

# Gizmos or Guesses

or

## How to Keep Your Calf Program Successful

Stephen Hayes, DVM

DAY 1 Technology

[skhayes@day1technology.com](mailto:skhayes@day1technology.com)

Focusing on our goals is the best way to achieve them. For most calf raisers, there are three primary goals:

1. Keep Calves Alive (Low Mortality)
2. Keep Calves Healthy (Low Morbidity)
3. Keep Calves Growing (Overall performance)

Based on these three simple goals, the following article is designed to help you monitor and track (With Gizmos!) how things are going on any calf operation. By monitoring performance, you can make adjustments before things get out of control and have a successful calf program.

### Keep Calves Alive (Reduce Mortality)

The Dairy Calf and Heifer Association (DCHA) have published Gold Standards for mortality:

- 24 hours of age to 60 days of age: < 5%
- 61 to 120 days of age: < 2%
- 121 to 180 days of age: <1%

The key to reducing mortality in any operation is to know what is causing the death of the calves. Is it scours? Dehydration? Pneumonia? Broken leg? Septicemia? There is only one good way to really know what the cause of death is and this is to do a post mortem on the dead calf. One does not always have to call the vet to do a full post mortem on every dead calf.

### Gizmo Number 1: The Smart Phone – Take a Picture

Have your veterinarian teach you how to open up a calf so that pictures can be taken and sent to the vet to help you know what the possible cause of death is. When I work with my clients, I have producers focus on four things:

1. Lungs. Are they pink and pliable or are they consolidated and hard? Do they look good or is there a disease going on? Take a picture.
2. Intestines. Are they all normal colored or are there dark and bloated areas of the intestinal tract. Take a picture.
3. Umbilical cord. Is it soft and pliable or is it enlarged and hardened? Take a picture.
4. Kidneys. See if there is fat (white globs of tissue) around the kidney. If the kidney is all pink with no evidence of white tissue around the different folds of tissue, then the calf ran out of energy and the treatment and/or the diet need to be evaluated. Take a picture.

When taking a picture, cut off the ear tag of the dead calf (which you will do anyway) and lay it beside each picture so that when you take the picture, it will be tied into that calf and there will be no confusion over time as to what happened to that calf.

Finally keep a record of every dead calf. This can be in a spiral notebook or on a computer. Keep this record as a permanent record so you can find out what caused the calves to die. If it is a simple broken leg, the calf strangled

itself or some other obvious cause of death, just simply record it but any disease should be documented as noted above.

### **Keep Calves Healthy (Reduce Morbidity):**

Passive Transfer of Immunity: The first thing to look at when trying to reduce morbidity is colostrum quality. Colostrum quality can be checked two ways.

#### **Gizmo Number 2: Colostrometer:**

This instrument has been around for many years and it is used on colostrum to see what the level of antibodies is in the colostrum. Proper use of the colostrometer will be described.

Concerns with the Colostrometer:

- Readings will change based on temperature.
  - o The scale is based on room temperature (~ 70°F).
  - o If the colostrum is straight out of the refrigerator (~35°F), it will read better than it really is.
  - o If the colostrum is straight out of the cow (~100°F), it will read poorer than it really is.
- Colostrum will need to be properly mixed and blended in order to read accurately. If colostrum sits in the collection bucket and the fat is allowed to separate, then it must be remixed as the different layers of separation will have different specific gravities and as a result, you will get an inaccurate reading if not using mixed colostrum.

Guidelines for the Colostrometer: At least a reading of 50 grams / Liter (green) on properly mixed colostrum at either room temperature or warmer temperatures is considered to be acceptable colostrum for first feeding.

#### **Gizmo Number 3: BRIX Refractometer**

A BRIX Refractometer can also be used on colostrum to determine colostrum quality. The Brix has several advantages. These are:

- It is much less temperature sensitive than the Colostrometer is.
- It is more accurate in determining if the colostrum is of good quality.

There are optical and digital versions of the BRIX refractometer and both can work well provided the sample of colostrum put into the device is properly mixed and representative of the entire colostrum being evaluated.

Guidelines for colostrum when using a BRIX refractometer:

- BRIX reading of 22 = 50 grams / Liter.
- Goal is to save any colostrum that equals or preferably exceeds 22 on the BRIX.
- The higher the number, the better.
- When using the Brix, be sure to zero the instrument before use to make sure the reading is accurate.

After colostrum quality is known, then we need to know if the calf is absorbing the antibodies and achieving passive transfer. This leads us to:

#### **Gizmo Number 4: Clinical Refractometer:**

The easiest way to monitor passive transfer in the calf is to collect a blood sample between 24 and 48 hours of age. Then test this with a refractometer designed to measure serum proteins in the blood. This is done with a red top tube from the jugular vein of the calf. The sample is allowed to clot and then the clear fluid is used to test for serum protein. Just like refractometers for colostrum, there is an optical and a digital version of refractometers to measure serum proteins.

Guidelines for passive transfer evaluation of 24-28 hour blood samples:

< 5.0 g/dl indicates poor passive transfer

=5.0 and <5.5 indicates marginal passive transfer occurring

=5.5 and > 5.5 indicates calves with successful passive transfer.

It seems there are multiple approaches to handling the above cutpoints. In general, any reading with a 4 is poor, a low 5 is marginal and a high 5 to a 6 is considered good.

Refractometers can be confusing. Which one do I buy?

BRIX Refractometer. If it is optical, it should have a scale from 0-32 and it will be dedicated to just a BRIX reading.

Clinical Refractometer. If this is optical, it should be used for reading serum proteins.

If you purchase a Digital Refractometer, it is possible for some companies to have multiple scales on the same refractometer so if you purchase a digital refractometer, it could have both a BRIX and a Clinical refractometer reading option and then you have Gizmos 3 and 4 all in one machine.

After passive transfer is determined, then the focus for reducing treatments is to collect samples for monitoring overall cleanliness of the operation. This leads us to:

#### **Gizmo Number 5: Sterile Sample Bottle**

There are two key areas to collect samples.

- Colostrum feeding is important but it must be clean. Take a sample of the colostrum going into the calf's mouth. We want the sample taken from the end of the tube feeder or the nipple just before it goes into the calf's mouth. Take this sample and put it on ice and send to a lab for a Standard Plate Count (SPC) or a Total Plate Count (TPC).

The goal for this colostrum sample is: <100,000 cfu/ ml

- The liquid milk being fed also needs to be tested for plate counts. Take this sample from the end of the nipple bottle or from the bucket the calf will be drinking out of. This milk should not contain either antibiotics or added direct fed microbials (good bacteria).

The goal for the milk feeding sample is: <20,000 cfu/ ml

#### **Keep Calves Growing (Overall Performance)**

The key overall statistic that most people are keeping track of when it comes to overall performance of calves is their weight gain. DCHA has also published standards for growth rates to monitor:

- Birth to 60 days of age= double birth weight
  - o Example: 90 # calf at birth should = 180 # at 60 days or age or 1.5 #/ calf/ day
- 61 to 120 days of age = 2.2 lbs average daily gain
  - o Example: 180 # calf at 60 days of age should weigh 312 pounds at 120 days.
- 121 to 180 days of age= 2.0 lbs average daily gain
  - o Example: 312 # calf at 120 days of age should weigh 432 pounds at 180 days.

#### **Gizmo Number 6: Scale for tracking weights**

The easiest way to do this is to track your weights when you would move your calves anyway. The easiest one to track is going to be when calves are moved from the liquid milk phase housing to the "grower" pens. This is commonly in the 55 to 70 days of age range. All you need is the calf's age and their weight.

$$(\text{Move Weight of calf} - \text{Birth weight}) / \text{Days of Age} = \text{Average Daily Gain}$$

One can get birth weights on the calf using a scale or one can estimate birth weights. Estimated birth weights work very nicely if an educated guess is used and then is not changed so there is a constant to compare to. The older the calf becomes when weighed, the less significant the birth weight becomes.

There are three practical ways to measure calves. These are:

1. Individual scale: This is the best and provides individual variations in growth rates so you can better manage your program.
2. Individual weight tapes – taken around the heart girth. This is a tape that correlates weight with circumference of the animal. This is much more variable but can be a simple, cheap way to monitor growth. It will give a number but is probably best when simply comparing different animals over time on the same operation. Always use the same person to measure since how tight they pull the tape can affect the numbers being read.
3. Group weights on a trailer. This is often the easiest way to get weights. Whenever calves are loaded onto a trailer, they can be weighed as a group. The total weight is then divided by the number of calves on the trailer. It is best if the calves are all the similar age so that an average can be used. If the animals vary more than a week in age, then the average growth rates will be less valuable. Overall, the group weights can work but they are best when used with similar aged calves and it is done over time so that a good historical perspective can be used when interpreting trailer weights.

#### **Summary:**

Calf performance is important. The use of different tools (gizmos) as noted above can remove guesswork from how your program is working. Without the monitoring techniques as noted above, a calf program can start to drift and before we know it, the calves are not doing well anymore.

Take the time to implement the monitoring techniques outline above to make sure your calf program continues to be a success.