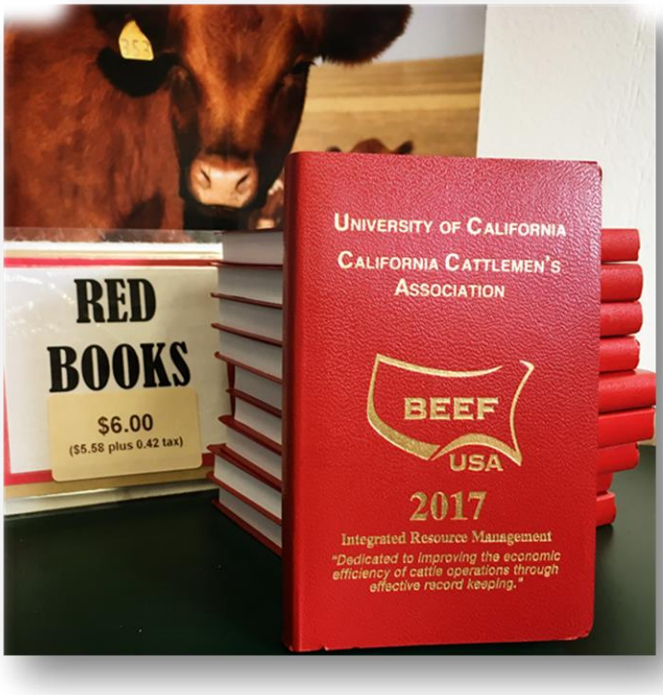
SISKIYOU STOCKMAN

Livestock & Rangeland News

Fall 2016

RED BOOKS ARE NOW AVAILABLE FOR THE 2017 CALF CROP

The Redbook is a pocket-sized record keeping book with more than 100 pages to record calving activity, herd health, pasture usage, rotation and cattle inventory. It serves as a date book with pages for notes and an address section. Red Books also include Beef Quality Assurance national guidelines and proper injection technique information. These are useful for any species. Books are $6.00 (checks preferred) and can be picked up at the UC Coopertive Extension office 1655 S. Main St. Yreka, CA 96064.



UCCE ADVISOR UPDATE

A UC Renewable Resources Extension education grant was recently awarded to conduct integrated riparian weed management workshops in Siskiyou and Tehama counties. The purpose of these workshops will be to share practical integrated weed management practices that enhance agricultural production and meet habitat conservation objectives in riparian corridors.

CALIFORNIA CATTLEMEN'S 100 YEAR CONVENTION

December 1-3, 2016 in Reno, NV. For more information, contact CCA at (916) 444-0845 or visit their website at calcattlemen.org.

In This Issue

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CONSIDERATIONS FOR STORING AND FEEDING RAINED ON HAY

Original article by: Josh Davy – UCCE Livestock and Rangeland Advisor & Peter Robinson UCCE Nutrition Specialist

Fire and mold that cause feeding avoidance and toxicity are worries that arise from rain damaged hay. While early Fall storms are welcome following the drought, they have created circumstances that have left hay out in the weather. This article gives a few scenarios and nutritional pointers when thinking about when and how to make proper decisions for feeding moldy hay to avoid potential fires or sick livestock.

Fire

Rain allows mold spores which are always in dry hay (but largely inactive in a dry state) to grow and reproduce. Without water and oxygen there is no growth. Heat is caused as a by-product of spore growth and, if it cannot dissipate faster than it is created, there is the risk of spontaneous combustion. Since hay isn't wrapped air tight like silage, all that we can attempt to control is moisture.

Hay moisture probes are available at many farm supply stores and online. Contact your local Farm Advisor if you cannot find one and/or need to borrow one quickly. Moisture readings below 10-15% are usually of minimal concern for spontaneous combustion and/or mold development. However, hay with 15-20% moisture is cause for caution, and moisture levels above 20% will very likely mold and pose a fire risk.

If you are suspicious of a stack of hay, then monitoring temperature is imperative to assess the risk of imminent fire. Temperatures that rise to, or even slightly exceed, 120^{o}F are a worry and cause for further monitoring. At 130^{o}F, monitoring the stack daily should be a priority, and at 140oF, the stack should be dismantled to individually dry the bales. If the stack exceeds 150^{o}F it will likely combust and the fire department should be called immediately, because the risk of combustion once the center of such a stack is exposed to oxygen is very high.

Feeding molded hay damaged by rain

While horses should never be fed moldy hay, cattle can consume some moldy hay. Generally, it is not the mold which are the problem, in the sense of making the cattle ill, but the toxins that are created by some of those molds. So molds that do not create toxins are not particularly dangerous to cattle, although the cattle will naturally avoid consuming most moldy hays due (presumably) to learned behavior that some molds make them sick. So, for example, if moldy hay is spread out in the sun and dried, then the molds will stop growing, although there will be lots of dead molds present, but only if toxins were created will there still be a danger from the material. Drying changes little relative to feeding safety.

In general, cattle will avoid moldy hay and, in the case of bales with moldy exteriors, they will avoid those areas in favor of the center of the bales which is much less moldy due to a lack of oxygen and moisture. But when you combine hungry cattle and moldy hays there is potential for disaster. However, if hays are going to be placed into a total mixed ration, that creates higher risk (animals can no longer easily avoid moldy hay) but simultaneously reduces risk (by diluting the molds in the diet consumed). Keep in mind that it is the mold count in the whole diet that counts.

It is not difficult to send a sample of hay to a lab for mold/yeast counts (not expensive) and if those values are above thresholds there are guidelines (below) as to how to feed it. These are general guidelines that more-or-less assume that the higher the mold counts the greater the likelihood that some of them will create toxins. While the actual mold types can be speciated (identified) this is expensive and generally only identifies some of the dangerous molds. So speciation can find toxin forming molds, but may not find all of them. In other words, a positive finding for some toxin producing molds indicates risk, but a lack of such a finding does not guarantee safety.

Below is a 6-point mold scoring system useful for whole mixed diets (where cattle selectivity is very limited) or hay is essentially fed as the whole diet:

1 = <500,000 (low mold level)
2 = <1,000,000 (safe to feed)
3 = <2,000,000 (caution is advised)
4 = <3,000,000 (observe for abnormal symptoms)
5 = <4,000,000 (dilute with mold free feed)
6 = >5,000,000 (do not feed unless at very low levels and in a really well mixed ration)

METHODS OF SELENIUM SUPPLEMENTATION AND ASSOCIATED WEIGHT GAINS IN BEEF CATTLE

Josh Davy – UCCE Livestock and Rangeland Advisor, Tehama, Glenn, Colusa and Larry Forero – UCCE Farm Advisor, Shasta, Trinity

Selenium (Se) deficiency in California livestock species is widespread, having been estimated to exist in excess of 60% of herds in the state. Selenium is an essential nutrient for all animals including cattle. The importance of correcting Se deficiencies is well documented. Adequate Se levels have been found to booster immunity, thereby reducing mortality, diarrhea, and increasing disease resistance in cattle. We completed two trials to determine how commonly used Se supplement products corrected Se deficiency and monitored the resulting weight gains in yearling cattle.

The first trial included 80 hd with 20 steers in four treatments of:
1) 3 cc of a 5 mg/ml injection of sodium selenite (15 mg Se/head, Muse)
2) 5 cc injection of a 5 mg/ml sodium selenite in a mixture of zinc oxide, manganese carbonate, and copper carbonate (25 mg Se/head, Multimin)
3) Se oral bolus designed to release not more than 3 mg/head/day
4) Control

The cattle in the first trial were weighed every 30 days for 90 days and sampled for whole blood Se at day 30 and 90. At sampling 30 days after initiating the treatments (Figure 1), all of the Se treatments had increased Se whole blood levels on a herd average to within an adequate range of 0.08 ppm. However, at 90 days after treatment only the Se bolus managed to maintain levels at or above the adequate level.

The second trial built on the first one by testing the ability of a salt based supplement with 120 ppm of Se to raise whole blood levels of cattle (48 hd treatment 1). A small subset of cattle were separated as a positive control with a bolus (6 hd treatment 2) and a true control with no treatments (6 hd treatment 3) so that we could determine any relationships between Se levels and cattle weight gain. We weighed and collected whole blood Se samples of all 60 hd every 21 days for 85 days.

As seen in the first trial the control cattle started and remained deficient in Se, and the bolus treated cattle reached adequate levels rapidly and remained around adequate. The salt supplement was successful in raising Se levels within the first 21 days, but took 90 days to fully produce herd average adequate levels of Se (Figure 2).

Figure 1. Selenium whole blood levels (ppm) based on treatment and sample date for trial 1. Adequate is considered 0.08 ppm

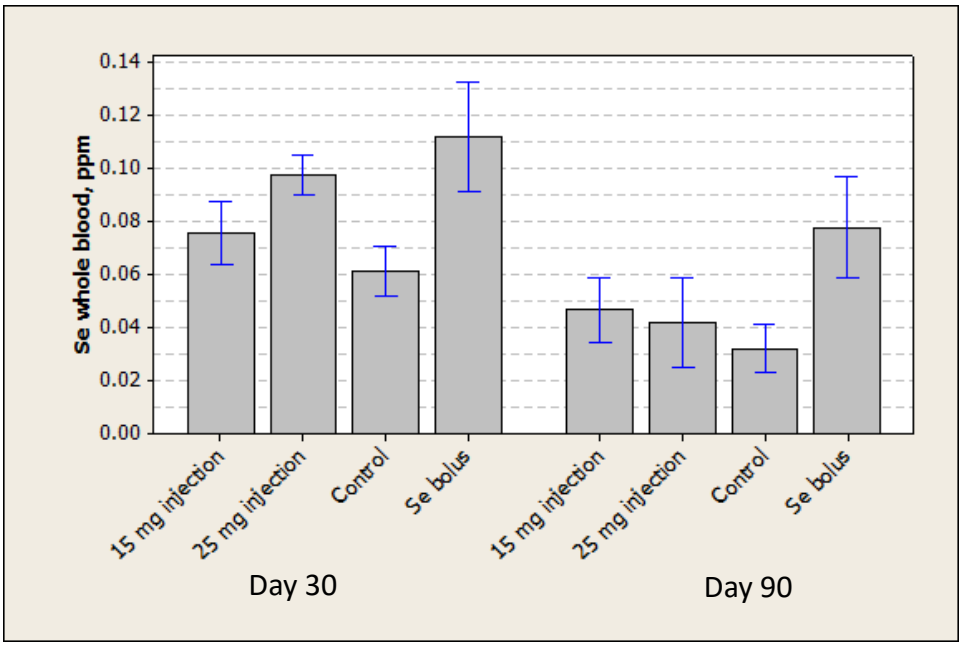
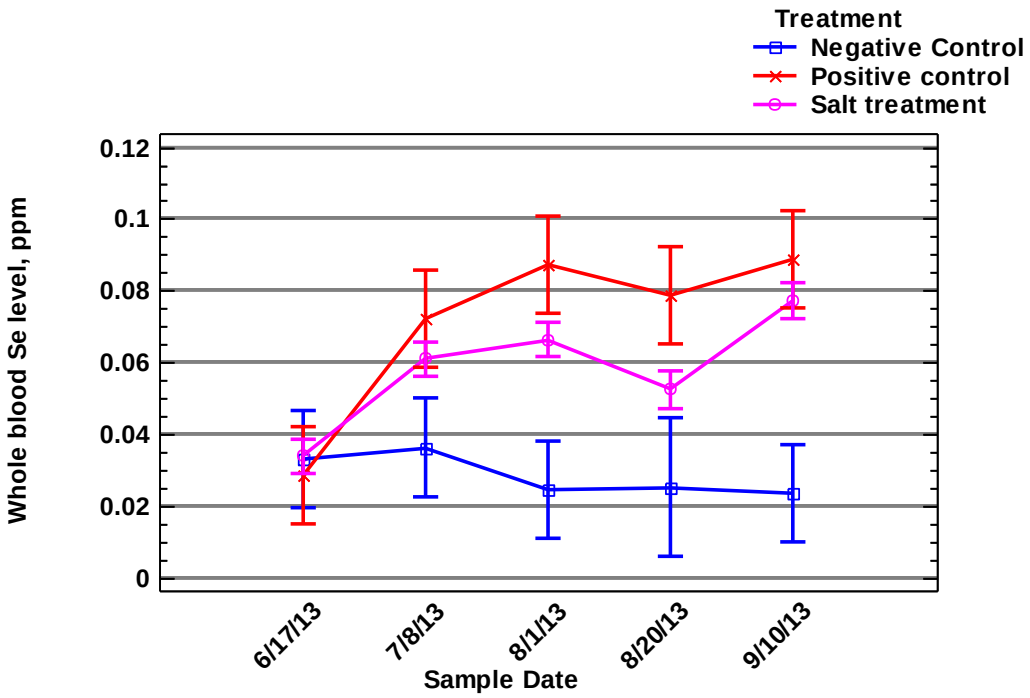


Figure 2. Whole blood selenium response by treatment and date for trial 2. Adequate is considered 0.08 ppm



Correcting Se deficiency

Our data showed the rumen bolus method of supplementation appears to be a very dependable method of supplementation, particularly if Se is the only deficient mineral.

The injections do elevate Se levels. In our trial, the higher injection dose at 25 (Multimin) vs. 15 (Muse) mg Se/hd provided significantly higher whole blood Se levels than the lower dose at 30 days post treatment. In this time frame, the higher dose was equal to the Se bolus treated cattle, however the benefits didn't last as long. Our results suggest that at 90 days, an injection of Se should not be expected to provide any supplemental benefit regardless of dose. However, this method may be a practical consideration when combined with the salt based supplemental method.

The greatest benefit of a salt based supplement is that it allows multiple minerals to be supplemented at the same time. Our second trial found that it was possible for the herd to reach an adequate level of selenium with this supplemental method. The difference between this method and the others is that it takes a longer time period to bring deficient cattle to adequate levels. This treatment did increase whole blood Se levels soon after the supplement was placed into the treatment pasture, but remained at a marginally deficient level until the final sampling.

Whole blood selenium levels corresponded to consumption of the loose mineral supplement. Intake levels were high when the supplement was first placed in the pasture (Table 1). At 5.6 oz/hd/d consumption, the corresponding Se intake was 19 mg/hd/d, which is similar to levels administered through Se injection. With Se intake of 9 and then 8 mg/hd/d average whole blood Se levels remained the same and then declined. Yet again, when the herd average intake increased (15 mg/hd/d) the corresponding Se whole blood levels again increased significantly. This data indicates the importance of continued consumption of the supplement in known deficient areas. Seasonal supplementation, such as only during the breeding season, does not appear to be a method to adequately maintain Se levels.

Table 1. Period average consumption of the loose salt mineral and associated Se uptake of the whole herd

Sample dates	Loose salt consumed, oz/head/day	Actual Se consumed, mg/head/day	Herd average Se blood level, ppm
7/10/2013	5.63	19	0.06
8/1/2013	2.76	9	0.07
8/20/2013	2.26	8	0.05
9/10/2013	4.43	15	0.08

Though they did very well at a herd average, no supplemental method, including the bolus, brought all animals to adequate levels. Table 2 depicts the percentage of the salt treatment cattle that were still deficient or severely deficient as compared to the herd average Se level at each sampling. Surprisingly all treatments were similar in this effect. Though the salt treatment reduced the percentage of cattle that were severely deficient by four times, there were still 21% of cattle that were severely deficient when the herd average was adequate. Even the bolus, which was considered a reliable long term treatment, left 23% and 17% of animals severely deficient in trials one and two, respectively. Combining supplementation methods may decrease the overall number of deficient cattle. This may include practices such as administering Se injections at the beginning of the supplementation period and then providing salt supplement as a means to maintain Se levels.

Table 2. Average herd whole blood level and corresponding percentage of cattle below adequate and severely deficient in the salt supplemented group of trial 2.

Date	Average Se blood level, ppm	% below 0.08 ppm	% below 0.05 ppm
6/17/13	0.03	100%	88%
7/8/13	0.06	73%	33%
8/1/13	0.07	69%	29%
8/20/13	0.05	88%	58%
9/10/13	0.08	54%	21%

The Influence of Se on weight gain

Weight gain was surprisingly not a function of Se whole blood level. Both trials had significant variance in animal Se levels and neither proved significantly attributed nor correlated with gain differences based on Se. This does not infer that correction of low Se levels is not important. Previous Se supplementation studies have found significantly increases in immune response in calves, antibodies in yearling cattle, and vaccine antibody response. It appears that Se may not directly influence weight gain as do factors such as energy (TDN) in a ration, but rather indirectly with factors such as health. Reductions in weight gain may only be noticed in Se deficient cattle that experience some sort of immune challenge, which secondarily reduces weight gain. The possibilities for this type of challenge could be numerous including parasite and disease infections which are commonly faced by beef cattle. It is likely in our two controlled trials that these challenges were minimal due to many factors such as contained herds with little exposure to outside cattle or off ranch forage sources. However, it could be speculated that at some time an immune challenge would occur resulting in any number of animal health problems of a Se deficient group of cattle.

WOLVES, LIVESTOCK AND PEOPLE: WORKSHOPS IN CALIFORNIA & OREGON

Overview

The essential relationship between stockmanship and stewardship will steer discussions about people, wolves and livestock in Northern California and Southern Oregon.

With a focus on the importance of merging ranchers' expertise about their livestock, their land and surroundings with science-based and practical experience about wolf biology and behavior, we will work together to craft solutions that benefit livestock producers while reducing large carnivore-livestock conflict.

Presenters

The Working Circle Collaborative's Timmothy Kaminski joins Ranch Manager and Cow Boss, Joe Englehart and Wolf Specialist, Carter Niemeyer to apply a combined 70 years of experience on wolf-livestock interactions, agriculture and livestock operations to Northern California's and Southern Oregon's working landscape.

Workshops are aimed at four benefits in assisting ranchers:

- Understanding gray wolves and their behavior;
- Recognizing areas and/or conditions that pose risks to livestock;
- Appropriate scale and solution-based focus on problems and their causes; and
- Management options and stockmanship practice for improving range and livestock production while reducing wolf-livestock conflict.

Workshop Locations and dates:

Ft Jones, CA Nov 11 9am-4pm
Fort Jones Library

Yreka, CA Nov 12 9am-4pm
Holiday Inn Express

Ashland, OR Nov 14 9am-4pm
Holiday Inn Express

Bonanza, OR Nov 15 9am-4pm
Bonanza Community Center

McCloud, CA Nov 16 9am-4pm
McCloud River Mercantile Hotel

McArthur, CA Nov 17 9am-4pm
Inter-Mountain Fair & Event Center, Heritage Room

Quincy, CA Nov 18 9am-4pm
Plumas Sierra Country Fair, Serpilio Hall

Additional discussions will include:

- Understanding depredation investigation.

Through cooperation and mutual respect, the workshop will provide an open format for questions and discussion.

Refreshments and snacks will be provided throughout the day.

Sponsored by the
Working Circle Collaborative

For questions email:
contact@workingcircle.org

SISKIYOU STOCKMAN

Livestock & Rangeland News

Sincerely,

Carissa Koopmann Rivers

Livestock and Natural Resources Advisor
Siskiyou County

Siskiyou Stockman is a newsletter published by the Farm Advisor's office containing research, news, information, and meeting notices related to the areas of livestock production, irrigated pasture, range, and natural resource management.

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