Keeping Landscapes Working

A Newsletter for Managers of Bay Area Rangelands

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A newsletter provided by UC Cooperative Extension Natural Resources Program in the San Francisco Bay Area. This newsletter provides information to managers of both public and private rangelands. RANGELAND, which is land characterized by natural vegetation i.e., grass, forbs and shrubs and managed as a natural ecosystem, is the predominate source of OPEN SPACE in the San Francisco Bay Area.

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In This Issue

Keeping Landscapes Working
is published through the cooperative efforts of the University of California Cooperative Extension and Contra Costa and Santa Clara Counties.

In keeping with the current media focus, this edition of *Keeping Landscapes Working* focuses on economic issues of rangeland management and beef cattle production. "Ecology and Economics of Medusahead Control" reviews current research results from studies conducted by UCCE in cooperation with ranchers testing various strategies to control the annual invasive grass, medusahead. "Natural or Implant Economic Opportunities" includes cattle marketing data collected from the Western Video Market over an 11-year span. This article discusses the costs and benefits implanting cattle with growth promoting hormones. Two articles "Cost Studies and Returns" and "Cow-Calf Management Guide" direct you to valuable internet resources that can assist you with questions about livestock production costs, conservation practice costs, and a variety beef cattle production issues.

Ecological and Economical Impacts of Management Options for Medusahead Control

Medusahead (Mh) has been quietly taking over our rangelands for over 50 years. It has slowly replaced our desirable forages with a monoculture that is not palatable to livestock, increases fire risk, and changes habitat for a variety of species. Fire has traditionally been the best tool to fight it, but burn permits are not easy to obtain. UCCE has been working on many different strategies that are available to ranchers that we will briefly discuss here.

First we need to cover some basics. There is a two week window of opportunity which in our area occurs roughly early to mid April, depending on weather conditions. For comparison, on the coast development is delayed and the same susceptible period does not occur until early to mid May. The nutritional content of Mh is another factor. As the grass leaves the vegetative state and enters into the reproductive state (roughly when we want to target it), the Crude Protein content dramatically drops and continues to drop as it matures. Mh also has a high silicon content regardless of the growing state. We also know from our observations that as Mh cover increases, there is a decrease in grazing ability. As Mh increases from 5 to 40%, we have seen a reduction in grazing of 50%, and as Mh cover increases over 40%, there is a 100% reduction in

grazing (Picture 1). This means that either you have to provide supplemental feed, reduce number of livestock, or find more land to graze.

High intensity grazing. We stocked Mh infested areas with sheep to achieve utilization levels of 50, 60, 70, and 80% at short and long time periods (7 and 14 days). We had a high density of sheep in the areas, ranging from 1 to 28 sheep per acre (equivalent to 0.2 to 5.6 cows per acre). We had no differences per treatment, but did have great results for treatments compared to controls. High intensity grazing dramatically reduced seed production to 187 seeds per foot squared (ft^2) compared to the area not grazed producing 748 seeds per ft^2. We also compared our high intensity grazing to continuous grazing, which produced roughly 654 seeds per ft^2. Mh thatch decreased from 40% to 8% and other grasses and forbs increased from 18% to 50% in the treated areas, providing more desirable forages. Bare ground also increased in the treated areas (Graph 1).

Supplementation. Low moisture supplement tubs were strategically placed in areas of high Mh cover during our window of opportunity. We placed five tubs radiating out from a center point in 2007, and added four more tubs in 2008. We also had transects and exclosures where we could compare areas open to grazing at different distances from the tubs, and non grazed areas. The supplement tubs did attract livestock, and we did see a reduction in Mh cover, however as you moved further away from the tubs, there was less impact. Tubs appear to be effective for a distance of about 40 yards (Picture 2).

Picture 1. Mh thatch. This level of thatch prevents desirable species, reducing grazing ability.

Mowing. We mowed areas of high Mh cover in 2007. Mowing lengthens the window of opportunity by another week. Mh cover was reduced from 50% to 5%. Seed production also dramatically reduced from over 280 seeds per ft^2 to 13 seeds per ft^2. Desirable species also increased the following year with an increase in soft chess, rose clover, and filaree.

Herbicide. 3% active ingredient glyphosate was applied at 16 and 32 oz per acre early, mid, and late season. We did not see any difference between the rates. As expected, the early and mid applications did kill everything. Our late application may have been a little too late to be effective. From our preliminary results, it looks like a mid season spray will allow for a longer grazing period and kill Mh. This spring we will be completing data collection and will have more information on this treatment option.

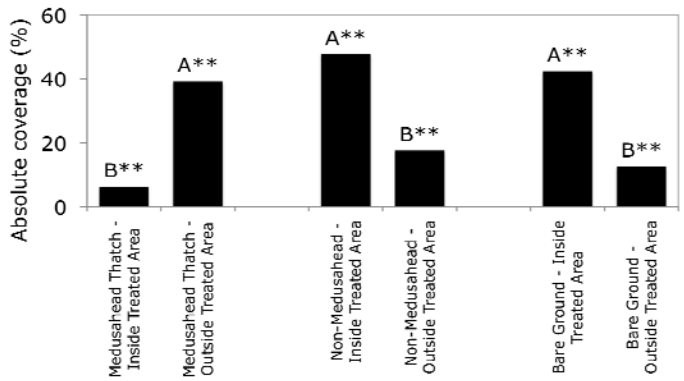
Costs. We have found methods that work, however each method may not work for each ranch. Mowing may not be practical in rocky areas. High intensity grazing may not work if you are not able to duplicate our stock density. Each person will need to examine their own constraints and determine what works best for their situation. To help with this, UC Cost Studies were utilized to calculate costs per acre (Graph 2). Supplement is the cheapest option available, roughly $10 per acre. This is for the extra time you will be spending looking for Mh patches, and moving the supplement to that area, which you can expect to do weekly. While this is the cheapest option, it also does not provide as much control. Impact is within a small sphere, which is why moving weekly is key. It is important to note that doing nothing has a cost to it that you may not be realizing. At a typical 30% cover of Mh, there is a grazing reduction of 50%. To calculate a cost we put this on an average production of 1000 lbs

Picture 2. Picture of supplement tub and exclosures. Impact decreased as you move further away from

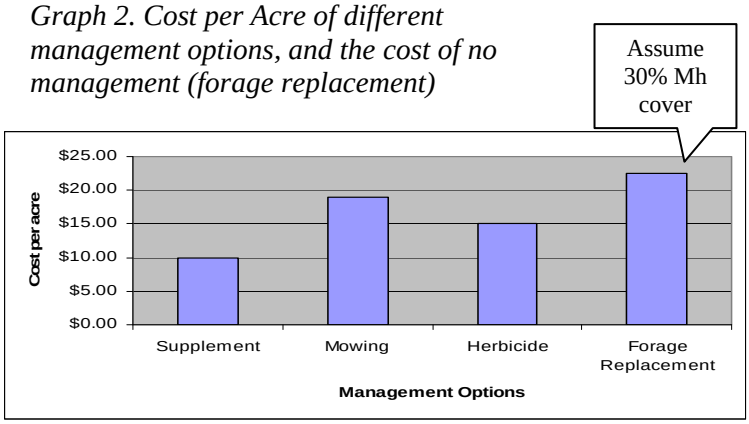
of available forage per acre, and a reduction of 50% would mean 500 lbs per acre would need to be replaced. We replaced our lost forage with grass hay at a cost of $22.50 per acre. When you start to realize how much you are loosing by not controlling Mh, different control options start to look more appealing and actually can pencil out. It is important to keep in mind that hitting Mh when it hurts the most is important for control, as well as long range planning. It may take more than one year depending on the control option you choose, and persistence will be needed to keep Mh off your ranch.

Many Livestock Advisors have worked on this project from Mendocino County south to San Luis Obispo County on the coast and Shasta County south to Stanislaus County in the valley as well as support from scientists and Specialists on the Davis Campus.

Graph 1. Cover of Mh, other species, and bare ground after high intensity grazing.



Graph 2. Cost per Acre of different management options, and the cost of no management (forage replacement)



Natural or Implant Economic Opportunities

Based on "Weaned Calf and Yearling Natural and Implant Trends and Prices" by Glenn Nader, Larry Forero, Steve Blank, and Annie Maddalena published in UCCE Northern California Rancher Update, March 2009.

Ranchers are interested in management methods that increase the value of their calves. A University of California study analyzed eleven years of data to determine the market trends and price premiums for each identifiable management method. Anonymous cattle sales from January of 1997 to December 2007 from Western Video Market (WMV) were analyzed to determine changes and trends in management practices associated with the marketing and sale of steer calves at weaning (500 to 625 pounds) and yearling steers destined for the feedlot (750 to 925 pounds). Table 1 below shows a summary of the data studied.

Table 1.

Class:	Calves	Yearlings
Total Head Studied	$70,735	874,154
# of Lots	4,116	5,147
Smallest Lot Sold	40	42
Largest Lot Sold	920	2,500
Average Lot Size	139	170

The study looked at a variety management practices and estimated the premium for each variable management practice). It should be noted that just because there is a price premium associated with a management practice that does not mean that the cattle will be profitable in a ranchers operation. The data in Table 2 below represents the 11 year premium (+) or discount (-) for each management practice.

Table 2. Premiums and discounts for selected management practices for weaned calves and yearlings ($/cwt).

	Weaned Calves	**Yearlings**
Weaning 0 days	**-$3.59**	
Weaning <30 days	**-$1.29**	
Yearling in haylots verses on Grass		**-$0.72**
Implants used	**-$0.5**	**-$0.22**
Natural Beef	+$**2.25**	**+$3.78**
Certified Angus Beef	+$**1.38**	**+$0.67**
Preconditioned	+$**1.37**	**+$1.03**

A single value estimating the premium or discount for a management practice over the 11 years of the study data provides an overall trend, but ignores the dynamic nature of market conditions that influence prices, principally the supply of animals with certain market attributes and the demand by buyers (larger macro-economic factors are also influential but not discussed here).

Natural versus Implanted Beef. Since one of the most notable market trends is the increase in the percent of cattle marketed as “natural beef,” the rest of this article will focus on economic opportunities in marketing natural versus implanted cattle. While a consistent increase can be seen for both wean calves and yearlings, the graph may be showing signs of this niche market beginning to level off near 38% in 2006 and 2007 for weaned steers and 28% for yearling steers. It can also be seen that the proportion of natural lots in the yearlings are lower than in the weaned steers. It is unknown whether this is a proactive decision by stocker operators to implant in order to receive greater gains, or merely the attrition of cattle from the program due to illnesses and the use of antibiotics or other unplanned events that exclude them from “natural beef”.

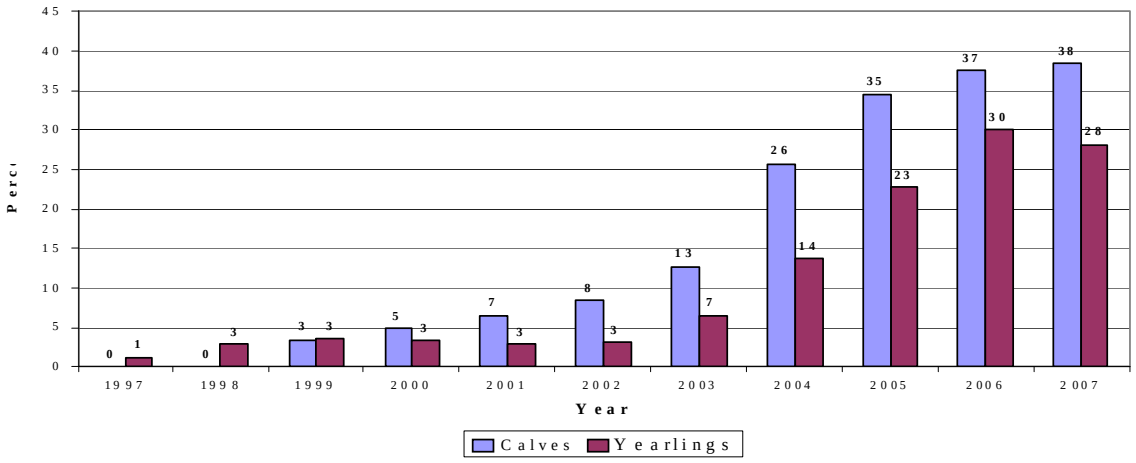
Note: Price premiums were reported only in the years when the price premium was statistically significant. Implants are the inverse trend of “natural beef,” for the weaned steers with consistent declining use since 2002, implanted calves seem to be leveling off at roughly 14%. The trend for implants in the yearling steers shows nearly half of the lots sold in 2007 were implanted and that more yearlings are implanted than calves.

Since currently the demand for natural beef seems to be growing stangant, cow-calf producers need to be asking themselves if they are really marketing their cattle successfully to make up for the loss in gain and feed efficiency that is realized by not implanting.
Let’s review the production economics of implanting. Before 1987, available implants were estrogenic agents that metabolically enhanced nutrient use to enhance growth. These products improved feed efficiency 5 to 10 percent and daily gains from 5 to 15 percent.

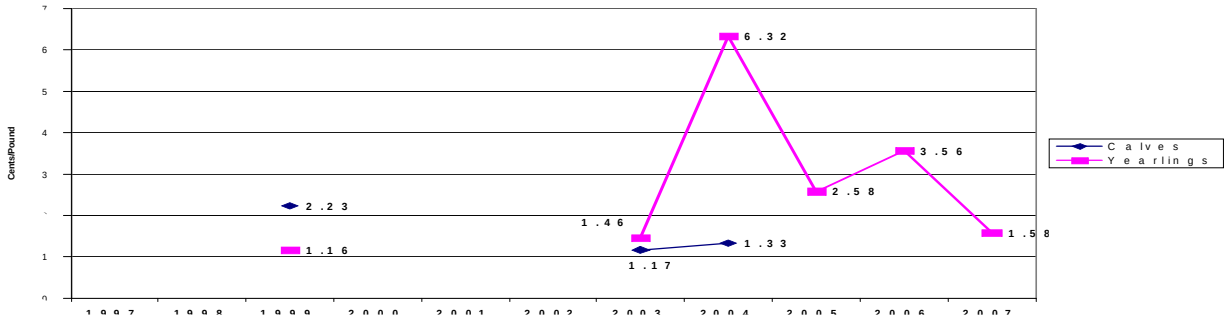
In 1987, the androgenic (tissue building) agent, trenbolone acetate, was approved for use in growth promoting implants. This compound had an additive effect with existing estrogenic implants. The androgenic implant enhanced muscle growth and added an additional 2 to 3 percent to the feed efficiency and 3 to 5 percent to the daily gains.

The return on implant investment varies, but only in rare situations do implants return less than $5 per $1 spent. Implants are available for all cattle except calves younger than 45 days old and most breeding cattle. Proper scheduling and use of implants should return in excess of $10 per $1 spent.

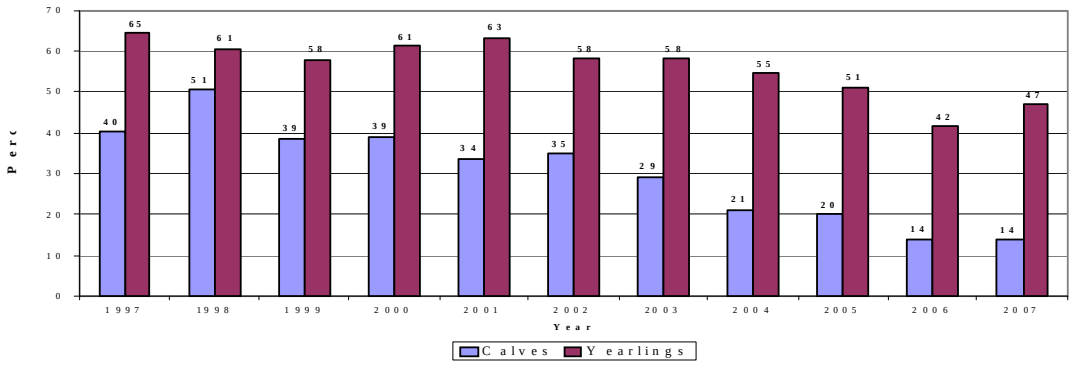
Graph 1 – Percent Calves & Yearlings described as "Natural Beef"



Graph 2 – Price Premium (cents/lb) for calves and yearlings marketed as "Natural Beef"



Graph 3 – Percent weaned calves & yearlings receiving implants



Safety of Meat from Implanted Calves

From ANR-1020 Alabama Cooperative Extension Service

Implants contain extremely small amounts of one or two hormones which are slowly released at a constant rate over time. There is no withdrawal period before slaughter after administering any of the approved implants. The U. S. Food and Drug Administration and various international food safety commissions have consistently concluded that implants create no health hazard to the consumers of meat from implanted beef cattle.

Some people claim that implanting makes beef less tasty, but the evidence does not substantiate such a claim. Since implants generally decrease the amount of fat in meat, the beef may cook faster because it is leaner. Implants are a safe technology which increases calf performance, reduces the cost of production, and helps keep the beef supply reasonably priced and safe. Consumers should recognize that hormones are naturally occurring substances which are present in most foods of plant and animal origin and cause no health risk. For example, the hormone estrogen is present in many implants as well as in many common foods, as illustrated in Table 3.

Table 3. Estrogen Content Of Various Foods.

Food	Nanograms Estrogen*
Beef from non-implanted steer (3 ounces)	1.3
Beef from implanted steer (3 ounces)	1.9
Milk (8 fluid ounces)	35.5
Peas (3 ounces)	336
Hen's egg (2 ounces)	1,750
Cabbage (3 ounces)	2,016
Wheat germ (3 ounces)	3,400
Soybean oil (3 ounces)	1,680,000

*1 nanogram = 1 billionth gram; 1 gram = 1/454th pound
Source: Inter-American Institute for Cooperation on Agriculture, Report on Use of Hormonal Substances in Animals, Dec., 1986.

Cost and Return Studies Available Online

(http://coststudies.ucdavis.edu)

Production Cost and Return Studies

Over 125 current cost of production studies for various agricultural commodities produced throughout California are available on-line through UC Davis, Department of Agricultural and Resource Economics. Recent studies that may be of interest to you include:

Commodity	Location	Date	Description
Beef	Sacramento Valley	2008	Cow-Calf Production, 300-head
Beef	North Coast	2004	Cow-calf, Grass-Fed; 200-head
Beef	Sacramento Valley	2005	Yearling/Stocker Production
Beef	North Coast	2005	ORGANIC, Cow-calf; 50-head
Goats-Dairy	North Coast	2005	Milk for cheese production
Pasture	Intermountain	2008	E&P; Irrigated
Meat Goat In-press	North Coast Sacramento Valley	2009	Goat browsing

Although some of the costs noted in the studies may be significantly different in the San Francisco Bay Area, these studies provide an excellent template of cost and income categories.

Conservation Practice Costs

Studies for the following Central Coast Conservation Practices are also available for download. These studies generally applicable to intensive agricultural sites describe a particular practice and provide a partial budget table estimating costs (costs per unit and reduced returns) and potential benefits (additional returns and reduced costs) for its installation, operation and maintenance. Costs and benefits are shown for low, representative and high cost scenarios. More detailed information on labor and material inputs for the representative scenario is contained on two additional tables. Studies for the following conservation

List of Studies:

- Annually Planted Cover Crop
- Annually Planted Grassed Filter Strip
- Grassed Farm Road
- Non-Engineered Grassed Waterway
- Non-Engineered Water/Sediment Control Basin
- On-Farm Row Arrangement
- Perennial Critical Area Planting
- Perennial Hedgerow Planting
- Underground Outlet

Another Valuable Online Resource:

Cow-Calf Management Guide & Cattle Producers Library
www.csubeef.com

In partnership with University of Idaho Extension, the Colorado State University Beef Team has made the **Cow-Calf Management Guide & Cattle Producers Library** available on-line. In order to obtain free access you must register i.e. create a user id and password. Once you have registered look for the cattlemen's library tab to gain access to the library.

The library consists **over 300 fact sheets** prepared by a committee of extension animal scientists in Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. It is a joint publication of the Cooperative Extension System in these states. The library is extremely comprehensive with fact sheets providing information in the following topic areas: quality assurance, nutrition, reproduction, range and pasture, animal health, management, marketing, finance, genetics and drought.

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