ACKNOWLEDGEMENTS

We gratefully acknowledge those who have contributed to this conference and worked hard to make it a success.

Wasatch County Extension Office

Wasatch County

Euclid Timber

Jordanelle Special Service District

Heber Valley Cheese

Heber Valley Special Service District

Dr. Matt Yost

Dr. Neil Allen

Dr. Earl Creech

Dr. Grant Cardon

Dr. Howard Neibling

Shayne McKee

Boyd Kitchen

Chad Reid

Reviewers:

Josh Dallin  Deric Despain  Sheriden Hansen

Proceedings Editor: Allan Sulser

Registration: Jacquie Thacker

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Utah Association of County Agricultural Agents
Summer Meeting and Tour 2018
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SOLVING IRON DIFFICENCY IN TURF

Palmer, M.D¹, G. Cardon²

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² Professor, Soil Extension Specialist, Plants, Soils and Climate, Utah State University, Logan Utah 84322. grant.cardon@usu.edu

Many turf grass managers in Utah and throughout the arid western U.S. struggle with chronic yellow leaf blades. To diagnose the causes of this issue requires soil samples, tissue samples, pest and other turf diseases lab analysis. When a proper diagnosis of Iron Chlorosis is reached, the next step is to determine the best solutions including supplementation and improved cultural practices. There are many iron supplements with new products being developed. We developed and conducted a study to determine which products (Iron Ferraplus (IFP), Iron Gro (IG), Iper Fer Marathon (IFM)) increases Iron into the grass blades more efficiently on a large turf grass area, properly diagnosed with Iron Chlorosis. Results indicate the Iron Gro incorporated Iron into the plant tissue significantly more efficiently than IFP or IFM.
INSECTICIDE EFFICACY IN CONTROLLING ALFALFA APHID COMPLEX

Price, * S.J.¹, Gale, J.A.², Despain, D.³, and Ramirez, R.A.⁴

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⁴ Associate Professor and Extension Entomologist, Utah State University, 5305 Old Main Hill, Logan, Utah, 84332 ricardo.ramirez@usu.edu

Alfalfa is Utah’s most economically important crop with over 2.91 billion dollars of hay being produced in 2017 (USDA NASS). Cowpea (Aphis craccivora), spotted alfalfa (Theroioaphis maculata), pea (Acrythosiphon pismum), and blue alfalfa (Acrythosiphon kondi) aphids occurring in the region can severely damage alfalfa. Broad-spectrum insecticide applications targeting alfalfa weevil can also stimulate secondary outbreaks. Insecticide applications frequently do not provide consistent satisfactory control for the aphid complex due to population resurgence issues and possible resistance. The blue alfalfa aphid is particularly damaging because of their salivary toxicity and early seasonal occurrence when natural predator abundances are low and plants are most susceptible to damage. When damage was observed in spring 2017 and 2018, insecticide efficacy trials were initiated in the Sevier Valley. Our objectives were to 1) improve control recommendations and 2) better understand resistance management options. The products tested comprised chemistries across three modes of action and different sites of activity. In both years, variable levels of control were observed between treatments. Some “conventional” treatments resulted in higher aphid populations than untreated control plots suggesting resurgence or resistance. Additionally, some predator populations also expressed variable responses to treatments. Sivanto 200 SL (flupyridifurone) offered the most effective control overall, even at moderate application rates. Because of the high cost, it has received little adoption by producers thus far but it may deserve more consideration as control option in regional integrated pest management plans.
CONTROLLING CUTLEAF VIPERGRASS IN ALFALFA AND RANGELAND

Gale, J.A. *, Ransom, C.*, Nielson, M. *, and Despain, D.*

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Cutleaf Vipergrass (Scorzonera laciniata L.), is a new, non-native, invasive weedy, plant species in Utah. It is a native Asteraceae of Eurasia and Africa. Traits include: short-lived perennial, aggressive, and competitive. It produces hundreds of ruderal, which are dandelion like parachute seeds spreading readily by wind. To the casual observer Cutleaf Vipergrass would appear to be the common Dandelion (Taraxacum officinale) or Western Salsify (Tragopogon dubius). It was first observed and collected in Utah’s Salt Lake Valley in 2013. A large infestation was discovered in Cove Fort area in 2014 where it likely had been established for a few years. It was found in several more counties in 2016 and 2017. Cutleaf Vipergrass has become established in irrigated alfalfa fields, pinion-juniper-sagebrush uplands, and road rights-of-ways. It poses a substantial risk to agronomic crops, rangeland, and native ecosystems. The Utah Department of Ag. and Food declared it as a “Class 1B Noxious Weed” in 2016. The required response is “Early Detection Rapid Response” (EDRR) as a “very high priority” noxious weed to be eradicated or limit establishment. Weed scientists are unaware of this species and little research work on control has been found in the literature. Preliminary results of herbicide efficacy trials conducted by USU Extension in 2017 show that Milestone®, Telar®, Crossbow® and a tank mix of 2,4-D and Clarity® provided excellent control in rangeland. Disappointing control in irrigated alfalfa was observed from Raptor®, Pursuit®, and Butylac®. Additional herbicide efficacy control plots have been established in 2018.
MANAGEMENT OF DRIP IRRIGATION FOR SALINE SOILS IN UTAH

*Patterson, R. K.¹; Worwood, D. R.²; & Allen, L. N.³

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The purpose of this research is to develop information to help manage drip irrigation in saline soils. Drip irrigation provides a uniform application of irrigation water and, coupled with good management, results in high irrigation efficiencies to conserve water. However, in saline soils the redistribution of salts by drip irrigation in soil requires additional knowledge to manage the system. Six configurations of drip lines were installed—double (spaced about 8 inches) and single drip tubing with the drip line on the surface, and buried at 4” and 8”. The plot has high soil salinity with irrigated potatoes near Price, Utah. For each drop line configuration, ten Acclima 315L TDR soil sensors were installed—four sensors near the surface, three sensors at about 9 inch depth, two at about 18 inches and one at 24 inches. The sensors measured salinity and soil water at each location and recorded the data on an hourly basis. The presentation will show volumetric soil moisture and soil water salinity over the entire irrigation season. Conclusions concerning soil moisture and salinity as influenced by drip tape configuration will be discussed.
MONITORING E. COLI LEVELS ON THE FREMONT RIVER IN WAYNE COUNTY,
UTAH

Wilde, T.*1

1Extension Associate Professor, Utah State University, Junction, UT 84740 trent.wilde@usu.edu

Preliminary samples from the Fremont River tested positive for E. coli prompting the drafting of a sampling plan to provide data for a TMDL. Due to staffing restrictions, the Utah Division of Water Quality (UDWQ) recruited a volunteer to collect and analyze samples. Political history between the volunteer and the Wayne County Commission resulted in low levels of trust in the process. Extension was identified as an unbiased source of scientifically based information and was recruited to implement the sampling plan. Extension began collecting water samples in the spring of 2017. Duplicate 100 ml water samples were collected at ten sites along the Fremont River on a monthly basis. The IDEXX Colilert-18 method was utilized to incubate the samples. After incubation, samples were analyzed and a MPN/100 ml was calculated. The sample analysis identified several areas of concern for high levels of E. coli both in agricultural areas and near human waste water storage systems in Capitol Reef National Park. The MPN calculations were incorporated into the UDWQ statewide database to create the TMDL and were also provided to the Fremont River Conservation District and the Fremont River Watershed Planning Committee for prioritization of water quality improvement projects.
VEGETATIVE REPRODUCTION IN RUSSIAN OLIVE-IMPLICATIONS FOR CONTROL

Ron Patterson1 and Dennis Worwood2*

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For 12 Years the authors have researched ways to minimize regrowth after Russian olive (Elaeagnus angustifolia) trees are felled, shredded or uprooted. Russian olive has the ability to outcompete native vegetation and create monoculture stands. This dense growth and the thorny branches block access to many waterways, and wildlife diversity is less in monoculture Russian olive stands. Many control efforts have involved mechanical removal of trees by either pulling them out of the ground or cutting them down with a saw. However, the Russian olive’s ability to produce crown sprouts and root suckers complicates control efforts because such regrowth is difficult to kill. Most crown sprouts originate from Epicormic buds, which are common on the lower trunk of Russian olive trees. In research trials, neither burying nor burning Russian olive stumps prevented crown sprouting. Herbicide treatment (cut stump or basal bark) or complete removal of crown tissue can prevent crown sprout growth. In contrast, nearly all root suckers, and some crown sprouts, grow from adventitious buds originating from callus or meristematic tissue. The authors’ research has revealed that Russian olive roots must be close to the surface to produce suckers. In one exploratory study, sixteen trees were uprooted. Exposed roots of eight trees were left as-is, while exposed roots of remaining trees were immediately buried. Unburied roots produced 304 times more suckers than buried roots. In another study trenches were dug around trees and half of the trench was backfilled. The unfilled trenches produced 230 times more root suckers than the backfilled trenches. Root suckering can be minimized by burying exposed roots after Russian olive trees or stumps are uprooted. On sites where Russian olive roots are not shallow or exposed, suckering is unlikely unless roots are disturbed. On these sites, regrowth can be minimized or prevented by treating remaining crown tissue with herbicide or by completely removing crown tissue. On sites where roots are shallow or exposed because of soil conditions or erosion, provision should be made for both crown sprout and root sucker control. This may include treating both remaining crown tissue and emerging root suckers with herbicide.
LITIGATION BETWEEN WESTERN WATERSHEDS PROJECT AND FEDERAL LAND MANAGEMENT AGENCIES.

Beth Burritt*1

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Lawsuits initiated by environmental groups that oppose grazing on public lands can be problematic for federal agencies. Information on lawsuits between federal land management agencies (Bureau of Land Management (BLM), Forest Service and Fish and Wildlife Service) and environmental groups is usually found only in law review, court documents and popular articles. This study summarized 15 years of litigation between the environmental group, Western Watersheds Project (WWP) and federal land management agencies. The results show that the number of appeals brought by WWP against federal agencies has not increased in recent years. In general, the BLM prevailed over WWP in most disputes heard in administrative court. Most of the court cases brought by WWP in Federal District Court concerned either management of specific grazing allotments or the Endangered Species Act (ESA). In 44% of federal district court cases, the agency prevailed or the case was dismissed, 30% were settled, in 10% of cases the decision was mixed, and in 16% WWP prevailed. WWP collected about 5.7 million dollars in attorney’s fees and court costs. Fees were paid by the ESA’s citizen suit provision or by the Equal Access to Justice Act (EAJA). EAJA fees are paid from the agencies’ budget. Usually, permittees did not lose their grazing rights nor were their grazing rights directly affected as a result of litigation.
MARKETING PLAN FOR GRASS-FED BEEF

Crandall, E.*1

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The purpose of this marketing plan is to assist grass-fed beef and other niche market commodity producers in developing effective strategies to market their products. Marketing plans allow for prepared decisions and increase the chances of having favorable financial outcomes. In order to accomplish this, a survey was created to determine consumer perceptions and preferences of grass-fed beef. The data collected from this survey provides guidelines for a grass-fed beef marketing plan. I will work with grass-fed beef producers to determine their current marketing tactics and identify areas of improvement. These marketing plans will help producers determine who they want to sell their product to, what their specific objectives are, and how they are going to accomplish these objectives. This can also lead to the development of marketing plans for other niche market commodities such as organic products and specialty crops. Multiple educational activities will be used to reach niche market producers, including fact sheets, newsletter, and workshops.
There is a known fact that bees work for free and make honey; well, that fact may not be entirely true when it comes to bees providing a source of sweet flavor. Honey bee research is an integral part of federal research to further eliminate possibilities further reduction in the number of honey bee colonies creating shortages of bees available to pollinate crops grown in Utah and the United States (Torchio, 1998). The purpose of this research project was to answer five questions based upon the cost, consumption, prediction of consumption rates, and environmental factors during winter feeding of honey bees based on these questions: (1) When sugar is fed, how much weight is added to each hive? (2) How quickly is the sugar consumed by each hive? (3) Is the sugar consumption rate different than the honey consumption rate? (4) Can consumption rates be predicted based on hive or frame count population? (5) Will any parameters change when feeding corn syrup vs. feeding sugar? The methodology utilized was quantitative, data driven, collected through a wireless satellite hub acting as the central communications unit allowing the monitoring data to report wireless to an online account. Local apiculturist and producer Brian Stevenson has expressed an interest and is the driving force behind this research as stated previously. Brian has thus provided many hours of research, and has also provided the hives, crates, bee populations, and transportation needed for this project. There has been found anecdotal evidence presented in forums, but little scholarly information on nutritional needs of bees during the winter months has been available.
THREE CREEKS GRAZING CONSOLADATION PROJECT RICH COUNTY UTAH

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The three Creeks Project is a watershed scale approach to rangeland and grazing management covering 143,000 acres in Rich County Utah. It involves 36 members of a newly formed grazing company, Bureau of Land Management (BLM), United States Forest Service (USFS), Utah School Institution Trust Lands Administration (SITLA), and private lands. The project is planned to promote sustainable grazing and improve habitat conditions for sensitive wildlife. This project application is to help accomplish sustainable grazing with installing water pipeline and troughs as well as fence lines to incorporate more pastures to allow rest on the rangelands. There will be approximately 3,200 cow calf pairs split into two groups of 1,600 pairs. There are five bands of sheep of 200 to 1200 head per band. The plan is to rotate between 33 pastures. Pastures will only be grazed differently every year. The 3 Creeks project has been a collaborative effort from numerous groups to address problems across an entire watershed. Problems to address are impaired riparian areas and water quality conditions on two streams (Big Creek and Sage Creek). Sensitive species like Sage Grouse and Bonneville Cutthroat Trout are present and have some measurable risks like winter habitat and stream quality that need to be addressed simply through improved grazing management practices. Partners contributing financial and technical assistance in this effort both past and present are: 1. The Utah Grazing Improvement Program (GIP). 2. The Natural Resources Conservation Service (NRCS). 3. The U.S. Fish and Wildlife Service Partners Program. 4. The Utah Division of Wildlife Resources (DWR). 5. The Watershed Restoration Initiative (WRI). 6. The Utah Division of Water Quality (DWQ). 7. The Bureau of Land Management. 8. The U.S. Forest Service. 9. The permittees and members of the Three Creeks Grazing LLC. 10. The Utah State University Extension (USUE)
HOMEOWNERS PREFERRED SOURCES FOR YARD AND GARDEN INFORMATION

Schaible, C.¹

¹Professional Practice Extension Assistant Professor, Utah State University Cooperative Extension, Cedar City, Utah 84721 candace.schaible@usu.edu

Prior to the development of programing and outreach materials it is important for Extension outreach and education professionals to assess the educational needs and preference of the communities they serve. Survey data was gathered from 198 residents of Cedar City, UT, in an effort to gain an understanding of the resources homeowners utilize when making management decisions. Survey questions gathered insight on the resources homeowners use when making management decisions. Results found that homeowners accessed multiple sources, with preferences leaning towards the use of friends and family members, the internet, and the point of purchase. Few homeowners, with the exception of Extension Master Gardeners (EMG), are aware of and utilize educational resources and services provided by Extension. This is especially true for those under the age of 50, which poses a challenge to Extension professionals to find effective ways to reach younger generations. Once exposed to Extension’s resources, through community classes and programming, homeowners tended to have a high opinion of the service and preferred it as an educational source over other options.
PREVALENCE OF GENETIC DEFECTS IN MARKET HOGS IN UTAH


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As genetic testing advances become commercially available, livestock producers benefit by learning about the advantages and applications. Genetic testing has become especially important in the prevention of Porcine Stress Syndrome (PSS) and Rendement Napole (RN), both of which can lead to poor pork quality. The negative effects of PSS and RN on pork quality result in economic losses in the pork industry and need to be addressed. In 2016 we gathered tail hairs from 150 market show hogs from thirteen counties in the State. We found that 49% of the hogs tested had a genetic defect (PSS and/or RN) that could lead to poor meat quality. Due to the magnitude of this finding, we held a series of workshops to share information gained in this study to educate producers on how they can prevent PSS and RN. In 2018 we plan to repeat the study focusing on commercial market hogs complete with an analytical comparison of the data collected.
POP-UP FARMERS’ MARKETS AT SALT LAKE COUNTY SENIOR CENTERS

Wagner, K.M.*

Extension Associate Professor, Utah State University Cooperative Extension, Salt Lake City, UT, 84114 katie.wagner@usu.edu

Nearly 15% of U.S. seniors face the risk of hunger and malnourishment but seniors often receive less hunger assistance than other age groups (The State of Senior Hunger in American in 2015). Approximately 15 percent of Utah seniors face the threat of hunger, and over 50,000 seniors reported that they are currently struggling with hunger (U.S. Census). Seniors comprise approximately 10 percent of Salt Lake County’s total population. In 2016, Salt Lake County Master Gardeners began disseminating locally grown produce at nine Salt Lake County senior centers. After visiting 18 centers in 2016, the nine ‘neediest’ centers were identified with guidance from Adult and Aging Services which manages senior centers in Salt Lake County.

‘Need’ was established by socio-economic status of clientele and average number of seniors per center that participated in the program. Participating seniors could ‘shop’ for seasonal fruits, vegetables and herbs to take home free of charge. In 2017 volunteers grew and harvested over 3,800 pounds of fresh produce to disseminate to Salt Lake County seniors at 35 free farmers markets. The approximate value of the produce was nearly $10,000, and 1,520 seniors were provided with fresh produce. Feedback surveys from participants found the free produce helped them save money at the grocery store (97% agreed), increased their consumption of fruits and vegetables (94% agreed) and contributed toward a healthier diet (99% agreed). The program will be continue and expand in 2018 to increase and diversify produce disseminated in the markets; for example, ethnic crops will be grown to supply ‘New American’ seniors with non-traditional American produce and centers that serve ethnic communities.
UACAA Past Presidents

2018 Katie Wagner
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2016 Taun Beddes
2015 JayDee Gunnell
2014 Linden Greenhalgh
2013 Ron Patterson
2012 Matt Palmer
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1983 Ross Jacobson
1982 Verl Mathews
1981 I. Blain Jones
1980 Don Huber
1979 Jay Hall
1978 Lynn J. Esplin
Utah Association of County Agricultural Agents
Summer Meeting and Tour
June 12-14, 2018
USU Extension Wasatch
Wasatch County Rec Center
345 West 600 South
Heber City, Utah

June 12
8:00 – 8:30 Registration and Snacks
8:30 – 8:45 Welcome
8:45 – 9:20 Niel Allen – Basics of irrigation science / up and coming trends
9:20 – 10:00 Neil Hansen – Deficit and partial irrigation strategies
10:00 – 10:15 Break
10:15 – 11:15 Matt Yost and Earl Creech – Agronomy for increased water productivity
11:15 – 12:00 Shayne McKee (Basin Irrigation) - New technologies and when farmers should upgrade
Noon
Lunch
1:00 – 1:30 Howard Neibling – Allocating limited water resources among acres
1:30 – 2:00 Grant Cardon – Nutrient and salinity considerations for irrigation
2:00 – 2:30 Niel Allen – The in’s and out’s of soil moisture sensors for irrigation scheduling
2:30 Break
2:45 Agent Presentations
4:30 UACAA Meeting
6:30 Dinner: Smoked chicken or brisket with trimmings TBD
7:30 – 8:30 Discussion with climate center on farmer weather data needs

June 13
8:00 Meet at Euclid Timber to start tours
9:30 Travel to Heber Valley Cheese (robotic milkers and cheese plant)
11:00 Travel to Jordanelle Special Service District (water treatment)
12:30 Travel to Heber Valley Special Service District (irrigation water for alfalfa fields) and Lunch

2:30 Visit wheel line irrigated field for training
   Boyd Kitchen – “Getting The Most Out of Wheel lines” - Wheel maintenance and operation
   Niel Allen – Water measurements and scheduling
   Chad Reid – Watermark soil sensor installation demonstration and training.

4:30 Travel to Utah County
5:30 Dinner at Magley’s in Springville
   Hotel reservations at Holiday Inn Express in Springville.
June 14

8:00  Meet at Pavilion near Elberta Valley Ag field
      15456 S 12800 W St, Goshen, UT 84633

8:00 – 8:20  Welcome and Introductions (Matt Yost and Merril West)
8:20 – 9:20  Merrill West, Randy, and Bill Marek –
            • Introduction to Elberta Valley Ag
            • Irrigation approach and management
            • Lessons learned in variable rate irrigation and other techniques
            • Allocating limited water supplies
            • Value of soil moisture sensors
            • Demonstration of AquaSpy probes

9:20 – 9:30  Break with drinks/snacks
9:30 – 10:20 Troy Peters, Washington State Univ. Irrigation Specialist
            • LEPA and LESA trials
            • VRI
            • ET-based irrigation scheduling

10:20 – 10:50 Neil Hansen, BYU Environmental Scientist
             • VRI and other irrigation research in Utah

10:50 – 11:20 Brandon Rowley, Mountainland Irrigation Supply
              • Trends and best irrigation practices in Central Utah. Industry perspectives
                on irrigation research and education needs.

11:20 – 12:20 Catered Lunch by American Grillers

12:20 – 12:30 Travel to field

12:30 – 1:00  Dustin Larsen, WISH NW irrigation supply distributor
              • Irrigation equipment trends and needs in Utah
              • Experience with Dragon Lines and other upcoming technology

1:00 – 1:30   Dan Schueller and John Johnson, Senninger
              • LESA and LEPA, and other irrigation technologies

1:30 – 2:00   Matt Yost, Darren McAvoy, and Jonathan Holt
              • Presentation on irrigation trial objectives and initial observations
              • Presentation on biochar trial objectives and initial observations
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<thead>
<tr>
<th>Track A</th>
<th>Time</th>
<th>Title</th>
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<tbody>
<tr>
<td>Katie Wagner</td>
<td>2:45</td>
<td>POP-UP FARMERS' MARKETS AT SLAT LAKE COUNTY SENIOR CENTERS</td>
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<tr>
<td>Ron Patterson</td>
<td>3:00</td>
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<tr>
<td>Matt Palmer</td>
<td>3:15</td>
<td>SOLVING IRON DEFICIENCY IN TURF.</td>
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<tr>
<td>Deric Despain</td>
<td>3:30</td>
<td>SUSTAINABLE AGRICULTURE</td>
</tr>
<tr>
<td>Candace Schaible</td>
<td>3:45</td>
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<tr>
<td>Steven Price</td>
<td>2:45</td>
<td>INSECTICIDE EFFICACY IN CONTROLLING ALFALFA APHID COMPLEX</td>
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