

VETERINARY EXTENSION NEWSLETTER

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New Newsletter!

The purpose of this newsletter is to highlight current events, research and people involved in the Agricultural Animal Program at WSU in research, field investigations, clinics, teaching, diagnostic laboratory and extension.

Veterinary Extension is New!

A new unit in Veterinary Medicine Extension was created with the hiring of Dr. Dale Moore as Director. The unit will be responsible for ag animal health outreach and extension programs. Extension programs underway include Cattle Health Assurance, Biosecurity, DairyBeef quality and safety and beef quality assurance. This newsletter will highlight programs and resources for producers and veterinarians.

What's New at WADDL?

The Washington Animal Disease Diagnostic Laboratory (WADDL) has a long history of excellent service to the state. They now have a new testing scheme for BVD. Bovine Virus Diarrhea Virus (BVDV) infection in cattle herds can result in major economic loss from poor reproductive performance (reduced percent pregnant, increased abortion and stillbirth) or poor calf performance (increased calf sickness and death loss). Cattle persistently infected with BVD virus (BVD-PI) are the primary reservoir for BVD virus infection in cattle herds, and thus are the major focus of control programs.

The Washington Animal Disease Diagnostic Laboratory is implementing a "BVD-PI Ear Notch Testing Program" designed for whole herd testing to aid cattle producers in identification and removal of BVD-PI animals. The testing program is based on the most current information available. However, herds should be examined on a case-by-case basis as whole herd testing may not be warranted in some situations. (see the following page for testing details.)



Featured Faculty

Dr. John Wenz joined the CVM faculty in the Ag Animal Program February of 2007. He has a strong background in dairy production and clinical medicine, mastitis research and field disease investigations. He will be working with the Field Disease Investigation Unit, conducting research and participating in teaching and outreach programs. Dr. Wenz is currently working on a cattle health assurance program focused first on reducing BVD persistent infections in cattle in the state. He enjoys mountain biking and most outdoor activities.

Research

Dr. Tom Besser and new faculty, **Dr. Bill Sischo**, and post-doc **Dr. Cat Berge** are working on understanding the development of antimicrobial resistance on calf rearing operations and alternatives to using antibiotics as well as understanding the reasons for antibiotic resistance in bacteria like Salmonella.

What have they discovered so far? As we all know, it's hard to keep as many calves alive if they have not received colostrum. In one study, over 45% of dairy-source bull calves had failure of passive transfer of immunity. Without getting colostrum into calves, they are more likely to get sick and calf raisers have to do more treatments. With these treatments, comes the development of antimicrobial resistant bacteria in the bacteria that calves shed every day.

FDIU Notes

Field Disease Investigations continues to support practitioners and producers in the field by providing another set of eyes to look at farm problems. Calf diseases, pig reproduction, and transition cow problems are some of the recent investigations. Contact **Drs. Hancock or Wenz** for information about conducting a herd investigation:

hancock@vetmed.wsu.edu
jrwenz@vetmed.wsu.edu

New BVD Testing Scheme from WADDL

Which animals to sample?

Calves:

- All calves born alive. Testing and removal of BVD-PI calves must occur before exposure of females in the breeding herd to bulls or before artificial insemination in order to prevent contact between BVD-PI calves and pregnant dams. Depending upon individual herd management schemes the time of year for optimal sampling will vary.
- All aborted calves
- All purchased grafted calves

Cows:

- All cows with BVD-PI positive calf
- All open cows not sold
- Cows not calved at time of sampling
- All cows that lose calf and calf not sampled

New Entries:

- Purchased open heifers
- Purchased pregnant heifers and cows (also test calf when born)
- Bulls

Sample to take?

- Ear notch samples are optimal
- Easy to collect and ship (minimal equipment)
- Not affected by presence of maternal antibody
- Same sample can be tested by multiple test methods (PCR and antigen-capture ELISA)
- Can be shipped "dry" in test tube or stored frozen
- Submit "pig ear notch" size ear notch (dime-size) in blood serum tube (Red top tube) (One ear notch per tube). Label each tube with individual animal identification number

What laboratory tests will be used for BVD-PI detection?

- Polymerase Chain Reaction (PCR): Not BVD-PI specific Used to test pooled samples to reduce cost of testing
- Antigen-ELISA: BVD-PI "specific" in a one time test; Used to test individual samples from a PCR positive pool in order to identify individual BVD-PI animal.
- Samples will be tested singly or pooled at WADDL depending upon number of cattle tested (See Table).
- Pooled samples (up to 36) will be tested by PCR and individual samples from positive pools tested by antigen-capture ELISA

What do the laboratory test results mean?

- BVD PCR negative pool: No BVD-PI animals in pool
- BVD PCR positive pool: BVD-PI or BVD-TI animal(s) present in pool requiring testing of

individual samples within positive pool by antigen-capture ELISA

- BVD antigen capture ELISA positive individual: BVD-PI animal (98% specific)
- If valuable breeding animal may want to follow up with second sample in 2-3 weeks to confirm
- BVD antigen capture ELISA negative individual: Not BVD-PI animal

How much will it cost?

BVD-PI (Persistent Infection) Ear Notch Testing Program

Number of Cattle Tested	PCR Pool Size	PCR Charge per Head	Ag-ELISA charge per Head
<12 samples	No Pooling	NA	\$5.00
12-35 samples	12	\$3.95	\$1.75 *
36-99 samples	up to 36	\$2.95	\$1.75 *
100 or more samples	up to 36	\$1.95	\$1.75 *

(* BVD Ag-ELISA testing on individual samples within a PCR positive pool)

For questions contact Tim Baszler or Jim Evermann at WADDL (509-335-9696).

Heifers Growing Well??

Don't throw out those heifer weigh tapes!

Research just published in *Preventive Veterinary Medicine* found good correlation with real weights and small variation in observations made by different people. If the farm does not have an easy to use scale, the weight tape is still a great alternative for monitoring calf and heifer weight and growth.

How should we use this low-cost tool? In conjunction with a height stick, weights of calves and heifers to monitor **average daily gain (ADG)** can be measured in two ways:

- (1) Measure a random selection of 10-12 animals from different age groups (hutches and pens) from 2 months through close-up heifers.
- (2) Plot these values on the Penn State Heifer Growth charts (weight and height (<http://www.das.psu.edu/dairynutrition/heifers/>)).
- (3) Estimate ADG over different time periods by looking at – the slope of the line (Weight/days) or estimating the differences in weights between two age groups divided by their different ages (in days).

- (4) Follow cohorts or groups of same aged calves over time. It would be as simple as selecting 12 calves at 2 months age, and measure them 2-4 months later until due to calve.

Figure 1. Weight by Month of Age—U.S. Holsteins

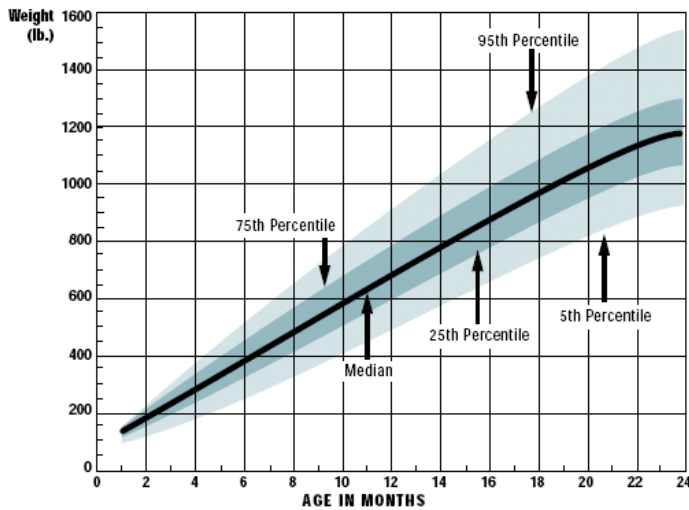


Table 1. Heifer Growth Objectives

Age (Mon)	Holstein & Brown Swiss		Ayrshire & Guernsey		Jersey	
	Weight (Lbs)	Height (In)	Weight (Lbs)	Height (In)	Weight (Lbs)	Height (In)
0	94	32	70	27	55	26
2	185	34	130	32	115	30
4	280	37	230	37	195	34
6	400	41	320	41	275	39
8	520	44	400	44	385	41
10	650	46	505	45	460	43
12	775	49	600	46	520	44
14	875	50	680	48	575	45
16	975	51	770	50	650	46
18	1050	52	860	51	730	47
20	1150	53	910	52	800	48
22	1275	54	1050	53	875	50
24	1340	54	1150	53	960	51

Source: Raising Dairy Replacements, NCR 205.

What are our goals? Looking at the growth chart from Penn State, we would like to see heifers above the 75% percentile line (who wants to be average?). But don't forget height. We want to make sure we don't have short, fat heifers. To get heifers to breed at 12-13 months and calve between 22-24 months, they need to be growing steadily at about 1.8 lbs per day. They can grow faster as babies and then after breeding, but this average gain will help achieve that goal.

What's the bottom line?

Earlier first calving results in reduced replacement needs and decreased rearing costs (although variable costs may be higher per day, fixed costs will be lower). Getting heifers to grow properly requires monitoring. This can be done as a snapshot of heifer weight by age or by following the same animals over time. Ettema & Santos found that heifers that calved 23-24 months of age had the highest economic value by 310 days postpartum compared to those less than 23 months or those over 25 months (more than \$100 higher value). **Next Issue: Feeding Baby Calves**

By: Dale Moore, DVM MPVM PhD

References

Ettema et al. 2004. Impact of age at calving on lactation, reproduction, health, and income in first-parity Holsteins on commercial farms. *J Dairy Sci* 87(8):2730-2742.

Fischer. Contract Heifer Raising Illini DairyNet 08/05/1998 <http://www.livestocktrail.uiuc.edu/dairynet/paperDisplay.cfm?ContentID=224>

Heinrichs, et al. 2007. Variability in Holstein heifer heart-girth measurements and comparison of prediction equations for live weight. *Prev Vet Med.* 78:333-338.

Recruiting Students to Food Animal Medicine in Wisconsin

In his article "Finding good care for food animals expected to become more difficult", Kevin Murphy (*Stevens Point Journal*, November 15, 2007) described a college loan forgiveness program proposed by state Sen. Julie Lassa that would allow graduates of the UW School of Veterinary Medicine' whose practice is at least 75 percent food animals, to have up to \$50,000 toward their loans forgiven after six years of practice. Although the National Veterinary Medical Services Act was intended to do something similar on a national scale, it has not been funded to a workable extent. Now individual states are proposing to do the same thing or farm organizations (like the Illinois Farm Bureau) have incentive programs for food animal medicine students. What can we do here in Washington?

Send comments to: damoore@vetmed.wsu.edu