was a lack of awareness of poultry health conditions. Over 60% were interested in learning about the detection and treatment of health problems. Eighty-seven percent used the Internet as their primary source of information.

CONCLUSIONS: The authors concluded that because backyard chicken keeping,

especially in urban and suburban areas, is a relatively recent phenomenon and is likely to expand in the next decade, there is an opportunity and need for extension professionals and veterinarians to develop resources to improve the health and welfare of backyard flocks, as well as to safeguard food safety and public health and contribute to disease prevention in commercial poultry flocks.

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Calendar



A full calendar of all upcoming events and continuing education opportunities offered by the College of Veterinary Medicine is available on the website at <http://vet.osu.edu/>

Ohio Dairy Health and Management Certificate Program

Module 3 – Basic Dairy Cattle Nutrition
December 4-6, 2014

Module 4 – Advanced Dairy Cattle Nutrition
March, 2015 (TBD)

Modules 3 and 4 of this cohort will be focused on nutrition. Space is still available under the specific-module option.

Organic Livestock and Poultry Health Series

Webinar – Basics of Poultry Health and Management
Thursday, October 30, 2014 at 1:00 p.m.

Webinar – Internal Parasite Management in Pasture-Based Sheep and Goat Operations
Monday, November 3, 2014 at 1:00 p.m.



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