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Northern California Ranch Update

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Beef Improvement Federation Annual Meeting Highlights, Sacramento, CA

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The Beef Improvement Federation convention was held in Sacramento in early May. This meeting was attended by over 440 registrants from 12 countries, 6 Canadian provinces, and 37 states. Genomics was a major theme of the convention. The talks ranged from extremely theoretical laboratory work to application of the technology at the ground level. We understand that not everyone had the time to attend the session and have summarized a few of the high points below.

Continuing advances in the techniques for DNA testing, particularly in the human medicine field, are cascading down to cattle work, with lower costs and tests that can now assay for thousands of genes.

Cattle genome research and data are handled very differently between dairy and beef breeds: dairy breeds have significant database recordkeeping with the USDA, while beef breeds are primarily housed with breed associations. This may have significant impact on the development of genomic information for beef breeds, and places severe constraints on some smaller breeds.

Development of DNA tests and use in breeding decisions will not easily transfer across breeds. That is, the way a gene marker is associated with a trait in one breed may not be the same it is associated with it in another breed. Early research findings emphasize results from "discovery" populations of cattle (the cattle used in the initial research on a particular gene or gene marker) do not necessarily apply to a different population or group of cattle even in the same breed. Gene markers that are found to be important in a discovery population of cattle should be tested or verified in a different group of cattle to confirm their effect.

Evolving research shows traits are likely controlled by 100s or 1000s of genes. The condition or make-up of a few genes typically will not have a major impact on a trait. The suggested model for implementing results from 100s or 1000s of genes or gene markers is a "marker-enhanced" EPD which will include existing pedigree and performance data if available for the trait. It is hoped that eventually all DNA information will be incorporated into a single EPD value that explains significant amount of the genetic variation in a trait (i.e. is highly accurate).

Results from DNA tests will be incorporated into American Angus Association EPDs sometime within the next 12 months. Producers won't necessarily see the DNA test results or need to understand them, the results will be incorporated into the EPDs that you already use. Using the DNA data should help to improve the accuracy of EPD's. A DNA test for management, such as sorting cattle in feedlots, was also discussed. Cargill is using a DNA test to sort cattle into feeding groups, and it was reported that they receive an estimated $2 return for each $1 spent on tests. It is important to remember this is not the same as using DNA tests for breeding decisions.

Within the foreseeable future it is likely that DNA-based information will allow for the development of EPDs that are:

- More accurate
- Available for young animals (e.g. yearling bulls)
- Describe traits not currently included in genetic evaluations (e.g. cow fertility, stayability).

Today producers can prepare by determining traits that would be most helpful for their particular production conditions. This may involve "creative" thinking about traits that are not commonly described or available today. Some of these traits might include things like the typical ribeye area of their calves at harvest, longevity, and reproductive efficiency, and tenderness, chemical composition of the meat, behavior, and disease resistance potential.

Factors that influence profitability at the ranch level are most important for immediate consideration, however factors important industry wide are also relevant, and eventually are likely key components to long-term profit.

These tools have the potential to significantly improve the predictability of beef cattle performance in the foreseeable future. Take the time to keep informed advances in this fast-evolving field.

Irrigated Pasture Clipping Height Project

Larry Forero, UCCE Shasta/Trinity Counties
Josh Davy, UCCE Tehama/Glenn/Colusa Counties
David Lile, UCCE Lassen County
and Mel George, CE Specialist UC Davis

The effect of grazing height was evaluated during the 2008 irrigated pasture season at Shasta College located near Redding, CA. Plots were clipped from April through October on 30 day intervals at three clipping heights; 1 ½", 4" and 8." A control plot was clipped at the end of the production season. All plots were clipped to 1 ½" level on November 1. The monthly harvest by clipping treatment is shown in Figure 1. Keep in mind that the 30 day "grazing interval" means that these plants had 29 days to recover from the removal of forage. Dominanat forage species in the plots included ladino clover, orchard grass, perla grass, bermuda grass, strawberry clover, and trefoil.

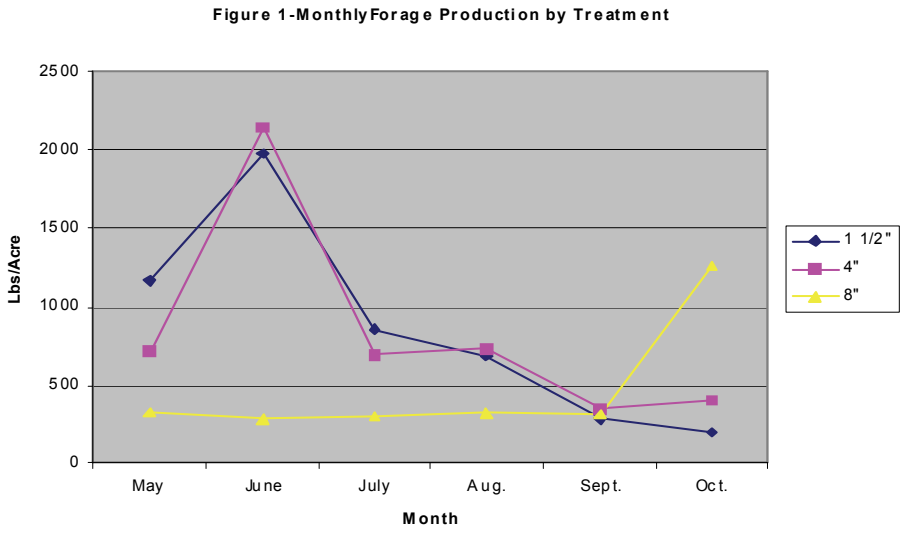
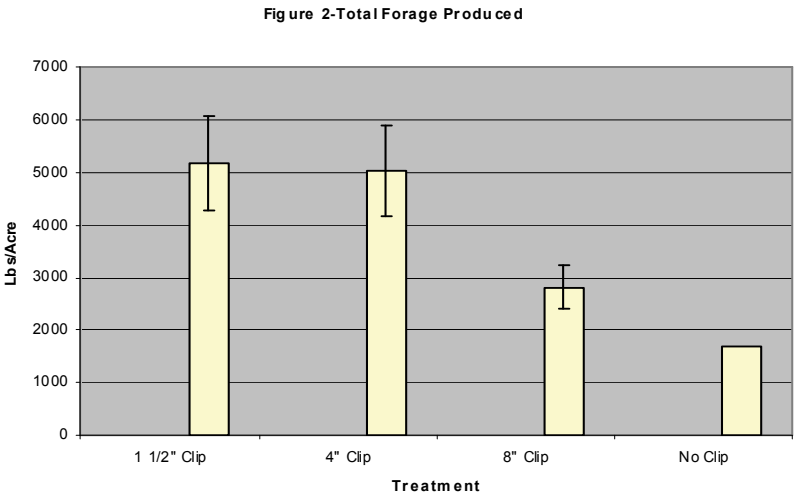


Figure 1 demonstrates little difference in monthly production between the 1 ½" and 4" grazing treatments. Holding the grazing at 8" resulted less monthly forage production.



It is interesting to note research by Raguse et.al (1967) reported grazing on a five week rotation (more time for plant recovery) resulted in 31% more forage production that a two week grazing interval (less time for plant recovery). This is consistent with Carter and Law (1948) who found tall fescue and crested wheat grass proceduced more tillers when clipped 5 times at 30-day intervals than did controls.

Conclusions:
There did not seem to be much difference between 1 ½" and 4" stubble heights in total or monthly production

The 8" and "no clip" treatments grew significantly less forage than the 1 ½" and 4" stubble heights. For producers who hold back fields to bank feed ahead of the livestock for late summer or early fall it may make sense to consider allowing livestock to spring graze those pastures then pull stock out to let it regrow.

Take this data with a grain of salt —
Keep in mind that this is clipping data—not grazing data. The plots were essentially "grazed" one time in a 30-day period. In a pasture situation that plant could have been grazed several times.

It is also important to recognize that at least for 2008 production between 1 1/2 and 4" clipping appears to remain similar BUT this is one year of data. Over time, this could change. Our intent was to repeat this study for the 2009 season was not possible because of the availability of irrigation water.

Carter, J.F.; Law, A.G. 1948 The effect of clipping upon the vegetative development of some perennial grasses. Journal of the American Society of Agronomy. 40(12: 1904-1091. [29174]

2008/09 Northern California Winter Pasture Experience

Glenn Nader and Larry Forero, UCCE Livestock Farm Advisors

Forage production on California annual range is highly variable. The real estate industry has consistently noted the influence location has on property values. This especially true with regard to forage production on annual rangeland. The 2008/09 forage year was an especially difficult year to predict. The dry fall coupled with the unseasonably open winter resulted in many producers shipping yearlings early. Stock water was also tight. The late spring rains came too little too late for some ranches and while on others provided significant help that resulted in a more "normal" forage year. Consider Figures 1 and 2. Figure 1 represents long term plot data on a ranch located near the Redding Airport with an average annual production of about 1500 lbs/acre. The annual production is estimated at about 60% of normal—the rain came too little too late.

Figure 1

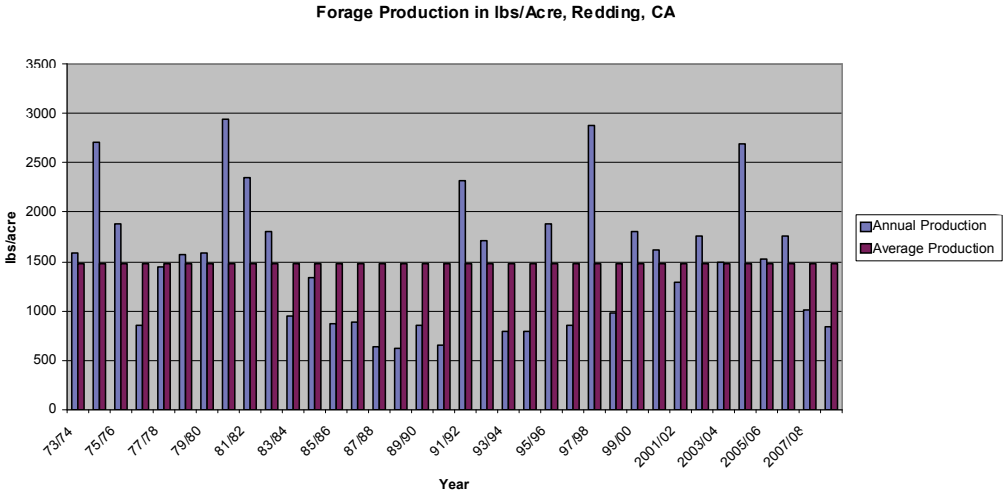
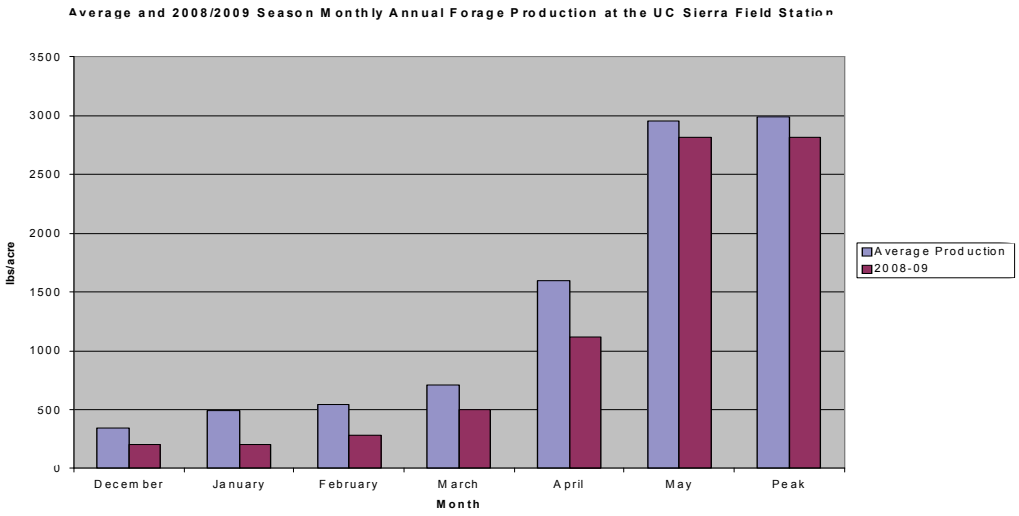


Figure 2 shows the average monthly and seasonal production at the UC Sierra Foothill Research and Extension Center near Marysville. The forage production predictions were very grim in the months of March and April and arrangements were being made to remove livestock. The rainfall received on the site in May resulted in the total forage production ending up at about 94% of normal. This situation was common across northern California. Many producers made arrangements and removed livestock from annual ranges and then the rains came as the last truck pulled out the gate.

Figure 2



While it is impossible to predict the rainfall and forage production for 2009/2010 season, stocking conservatively will help provide a buffer for those poorer rainfall years. You may want to consider some of the following to help buffer poor rainfall years.

1. Consider leaving back dry feed to come back to for the fall.
2. Carefully consider the annual rangeland you own or manage for opportunities to improve livestock distribution. The USCA NRCS Equip program can help provide funding for fencing and water development.
3. Look at vegetation closely. Is brush encroaching on areas that used to be grasslands? If so, consider contacting the local California Department of Forestry and Fire Protection to ascertain the possibility of conducting a Vegetation Management Program.

Dryland Hay Variety Trials in Glenn County

Josh Davy and Doug Munier,– UC Farm Advisors
Edited by Larry Forero and Dan Drake

Two dryland hay variety trials were conducted in Stonyford and Elk creek over the 2008/2009 growing season. Tables 1 and 2 outline the varieties, maturity dates, yield as well as crude protein and Total Digestible Nutrients (TDN) for the two locations. In early spring, an application of liquid nitrogen, combined with a broadleaf weed treatment, was applied at the Stonyford plot. The Elk Creek site was neither fertilized nor sprayed. The two sites behaved very differently. Both sites had comparable soils and tillage. Drought conditions and cold temperatures suppressed early production at the Stonyford site. The Elk creek site had warmer temperatures and more favorable soil moisture.

Table 1. Maturity dates, yield and quality of dryland hay varieties-at Elk Creek

Variety	*Date-Heading*	*Yield-Heading Lbs/acre*	*Date-Soft Dough*	*Yield-Soft Dough Lbs/acre*	*Crude Protein% Heading*	*Crude Protein% Soft Dough*	*TDN% Heading*	*TDN% Soft Dough*
Triticale (Camelot)	4/23/09	N/A	5/26/09	4,063b[1]	13.0b[1]	9.9a[1]	50.6a[1]	54.5a[1]
Cayuse Oats	5/26/09	N/A	N/A	3,540ab	10.6a	N/A	49.3a	N/A
Forage mix*	4/23/09	N/A	5/26/09	3,306a	16.7c	11.0b	53.0a	51.3a
Wheat (Triple IV)	4/23/09	N/A	5/26/09	3,198a	14.7b	9.8a	53.1b	54.9a

[1]Means within a column with different letters are significantly different (P<0.05)

Table 2. Maturity dates and yield of dryland hay varieties-Stonyford

Variety	*Date-Heading*	*Yield-Heading Lbs./acre*	*Date-Soft Dough*	*Yield-Soft Dough Lbs/acre*	*Crude Protein% Heading*	*Crude Protein% Soft Dough*	*TDN% Heading*	*TDN% Soft Dough*
Triticale (Camelot)	4/3/09	5,945a[1]	5/23/09	8,944b[1]	9.3a[1]	5.3a[1]	50.0b[1]	51.7b[1]
Triticale (63063)	4/3/09	6,195a	5/23/09	7,504a	8.9a	5.7ab	48.0b	51.8b
Wheat (PR1404)	4/16/09	6,034a	5/23/09	7,665a	9.6a	5.8ab	45.4b	52.2b
Triticale (Lance/Merlin)	4/23/09	7,723b	6/1/09	8,909b	8.0a	6.3b	45.0a	49.6a
Triticale (Forerunner)	4/23/09	6,776ab	6/1/09	7,983ab	7.8a	5.8ab	45.2a	49.1a

[1]Means within a column with different letters are significantly different (P<0.05)
[3]Cayuse oats were not able to make it past heading and were sampled when all other varieties were in soft dough
[4]Forage mix contained 15% cayuse oats, which was still in the boot stage, thus increasing protein
*forage mix consisted of Swan oats (35%), Montezuma oats (10%), Cayuse oats (15%), Belford barley (10%), Super Kirkwin wheat (20%), and Tetraploid annual ryegrass (10%).

Tables 1 and 2 show the forage quality results at heading (approximately one week after the boot) and the soft dough stage. All varieties performed well, yield and quality were mostly determined by the timing of harvest (Tables 1 and 2). The forage samples were analyzed for crude protein acid detergent fiber (from which Total Digestible Nutrients [TDN] is estimated), and

nitrate-nitrogen (NO_3-N). Crude protein is the total nitrogen multiplied by 6.25. TDN is a common measure of energy. NO_3-N is commonly found in cereal crops and in excess amounts can be toxic to livestock (0.4%+). No varieties had high levels of nitrate nitrogen.

Smaller plants (less stem area), and a mid-season application of nitrogen, may have contributed to higher protein (CP) levels at Stonyford. Soft dough samples had higher digestibility (lower NDF) and slightly higher energy (TDN) compared to heading due to higher grain content in the later sampling. However, the earlier harvest at heading had higher protein (CP). Harvest time was the most critical factor in the quality of hay. Boot stage harvest provided the highest protein level, though the formation of grain in the soft dough stage increased digestibility and energy. If higher protein hay is desired, harvest at heading but choosing a later maturing variety makes it easier to time a heading stage harvest because it is easier to dry and there is less likelihood of the hay being rained on at harvest. Earlier maturing varieties may be more susceptible to harvest losses due to spring rains. If high protein levels (>10% CP) are not required, early maturing varieties provide a better opportunity for filling grain in a droughty spring, which can increase energy and digestibility. In some cases, a combination of early and late varieties in different fields may be the best choice to help spread out harvest times. For a list of different cereal grain varieties, and their associated characteristics, visit the UC small grains website at http://agric.ucdavis.edu/crops/cereals/cereal.htm

Figures 1 and 2 depict the CP and TDN content and per acre yield for the Camelot Triticale Variety at Elk Creek. Note that for CP (Figure 1) both CP concentration and yield decreased with maturity of the plant. It also points out that regardless of plant maturity at time of harvest in this trail, grain hays were marginally adequate at best in meeting the crude protein requirement of lactating cows. For TDN (Figure 2) the data indicates dry cows will generally receive adequate amounts of crude protein and energy from soft dough harvested grain hays..

Figure 1

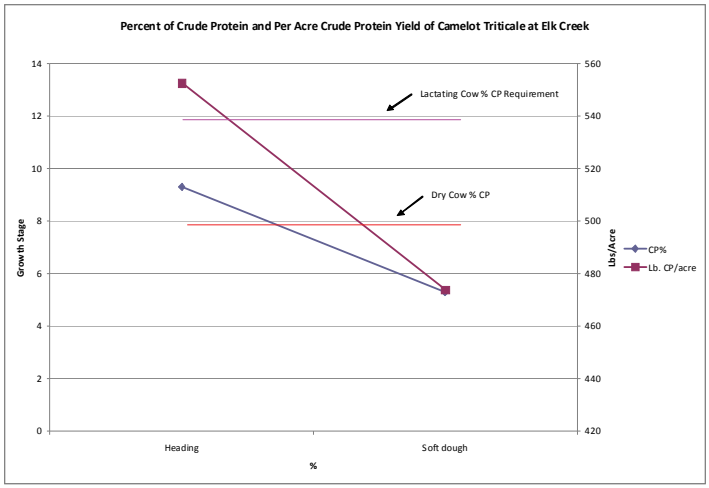
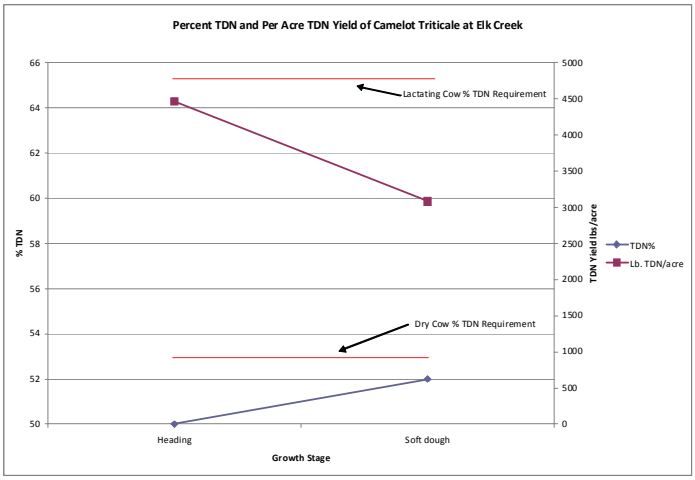


Figure 2



Producers growing their own grain hay to feed to their cows may want to select harvest maturity based on how they will be feeding the hay. More mature grain hays alone may be adequate for dry cows and thus could be fed without other feeds. To feed lactating cows, grain hays would need to be supplemented with some better quality hay or other supplement to balance the cows nutrient needs. For a list of different cereal grain varieties, and their associated characteristics, visit the UC small grains website at http://agric.ucdavis.edu/crops/cereals/cereal.htm

The authors appreciate the Landini family and the Stonyford Ranch for their generous help throughout this project. The generous seed donation from JJ Gross of John Taylor Fertilizer, Lockwood Seed, and RSI for the trial is also very much appreciated.

Beef and Horse Vaccination and Treatment Plans for the Northern Sacramento Valley

Glenn Nader, UCCE Sutter/Yuba Counties

A valuable exercise for producers is to develop an animal vaccination and treatment plan with their veterinarian. The concept is that they are more valuable to the operation in developing prevention programs than just reacting to assist with the problems when they occur. The University of California veterinarians, advisors, and staff have developed and annually reviewed vaccination and treatment guidelines for beef cattle and horses at the Sierra Foothill Research and Extension Center in Browns Valley, Ca. Although each ranch can experience some different animal health problems, the guidelines provide a starting point for discussions with your veterinarian. If you do not currently have a working relationship with a veterinarian, these vaccination and treaetment guidelines provide a framework from which you can begin cultivating a relationship with a large animal practioner.

The guidelines can be found at http://groups.ucanr.org/sierrafoothill/SFREC_Animal_Health_Programs/
If you are not able to access the information on the internet, call a local extension office Redding (224-4900), Red Bluff (527-3101) or Yuba City (822-7515) and ask them to mail a copy to you.

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This newsletter contains articles written by University of California Farm Advisors and Specialists. Our aim is to provide the ranching community in the Sacramento Valley with science based information. We welcome your feedback and encourage you to call or email us.

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