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TECHNICAL INFORMATION FOR TODAY'S FEED PROFESSIONAL

Wheat as an Alternative Protein in Milk Replacers

It has become the standard to feed milk replacers containing all milk protein when feeding replacement heifer calves. The reason for doing this is really quite simple. A milk replacer containing all-milk protein offers the following:

1. Milk proteins are highly digestible in the young calf.
2. Milk proteins are highly soluble in water and do not settle-out over time.
3. Milk proteins are highly researched and provide consistent performance and growth.

The only real negative associated with milk replacers containing all milk protein is that they typically cost more than using alternative protein sources. It is cost that has driven the interest in using alternative proteins in calf milk replacers.

Alternative proteins are typically coming from soy based ingredients (soy protein isolate, soy protein concentrate and soy flour), egg based proteins and there are blood byproducts that can also be used. The use of soluble wheat gluten has also been looked at recently. This ingredient has been used in Europe for many years and also has been used in the veal industry but has seldom entered the replacement heifer market until recently. A real advantage of wheat is that there are no known antigenic factors that can be found in soy ingredients and it is highly soluble leading to little settle-out over time.

In a recent study conducted at the University of Minnesota's Southern Research and Outreach Center (SROC) in Waseca, MN, soluble wheat gluten was looked at along with an all milk protein containing milk replacer and a soy protein concentrate milk replacer in replacement heifer calves. This study offers a good look at what these types of milk replacers can offer to a calf raiser. The summary of growth is below:

Summary of Wheat Trial (56 day feeding)

	All Milk 20-20	Wheat 20-20	SPC 20-20
No. of Calves	25	25	24
Start Weight (lbs)	89.7	89.5	89.1
End Weight (lbs)	186.3	177.5	176.4
Average Daily Gain (lbs/day)	1.73	1.57	1.56

One can easily see that the all milk protein milk replacer performed better but what shoul not be discontinued is the performance of the alternative protein calves. Very few calf raisers can get over 1.5lb of daily gain on calves fed 1.25lb powder per head per day no matter their source of protein.

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The Milk Replacer Source™
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Another aspect to look at here is feed intake and feed efficiency. Here are the numbers:

Summary of Feed Intakes
(56 day feeding)

	All Milk 20-20	Wheat 20-20	SPC 20-20
Milk Replacer Intake (lbs)	48.2	47.8	48.0
18% Calf Starter Intake (lbs)	126.1	113.5	119.8
Total Intake (lbs)	174.3	161.3	167.8
Total Gain (lbs)	96.6	88.0	87.3
Feed Efficiency	1.80	1.83	1.92

Once again, milk proteins have better feed efficiency but the wheat protein fed calves are pretty close in feed efficiency.

The last issue to look at is health.
Here are the results from this study:

Summary of Health Data
(through 56 days of trial)

	All Milk 20-20	Wheat 20-20	SPC 20-20
Serum Protein of Calves	5.00	5.22	5.34
Fecal Scores (day 0-14)	1.88	1.90	1.85
Scouring Days (Day 0-42)	3.32	3.44	3.83
Avg. Treatment Costs (Day 0-56)	$1.27	$1.88	$2.15

The data supports the use of all milk proteins but the use of alternative proteins is still pretty good and none of the above health numbers are statistically significant.

The current recommendations are to continue to use an all milk containing milk replacer for replacement heifers unless your goal is to save some out of pocket expenses. If this is the case, a good look at alternative proteins should be considered. The performance with an alternative protein like wheat is still very good and may offer a calf operation a significant cost savings in certain ingredient markets.

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