

# DAIRY NEWSLETTER

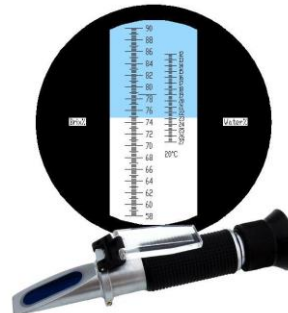
## BRIX REFRACTOMETERS

Getting calves off on the right foot is essential. Colostrum management can never be stressed enough. The Animal Care program of ProAction will even mandate all farms to have a Standard Operating Procedure in place for feeding colostrum. But talking about it, reading about it and having a protocol in place can only go so far. There are simple, cost effective ways to measure how well your program is working, that could be implemented on all farms.

### What is a BRIX refractometer?

A BRIX refractometer is a simple tool that measures the amount of solids that are in a solution. It has been used in the maple syrup industry for years, but has been found to be very useful in the dairy industry to measure the amount of solids in milk or milk replacer and to determine if colostrum is of good enough quality to feed.

There are two types of BRIX refractometers – optical and digital. The optical unit is most commonly used, and is available at the Kirkton Vet Clinic. This unit requires the user to hold it up to a natural light source and read the results, much like a mercury thermometer. A digital unit has the advantage of giving the user a digital print out of the number so there is no guessing of where the line appears, however the unit cost is more than double the optical version.



### What can it be used for?

- *Testing the quality of colostrum:*
  - A BRIX can be used easily on farm to confirm if colostrum has enough antibodies in it to make it a good quality sample to be fed to a calf
  - It is a more convenient test because it requires only a drop of colostrum and it isn't affected by the temperature of the colostrum, or by storage conditions, like a colostrometer would be.

	<u>GOOD</u>	<u>BAD</u>
Colostrum	>22%	<18%

- If colostrum is GOOD, you can feed immediately or freeze for future use
- If colostrum is BAD, you know to discard it and feed the calf packaged or frozen colostrum
- If colostrum is between 18-22%, you can choose to feed it, but feed more of it OR you can choose to discard it and feed the calf packaged or frozen colostrum



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- *Testing the solids of milk:*
  - It can be difficult to determine if the milk being fed to calves has been (inadvertently) diluted with water. It doesn't take much water for milk to lose a lot of its nutritional value.
  - A BRIX analysis can easily and quickly determine the amount of solids in the milk

**Milk with a BRIX reading of 10.9% is equal to 13% solids**

**Milk with a BRIX reading of <10.4% is <12.5% solids, has been diluted and should not be fed**

- *Testing the solids in milk replacer:*
  - The BRIX can be used to verify that each batch of milk replacer is mixed consistently so that calves are not being short changed on the amount of solids (fat and protein) that they receive and gut health is optimized due to consistent, routine feeding regimes.
  - If you are feeding calves using an automatic calf feeder, it is recommended to test your mixed milk replacer at least once per week to ensure the feeder continues to calibrate and mix correctly.
  - If you are mixing the milk replacer yourself, it is best to test your mixed milk replacer every bag/batch or shipment, as there can be a significant amount of variation between bags or batches.

**It is not uncommon to have variations of up to 5% solids between batches of milk replacer. If you eat 5% less solids, you are dieting. If you feed calves 5% less solids you are going to restrict their growth!**

- *Testing the amount of immunoglobulins in a calf's blood*
  - Blood can be collected from calves between 1-7 days of age and the serum (a component of the blood that separates off either with time, or when spun down) can be tested to see if the calf acquired enough protective antibodies from colostrum
  - This test should be run in the face of a disease outbreak, as well as randomly to ensure that colostrum management continues to be effective.

**Serum with a BRIX reading of <8.4% is considered failure of passive transfer and the calf is at an increased risk of developing disease or death!**

### **Limitations to the BRIX**

Nothing in life is perfect, and the BRIX is no exception. After each use, you must be diligent to wipe the unit's glass slide with a clean alcohol swab to ensure any fat from the milk or milk replacer is removed, otherwise it may distort future readings.

The BRIX does not give you any indication regarding the bacterial contamination of the colostrum, milk or milk replacer. Regardless of frequency of testing, it is important to always use proper collection and handling techniques so that bacterial contamination does not become an issue

**BRIX refractometers are available for purchase at the Kirkon Veterinary Clinic.  
Come in and pick yours up today!**