



# LIVESTOCK & NATURAL RESOURCES

## Program Highlights

**30 workshops provided 167 hours of instruction and reached over 1,073 ag producers.**

**800 ag producers received the quarterly *Foothill Rancher* newsletter.**

**California Grazing Academy held for the 25th time, has reached over 665 producers and agency personnel who manage over one million acres of pasture and rangeland.**

**California Multi-Species Academy held for the 14th time, has reached over 293 producers and agency people who manage over 275,000 acres.**



*The Placer/Nevada Livestock and Natural Resources program provides relevant information, hands-on educational opportunities and research to support existing and new livestock producers. Livestock, range, and pasture production generates a gross income of more than \$32 million between Placer and Nevada Counties.*

*Many types of livestock are raised in the two county area including: cattle, sheep, goats, horses, llamas, and alpacas. Small-scale poultry production continues to expand. Niche meat marketing direct to the consumer and targeted grazing using small ruminants for fuel load reduction and noxious weed removal have emerged over the last 7 years as viable enterprises.*

*Economic viability and scale of operation are major issues for Placer and Nevada livestock producers. Access to grazing land, irrigated pasture, soil health, capital for developing infrastructure, and labor are identified challenges that need more education and research to help find solutions.*

*The Livestock and Natural Resources program provides direct assistance to livestock producers in the two county area by providing University of California research based information to help them be economically and environmentally sustainable. Sustainability for producers translates into four core concepts:*

- *Structure your livestock operation to work with nature by matching the herd's forage demand with nature's cycle of when we have plenty of forage. This results in becoming a low-cost producer.*
- *Develop a plan for profitability at an appropriate scale over and above paying a salary and land rent for the rancher. This includes economic, financial, and capital planning.*
- *Manage for the ecological landscape you want to create. This means using the ecosystem processes of energy flow, water cycle, and nutrient cycle to develop a more productive landscape.*
- *Create a risk management plan for drought, marketing, and personal injury to make the ranch resilient in the face of adversity.*



# CALIFORNIA GRAZING ACADEMY



*Participants compare water infiltration with two different soils.*



*Each team get their own herd of cattle to manage during the Academy.*



*The green team wins the troubleshooting electric fences competition!*

## ISSUE

Many producers and agency personnel need increased knowledge of controlled grazing principles and ecology. Livestock producers need hands-on experience to help them implement controlled grazing on their operations. Drought management principles and grazing planning are critical needs due to lack of rain.

## WHAT WAS DONE

The academy is a three-day, live-in course emphasizing the practical application of research based, controlled grazing principles. The Grazing Academy emphasizes experiential learning. Participants learn by actually applying classroom principles in real pastures with live cattle. This year's academy focused on drought planning with an emphasis on estimating carrying capacity, determining stocking rate, and developing a grazing plan.

## IMPACT

The academy has now completed its 24th year of existence. There have been a total of 25 academies since 1992. Over 665 ranchers, agency people and extension advisors have attended.

- If you want to maximize productivity and profitability on your ranch you should work towards creating a feed budget, grazing plan and increase your number of paddocks. Math is involved.
- Hands on learning and seeing concepts illustrated across a little time and space. Also the group is awesome and I'm very excited about the new relationships and connections.
- Fundamentals of capacity, stocking rates grazing grasses, roots, nutrition. Change our thinking! That we can make a difference on our fields. Everything doesn't have to stay the same.
- The 5 principles, #1 especially (giving plants adequate rest) and learning the fact that cattle can actually help assist with the health of the rangeland.

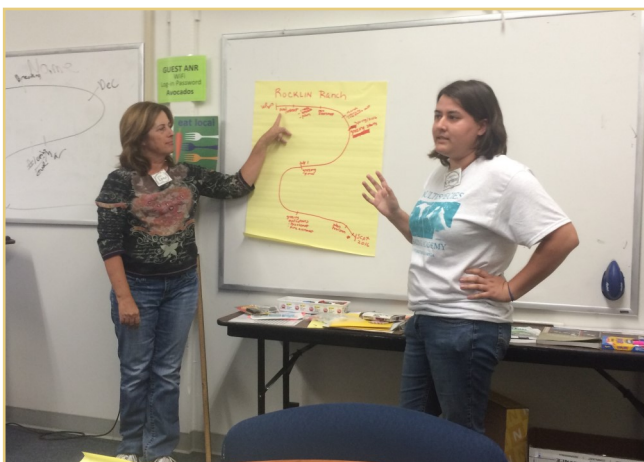




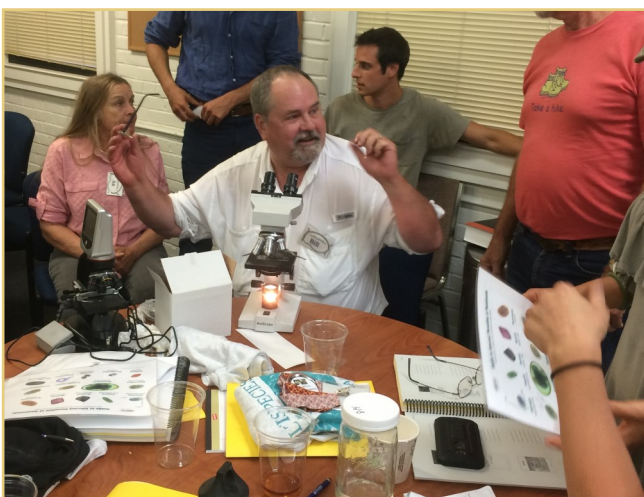
# MULTI-SPECIES ACADEMY



*Brad Fowler (left) and Dan Macon (right) discuss targeted contract grazing opportunities and challenges.*



*Participants leave the academy with their own action plan of implementation.*



*Dr. An Peischel (far left) teaches how to determine parasite load in small ruminants while looking into a microscope at a manure sample slide.*

## ISSUE

Ranchers, land managers, and agency people in Placer and Nevada County are interested in the use of small ruminants (sheep and goats) for fuel load reduction, removal of noxious weeds, adding a meat enterprise to their operation and/or considering starting a contract grazing business. Small ruminants can provide a flexible alternative to mechanical and chemical control methods.

## WHAT WAS DONE

The California Multi-Species Academy is now in its 14<sup>th</sup> year. It is used to help local producers, land managers, and agency people gain knowledge and hands-on experience in working with sheep and goats prior to using them on their property. The academy features field work and hands-on experience at local ranches in Placer and Nevada Counties. The Academy runs for 2.5 days and gives participants a total of 25 hours of instruction. Participants work with over 100 goats and 150 sheep during the academy. Topics covered included: grazing/browsing principles, ecology, contract grazing, nutrition, reproduction, health, guard dogs, and economics.

## IMPACT

Participants commented on the important things they learned:

- I really enjoyed the field visits and the hands on observing, fence building, and herd assessments. I also really enjoyed grazing planning and all of the detailed explanation on animal science and plant and soil science.
- There is a wealth of information here. The resources I have been given to take home and read and re-read will be most useful.
- Setting up the temporary fence. Touching sheep and goats. Feeling the sheep and goats and testing the body condition score.
- Match the plant to the animal and behavior can be one of your most powerful management tools.



# USDA INSPECTED HARVEST AND PROCESSING IN PLACER COUNTY



*Travis Maddock of Dakota Global visits with Joe Fischer while touring Bruin Ranch.*



*Sierra Foothill Meat Company Board members offer input to Travis and Rob Maddock (far left) as they work to complete a business plan for the proposed processing facility.*



*Three Forks Restaurant in Nevada City discusses their experience in working with local producers to feature their meat in various menu dishes.*

## ISSUE

USDA inspection for harvest and processing is required for local producers to market meat directly to consumers and/or wholesale markets. Few USDA inspected facilities exist for livestock producers in California and there are none in Placer or surrounding counties. A USDA inspected facility in Placer County would improve producer economic viability, create jobs, and increase access for area consumers to locally grown meat.

## WHAT WAS DONE

A rancher steering committee was formed in late April 2015 after a presentation on a USDA Harvest and Processing Study developed by Josh Huntsinger, Placer County Agricultural Commissioner; Roger Ingram, UC Cooperative Extension County Director and Farm Advisor; Tom Christofk, Placer County Air Pollution Control; and David Snyder, Placer County Office of Economic Development. The steering committee voted to apply for a USDA Value-Added Producer grant in July 2015. The grant would be used to develop a business plan with financial statements to provide information for the steering committee to use in making a decision on constructing a producer-owned USDA Inspected Slaughter and Processing facility in Placer County. Placer County provided \$50,000 in match funding for the \$75,000 USDA proposal. The steering committee's application was approved for funding in September 2015.

## IMPACT

- Dakota Global Consulting, LLC was contracted to develop the business plan. Biogas Energy, Inc. was contracted to develop alternative energy and waste stream reduction options for the plant.
- The steering committee formed the Sierra Foothills Meat Company, Inc. mutual benefit corporation. Board members are producers from Placer, Nevada, and Yuba Counties. The vision statement for the company was developed by the board: ***In 5 years, Sierra Foothills Meat Company, Inc. will be a thriving and profitable state of the art business that is clean and attractive; give quality customer service; is environmentally responsible; provides career opportunities; and enhances the regional economy as well as the local community.***
- Dakota Global did a site visit and meet with the Sierra Foothills Meat Company Board of Directors in April 2016. Dakota Global visited board member ranches in Placer and Nevada Counties, 2 retail stores and one restaurant in Nevada County that featured locally grown meat, toured potential sites in Sheridan and Lincoln, and led the board through a guided discussion on the facility.
- Business plan will be completed by October 2016.





# SOIL HEALTH WORKSHOPS



*Participants test out a soil penetrometer to determine level of soil compaction.*



*Nevada County students learn about the role of worms in soil at the Nevada County Farm Day.*



*Learning to smell soil to assess actinomycete cycling activity.*

## ISSUE

Landowners and ranch managers in the Sierra Foothills raise livestock on shallow, rocky, low productive soils. Understanding basic soil properties and management practices that contribute to soil health are critical to enhancing forage productivity, maintaining soil cover to minimize erosion, increase organic matter to increase soil microbe activity, and increase stable carbon storage.

## WHAT WAS DONE

Working in partnership with local producers, UCCE delivered the following workshops on soil health: Soil Health and Grazing Management Workshop in Penn Valley, Role of Worms in Soil Health at Nevada County Farm Day, Soil Health in Irrigated Pastures at the Sierra Research and Extension Center Beef and Range Youth Field Day, and Soil Health in the Sierra Foothills at the Nevada County Food and Farm Conference, and Soil Health in Irrigated Pastures in Penn Valley. Soil Health was covered at the California Multi-Species Academy, California Grazing Academy, and two pasture walks at local ranches.

Soil samples on irrigated pasture were taken at five local ranches and tested for soil health. A Renewable Resources Extension Act (RREA) grant in collaboration with UCCE Advisors in Sonoma, Plumas, and Sierra Counties was received for developing an educational program and toolkit to assess soil health.

## IMPACT

- The six soil health workshops taught 345 producers and land managers about soil health. Participants were able to view soil profiles of soils from irrigated pasture and range. They viewed roots in irrigated pasture and learned about grazing principles that promote root health. Participants learned about soil structure, microbes, how to estimate soil moisture and electric fencing.
- The 5 irrigated pasture soil samples tested for soil health showed that grazing management to minimize overgrazing can enhance soil health. It revealed that cost-effective strategies to raise pH are needed to enhance nutrient cycling.
- The RREA grant funded development of a soil health toolkit that is being used to educate local ranchers and land managers on soil health. A companion workbook is in development.





# LIVESTOCK HUSBANDRY WORKSHOPS



*Local rancher Patty Beard discusses her feeding and mineral supplementation program at the Getting Started In Beef Cattle Workshop held at her Auburn ranch.*



*Sue Hoek demonstrating how she flood irrigates her ranch.*



*Dan Macon discusses care of a newborn lamb.*

## ISSUE

Landowners and managers in the Sierra Foothills are interested in raising a variety of different livestock on their own and leased property. This includes: sheep, goats, cattle, and pigs. People need hands-on experience to gain husbandry skills, understand grazing management, and how to maintain or create healthy soils.

## WHAT WAS DONE

Working in partnership with local producers, UCCE held the following:

Getting Started in Beef Cattle Workshop, Shepherding Skills Short Course, Pastured Pig Workshop, and Irrigated Pasture Management Workshops. Each workshop was held on local ranches and featured presentations by local producers in addition to information provided by Roger Ingram, UCCE Farm Advisor. The quarterly Foothill Rancher newsletter featured information on managing for drought and soil health.

## IMPACT

- The Getting Started in Beef Cattle workshop was held in Auburn and 60 people attended. The workshop was a collaborative effort between UCCE, local rancher, and the Tahoe Cattlemen's Association. Participants learned about: yearly forage production, types of cattle enterprises, buying and selling cattle, equipment, reproduction, nutrition, and health.
- The Shepherding Skills Short Course reached 77 people. Topics covered included: introduction to sheep production, sheep husbandry field day, lambing on pasture field day, and shearing and wool handling field day. The three field days were held with a local rancher in Auburn in collaboration with UCCE. Participants got hands-on experience with: giving shots, trimming feet, caring for newborn lambs, and handling wool.
- Pastured Pig Workshop was held for the first time for 27 people at a local ranch in Chicago Park. Participants learned how to graze pigs on pasture, raise pigs for finishing, nutrition, health, and reproduction.
- Irrigated Pasture Management was held for 27 people at a Penn Valley Ranch. The workshop was sponsored by the Nevada Irrigation District (NID). Participants learned about NID and delivery of water, estimating soil moisture, soil health, and types of irrigation.





# RICE STRAWLAGE RESEARCH AS AN ALTERNATIVE FEED FOR CATTLE



*The ammoniated rice straw is packed in long cube.*



*Dr. Peter Robinson getting a core sample to assess nutritional quality of the rice straw.*



*Steers were fed rice straw, corn, and cottonseed in feed bunks. Straw was weighed prior to putting into feed bunk as was any wasted feed left after feeding.*

## ISSUE

Rice and cattle are the two top commodities being produced in Placer County. Drought conditions have impacted both rice and cattle. The drought's impact on water supply has impacted rice straw's ability to decompose. The dry conditions resulted in a 30-50% reduction in forage supply for livestock producers in 2015. The reduced forage supplies have producers looking for alternative feed resources.

## WHAT WAS DONE

Research was conducted at the UC Sierra Foothill Research and Extension Center (SFREC) with a team of Livestock and Dairy Farm Advisors from Placer/Nevada, Yuba/Sutter/Butte, and Glenn/Tehama Counties. Rice straw was harvested at a Glenn County farm. The straw was harvested with the following treatment: ammoniation (increased nitrogen); bacterial inoculant only; bacterial inoculant + molasses; and a control. The treatments improve straw feeding quality. After harvest, a feeding trial was conducted with eight groups of 10 heifers at SFREC for 90 days. Heifers received an additional supplemental feed in the form of crimped corn and cottonseed.

## IMPACT

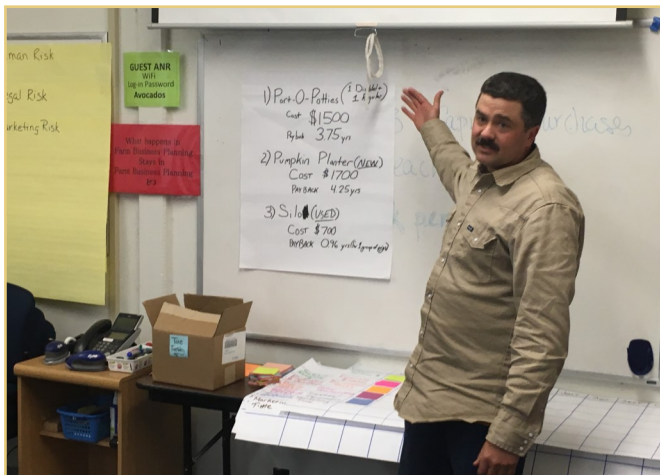
- The heifer group performance consuming ammoniated strawlage had a significantly ( $p \leq .05$ ) higher weight gains (126 lbs) at the end of the 90 day feeding trial (1.66 lbs/day) than the bacterial and control treatments.
- Heifers group performance for the bacteria only gained 1.2 lbs/day; the bacteria + molasses group gained 1.05 lbs/day; the control gained 1.09 lbs/day.
- The California Rice Commission provided another year of funding for continuing the research.
- Research in 2016-17 will compare high moisture (more difficult to handle) and low moisture (easy to handle) rice straw treatments with ammonia and bacteria.



# FARM BUSINESS PLANNING SHORT COURSE



*Jim Muck helps Hillview Farms during the all day Saturday economic boot camp.*



*Andy Barhydt of McCourtney Road Pumpkins discusses future capital purchase needs.*



*A follow-up meeting is held 3 months later with farm business planning graduates to review progress on action plans.*

## ISSUE

There are 2,097 farms in Placer and Nevada Counties according to the 2012 Census of Agriculture. A total of 601 farms (29%) have less than 10 years experience. The renewed interest in farming has been driven by: providing food for local communities, need for part- or full-time income, and a strong desire to get back to the land. This interest needs to be coupled with development of a business plan and learning from experienced farmers and ranchers.

## WHAT WAS DONE

The ninth annual Farm Business Planning Short Course was conducted in 2016. The five week six session course featured sessions on: mission and vision statements, enterprise analysis, economic plan for profit, cash flow, operations plan, risk management plan, and marketing. The final session covered development of an action plan for the next 3-6 months that includes important tasks, when they will get done, and by whom. A follow-up meeting is held three months later to hear farm updates.

## IMPACT

- Key participant insights gained in completing the short course class included importance of : cash flow, economic planning, and good communication between farming partners.
- The practices participating farms intended to apply included: profitability calculator, capital purchases calculator, cash flow calculator, and accounting and record keeping.

## COMMENTS FROM PARTICIPANTS:

*"THANK YOU!! The class was great. So nice to talk through tough decisions with people that care."*

*"This class helped us determine where to focus our time, how to make a capital purchase decision, and how to reach/maintain our vision."*