

**WCRC – Fruita Hosts Tour for an Agro-Ecology Class from the University of Wyoming**

The ecology of agriculture (Agro-Ecology) is a unique class offered in alternate years at the University of Wyoming. Students learn how different crops and cropping systems have been developed for the different climates of North America. A highlight of the class is an extended field trip to see these systems and crops first-hand; it is eagerly anticipated by the students of each class. This field tour visited the Western Colorado Research Center – Fruita in years past and returned May 6<sup>th</sup>, 2007 to see and hear about agriculture and agricultural research projects at WCRC (Fig. 1).

Dr. Calvin Pearson provided an overview of current and past research at the Fruita site, and Dr. Harold Larsen answered questions on fruit and vegetable production research and systems at the Orchard Mesa and Rogers Mesa sites. Irrigation, weed control, and options for new crops generated substantial discussion from the 15 students and two instructors. Wine grape production and organic fruit and vegetable production were other topics of interest. One disappointment expressed was that the hybrid poplar agro-forestry study at the Fruita site had been concluded, harvested, and replaced with a winter wheat trial. The class likely will return in coming years to see what changes have taken place in our WCRC programs and projects.

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Members of the University of Wyoming Agro-Ecology class listen to Dr. Calvin Pearson’s explanation of his research program.

**Colorado River Salinity Control Program Approves Funding for WCRC–Rogers Mesa Irrigation System**

The Colorado River Salinity Control Program (CRSCP) in Delta County approved funding in December, 2006 for an upgrade of the irrigation system at the WCRC – Rogers Mesa site. The upgrade will replace everything from the divide box in the canal downstream to and including the pump and filter station. The projected cost (excluding the electrical items and electronic controllers) of \$109,334 qualified for a 75% cost-share (\$82,000) through the CRSCP, so WCRC-RM’s portion will be \$27,334 + the costs for the needed electrical service upgrade, a variable frequency drive (electronic controller) for the pump, and the electronic irrigation zone controller.

The divide box will incorporate a 100 mesh Coanda screen for trash removal and will be designed so as to provide for any overflow to go back directly to the canal. It also should minimize maintenance requirements by our staff. The new turbine pump will have 600 gal./min throughput capacity with the new drip irrigation filters; that will enable WCRC to expand its present drip irrigation acreage as needed.

The WCRC irrigation system downstream from the filter station still has issues that will eventually need to be addressed, specifically leaky, jointed, asbestos-concrete pipe delivering water for furrow irrigation on both the East and West sides of the property. However, the upgrade will address the most critical of the system needs for now. Work is expected to get underway at the end of the 2007 irrigation season when the water is out of the canal. In the meantime, we are keeping our fingers crossed that the present system will make it through one final irrigation season without any major breakdown.

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## There is Hope for the Energy Future in the United States

We use enormous amounts of energy in its various forms each and every day in the United States. Family budgets and business profitability continue to be adversely impacted by increasing costs for energy. People involved in agriculture are also feeling the pinch of higher energy costs. What does the future hold for energy costs and availability in the U.S.?

There is good news—a major breakthrough has been achieved that will make solar panels affordable to nearly everyone. We heard much more at the energy conference entitled “Renewable Energy Options: The Role of Extension Agents in the 21<sup>st</sup> Century Energy Economy” held on March 19-20, 2007 in Denver at the Jefferson County Fairgrounds. Pascal Noronha with AVA Solar in Fort Collins talked about a major breakthrough in solar technology that will make large-scale production of photovoltaic panels available at a cost that will be affordable to the average homeowner. According to Noronha, this should happen within the next two years, maybe sooner.

Leigh Fortson, Cooperative Extension Specialist in the Western Colorado region, was the conference coordinator. The planning committee was comprised of people from public and private sector organizations and institutions. Several people on the planning committee were from CSU including Dr. Calvin Pearson from the Western Colorado Research Center at Fruita.

The energy conference drew people from across the country. Most of the 100 participants who attended were extension agents who came from 17 different states to learn about their role in assisting the public as we transition from a petroleum-based economy to a renewable/green energy economy. Twenty-six experts from around the country were chosen as conference speakers. Presentations were made on energies from wind, solar, biomass, geothermal sources, and related issues. The presentations educated the attendees on the practical application of these technologies and what is the current and projected status of these energies to meet public needs in the 21<sup>st</sup> century.

What we learned about the future of solar technology was just one of many excellent and exciting presentations that pointed to the positive impact renewable energy can have now and on future generations. As a part of the conference, we toured Community Power Corporation in Littleton, Colorado. They demonstrated clean-burning technology that does not require water, and produces energy using waste products such as wood chips, nutshells, and many other

potential materials that could be fed into a system called “BioMax.”

An important focus of the conference was how farmers and ranchers can take advantage of the emerging renewable energy economy. Many opportunities will be created for a diversity of the population to be part of the developing renewable energy economy. Cooperative extension agents are in a unique position to assist by answering questions and directing the public to credible sources of information. Several speakers discussed how the renewable energy economy will have powerful positive impacts on community and rural development. Several case studies were presented on how this is already occurring, particularly with wind energy.

People came away from the conference with hope and knowledge about new technology and opportunities that exists to make renewable energy part of the American lifestyle. Challenging times create opportunities for new solutions. With the right public policy in place to promote renewable/green energy, the future for us and the generations that follow us will be bright, powerful, and sustainable.

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Attendees listen to a speaker at the energy conference held on March 19-20, 2007. Photo by Leigh Fortson.

### Grapevine Fanleaf Virus Found in Colorado Vineyard

Grapevine fanleaf virus was detected for the first time in Colorado in Cabernet Franc in one vineyard in 2006. The virus is suspected to have come with the vines into the area from Geno's nursery in California. The vines, when tested because of their unusual yield pattern and the reduction in yield, quality and color of the fruits and suspicion of leaf roll virus, were found positive for both leaf roll and fanleaf virus. However, the tests of neighboring plants of different variety (Cabernet Sauvignon) were found negative for fanleaf.

According to literature from various sources, grapevine fanleaf virus is the oldest known virus disease of grapevine and has been reported in the USA, Europe, Asia and Australia. The impact of this virus varies with different varieties of grapevine, some recording up to 80% yield losses. The virus spreads from plant to plant by a species of dagger nematode, but long distance spread of the virus is mainly by transfer of infected propagation materials. The primary host of grapevine fanleaf virus is *Vitis vinifera*, *V. rupestris* and many other *Vitis* species as well as interspecific hybrids while the wild hosts include *Aristolochia clematidis* (Birthwort) and *Sonchus oleraceus* (Common sowthistle).

The general symptoms include systemic green or yellow mosaic, ring and line patterns and flecks on leaf. Cellular changes result in leaf deformations. Leaves have smoother margins and less pronounced petiolar sinuses. Infected vines have shortened and more irregular

internodes. Lateral shoot development, double nodes, and stem fasciations cause a bushy appearance. Many clusters shatter and berries do not develop beyond shot size. Clusters may abort into tendrils with just two or three berries, or fewer and smaller bunches with aborted berries. Affected vines tend to be smaller than healthy vines. The productive life of the vineyard is shortened and winter hardiness is decreased. Sensitive varieties show progressive decline, low yields (up to 80% losses) and low fruit quality. These symptoms are transient and may disappear as the season progresses. Grapevine fanleaf virus, Yellow mosaic virus and Leafroll virus often occur in combination.

All three viruses are transmitted by the nematode *Xiphinema index*. The *Xiphinema* species reported from this region, *X. thorneii* and *X. utahensis* are not known to transmit this virus. Since the Fanleaf in grapevine is serious disease that impacts fruit production, we will be monitoring this disease in grapevines in Colorado, especially the shipments that came from Geno's before 2000. We also are trying to identify the species of dagger prevalent in the soil associated with different crops including grapevines in different locations.

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Different types of leaf symptoms of fanleaf on grapes in fields in California (photo by Harold J. Larsen).