

LIVESTOCK PRODUCTION 101:

Managing your Herd for Profit and Conservation

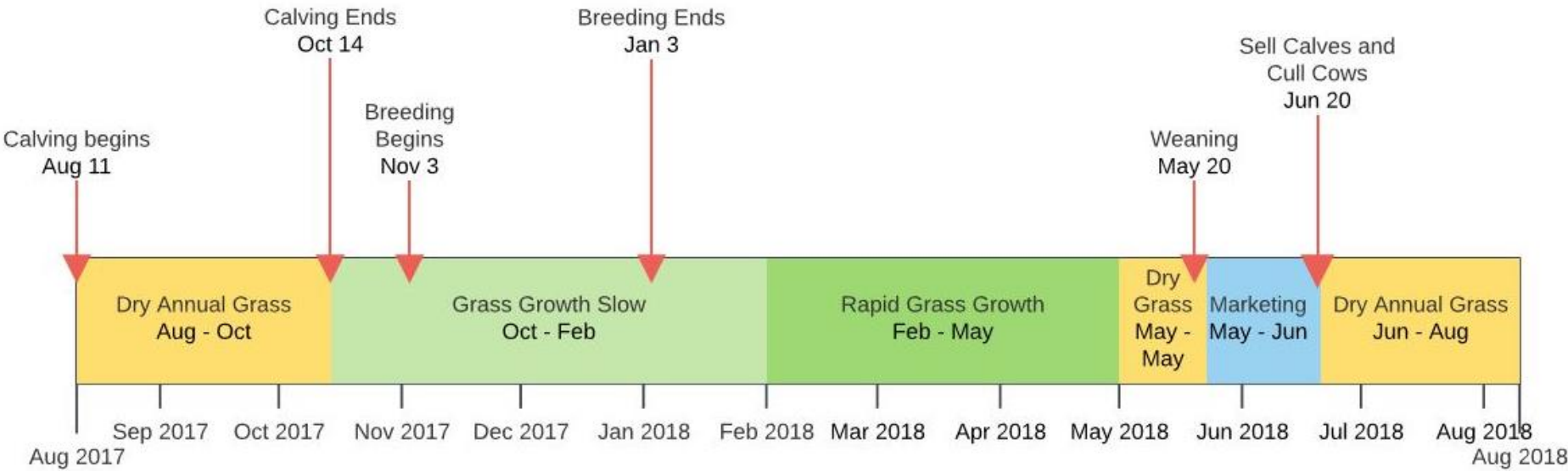


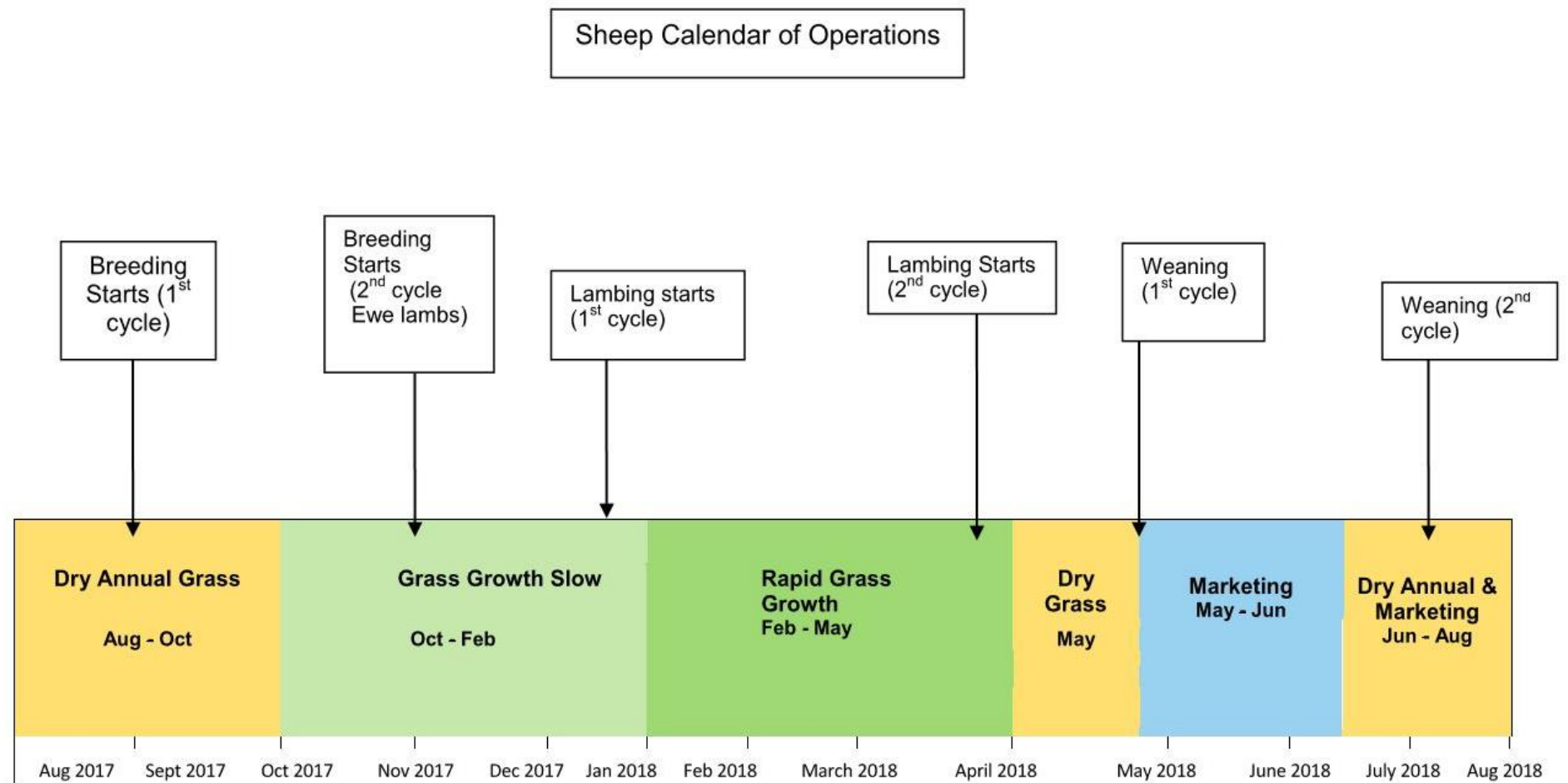
Workshop materials and additional resources

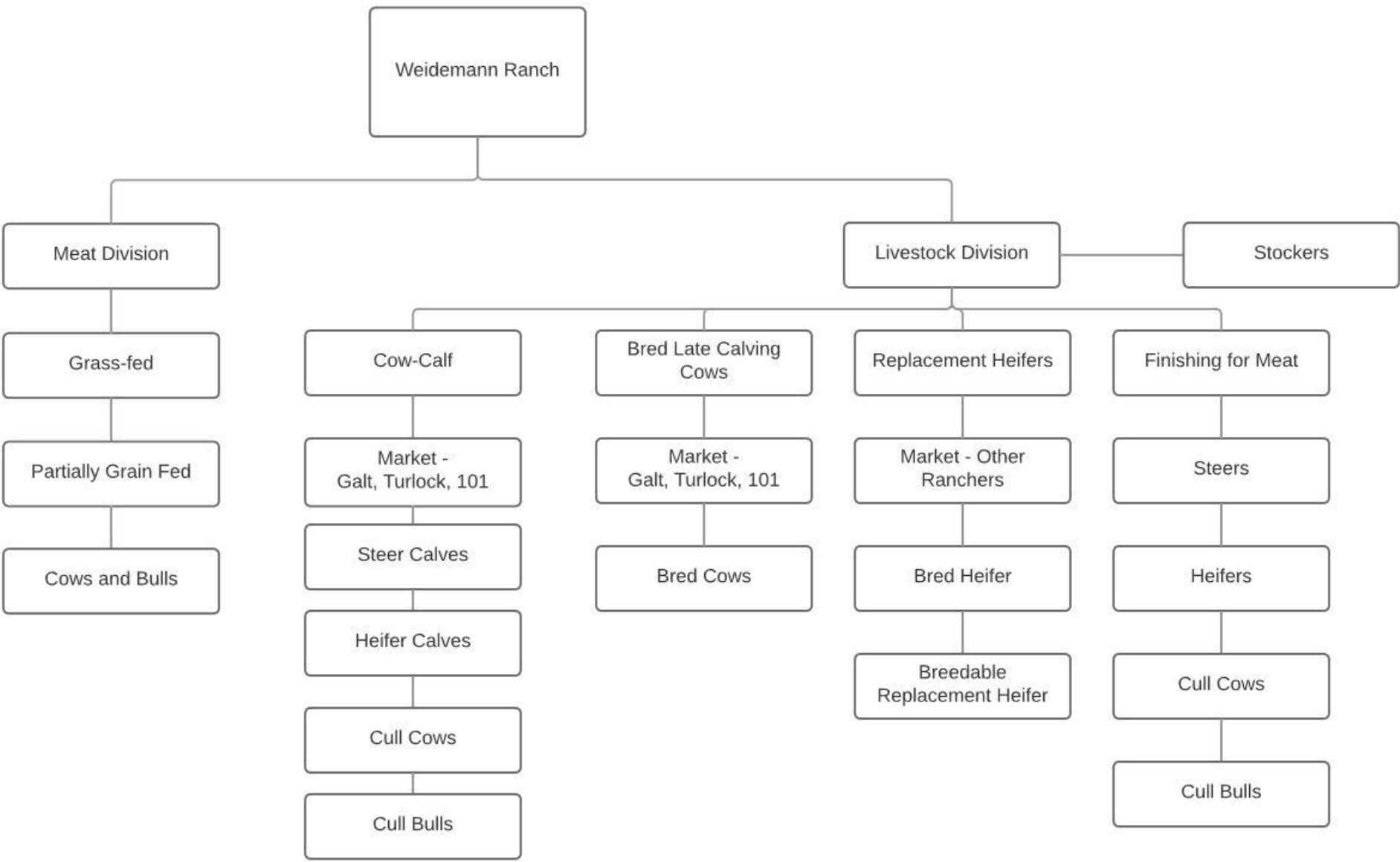
This training document is supported by the Beginning Farmer and Rancher Grant of the USDA-NIFA program titled, *Growing Roots: Deepening Support for Diverse New Farmers and Ranchers in California*, Grant # 2015-70017-22868



Cow-Calf Calendar of Operations







The following pages are from the University of California Division of Agriculture and Natural Resources (UCANR) publication number 8500, “Niche Beef Production”, published July 2014. They contain helpful information about the regulations surrounding different production enterprises such as grass fed beef, organic, etc.

The full document can be found here:

<https://anrcatalog.ucanr.edu/pdf/8500.pdf>

Chapter 5. Protocols and Labels

In all distribution and marketing channels, there are common laws and regulations that must be followed. This chapter we will talk about how to develop protocols that will serve as the basis for label claims and we will provide some examples. Production protocols are valuable tools that can be used to substantiate label claims, reassure consumers about your production practices, and standardize a product that is produced by multiple ranches. These protocols are the operational framework for third-party certification.

PRODUCTION PROTOCOLS

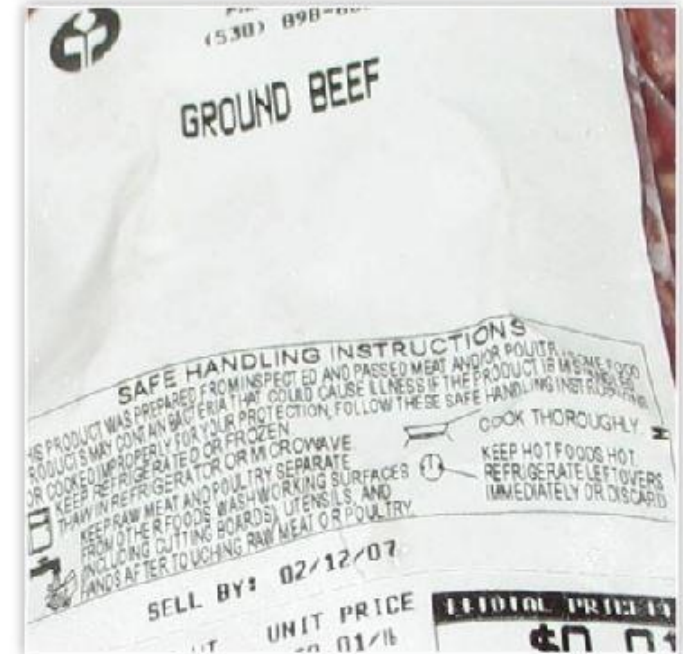
Several examples of label claims are provided below to illustrate additional certification procedures. Most producers look to see how many label claims they can include in their production protocol in order to add connection points for consumer and product value. Here are some protocols that a producer may choose to consider:

- Grass Fed
- Natural
- Organic
- Humane Raised
- Born & Raised in the USA
- Predator Friendly
- Food Alliance

In order to make any of these claims on a label, a producer must follow specific production protocols. Any label claims must be submitted to the Food Safety and Inspection Service's Labeling Program and Delivery Division (LPDD) for approval. A number of beef alliances also have their own production protocol requirements. Before you implement any specific protocol, you need to review certification requirements, fees, and any additional production costs that will be involved in meeting those requirements, as well as the impact the resulting label claim may have on your product's market demand and price.

GRASS FED

Grass fed protocols require that grass and forage serve as the animal's primary energy source. The October 16, 2007, USDA voluntary standard for the Grass



(Forage) Fed claim, as contained in the Federal Register (volume 72, number 199; pages 58,631–58,637, www.ams.usda.gov/lsg/stand/claim.htm) states that animals must be fed a 99 percent grass- or forage-based diet that includes grass (annual and perennial), forbs (legumes, *Brassica*), browse, forage, or stockpiled forages, and postharvest crop residue. Supplemental feeds that can be fed to animals produced under the voluntary grass fed label are defined by the USDA in this way: “any feed high in crude fiber and low in total digestible nutrients, on an air-dry basis (cottonseed hulls, peanut hulls, and almond hulls) can be supplemented in a grass diet.” Given the variations in grass-growing season, species present, and nutrient content at different locations, there is actually a wide variety of protocols.

NATURAL

On January 16, 2009, the USDA Agricultural Marketing Service (USDA-AMS) placed a notice in the Federal Register establishing a voluntary standard for a “naturally raised” marketing claim. Once the standard becomes effective, livestock producers who follow the voluntary AMS standard can hire a third-party verification service to audit their “naturally raised” claims. In certain cases, such producers will have access to markets that require this AMS certification.

The naturally raised standard is as follows:

“Naturally Raised”—Livestock used for the production of meat and meat products that have been raised entirely without growth promotants, antibiotics (except for ionophores used as coccidiostats for parasite control), and have never been fed animal (mammalian, avian, or aquatic) by-products derived from the slaughter/harvest processes, including meat and fat, animal waste materials (e.g., manure and litter), and aquatic by-products (e.g., fishmeal and fish oil).

Product labels that include the voluntary “naturally raised” marketing claim must be submitted to the Food Safety and Inspection Service’s Labeling Program and Delivery Division (LPDD) for approval. FSIS will require that processors provide “substantiation” of the claim at the time of label approval

application. Also, the notice clearly states that the AMS “naturally raised” marketing standard “is independent of and distinct from FSIS label approval policies governing use of natural claims with regard to postharvest processing. The naturally raised claim pertains only to preharvest livestock production practice.” AMS will be working with FSIS on a forthcoming Federal Register document to develop a coordinated approach to defining labeling terms such as natural and naturally raised.

ORGANIC

Certified Organic has been a small but steadily increasing label claim for beef (Clause USDA 2006). To be certified as organic, beef must come from animals raised under organic management from the last third of gestation, which means that breeding stock must be managed as organic. All feeds must be certified 100 percent organic and the animals may not be given hormones to promote growth or given antibiotics for any reason. Producers will not withhold treatment from a sick or injured animal, but treated animals cannot be sold as organic. Most rangelands and pastures must be operated under the organic protocols for three years before they can be certified as organic. Ruminant animals must have access to pasture for 120 days, receiving 50 percent of their dry matter intake. Temporary confinement is allowed only for reasons of animal health and safety or to protect soil and water quality.

A 2005 University of California Organic cost study for grass-fed beef based on a 50-head cow-calf operation in Mendocino and Lake counties can be found at <http://coststudies.ucdavis.edu/files/organicbeefnc05.pdf>.

Challenges in organic production systems include the following:

1. parasite and fly management. Pasture rotation and integrated parasite management (<http://attra.ncat.org/attra-pub/livestockipm.html>) are two common management practices used to address internal parasites.
2. acquisition of organically produced feeds at an economical price
3. locating USDA-inspected organic processors

4. lag time of 2 to 3 years in the transition from conventional to certified organic. During this period the producer must develop animal production and operational protocols for on-ranch operations, harvest, and postharvest handling. These protocols must be verified by an accredited certifying agency or organization (government or independent) every year to ensure compliance with the United States Department of Agriculture's National Organic Program (<http://1.usa.gov/1bN35Ni>).
5. initial cost of certification and annual costs for maintaining certification, which need to be considered in the budget

HUMANE RAISED

American Humane Certified

The American Humane Certified program (formerly known as the Free Farmed program) provides independent verification that the care and handling of livestock meets specific animal welfare standards (www.americanhumane.org). The standards require that livestock have clean and sufficient food and water, a safe environment, sufficient protection from weather, sufficient space allowance, and other provisions intended to ensure their safety, health, and comfort. In addition, the standards require that managers and staff be thoroughly trained, skilled, and competent in animal husbandry and animal welfare, and that they have a good working knowledge of their own operation's production system and the livestock in their care.

Born & Raised in the USA

Born & Raised in the USA is a program that provides a USDA-approved "trace-back system" to prove that the animal spent its entire life in the United States. Qualifying animals must also be processed in the United States. This is a certification process that allows the enrolled producer and retailer to use a trademarked label (a U.S. flag with the words "Born & Raised in the USA"). Producers certify by affidavit that the animals in their herd were born and raised in the United States. Participating processing facilities need to maintain the identity of the meat from certified animals (only as a lot) all the way through the plant. There is a fee to enroll, and then

a per-hundredweight charge is required for use of the label at the point of sale. More detailed information is available online (<http://bornandraisedintheusa.com>).

Predator Friendly

The idea for Predator Friendly certification (www.predatorfriendly.org) originated with a group of woolgrowers, wildlife biologists, and clothing designers in Montana who worked together to provide an incentive for landowners to use nonlethal methods to prevent conflicts between livestock and predators. The certification program encourages nonlethal methods of predator control, recognizes farms and ranches that work with wildlife, provides an economic incentive and marketing benefits, and offers producer-to-producer information sharing and access to research findings.

Food Alliance

Food Alliance (foodalliance.org) is a nonprofit organization that promotes sustainable agriculture. The guiding principles of the Food Alliance Certified program include safe and fair working conditions, healthy and humane treatment of animals, raising animals without added hormones and antibiotics, raising crops without genetically modified organisms, reducing pesticide usage, conserving soil and water resources, preserving and protecting wildlife habitat, and maintaining a commitment to the continuous improvement of the practices that address these goals. Food Alliance is a third-party certification program.

PRODUCT LABELING

Each individual package of meat is marked with a label. We suggest that newcomers to organic beef production use their processing establishment's label, which will include the producer's identification number and safe handling instructions. "Organic" is considered to be a label claim, and in order to make a label claim you need to make sure your product meets certain conditions.

At some point in the evolution of your business, you will most likely want to have your own product label. It is critical that your label include the meat processor's identification number. If you ever

Figure 5.1. Beef package label includes safe handling instructions and the telephone number for the processor.



change to a different meat processor, you will need to create a new label with that processor's identification number.

How to Create Your Own Label

The first step in developing your own label is to create a picture or sketch showing how you want the label to look. Make sure to include these important items:

- the colors used on your application to USDA
- the address of the producer
- instructions for handling of the product (e.g., "Keep Frozen")
- a space for printing the net weight, price per pound, total price, and cut of meat
- any claims that you might be making about the product. Make sure that you have documentation to support all claims made on the label, such as
 - a. operational protocol, describing in detail the production practices employed

- b. affidavits and testimonials
- c. feed formulas
- d. relevant certificates (e.g., for certified organic ingredients)

Remember: DO NOT mislead the consumer in any way. Be careful about the words you use on the label. Good information on label wording is available online at the All Things Grass Fed website hosted by California State University at Chico (www.csuchico.edu/grassfedbeef/regulations/product-labeling.shtml).

For answers to any other questions, please refer to the U.S. Code of Federal Regulations (CFR), 9 CFR 317.4 and 381.132, which you can find in the Federal Register:

- www.gpo.gov/fdsys/pkg/CFR-2005-title9-vol2/pdf/CFR-2005-title9-vol2-sec317-4.pdf
- www.gpo.gov/fdsys/pkg/CFR-2005-title9-vol2/pdf/CFR-2005-title9-vol2-sec381-132.pdf

Label Application Guidance

The USDA Labeling and Consumer Protection Staff (LCPS) is the agency expert group on the composition of meat, poultry, and egg products, including safe and suitable ingredients. LCPS employees ensure that all product labels are accurate and that they do not falsely inform potential buyers. Labeling pertains to all forms of product identification, claims, net weight, species identification and nutrition related to meat, poultry, and egg products. Questions regarding product labeling and additive policies should be mailed to this address:

- USDA, FSIS, OPPED
Labeling and Consumer Protection Staff
1400 Independence Avenue, SW
Room 602—Annex Building
Washington, DC 20250–3700

Submitting a Label Application

The CSU Chico/UC grass-fed beef website has additional information on labeling (www.csuchico.edu/grassfedbeef). To begin the approval process for your label, complete FSIS application form

7234-1 (www.fsis.usda.gov/wps/wcm/connect/4aeeca8c-8ba6-4288-a222-e6ca8764a9f7/FSIS_7234-1_Approval_of_Labels.pdf?MOD=).

The following instructions should be typed unless otherwise noted on the labeling form:

1. preparation of application. Submit two copies of each label application. An additional copy is needed for Foreign, Child Nutrition, Animal Production, or Organic Claims.
2. submission of labels. This includes sketches for your label.
3. foreign language. Labels printed in foreign languages must be accompanied by an English language translation.
4. assembly of application. Staple together, using only one staple, pages 1, 2, etc., one copy each. Staple all copies of the label to the back of the application forms packet. If you only use page 1, staple all copies together. Use as few staples as possible and do not use paper clips.

Hand-sketched draft labels will be accepted, so long as the labeling is legible. Businesses must provide the required number of copies of the FSIS form, with all pages in the proper sequence, along with the label.

Mail the completed application to this address:

- USDA, FSIS, OPPDE
Labeling and Consumer Protection Staff
1400 Independence Avenue, SW
Room 614 Annex Building
Washington, DC 20250-3700

Correspondence about labeling applications may be faxed to the Labeling Compliance Team at (202) 205-0145 or (202) 205-0271. The fax must include a cover sheet indicating the reason and purpose for the fax.

For more information about labels or labeling, call the Labeling and Consumer Protection Office at (202) 205-0623 or (202) 205-0279.

Food Labeling Compliance Dates

The Food Safety and Inspection Service (FSIS), an agency within USDA, periodically changes the label requirements for a variety of foods, including meats and poultry, and sets uniform dates for compliance with those changes in order to minimize their economic impact on the industry. The following announcements were issued on March 5, 2007:

- January 1, 2008, is the compliance date for new food product labeling regulations issued between January 1, 2005, and December 31, 2006.
- January 1, 2010, is the compliance date for new food product labeling regulations issued between January 1, 2007, and December 31, 2008.

For further information regarding compliance dates, contact

- Robert C. Post, Director
Labeling and Consumer Protection Staff
Office of Policy, Program, and Employee Development
FSIS
USDA
(202) 205-0279 Phone
(202) 205-3625 Fax

USDA EVALUATION PROCESS

Animal Production Claims

Here is an outline of the current process for evaluating label claims that bear on animal production:

1. Validation process for animal production claims
 - a. Evaluate labeling claims
 - b. Provide or deny labeling approval or return for additional supporting documentation
 - c. Update and maintain files (if the producer is making any updates or revisions to the already-approved label)
2. Evaluation of labeling claims
 - a. The USDA will send your label confirmation or your rejection notice to you by mail.

If you want to follow the progress of your application through the USDA approval process, you may check on it either online or over the phone.

SUMMARY

Government-issued protocols need to be adapted in such a way that they can be conducted economically on your farming operation and to ensure that they are production procedures that are valued by consumers.

REFERENCES

American Grassfed Association. www.americangrassfed.org

Clause, Reginald. 2006. Iowa State University Extension. www.agmrc.org/agmrc/commodity/livestock/beef/organicbeefprofile.htm

Food Safety and Inspection Service. 2002. Guidance for minimizing the risk of *Escherichia coli* O157:H7 and salmonella in beef harvest operations. <http://haccpalliance.org/alliance/BeefSlaughterGuide.pdf>

Hamilton, Neil D., 1999. The legal guide for direct farm marketing. Des Moines: Drake University Agricultural Law Center. 235 pp. www.law.drake.edu/centers/default.aspx?pageID=agPublications

USDA Economic Research Service. 2006. Organic production. www.ers.usda.gov/data/Organic/



The following pages are from the “Cattle Care Standards: Recommendations for Meeting California Legal Requirements” document published by the Center for Food Animal Health, School of Veterinary Medicine, UC Davis. They contain information about body condition scoring for beef cattle.

The full document can be found here:

http://www.vetmed.ucdavis.edu/vetext/local_resources/pdfs/pdfs_animal_welfare/2011cattlestandards.pdf

Expected progeny difference (EPD) is the difference between the average performance of a bull's progeny and the average of those sired by another bull. Breed associations develop the most commonly available EPDs based on their extensive nationwide databases of pedigree and performance information. In the absence of other information, the genetic merit of an animal can be predicted based on the average breeding value of its parents. This generates a low-accuracy “pedigree estimate” that is typically associated with young animals prior to the collection of any information on their own performance. With only ancestor information, full siblings will have the same EPD. Their true value will vary, however, as a result of the random inheritance of parental genes. Incorporating progeny performance information increases the accuracy of EPDs. This can be seen in beef-sire semen catalogs, where very-high-accuracy EPDs are associated with bulls with many progeny as a result of their use in artificial-insemination programs. *(From California Agriculture, Volume 64 Number 2)*

There are many resources available to those interested in learning more about EPDs, here are a few:

- <https://www.pubs.ext.vt.edu/400/400-804/400-804.html>
- <https://www.angus.org/Nce/Definitions.aspx>
- <https://www.uaex.edu/publications/pdf/FSA-3068.pdf>

Additional information about selling meat products can be found in UCANR publication 8146, “Selling Meat and Meat Products”.

The full document can be found here:

<http://ucfoodsafety.ucdavis.edu/files/26481.pdf>

FORAGE CURVE FOR CALIFORNIA ANNUAL GRASSLANDS

San Joaquin Experimental Range

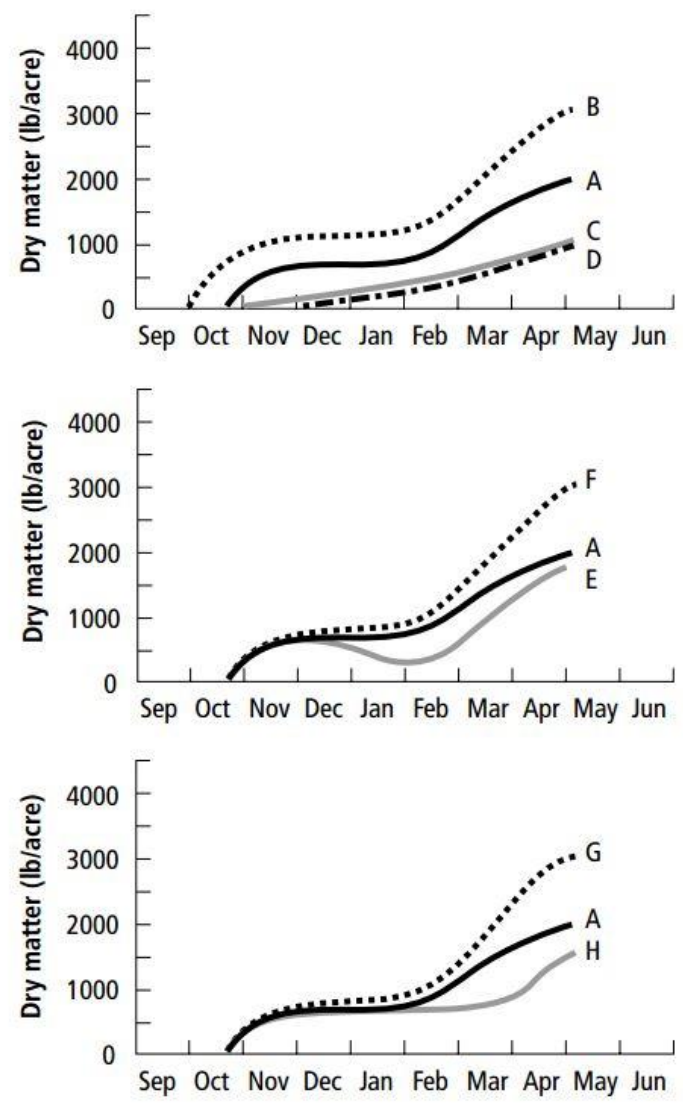


Figure 2. Range forage production curves (A–H in Table 1) showing influences of eight different weather patterns.

Table 1. Influence of normal weather variations on timing of seasonal dry matter (DM) forage productivity in California’s annual grassland ecosystem

Weather pattern	Curve shown in figure 2	Break of season date	Onset of winter growth		Onset of rapid spring growth		Peak standing crop	
			Date	DM	Date	DM	Date	DM
				lb/ac		lb/ac		lb/ac
Average fall, winter, and spring	A	Oct. 23	Nov. 7	600*	Feb. 1	700†	May 1	2,000‡
Warm, wet fall, average winter and spring	B	Oct. 1	Nov. 7	1,000	Feb. 1	1,100	May 1	3,000
Cold, wet fall, average winter and spring	C	Oct. 23	Oct. 23	—	Feb. 1	300	May 1	1,000
Dry fall, average winter and spring	D	Nov. 15	Nov. 15	—	Feb. 1	300	May 1	1,000
Average fall, cold winter, average spring	E	Oct. 23	Nov. 7	600	Feb. 1	300	May 1	1,500
Average fall, mild winter, average spring	F	Oct. 23	Nov. 7	600	Feb. 1	1,000	May 1	3,000
Average fall, short winter, early spring	G	Oct. 23	Nov. 7	600	Jan. 15	700	May 1	3,000
Average fall, long winter, late spring	H	Oct. 23	Nov. 7	600	Apr. 1	700	May 1	1,500

*Forage production from break of season to onset of winter growth (Oct. 23–Nov. 7 in this example).
†Forage production from break of season to onset of rapid spring growth (Oct. 23–Feb. 1 in this example).
‡Forage production from break of season to peak standing crop (Oct. 23–May 1 in this example).

These curves come from the San Joaquin Experimental Range, located in the Sierra Nevada foothills. While the lb/acre may vary in the SF Bay Area, production generally follows the same curve and timing.

Full publication from UCANR can be found here:
<http://anrcatalog.ucanr.edu/pdf/8018.pdf>

There are a number of resources relating to forage quality in California. The following pages provide top-line information about forage nutrition and quality based on stage of growth. They are from UCANR publication 8022, entitled “Annual Rangeland Forage Quality”.

The full document can be found here:

<http://anrcatalog.ucanr.edu/pdf/8022.pdf>

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**California Rangelands
Research and
Information Center**

[http://agronomy.ucdavis.edu/
calrng/range1.htm](http://agronomy.ucdavis.edu/calrng/range1.htm)

Annual Rangeland Forage Quality

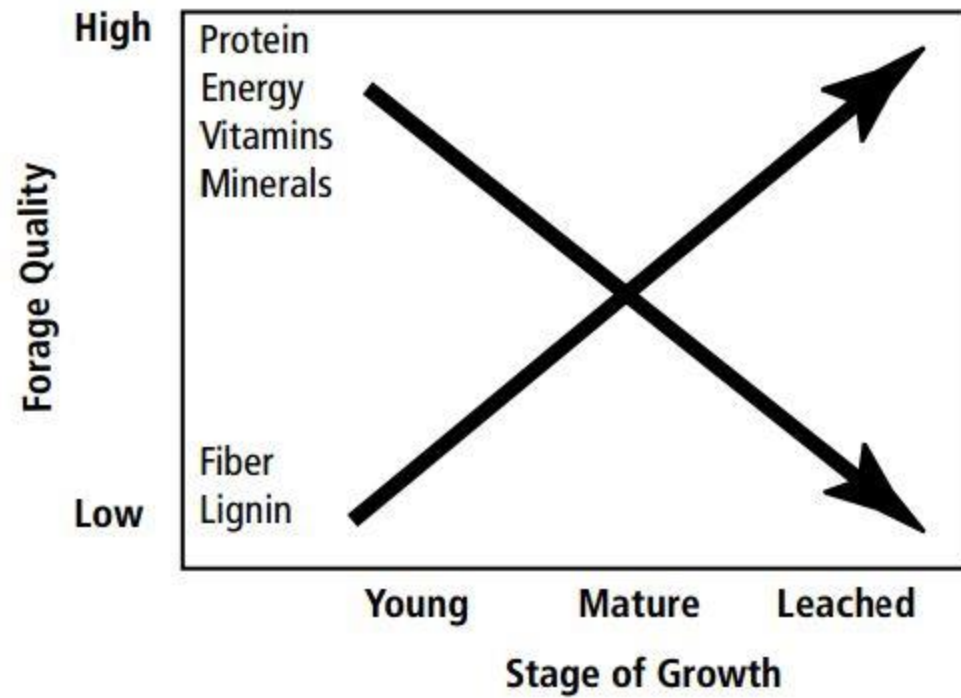
MELVIN GEORGE, Extension Range Specialist, Department of Agronomy and Range Science, University of California, Davis; **GLENN NADER**, UC Cooperative Extension Farm Advisor, Yuba-Sutter-Butte Counties; **NEIL MCDUGALD**, UCCE Farm Advisor, Fresno-Madera Counties; **MIKE CONNOR**, Superintendent, UC Sierra Foothill Research and Extension Center; and **BILL FROST** UCCE Farm Advisor, Amador-Calaveras-El Dorado Counties.

Matching the nutrient demands of livestock with the nutrients supplied by range forage is a balancing act for a considerable portion of each year. The quality of range forage varies with plant species, season, location, and range improvement practices. Range forage is optimal for livestock growth and production for only a short period of the year. Early in the growing season, forage may be of high nutrient content, but high water content in the forage may result in rapid passage through the rumen and incomplete nutrient extraction.

Indicators of high forage quality such as protein, energy, vitamins, and minerals decline as the growing season progresses (Figure 1). Conversely, indicators of low quality such as fiber and lignin increase as forage plants mature.

Typically, four nutrients are of primary concern to managers of animals on California's annual-dominated foothill and coastal rangelands: protein, energy, carotene (the precursor of vitamin A), and phosphorus. Additionally, certain minerals may be deficient or toxic at certain times or locations. Annual range forage may be deficient in copper. A high amount of molybdenum aggravates copper deficiency. Potassium and zinc may also be deficient in mature weathered forage. Other minerals such as selenium may be found in deficient or toxic levels in certain areas of the state.

Figure 1.
Stages of growth and forage quality



Although the rain this winter has made drought seem like a thing of the past, managing for drought should continue to be a consideration for ranchers.

The Society for Range Management publication, entitled “Coping with Drought on California Rangelands”, provides strategies and information for ranchers faced with extended drought. The full document can be found here:

<http://www.sciencedirect.com/science/article/pii/S019005281630027X>

Calculating forage productivity and stocking rates can be complex, and may be challenging for beginning ranchers. There are a number of resources available to estimate forage productivity and stocking rates, but there is no real “short cut” for finding this information.

Your local NRCS office is staffed with people who can help you calculate things like forage productivity and stocking rates. We encourage you to contact your local office for support.

- Alameda County NRCS Office
 - Alyson Aquino, District Conservationist
 - alyson.aquino@ca.usda.gov
 - 925-371-0154, X 3867
- Contra Costa County NRCS Office
 - Hilary Phillips, District Conservationist
 - hilary.phillips@ca.usda.gov
 - 925-672-4577, X4144
- San Mateo County NRCS Office
 - Jim Howard, District Conservationist
 - james.howard@ca.usda.gov
 - 650-712-7765

The NRCS's Web Soil Survey allows you to quickly find the forage productivity of a given soil type. While this is a good method for calculating forage productivity of a site, forage productivity data is not available for all soils, and the website can be tricky to navigate at first.

The following pages have a step-by-step guide for using the NRCS Web Soil Survey page, which is located online here:

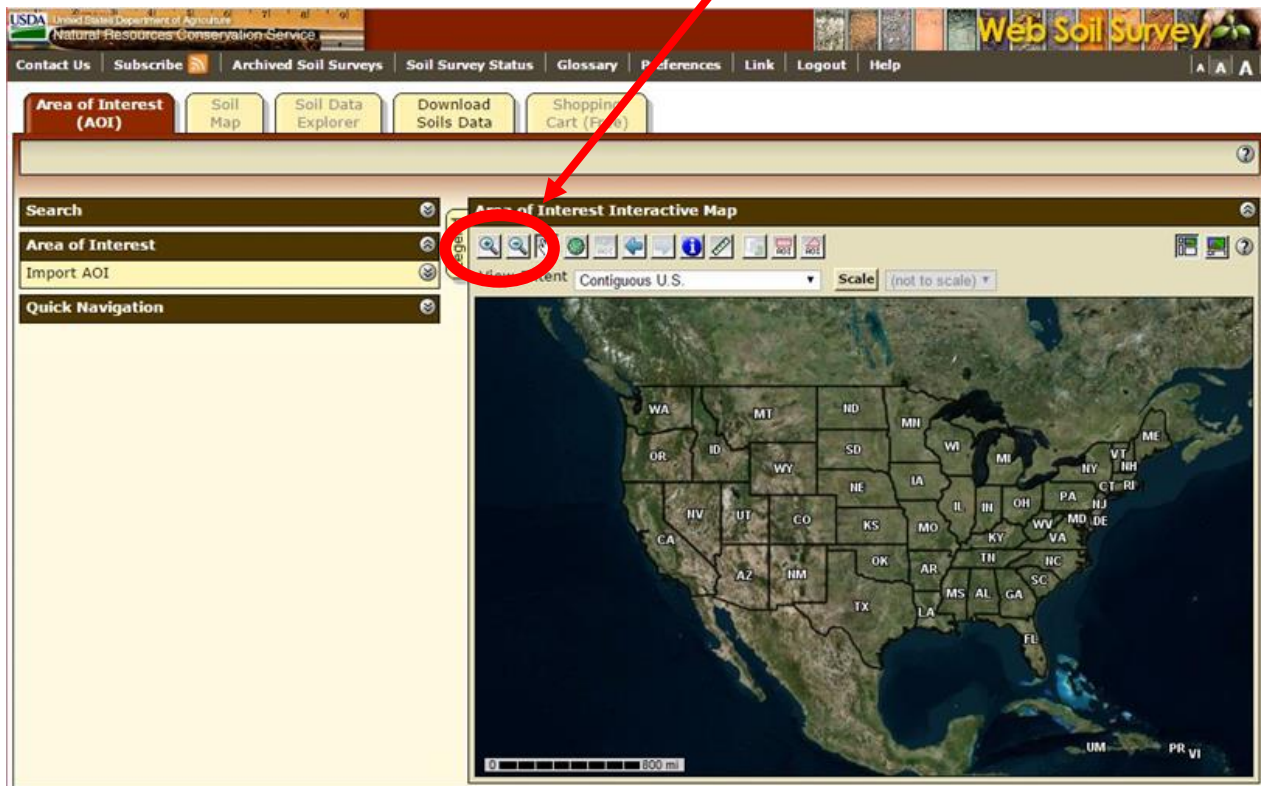
<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

How to use the Web Soil Survey

Step 1: Visit <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> & click on the “START WSS” button



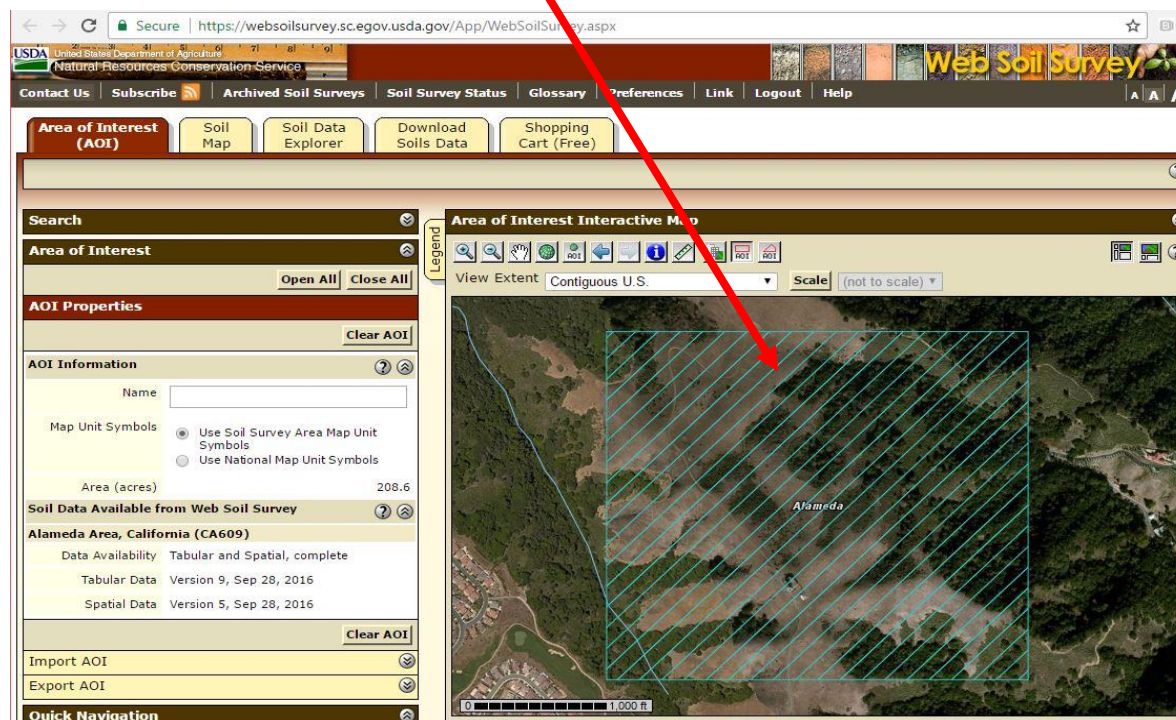
Step 2: Zoom in on the map to find your Area of Interest. Use these buttons to zoom in and out



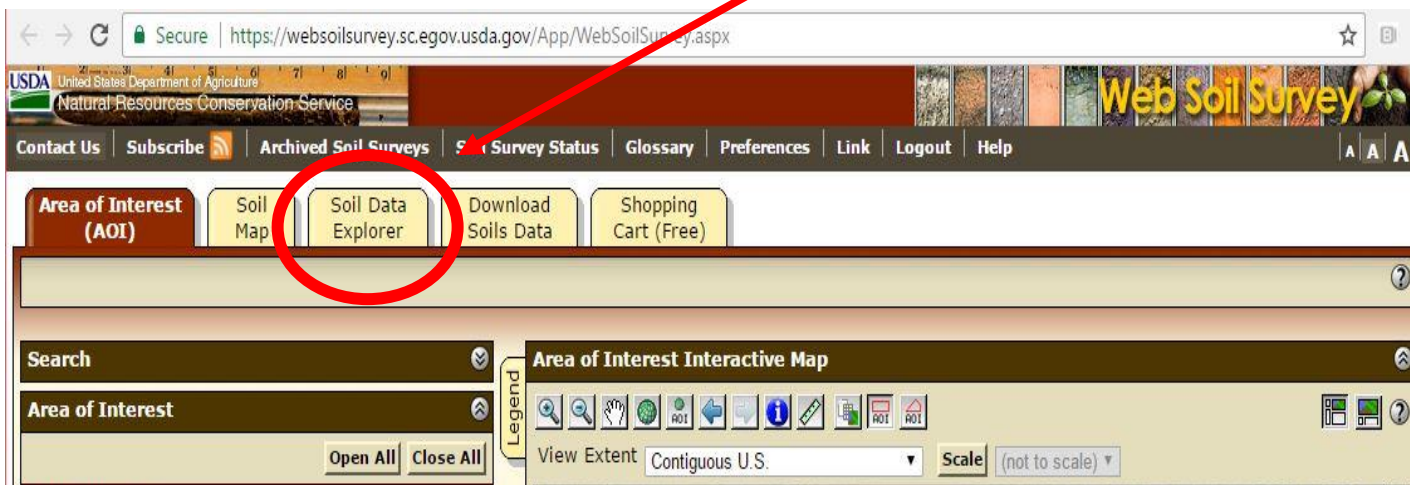
Step 3: Use the “AOI” buttons to draw the boundaries of your area of interest, or import your area of interest from another map layer if you have it.



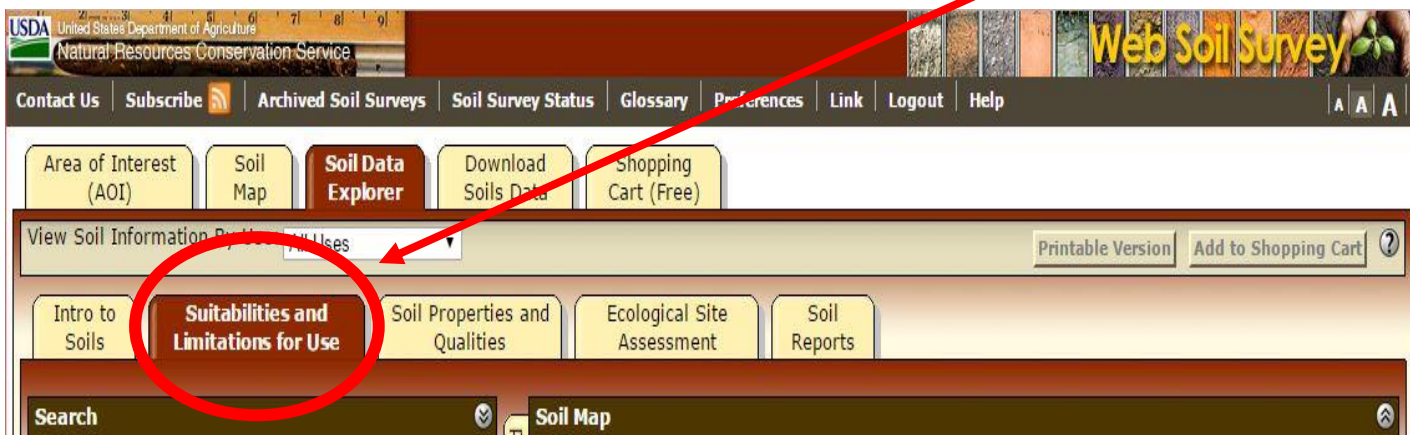
If you’ve done it right, you’ll something that looks like this (depending on what type of shape you drew or imported):



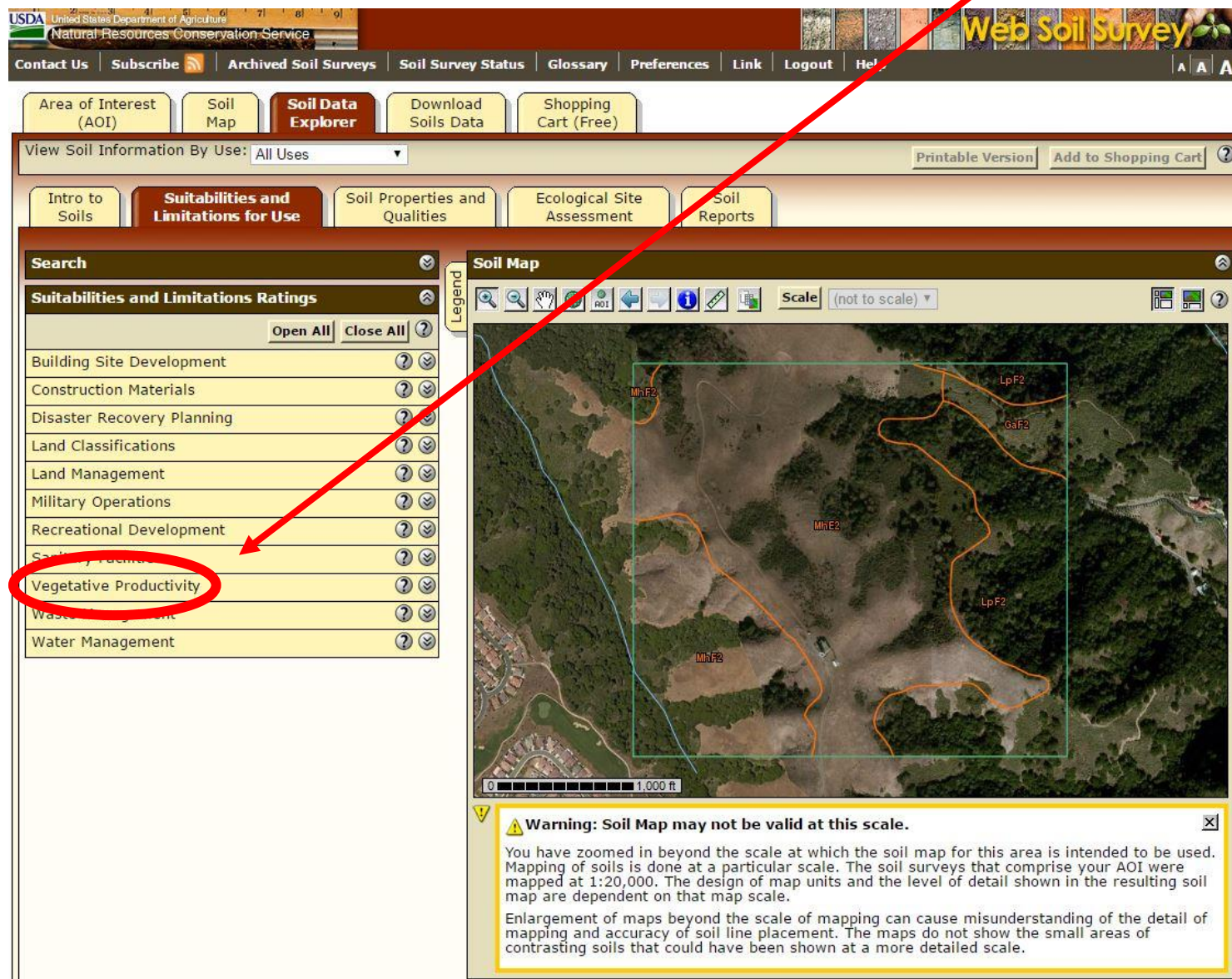
Step 4: Now you can find out more by clicking on the “Soil Data Explorer Tab”



Step 5: Once you’ve clicked on the Soil Data Explorer Tab, Select the “Suitability and Limitations for Use” Tab



Step 6: From the menu that appears on the left-hand side of your screen, click on “Vegetative Productivity”



USDA United States Department of Agriculture
Natural Resources Conservation Service

Web Soil Survey

Contact Us | Subscribe | Archived Soil Surveys | Soil Survey Status | Glossary | Preferences | Link | Logout | Help

Area of Interest (AOI) | Soil Map | **Soil Data Explorer** | Download Soils Data | Shopping Cart (Free)

View Soil Information By Use: All Uses [Printable Version] [Add to Shopping Cart]

Intro to Soils | **Suitabilities and Limitations for Use** | Soil Properties and Qualities | Ecological Site Assessment | Soil Reports

Search

Suitabilities and Limitations Ratings

Open All Close All

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Vegetative Productivity**
- Waste Management
- Water Management

Soil Map



Legend [Scale: (not to scale)]

Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Step 7: Once you click on the Vegetative Productivity drop down, you will see a number of choices related to “Range Production”. Based on what you know about the year you are looking up the information, select one of the three options (favorable, normal, or unfavorable).

Vegetative Productivity  	
Crop Productivity Index	
Forest Productivity (Cubic Feet per Acre per Year)	
Forest Productivity (Tree Site Index)	
Iowa Corn Suitability Rating CSR2 (IA)	
Minnesota Crop Productivity Index	
Range Production (Favorable Year)	
Range Production (Normal Year)	
Range Production (Unfavorable Year)	
Yields of Irrigated Crops (Component)	
Yields of Irrigated Crops (Map Unit)	
Yields of Non-Irrigated Crops (Component)	
Yields of Non-Irrigated Crops (Map Unit)	

Step 8: Select “View Rating”. Then select the “View Options” you’d like to see, but note that “Table” is what will tell you the rating in pounds per year of “air dry vegetation”, and then click the “View Rating” button. This should generate a table that includes the name of the soil types in your area of interest, as well as the rating in pounds per acre per year. Make sure you read the “Description” and “Rating Options” that appear below the table to fully understand what you are seeing.

Range Production (Favorable Year)

[View Description](#) [View Rating](#)

View Options

Map ☒

Table ☒

Description of Rating ☒

Rating Options ☒

☒ Detailed Description

Advanced Options

[View Description](#) [View Rating](#)

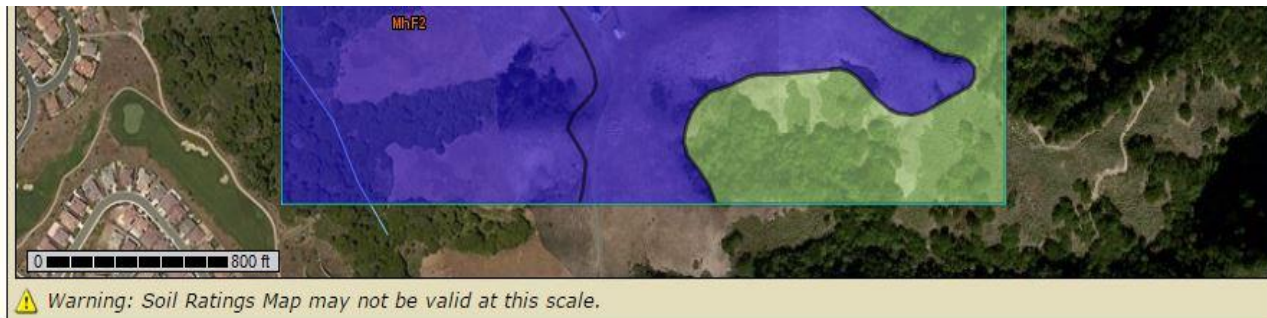
Range Production (Normal Year)

Range Production (Unfavorable Year)

Yields of Irrigated Crops (Component)

Yields of Irrigated Crops (Map Unit)

Yields of Non-Irrigated Crops (Component)



Tables — Range Production (Favorable Year) — Summary By Map Unit

Summary by Map Unit — Alameda Area, California (CA609)

Map unit symbol	Map unit name	Rating (pounds per acre per year)	Acres in AOI	Percent of AOI
GaF2	Gaviota rocky sandy loam, 40 to 75 percent slopes, eroded	1080	7.6	3.6%
LpF2	Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15	1920	50.3	24.1%
MhE2	Millsholm silt loam, 30 to 45 percent slopes, eroded	2550	108.4	52.0%
MhF2	Millsholm silt loam, 45 to 75 percent slopes, eroded	2550	42.3	20.3%
Totals for Area of Interest			208.6	100.0%

Step 9: Once you click on the Vegetative Productivity drop down, you will see a number of choices related to “Range Production”. Based on what you know about the year you are looking up the information, select one of the three options (favorable, normal, or unfavorable).

SPECIES	TYPICAL WEIGHT	DRY MATTER INTAKE
Beef cattle (cows)	1,000-1,300 lb	20-26 lb / day
Sheep (ewes)	150 lb	3 lb / day
Goat (does)	100 lb	2 lb / day
Horses (mares and geldings)	1,000-1,200 lb	30-36 lb / day

Please refer to the “Calculating Total Available Forage (Residual Dry Matter Method)” and “Carry Capacity Adjustments” sections of the publication by Melvin George and David Lile: “Ecology and Management of Grazing: An Online Course”, Module 4: Ranch Operations and Grazing Management - Stocking Rate and Carrying Capacity” for formulas and an example on calculating total available forage and carrying capacity, and other factors to account for when making carrying capacity calculations.

This publication can be downloaded here: <http://studylib.net/doc/7488692/stocking-rate-and-carrying-capacity>

UCANR has published guidelines for residual dry matter (RDM), which may be helpful in determining if the level of grazing on an annual grassland is appropriate. The following pages contain minimum RDM standards for coastal and foothill rangelands in California, as well as step-by-step instructions for clipping a plot for RDM measurements.

“Guidelines for Residual Dry Matter on Coastal and Foothill Rangelands in California” (publication 8092) is located online in the ANR catalog, here:

<http://anrcatalog.ucanr.edu/pdf/8092.pdf>

Table 1. Minimum RDM standards for dry annual grassland in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	300	400	500	600
25–50	300	400	500	600
50–75	NA	NA	NA	NA
75–100	NA	NA	NA	NA

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Table 2. Minimum RDM standards for annual grassland/hardwood rangeland in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	500	600	700	800
25–50	400	500	600	700
50–75	200	300	400	500
75–100	100	200	250	300

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Table 3. Minimum RDM standards for coastal prairie in pounds per acre (dry weight)

Woody cover (%)	RDM standard for percent slope (lb/acre)			
	0–10	10–20	20–40	>40
0–25	1,200	1,500	1,800	2,100
25–50	800	1,000	1,200	1,400
50–75	400	500	600	700
75–100	200	250	300	350

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

CLIPPING A PLOT

The technique for clipping a plot for RDM measurement varies between agencies and individuals. The following procedure, recommended by the University of California, is the method that was used in the research on which the guidelines are based.

1. Place the quadrat (usually 1 square foot, or about 1,000 square centimeters) on the ground surface.
2. Remove from the area within the quadrat all summer annuals such as tarweed, yellow starthistle, and turkey mullein.
3. Remove tree leaves.
4. Clip the remaining plant material within the quadrat as close to the ground surface as you can without disturbing the soil.
5. Rapidly collect as much of the clipped plant material as is practical without inadvertently including bits of soil.
6. Weigh the dry plant material (1 gram per square foot = 96 pounds per acre). The plant material should be air dry in October or November unless there has been unusually early rain.

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