

# LOW COST COW/CALF PROGRAM

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## Laboratory Reports

It is not uncommon to receive a laboratory analysis report with a note stating, "This sample was tested twice for Nutrient X to confirm the value(s) listed." The second analysis was conducted because the initial value fell out of the generally accepted normal range. Either the computer flagged the abnormal value or the technician saw it and said, "oops, better check it." A couple of entities commonly flagged are Ash and ADICP. Ash is inorganic mineral contained by forage but also will reflect any dirt picked up when the sample was collected. Ash is one of the seven entities used in the calculation of energy (TDN). The higher the Ash, the lower the energy. ADICP also is used in the calculation of energy contained by forage. It reflects the unavailable protein contained in the forage and can be changed by the manner in which the sample is cared for. If the sample bag is sealed prior to freezing, heat of fermentation can increase the ADICP level. Carting the sample around in the hot cab of a pickup for any period of time will accomplish the same thing. A high level of ADICP is reflected in a lower forage energy value. We do not see zero values, however, in a laboratory report (very close to it at times - such as cobalt, selenium or iodine at <0.1 ppm). The miniscule levels are reported in the "less than" format because that is the limit of sensitivity of the equipment or laboratory procedure.

## A Bunch of Values

This office receives hundreds of laboratory reports every month. They arrive by mail, fax and the Internet. The bulk of those via the Internet are from clients with whom we consult. The client literally enters the laboratory values onto a special sheet located in his/her secure Internet file for our use only. Still other reports arrive by Internet from non-clients who simply have a question or need assistance with their supplement formulation. These reports are generally uploads in Excel or Lotus formats where the sender has entered the laboratory data. This is where zero laboratory values are found. The reporting Rancher has decided that his/her forage is

absolutely deficient in one or more nutrients, regardless of the results of the laboratory report. The cattle are suffering from these deficiencies. The Rancher wants to be certain that plenty of the nutrients are present in the supplement so the forage content (of the nutrients) is shown as zero. For the well being of the cattle and bank account, should the forage nutrient composition be ignored?

## If a Little is Good - - - - -

A couple of years ago, the U of NE<sup>1</sup> reported on a study with 2 y old first-calf cows. They were fed higher-than-recommended levels of Cu, Co, Mn and Zn in both organic and inorganic forms. The basal diet was hay; corn was used as the mineral transporter. After calving, cows were assigned to one of three treatment groups. The treatments consisted of control (no supplemental TM), organic (copper lysine, cobalt glucoheptonate, manganese methionine and zinc methionine) and inorganic (copper sulfate, cobalt carbonate, manganese sulfate and zinc sulfate). The Feb calving cows received the diets for 60 days from Mar 15 to Apr 15. The study was conducted in 1994 with 127 cows and replicated in '95 with 109 cows. Daily mineral consumption is shown in the table below.

Total trace element intake mg/d			
Element	Control	Organic	Inorgan
1994			
Copper	56	175	176
Cobalt	5	27	27
Manganese	352	518	522
Zinc	172	513	515
1995			
Copper	44	164	167
Cobalt	8	29	30
Manganese	1406	1467	1575
Zinc	143	486	496

## More is better?

The cows in the supplemented groups re-

<sup>1</sup> Olson, PA, DR Brink, DT Hickok, MP Carlson, NR Schneider, GH Deutscher, DC Adams, DJ Colburn, AB Johnson. 1999. Effects of supplementation of organic and inorganic combinations of copper, cobalt, manganese and zinc above nutrient requirement levels on postpartum two-year-old cows. J. Anim. Sci. 77:522.

ceived approximately twice the recommended levels of the mineral (with Co extremely high). No differences were found between years for percentage open following 70d of breeding. Breeding performance is shown in the following table. When it comes to conception rate of first-calf cows, **more** definitely is not better.

Reproductive performance in 70 d breeding periods			
Trait	Control	Organic	Inorgan
No. of cows	80	78	78
% Open	0	14.1	14.1

Cow weights and BCS were not different among treatments. There were no differences among treatments in calf gain from birth to May 15. In '94, 70% of the calves scoured and in '95, 90% had to be treated for scours. No differences were observed among treatments. Serum mineral concentrations did not differ for treatments. While serum mineral content commonly is used to determine mineral status of an animal, it is a very poor indicator. Even so, big-time changes in supplements are made in response to serum mineral levels. Conversely, liver copper concentrations did reflect dietary copper. The organic and inorganic groups did not differ from each other at any time. Liver zinc and manganese levels were not influenced by treatment. Cobalt could not be recovered. I very much like Joe Robinson's Website "eatwild.com." It may be cool for us but cattle must not get wild with their trace mineral package.

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