Spring 2017

Placer County
11477 E. Avenue
(Bldg 306, DeWitt Center)
Auburn, CA 95603
530-889-7385
FAX 530-889-7397
Email: ceplace@ucdavis.edu
Days: Monday - Friday
Hours: 8 - 5

Nevada County
255 So. Auburn Street
(Veterans Memorial Bldg)
Grass Valley, CA 95945
530-273-4563
FAX 530-273 4769
Email: cenevada@ucdavis.edu
Days: Tuesday & Thursday
Hours: 8 -12 12:30 - 4:30

Irrigated Pasture Management Workshop
Penn Valley
Saturday, April 29
9:00 AM – Noon
Registration Information:
http://www.ncrcd.org/index.php/seminars/

Workshop will feature a lot of hands-on activities and demonstration of irrigation systems. This will be one of my last workshops that I will conduct as an Advisor for UC Cooperative Extension. I retire on June 29th. Hope you can make it.

Topics Covered Include:
- Understanding physical and biological characteristics of your soil
- Estimating soil moisture
- Types of irrigated pasture management forages
- Grazing Management Practices for Irrigated Pasture
- Types of irrigation - flood and sprinkler
- Fertilization strategies
- Electric Fencing for Irrigated Pasture
Farm Loan Workshop
March 17, 2017, 9:00 AM to 3:00 PM,
Auburn Veterans Memorial Hall

Need financing for equipment? An operating loan? Need to buy land?

The USDA Farm Service Agency (FSA) offers a variety of loan programs to help farmers and ranchers. Belle Davis, FSA Farm Loan Manager will help you learn how about the different FSA loan programs, how to navigate and understand the loan forms, and the required information you will need to provide. During the afternoon, you will have the opportunity to meet with Belle and other FSA loan personnel to answer specific questions you may have for submitting a farm loan.

$5 per person includes lunch and materials.

Find out more and register here [http://ucanr.edu/sites/placernevadasmallfarms/?calitem=354096&g=22527](http://ucanr.edu/sites/placernevadasmallfarms/?calitem=354096&g=22527)
For more information contact Cindy Fake, cefake@ucanr.edu 530.889.7385

The FSA Farm Loan program information page can be accessed here: [https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/index](https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/index)

The website notes that FSA’s Farm Loan Programs offer opportunities to farmers and ranchers to:

- Start, improve, expand, transition, market, and strengthen family farming and ranching operations
- Beginning farmers, racial and ethnic minority farmers and women producers
- Value-added, direct sale, organic, and specialty crop operations
- Young People actively involved in agricultural youth organizations needing financial assistance for income-producing, educational, agricultural projects
- Urban farmers and roof-top producers

Operations using alternative farming methods such as hydroponics, aeroponics, vertical farming, and freight container farming

Here are the current interest rates effective March 1, 2017:

- Farm Operating Direct - 3.00%
- Farm Operating Microloan - 3.00%
- Farm Ownership - 4.00%
- Farm Ownership - Direct, Joint Financing - 2.50%
- Farm Ownership - Down Payment - 1.50%
- Emergency Loan - Amount of Actual Loss - 4.00%

Here is more information on some of the FSA loan programs.

**Direct operating loans** (up to $300,000) can be used for purchase items such as livestock and feed; farm equipment; fuel, farm chemicals, insurance, and family living expenses; make minor improvements or repairs to buildings and fencing; and general farm operating expenses.

**Microloans** (up to $50,000) are operating loans designed to meet the needs of small and beginning farmers, non-traditional, specialty crop and niche type operations by easing some requirements and offering less paperwork.

**Direct Farm Ownership** loans (up to $300,000) are used to purchase or enlarge a farm or ranch, construct a new or improve existing farm or ranch buildings, and for soil and water conservation and protection purposes.

**Beginning Farmer and Rancher** loans (up to $300,000) provide credit opportunities to eligible family farm and ranch operators and owners who have been in business less than 10 years.

Here is the FSA link for more information on the different types of loans: [https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/index#AvailableFarmLoans](https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/index#AvailableFarmLoans)

Please contact me at 530-889-7385 or rsingram@ucanr.edu if you have questions. The March 17th workshop is a great opportunity to learn more about FSA loan programs.
Will It Ever Stop Raining!
Roger Ingram
UCCE County Director and Farm Advisor, Placer/Nevada Counties

I am writing this article on March 7, 2017. Temperatures will continue to be unseasonably warm.

Grass needs moisture, sunlight, and warm soil temperatures to grow.

Rainfall
There are a lot of different ways to look at rainfall.

Rainfall – October 1, 2016 - March 6, 2017
Rainfall totals since October at the Sierra Foothill Research and Extension Center (SFREC) total 31.79 inches, which is 110% of average. Rainfall totals in Auburn, California total 44.39 inches, which is 127% of average. There is still the rest of March, and April to go!

Rainfall – March 1, 2016 - February 28, 2017
Another way to look at rainfall is by a rolling twelve-month total. Rainfall totals from March 1, 2016 - February 21, 2017 at SFREC total 38.89 inches, which is 135% of average. Rainfall totals for the same time period in Auburn, California total 53.92 inches, which is 157% of average.

Forage Production Year to Date – October 2016 – February 1, 2017
Here is a link to a blog post on forage production from SFREC for 2016-17.
http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=23189

SFREC reported November forage production at SFREC was 613 lbs/ac or 159% of normal. December forage production increased to 720 lbs/ac which is 153% of normal. January forage production was 943 lbs/ac which is 183% of normal. This time in 2015 forage production stood at 53% of normal.

A summary table is below. The dates listed are when samples were taken. The amounts per acre represent the previous month’s forage growth on SFREC annual range. For example, the Dec 1, 2016 of 613 lbs/ac represents forage growth in November 2016.

<table>
<thead>
<tr>
<th>Year</th>
<th>Dec 1</th>
<th>Jan 1</th>
<th>Feb 1</th>
<th>Mar 1</th>
<th>Apr 1</th>
<th>May 1</th>
<th>Peak Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>613</td>
<td>720</td>
<td>943</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>385</td>
<td>471</td>
<td>516</td>
<td>682</td>
<td>1532</td>
<td>2895</td>
<td>2972</td>
</tr>
</tbody>
</table>

Soils are currently saturated and need to dry out. The three-month forecast (March, April, May) from the National Weather Service Climate Prediction Center is for average rainfall and temperatures (http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1).
Typical rainfall at SFREC in March and April is about 6 inches (4 in March and 2 in April). In 2008, there was only 0.82 inches of rain for the two months and forage production was below normal. Both January and February were dry that year as well. If the National Weather Service Climate Prediction Center’s prediction of average rainfall and temperatures come true, we could see significantly more forage production this year. The big caveat – believe it when you see it!

**Soil Temperature**

The spring flush of growth typically will happen when soil temperatures approach 60 degrees. Soil temperatures below 50 degrees slow forage growth to a crawl. Soil temperatures between 50-55 degrees increase the forage daily growth, although overall growth is slow. Soil temperatures between 55-60 degrees increase the forage daily growth to a faster rate, although not quite as fast as when it reaches 60 degrees. Below is a monthly graph of the October 2010 - September 2015 average soil temperatures and annual forage growth at SFREC.

SFREC germination occurred on October 7, 2016. The soil temperature at that time was 64 degrees and averaged 56.5 degrees in November. December soil temperature dropped to less than 50 degrees on December 16, 2016. Soil temperatures in January 2017 did stay below 50 degrees except for 5 days January 8-12. The average soil temperature through February 21st is 50.5 degrees. The increased soil temperature and ample moisture has resulted in a noticeable increase in growth rates, although we are still not in fast growth. Since February 21st soil temperature at SFREC again dropped below 50 degrees, meaning forage growth was temporarily slowed.
Photoperiod

Photoperiod is the length of daylight plants and animals are exposed to sunlight. Photoperiod from November through January averages less than 10 hours per day and is the most limiting factor to forage growth during winter. For example, if there is a winter period with adequate moisture and soil temperatures in the low 50's, growth rates will remain slow as a result of short day lengths. As photoperiod increases to around 11 hours, forage growth rates increase. The spring flush coincides when photoperiod reaches close to 13 hours a day. Conversely, as photoperiod lengthens in late winter and soil temperatures rise, forage growth will be most limited by soil moisture. See the graph below to see the relationship of photoperiod on forage growth. Day length and soil temperatures need to increase before growth becomes rapid.

Remember - longer days mean warmer soil temperatures and will increase the growth rate provided there is moisture in the soil. Most likely we will have adequate soil moisture. However a three week dry period and north winds can change conditions dramatically.
NO FREE LUNCH
Roger Ingram, UCCE County Director and Farm Advisor, Placer and Nevada Counties

Nutrition requirements were taken from the Montana State Sheep Ration Program that can be found online at https://msushepration.montana.edu/Home.aspx. The tables used in the online program came from the National Research Council’s Nutrient Requirements of Small Ruminants: Sheep, Goats, Cervids, and New World Camelids. 2007.

The rainfall and forage results reported earlier in this newsletter are great news compared with the last four years of drought. I do own some sheep and everything was going great with the increased forage supply over fall and winter. The sheep run on annual range for approximately 8 months and irrigated pasture for 4 months. Lambing occurs on rangeland.

Lambing started February 19th and there began to be a trend of bigger lambs. This has become more noticeable as ewes that have normally lambed unassisted are now needing some human intervention to pull lambs. Not all ewes are needing assistance, but a noticeable trend. This culminated on March 6th with a rectal tear and disembowelment prolapse of a ewe. Veterinarian assistance was needed as the ewe was dying and could not be saved. A C-section was performed and there were two huge lambs. One was alive, the other ended up dying soon after being removed from the ewe. The ewe was euthanized.

While the lambs were not weighed, they were conservatively at least 15 pounds each. The ewe was moderate framed and approximately 160 pounds. The size of the lambs was so great that they caused the rectal prolapse. Prior to this, the ewe had exhibited some signs of a prolapsed vagina but then would reabsorb the prolapse. The ewe was being closely monitored, but the twins were so big that they had not moved into position to be born naturally. The rest of this article is to explain the reasons for larger lambs happening this year.

Fetal Development
The gestation period for ewe (and goat) is approximately 150 days. Rams were turned in with the ewes on September 29th and pulled from the flock in mid-November. There are two phases to fetal development once the ewe is pregnant. During the first 15 weeks of gestation, the pregnant ewe’s energy requirement (154 lb ewes) increases about 17%; and the protein requirement increases 16% over maintenance.

The last four weeks of gestation, the pregnant ewe carrying a single lamb’s energy requirement (154 lb ewes) increases about 58.3%; and the protein requirement increases 72% over maintenance. The last four weeks of gestation, the pregnant ewe carrying a twin lamb’s energy requirement (154 lb ewes) increases about 83.3%; and the protein requirement increases 88% over maintenance.

The fall breeding is done to time lambing when forage growth starts to increase. It also helps with the increase in energy and protein over the last month of pregnancy. Protein (over 18%) and energy (over 60% Total Digestible Nutrients - TDN) on annual range is high during this time of year, even though the forage still contains a lot of water.

Approximately 70% of fetal growth occurs the last six weeks of gestation. A study done in England looked at the factors affecting birth weight in sheep by doing a statistical analysis on two long-term datasets (11 years) of 154 Blue-faced Leicester X Swaledale (mule) and 87 Welsh mountain ewes at the University of Nottingham; along with another dataset of 856 Mule ewes from the entire flock of a commercial sheep enterprise at University of Nottingham, Sutton Bonington.

The study found that maternal ewe energy intake from early to mid-gestation had little influence on lamb birth weight. The study found that late gestation intake was positively associated with birth weight (remember, 70% of fetal growth occurs during this period). The study also found that ewe body condition at breeding had a significant effect on birth weight. Male lambs were 300 grams (0.66 lb) to 400 grams (0.88 lbs) heavier. Ewes that had two years of being barren had significantly smaller lambs.
The authors unexpectedly found that the year of birth had significant effects on overall birth weight, on average a 1 kilogram difference (2.2 lbs). This occurred despite no obvious differences in flock management, nutrition, and other factors known to affect lamb birth weight. The authors were not able to evaluate climatic impacts on the year of birth to explain this effect.

A subsequent paper by Gardner, *Climate Affects Birth Weight in Sheep*, analyzed the data to better understand what might be potential effects of the year of birth. Climate data analyzed included was temperature, rainfall, and wind speed. A stress index was developed that included body temperature, air temperature, and a wetness effect. The study found on average that relatively low birthweights were associated with year that had an increase in the climatic stress index. Higher birthweights were associated with years with a lower climatic stress index. The effect was only seen in early gestation (November-December) after breeding. No effect was found pre-breeding.

The paper concluded that the single greatest effect on birth weight was litter size – i.e. single vs twin, etc. Other significant effects on birth weight were year of birth, sex of the lamb, whether the ewe had been barren in two consecutive years, and whether the lamb survived or not. Maternal body composition prior to pregnancy and maternal nutrition during late gestation also had significant effects on birth weight in the sheep.

**Implications**

I have been pondering if it would be possible to implement some grazing strategies to mitigate the high lamb birth weights experienced this year. Remember, forage growth was over 183% of normal in January, when late gestation would have occurred. The February results are not yet available, but should continue with above average production. Higher quantity of high quality forage was grazed during late gestation compared to average years. I do not think I would modify the grazing as a nutrient demand is higher in late gestation and not meeting that demand would have negative consequences on the ewe.

Body condition score (BCS) at breeding was shown by the authors to impact live lamb weight. Average body condition score for the flock was 3.06 at the beginning of flushing (period of 6 weeks of additional supplementation of canola meal four weeks prior to and two weeks during breeding). The purpose of flushing is to get the ewes on a rising plane of nutrition prior to breeding to increase ovulation (produce more eggs which would lead to more twins). The greatest impact with flushing is with thin ewes. Ewes were BCS 3.3 at breeding. It could be that we could have fed less canola meal at flushing or split the groups into thin and adequate BCS groups. The mild weather this fall during early gestation may have played an additional role in the higher birthweights.

In the end, it may have been a perfect storm of increasing body condition too much at breeding; mild weather during early gestation, and much greater quantity of high quality forage during late gestation that worked together to create higher birthweights. I think it will be a long time before we ever see winter forage production reach 183% of normal; the caveat being that weather is increasingly becoming more erratic.

There is an old saying that there is no free lunch. It means you do not get something for nothing. The saying applies to Mother Nature as well. Either too little or too much forage can impact your operation in both positive and negative ways. If I had a choice, having a lot of forage is an easier challenge than too little forage. I have worked for UC Cooperative Extension since 1986 and never seen fall and winter forage growth like was encountered here in the Sierra Foothills. The big idea is that every situation has challenges and you can learn from each of them.

Here is the reference for the study:


The full text can be found here:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1994721/


http://www.earlyhumandevelopment.com/article/S0378-3782(07)70128-7/abstract
UPCOMING EVENTS

Contact Roger Ingram at (530) 889-7385 or rsingram@ucanr.edu to register or if you have questions. Check website for updated information at ceplacer.ucdavis.edu

Farm Loan Workshop
March 17, 2017 9:30 AM - 3:30 PM, Auburn Veterans Hall
Need financing for equipment? an operating loan? Need to buy land?
The USDA Farm Service Agency offers a variety of loan programs to help farmers and ranchers. Come find out more about FSA loans. Learn about the documentation needed to apply for any loan and get help starting the loan process.
$5 per person includes lunch and materials. Register at http://ucanr.edu/survey/survey.cfm?surveynumber=20330
For more information, contact Cindy Fake cefake@ucanr.edu 530.889.7385

Irrigated Pasture Management Workshop
Penn Valley
Saturday, April 29, 2017
Registration Information: http://www.ncrcd.org/index.php/seminars/
Workshop will feature a lot of hands-on activities and demonstration of irrigation systems.

Pastured Pig Workshop
June, 2017
Chicago Park
Information coming soon.

Beginning Farmer/Rancher Academy
April 7 - 8, 2017
11477 E Ave
Auburn, CA 95603
The beginning farmer/rancher academy will help develop an action plan of next steps in creating your business. Topics covered include: understanding your market, important considerations in getting started, farm tour, marketing channels, farmers' market tour, economic and financial planning overview, evaluating capital purchases, and action planning. Registration information is posted at: http://ucanr.edu/sites/placernevadasmallfarms/?calitem=350345&g=22527
Ranchers & Farmers: Planning for Succession Workshop

Are you a rancher or farmer who is wondering how you will be able to retire and pass your knowledge on to the next generation? Are you a rancher or farmer who is wondering how you can get started and build on what established ranchers and farmers have accomplished?

**Wednesday**
**March 15th, 2017**
**10 AM - 3 PM**

$35 Per Person
$25 Farm Bureau Members
$10 Per Additional Family Member

The Nevada County Resource Conservation District, in partnership with the Nevada County Farm Bureau and California FarmLink, is hosting a workshop that will help answer these questions and more. By the end of this workshop, you will understand:

- The basic components of farm succession planning and how to get started with the first conversation.
- The key financial risks in retirement planning and how the use of options like financing, leasing, or easements can help.
- The first few steps in analyzing and valuing your farm business.
- The resources and advisors available to help this process along.

**Registration Required**
http://www.ncrcrd.org/index.php/contact-us/seminar-registration/

For more information contact Jan Blake at janet.blake@ncrcrd.org or call (530) 798-5529

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