Livestock, Range, & Watershed
San Luis Obispo and Monterey Counties

Community Collaborative Rain, Hail, and Snow Network Initiative in Central Coast Counties
Philip Smith, Soil Scientist, USDA-NRCS

The Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) is an internet-based community of weather watchers, precipitation monitors, and climate enthusiasts. CoCoRaHS is a network developed by Colorado State University in 1998 and has become a nationwide network in recent years.

CoCoRaHS is an organization of volunteers who are interested in collecting precipitation data and sharing it on the website. Volunteers are from all walks of life and include farmers, ranchers, educators, conservationists, and all citizens with an interest in precipitation. Volunteers check their own rain gauges and report rainfall each morning to the CoCoRaHS website, www.cocorahs.org. Locations of standard rain gauges, which measure rain to the 1/100th of an inch, are geographically referenced by latitude and longitudinal coordinates, allowing CoCoRaHS participants and the public to view maps and see how much precipitation has fallen and where it has occurred geographically by date.

UCCE Advisor Royce Larsen and USDA-NRCS soil scientist Philip Smith encourage central coast residents to participate in CoCoRaHS. In addition to being free, fun, easy, and informative, the data collected by the CoCoRaHS network will be helpful in monitoring and documenting precipitation patterns for the Central Coast, state and nation. For more information, please visit the website at www.cocorahs.org.
The National Restaurant Association (NRA) released its “What’s Hot” culinary forecast of menu trends for 2013. The NRA surveyed more than 1,800 professional chefs, members of the American Culinary Federation (ACF), to find that children’s nutrition and local sourcing will continue to be the hottest trends on restaurant menus for the upcoming year.

The top 10 menu trends for 2013 include:
1. Locally-sourced meats and seafood
2. Locally-grown produce
3. Healthful kids’ meals
4. Environmental sustainability as a culinary theme
5. Children’s nutrition as a culinary theme
6. New cuts of meat (e.g., Denver steak, pork flat iron, teres major)
7. Hyper-local sourcing (e.g., restaurant gardens)
8. Gluten-free cuisine
9. Sustainable seafood
10. Whole grain items in kids’ meals

Not making the top 10 but in the top 13 was Farm/Ranch/Estate branding.

Also included in the surveys were questions about other restaurant trends. More than half (55 percent) of the chefs surveyed said they always make efforts to adjust dishes and recipes to be more healthful, while 37 percent said they cook with nutrition in mind, but that not all recipes are easily adjusted. When asked how to best handle the increasing cost of ingredients, 32 percent of the chefs said changing menus, 25 percent said adjusting plate composition, and 24 percent said exploring new sourcing options. Only four percent said that raising menu prices is the best strategy. The survey can be viewed at http://www.restaurant.org/pdfs/research/WhatsHotFood2013.pdf.

Note: Go to http://cesanluisobispo.ucdavis.edu/ and click on the calendar for upcoming workshops. Several are currently being planned and will be posted in the very near future.

Please help us! We are committed to conserving both natural and financial resources. To receive the “Livestock, Range & Watershed” newsletter and notices for future seminars, lecture series, events, or other UCCE newsletters and information via email, Contact Ingrid-ischumann@co.slo.ca.us. You will contribute to our goal of conserving nature and protecting the environment. Thank-you!
Megastorms, Droughts and Range Management
Royce Larsen, UC Cooperative Extension-San Luis Obispo and Monterey Counties

A new article in *Scientific American* by Dettinger and Ingram called “Megastorms Could Drown Massive Portions of California” ([http://www.scientificamerican.com/article.cfm?id=megastorms-could-down-massive-portions-of-california](http://www.scientificamerican.com/article.cfm?id=megastorms-could-down-massive-portions-of-california)) discusses possible impacts of flooding that could come from very large storms. The authors discuss how huge flows of vapor in the atmosphere, called atmospheric rivers, have unleashed massive floods in California on average every 200 years.

For example, a massive storm hit California on Christmas Eve in 1861 and it rained for 43 days. The Central Valley turned into an inland sea 300 miles long and 20 miles wide. Thousands of people died and 800,000 cattle drowned. Sacramento was submerged under 10 feet of water. There were numerous mudslides, and it took 6 months for the water to subside.

We have known about large events occurring on the West Coast for quite some time, such as the familiar “pineapple express” storms which come in from the tropics and dump rain and snow for 3-5 days. It turns out that these are just one configuration of an atmospheric river. As many as nine atmospheric rivers hit California every year, such as the one that hit Northern California last November and December. Fortunately, only a few of the atmospheric rivers are strong enough to yield true megafloods, such as the one that occurred in 1861.

It is interesting that such a megaflood was followed immediately by an extremely severe drought. The great drought of 1862–1865 wreaked havoc on the state and the cattle industry. Half of the cattle died as a result of this long drought, and large numbers of cattlemen were forced out of business, forever changing the ranching industry. Since, we have had severe droughts about 8 other times, or approximately once every 17 years. But none of these lasted for three years like the 1862-1865 drought did. However, less severe droughts can still create hardships for the ranching industry. It is just a fact of life that rainfall amount and timing varies. For example, the lowest rainfall recorded in downtown Paso Robles was 4.8 inches in 1898. The highest rainfall recorded was 31.3 inches in 1969, the year of the big flood in San Luis Obispo County.

It is important to notice that 6 out 10 years are below average (fig. 1). For more practical purposes, the years that are below the average determine what and how much forage can be produced on a ranch, which determines the number of cattle that can be grazed on a sustainable basis.

We cannot control the weather, but we have some control over managing our rangelands. Whether it is drier than normal, or wetter than normal, grazing management is similar in both cases. In *Effects of Residual Dry Matter on Net Primary Production and Plant Functional Groups in Californian Annual Grasslands*, written by Bartolome et. al., the authors discuss the effects of different amounts of residual dry matter (RDM) on plant species and production. In general, they found that high RDM levels (no grazing) favored grass while the lowest RDM level (heavy grazing) favored forbs. They also found that the highest RDM levels favored invasive species such as medusahead and barbed goatgrass, both of which are species of concern for this area. These results suggest that high levels of RDM will probably reduce carrying capacity of rangeland over time because of the reduction of forbs and the increase in invasive species. However, even though very low levels of RDM favor forbs (i.e. filaree and clovers), which may provide good feed for a short time, they may not protect the soil from erosion during the wetter years and may not produce as much total available forage. They found some differences based on precipitation and timing, so results are general in nature (see the article for details). However, their results do suggest (Continued on page 4)
that RDM based management of grazing intensity, i.e. leaving moderate levels of RDM, produces the best mix of grasses and forbs, and provides the best ecological health for annual rangelands. It is very important to the ecological health of the oak woodlands / annual grasslands to maintain proper stocking rates (moderate levels of RDM) to obtain sustainability of our natural resources. To accomplish this, especially with the West Coast’s variability of rainfall, requires an annual change in grazing management.

Figure 1. Paso Robles rainfall records, 1887-1888 through 2011-2012 water years.

Downtown Paso Robles
1887 - 2012
Average = 15.14 inches
Acute Death in Neonatal Beef Calves on Vetch Pastures
Robert B. Moeller, Jr, DVM, DACVP, CAHFS – Tulare

Since fall 2005, CAHFS pathologists have recognized a new disease problem involving fall beef calves nursing cows on pastures in the central California coastal regions. The cases to date have been submitted in September and October in the years 2005, 2006, 2010 and 2011. The problem has been identified in calves from Santa Barbara, San Luis Obispo and Monterey counties. Affected calves range in ages from 2 to 14 days with most cases appearing between 7 to 14 days of age. Calves are often born normal but become weak and unable to stand. In some cases, owners have stated the calves appear drunk and one had seizures. Other owners have only found calves dead with no clinical signs. On gross examination, the calves are in good flesh with no abnormalities identified. Often the animals have an abomasum filled with milk curd. The condition is diagnosed by microscopic exam of the liver where bright red (eosinophilic) inclusions are identified in hepatocytes from affected calves. Electron microscopic examination of the inclusions is consistent with excessive accumulation of abnormal material.

Investigations of affected pastures have identified abundant vetch present in the pastures. The vetch and adjacent grass appear to contain a a black to brownish black mold on the stems, pods, and seeds of the affected vetch. The problem seems to affect pastures on wet, rainy years (2005, 2006, 2010, and 2011) when an abundant amount of vetch is present. Other summer atmospheric changes such as rain or marine layer fog have not been completely investigated to see how they affect mold growth on the forage. Once this problem has been identified in calves and the calves and cows removed from the affected pasture with abundant moldy vetch and grass, the problem seems to resolve with no new cases. Cows and calves brought back to the affected pasture at a later time appear to not be affected (calves older than 30 days of age).

Metabolic storage diseases are seen in many animals (e.g. maple syrup urine disease), including humans. These problems are often associated with genetic enzyme deficiencies or acquired from ingestion of toxins such as locoweed. Clinical signs are frequently noted during the first few months of life in genetic forms and are most often progressive and lethal. Evidence that this is probably not a genetic trait includes resolution of the problem when animals are removed from the pasture, failure to recur when returned to affected pastures at an older age, and repeated breeding of the same cow-bull pairings with some years having no affected calves.
Tannins, Are They Good or Bad?
Royce Larsen, UC Cooperative Extension –San Luis Obispo and Monterey Counties

California is famous for the oak woodlands and grasslands that provide beautiful scenery and are great for cattle production. However, the oaks contain chemicals that may be harmful to livestock. The chemicals in question are tannins and phenols, which are naturally contained in the plant material, but vary in concentration depending on the species of oak trees, the season of the year, or climatic conditions.

Several years ago Dr. John Maas, DVM, School of Veterinary Medicine at UC Davis reported that over 2,700 head of cattle in Northern California died due to oak toxicity. He explained that health problems can occur due to ingestion of oak leaves, buds, and acorns. Though this is not a common problem, it certainly can be catastrophic. He went on to explain that most problems occur in late winter or early spring when new oak buds or small leaves are present in large numbers and other feed is scarce. Cattle usually need to consume greater than 50% of their diet as oak (leaves, acorns, buds) for oak toxicity problems to occur. Oak toxicity can usually be prevented by supplementing cattle when forage conditions are poor and acorns are abundant. But it is important to watch forage availability closely, a delay in supplementing for only 1 or 2 days can result in deaths.

Please read Dr. Maas’s column in UCD Vet Views California Cattlemen January 2001 for more information.

Though tannins and phenols are certainly a great concern, there may be some good news concerning tannins if taken in small quantities. Beth Burritt, BEHAVE Outreach Program Director at Utah State University, provided the following news brief. “Tannins are secondary compounds produced by plants. Tannins reduce forage intake and protein digestibility, but at the correct dose they may benefit ruminants by reducing the number of internal parasites. Most shrubs contain tannins as do sudangrass, birdsfoot and big trefoil, sorghum, sulla, sainfoin, and sericea lespedeza.

USU research assistant professor, Juan Villalba, and graduate student, Larry Lisonbee were curious if sheep infested with high levels of internal parasites would prefer to eat foods containing tannins when compared to sheep with low levels of internal parasites. In the first study, lambs infested with parasites ate more of a supplement that contained tannins than lambs with low levels of parasites. This behavior continued as long as parasite levels in the infested lambs remained high. As the trial progressed, differences between groups became smaller and disappeared near the end of the study as parasite numbers in infested sheep declined.

During the second study, two groups of lambs with and without internal parasites were offered an alfalfa/tannin mixture. Intake and preference for the alfalfa/tannin mixture were not different between groups at the beginning of the trial or when parasite levels were low in both groups. When lambs were infested with parasites, they had a higher preference for, and ate more alfalfa/tannin than lambs with low parasites levels. When lambs infested with parasites ate the alfalfa/tannin mixture their fecal egg counts (a measure of parasite infestation) also decreased. There was a direct relationship between the amount of alfalfa/tannin eaten and the decline in fecal egg counts.

These studies suggest: 1) lambs can detect internal parasite infestations, 2) they can learn about the relationship between the flavor of tannin and relief from internal parasites and 3) tannins can reduce parasite levels.” To learn more about tannins controlling parasites, please check on line at www.behave.net or contact Beth Burritt at 435-797-3576.
Central Coast Wildlife
Top left: Golden Eagle enjoying possum for lunch, Top right: Tule elk grazing a sunny hillside, Bottom right: Ring-necked pheasants fighting for breeding rights, Bottom left: California quail resting on a fence post