Measurement of Mare Colostral IgG Content Using a Brix Sugar Refractometer

Brix Sugar Refractometer: The Brix Sugar Refractometer is a simple, quick method to estimate the IgG content of a mare's colostrum post foaling. Place a couple of drops of colostrum at 20 degrees C on the refractometer and read the level. Normal is greater than 20%.

Failure of Passive Transfer

At foaling: Check Colostrum Brix Sugar % before the foal nurses. Normal is greater than 20%. The refractometer requires just a couple of drops of colostrum and provides an accurate prediction of which foals are most likely to not absorb enough colostral immunoglobulin to obtain adequate immunity.
If the Colostrum Brix Sugar % is less than 20%, this provides an early opportunity to intervene and supplement the foal with banked frozen colostrum (see example listed below), and therefore save the high cost of supplementary plasma that must be administered by a vet later.
If the Colostrum Brix Sugar % is equal or greater than 20%, it is recommended that you consider saving 250 mls for the colostrum bank. Most foals initially nurse off of just one side of the udder. Collect the colostrum after the foal first nurses and use the side from which the foal did not nurse (or nursed least). Store the colostrum in a zip lock bag in the freezer and mark on the bag the name of the mare and the Colostrum Brix Sugar %.

If you check the blood level of IgG at 8 - 16 hours Post Foaling:
IgG < 200: Supplement with colostrum or plasma.

IgG 200 – 400: Supplement with colostrum.

IgG 400 - 800 mg/dl: Monitor foal. Supplement if foal shows signs of disease, or weakness.

IgG >= 800: Normal

If you check the blood level of IgG at > 16 hours Post Foaling:
IgG < 200: Supplement with 2L plasma.

IgG 200 - 400 and a Healthy foal: Supplement with 1L plasma.

IgG 200 - 400 and a Sick foal: Supplement with 2L plasma.

IgG > 800: Normal

Guide to How Much Colostrum To Supplement

If the colostrum tests as less than 20% Sugar, please consult the table on the next page to calculate how much colostrum you need to supplement. The first section tells you how much **extra** colostrum you need to thaw from the freezer and give to the foal. The second section is a Key to allow you calculate how much IgG is contained in 250 ml (8 oz) of colostrum stored in the freezer. Add up the quantity of IgG in each of your bags to calculate how much you need to give the foal.

Example:
Mare Colostrum 14 % Sugar Chart shows foal needs another 30 gms of IgG
Therefore look in freezer and find out what colostrum is available to supplement the foal. There are 4 bags of 250 mls of colostrum in the freezer:

Bag 1	Sugar % = 20	Contains 10 gms
Bag 2	Sugar % = 23	Contains 13.8 gms
Bag 3	Sugar % = 25	Contains 15.5 gms
Bag 4	Sugar % = 31	Contains 21.3 gms.

Select any combination of bags to make up at least 30 gms of IgG. E.g. Bag 1+2+3 or Bag 1+4.

Mare Colostrum

Refractometer %Sugar	***Extra Colostrum Needed***
<12	**40 gms IgG**
12-16	**30 gms IgG**
16-17	**20 gms IgG**
17-19	**10 gms IgG**

Bank Colostrum

Refractometer % Sugar	***IgG gms in 250 ml bottle***
10	0.5
12	2.5
14	4.3
17	8.0
19	10.0
21	11.8
23	13.8
25	15.5
27	17.5
29	19.3
31	21.3
32	23.0
34	25.0