

# AGRICULTURE

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Special contribution by: Jenny Beiermann ABM Specialist

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**GOLDEN PLAINS AREA**  
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Colorado State University, U.S. Department of Agriculture and Kit Carson, Phillips, Sedgwick, Washington, and Yuma Counties cooperating.

Extension programs are available to all without discrimination.

# AG BUSINESS

**CSU Land Rental & Custom Rates Survey**  
**Jenny Beiermann, Regional ABM Specialist**



**SAVE THE DATE TO**  
**Show Your**  
**Love**  
**For Colorado**  
**Agriculture**

**COMPLETE CSU'S LAND RENTAL & CUSTOM RATES SURVEY:**  
**OPEN JANUARY 27, 2025 THROUGH VALENTINE'S DAY**

**AGRICULTURE AND BUSINESS MANAGEMENT**  
COLORADO STATE UNIVERSITY  
EXTENSION

The Colorado State University Extension Agri-Business Management (ABM) Team annually conducts a survey of custom rates charged for various crop and livestock operations and lease arrangements in Colorado. It can be found at <https://abm.extension.colostate.edu/custom-rates-survey/> and even though it is for the previous production year, it is one of our most sought after tools shared with ag producers and landlords. Please be on the look out for this survey to be released on Valentines Day. Help us help you by answering this survey, which in turn allows us to provide you with the most industry accurate and up to date information pertinent to Colorado agriculture.

# AGRONOMY

## **CSU Releases Two New Wheat Varieties** **Ron Meyer, Area Agronomy Specialist**

Colorado Wheat Research Foundation has released two new hard red winter wheat varieties this fall. Sheridan is a hard red winter wheat variety that has excellent stripe rust resistance, very good test weight and a long coleoptile. Stripe rust can be problematic some years and this variety is currently resistant to the disease. Also, the long coleoptile length will allow planting Sheridan at deeper depths when a lack of topsoil moisture exists. In Colorado State University research trials, Sheridan outyielded Langin, Avery, and Byrd.

Telluride is a hard white winter wheat variety. Telluride has excellent straw strength making this variety a candidate for irrigated production. Quality characteristics for this variety make it a candidate for the Ardent Mills UltrGrain program.

Registered seed is currently being increased by Certified Seed Growers and certified lots will be available to growers in the near future. More information can be found regarding Colorado wheat varieties at: [www.PlainsGold.com](http://www.PlainsGold.com)

## **Residue Grazing Considerations for Soil Health** **Catie Green, Area Agronomy Specialist**

According to *Water Education Colorado*, beef cattle are the top agricultural commodity in our state, with nearly 2 million of those cattle and calves residing in Eastern Colorado. Simultaneously, pastureland accounts for 88% of the decline in agricultural lands nationally. This leaves cattle producers searching for alternative feeding solutions. These alternatives could include intensive feeding in a feedlot setting or baling crop residues for feed. However, sourcing hay and grain can be expensive and can include a high environmental cost as well. Baling can increase this environmental cost and add unbeneficial compaction to the soil. A better solution might be grazing crop residues, which may benefit both the cattle producer and the crop producer. This article will further discuss the benefits of residue grazing for crop producers as well as make notes of things to consider when cattle are grazing your fields.

Producers may choose to graze crop residues for a variety of reasons that can be mutually beneficial. Some of these reasons could include increasing farm diversity, soil fertility enhancement, the reduction of stocking rates on pasturelands, and utilizing an alternative feed source. Some principles to take into consideration when making this decision should include the amount of residue being removed, treading and compaction created by the hoof action of the ruminant animal, and the addition of nutrient cycling through manure.

When considering treading while cattle are grazing, all aspects of animal behavior should be considered, including walking, resting, drinking, and ruminating. The treading by the animal can cause soil compaction concerns to arise especially in a field being planted to a crop the following season. Soil compaction is measured in a few different ways and depends upon soil texture, initial bulk density, water content, organic matter content, crop residue cover, and the compaction stress that is applied to the soil. Generally speaking, clayey soils will be more prone to compaction stress at a given water content than sandy or loamy soils. Something else to keep in mind is that grazing will greatly reduce the amount of residue left in the field for the next growing and planting season. This will likely be around 25% residue removal when grazing is done correctly. Residue possesses an elastic property that can reduce the impact of external force on soil. Meanwhile grazing can increase the external force on soil. Compaction risks include the reduction of soil porosity, aeration, infiltration and increased field runoff. This can result in reduced crop and livestock production, soil fertility, and environmental quality. All these risks further exaggerate that grazing crop residues should be done with care and consideration.

When done well, grazing residues can provide an efficient use of resources, increased soil productivity, and improved environmental quality which will transfer into increased livestock and crop production. Soil fertility can be increased by better nutrient cycling stimulated by both the digestive system of the animal and the improved organic matter breakdown from the hoof action of the animal both of which will increase nutrient availability to the plant. Another benefit of incorporating livestock into a cropping system is the addition of manure as a fertilizer source. As a ruminant animal grazes and digests more than 60% of the ingested nutrients are returned through manure. In addition, any supplemental feed for the cattle can add small quantities of Carbon and Nitrogen to the field.

Overall, crop yield has either seen no effect or an increase after grazing. This is likely due to increased soil fertility and improved microbial properties of the soil after grazing. A decrease in crop yield is unlikely and can be correlated to poor grazing practices such as overstocking or grazing a field under wet conditions.

Cattle health considerations include forage nitrate and prussic acid levels. High levels of nitrates in forage can be caused by stress to the plant typically seen from drought or hail. High prussic acid levels are seen in young sorghum directly after a frost or freeze and should dissipate as the plant matures. Both nitrate poisoning and prussic acid poisoning can be detrimental to a cattle herd. If you have questions or concerns about either of these, reach out to your local extension specialist for testing and education.

A couple of online tools to help producers through the decision-making process of grazing crop residues include the “Corn Stalk Grazing Calculator” from the University of Nebraska, and the custom rates survey from Colorado State University Extension which includes land rental and custom rates for producers across the state. And, as always, your local extension specialist can help answer your questions and walk you through the tools available.

## **Weed Science Roundup**

### **Kat Caswell, Area Agronomy Specialist**

Herbicide resistance isn't a new phenomenon. Kochia was first identified to be resistant to atrazine in 1976. For comparison, glyphosate did not become available until 1974, and glyphosate resistant crops became available in 1996. Small seeded weed species have become a particular challenge in fields under no-till management. Problematic weeds, such as Palmer amaranth, require either shallow or no burial for germination. To compound the issue, these species are also prolific seed producers, ensuring a large seedbank in the soil and regular replenishment. The rapid and large generations of these weeds can increase the development and spread of herbicide resistant traits.

Recent publications have identified resistance to 10 different sites of actions in Palmer amaranth. A Palmer amaranth population with 4-ways resistance was confirmed in a 2024 study from Iowa. The study concluded the tested plants were resistant to imazethapyr, atrazine, glyphosate, and mesotrione. When treated with mesotrione and atrazine as a Pre, there was only 53 and 40% control, respectively. Prior to the 2024 publication from Iowa, a Palmer amaranth study in Kansas confirmed 6-way resistance in 2021. To further complicate matters, a 2023 study demonstrated that the mechanism of resistance to 2,4-D in the Palmer amaranth plants studied was greater at higher temperatures (90/75F) than at cooler temperatures (75/57F).

Palmer amaranth may be the most visible example of herbicide resistance, but kochia remains a staple of Colorado weed management. Kochia resistance to atrazine was first reported in 1976, to ALS inhibitors in 1987, and a cross-resistance to dicamba and fluroxypyr in 1995. It can be assumed that most of the kochia in the Great Plains is resistant to at least dicamba and fluroxypyr. The first confirmed resistance to glyphosate was in KS in 2007. Since then, different populations have been identified with resistance up to four different Modes of Action (or resistance to 4 different herbicides in a single plant).

It is unlikely that a new and novel herbicide will be released that will be as effective as glyphosate has been for broad spectrum control. Varying weather patterns with extended periods of high temperatures and drought are making the use of herbicides as the sole control method of weeds impractical. Herbicides are an effective and critical tool for crop production, but to preserve efficacy and use, chemical weed control should be used in conjunction with an Integrated Weed Management plan.

Preserving plant residue on the soil can aid in suppressing weed seed germination and slow emergence. Residue left from fibrous crops like wheat and cereal rye will not stop weed seed germination, but seedlings will remain smaller for a longer period, providing a bigger window for crop establishment or any POST applications. Additional residue can be gained from cover crops. A study from western KS demonstrated a great reduction, 90%, in weed density and biomass (primarily kochia) following a spring planted cover crop compared to an untreated fallow. Timely planted cover crops can out-compete and suppress weeds, and possibly enhance the efficacy of other controls. Cover crops and crop rotation intensification come with other agronomic considerations, including managing soil moisture for successive plantings.

To combat herbicide resistance, ensure that herbicides are applied at the correct time. This will require field scouting throughout the growing season. Determine areas of high weed pressure or areas that will require additional control measures. Regular scouting can help determine if you may have an herbicide resistant weed population. Look for areas of a particular weed that is spreading by comparing the current area to the previous year's map, especially if control measures have already been applied that year. Note any weeds that survived an herbicide application that had previously been controlled. This is of

particular importance if control is observed in other fields that are treated the same way. Finally, record if some plants in the field were killed but others were not.

When selecting an herbicide plan, apply at least 2 different modes of action at each application. Different Modes of Action can be purchased as a pre-mix or tank mixed at the time of application. Refer to the Mode of Action Group Number at the top of each herbicide label. Any application should have herbicides from 2 different Mode of Action Groups. (Example, glyphosate is Group 9 and fluoroxypr is Group 4. Canopy is a pre-mix of chlorimuron, being Group 2, and metribuzin, a Group 5). Avoid repeat applications of any product from the same Mode of Action group on the same field within the same season as much as possible.

Palmer amaranth and kochia are the most ubiquitous herbicide resistant weeds in Colorado. In the summer of 2024, there was an observed increase in marestail (*Conyza canadensis*) in northeast Colorado. Not typically a problematic weed in CO, marestail is a winter-annual that is more common in the states bordering CO to the east. Marestail seeds are incredibly small and light, with the ability to emerge on the soil surface. Glyphosate resistance has been reported in Montana, Nebraska, Kansas, and Oklahoma. Despite being a native plant, marestail can become an issue in broadleaf crops. Another uncommon problematic weed for northeast CO is witchgrass (*Panicum capillare*). The summer annual grass can be distinguished by the long hairs that cover the plant. Typically found in large clumps, a population of glyphosate resistant plants was identified in 2024.

In conclusion, herbicide resistance is not a new problem, but also not a problem to be solved with herbicides alone. Rapidly shifting seasonal conditions will make it more challenging to time herbicide applications when efficacy is greatest. Small seeded weed species that thrive under no-till management will become increasingly difficult to control with herbicides alone, given the narrow windows of application timing. To prevent herbicide resistant weeds, implement an Integrated Weed Management plan that incorporates crop rotation, strategic tillage, residue management, and possible cover crop use. Apply at least 2 Modes of Action at every herbicide application. Maintain good application records and scout fields before and after any treatments to map weeds and areas where control methods failed.

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# LIVESTOCK

## Tri-State Cow Calf Symposium Travis Taylor, Area Livestock Specialist

Every other year Colorado State University Extension partners with Extension from Kansas State University and the University of Nebraska to put on the Tri-State Cow Calf Symposium. This event will be held on January 7<sup>th</sup>, 2024, in Burlington, Colorado from 10 a.m. to 2 p.m. at the Kit Carson County Fairgrounds. In the Farm Credit of Southern Colorado Pavillion, topics are geared toward producer education and will include a market outlook segment from the Livestock Marketing Information Center, discussion around virtual fencing and its utilization, cow costs and supplementation. Registration is \$25 per person and will cover lunch. Please see the details on the following page and plan to join us for an educational and informative event.



## TRI-STATE COW CALF SYMPOSIUM

**JANUARY 7, 2025 | BURLINGTON, CO**  
*Farm Credit of Southern Colorado Pavilion*

Join us and expert speakers from across the area for a great day of producer education.  
**In Person with Lunch Provided or Online via Zoom**

**AGENDA:**

- 10 AM to 3 PM
- ▶ ESTIMATING COW COSTS
- ▶ VIRTUAL FENCING
- ▶ MARKET OUTLOOK

**\$25 Registration**  
(Open until January 3, 2025)

Online at: <https://col.st/hf3Ky> | or call  
Scott Stinnett at 719-346-5571

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## **Maternal Bovine Appeasing Substances** **Scott Stinnett, 4-H Youth and Livestock Specialist**

A relatively new product that is beginning to get the attention of some beef producers is maternal bovine appeasing substances (mBAS). The product trade name is FerAppease and it is a topical product being used and studied for its ability to lower stress in beef cattle.

From the FerAppease website *“the active ingredient of FerAppease is a synthetic analogue of the Maternal Bovine Appeasing Substance (mBAS). mBAS is naturally secreted by the sebaceous gland located on the skin of the mammary gland with the unique function of inducing an appeasing effect on the nursing offspring.”*

Texas A&M University has done some studies on the effects of this product, and it has shown cattle, especially younger calves experiencing stress such as weaning and preconditioning, do respond positively to mBAS treatment. They weaned a group of 80 calves (40 heifers and 40 steers) with similar breeding, and within 4 days in age. The group treated with mBAS had higher ration intake and gains the first 28 days after weaning.

Another study using the same group of animals looking at immune response after vaccinations showed that hair cortisol concentrations were lower in mBAS treated calves on day 14 indicating lower stress. Serum concentrations of antibodies against bovine viral diarrhea (BVD) virus were greater mBAS treated calves versus the control group, an indication of a better immune response.

These two studies lean toward mBAS products being useful during weaning and preconditioning by lowering stress, increasing immune response to vaccinations and improving appetite and gains in the pens.

## **HORTICULTURE**

### **New Yearly Plant Catalogs; New Claims** **Linda Langelo, Area Horticulture Specialist**

Every year plant enthusiasts and gardeners are inundated with new catalogs. There are so many new choices, the pictures are colorful and striking along with their descriptions. After all, they are in the business of selling your products. How do you cut through all the embellished descriptions? First, read the description carefully. If any other catalog offers the same new introduction, read and compare their description. For instance, take this example quoted below from the Garden Veg Blog by Jeremy Dore,



and pay attention to the colorful embellishments. The description of a commonly grown pea variety 'Hurst Green Shaft' from two different suppliers;

**Catalog 1:** Medium green pointed pods in pairs containing 9-11 peas. Resistant to downy mildew and Fusarium Wilt; recommended for exhibition. RHS Award of Garden Merit winner. Recommended by the National Institute of Agricultural Botany. Second Early/Maincrop Variety. Height 75cm (30").

**Catalog 2:** Outstanding pod length - 4 to 4½ inches, with 9-11 peas in a pod. Double podded too; Pea 'Hurst Green Shaft' is a super heavy-yielding variety. Only 28 -30 inches tall, with all the pods in the top 10-12 inches - no more backache. An early, wrinkle-seeded variety, which matures 100 days from sowing. Pea 'Hurst Green Shaft' resists downy mildew and fusarium wilt. And the taste! It has to be eaten to be believed.

The differences are clear with one sticking just to basic facts and helpfully mentioning independent awards while the other elaborates 'super heavy yielding... no more backache... has to be eaten to be believed'. Unfortunately, neither of these descriptions tells you the shortcomings of this variety. Every variety has its own drawbacks, such as susceptibility to diseases, insect issues, or a preference for sandy soil. Some catalogs leave it up to you to discover these details.

One thing that all large seed companies have is an on-staff horticulturist. They are ready to answer any of your plant questions. Ask them why this Pea 'Hurst Green Shaft' variety is considered high-yielding and how many pounds they consider high-yielding. If it turns out they don't have an answer or other qualifying conditions, then that seed might not be appropriate for your area and thus that is a seed I would not purchase. Start by making a list of seed varieties you would like to order. Then write down all your questions and call the company.

Sounds like a lot more work, then just ask on-staff horticulturist what they would recommend. Again, read the descriptions in the catalog. Take note of plant uses for example as part of a description of a sage, *Salvia apiana*, used for smudging, it is good to know that new leaves unfurl with a crinkly texture and grayish-green color. Otherwise, you might think there is a problem. Likewise, on another sage variety, *S.officinalis*, learning that when leaves are dried and ground, they make a wonderful rub for poultry or fish is great for the family cook.

Some companies such as Territorial Seed have growing instructions in the catalog. If you are going to spend anywhere from \$2.95 to \$4.95 on a package of seeds you want to know you are buying something that can grow in your soil, your zone, and at low or high humidity, etc. Purchasing the seeds in grams or ounces is more economical if you favor a vegetable or herb.

Getting seeds you know will do well in your location is only one-half the challenge of gardening. The other challenge is understanding how to grow the seed variety properly. Ordering from companies in your state that do seed trials on varieties or breed varieties, will ensure seed that can withstand conditions in your zone.

For other helpful tips check out my regular contributions to MarthaStewart.com gardening articles, or search for The Relentless Gardener Podcast.

# Checklist of Common Insect Related Events – Eastern Plains

## Linda Langelo, Area Horticulture Specialist

### JANUARY/FEBRUARY

#### Household Insects

- Fungus gnats:** Adults commonly are observed around windows and the soil of potted plants where they originate.
- Carpet beetles:** Some adults may emerge and be found in homes.
- Boxelder bugs, cluster flies:** Overwintered adults become active in and around homes.
- Winged termites:** Winged reproductive stages begin to emerge and swarm.
- Firewood insects:** Bark beetles and wood borers emerge from stored wood in homes.
- Ants:** Field ants forage in homes for sweet materials.

### MARCH

#### Early March: Household Insects

- Boxelder bugs, cluster flies:** Overwintered adults become active in and around homes.
- Clover mites:** Migrations of mites from lawns into buildings may begin at this time, during warm days.
- Millipedes:** Nuisance movements into homes occur following wet weather.
- Winged termites:** Winged reproductive stages continue to swarm in late winter.
- Firewood insects:** Bark beetles and wood borers emerge from stored wood in homes.
- Ants:** Foraging by field ants for sweet materials intensifies in homes.

#### Early March: Trees/Shrubs

- Oystershell scale:** Scrape scales with eggs off limbs of aspen, ash, and other host plants.

#### Early March: Lawns

- Clover mites:** Mites actively feed on lawns near buildings and shrubs during warm days.
- Nightcrawlers:** Tunneling activities during spring can create lumpy lawns.
- Vole injury:** Tunneling injuries in lawns and girdling of shrubs may be evident as snow melts.

#### Late March: Household/Miscellaneous

- Flickers:** Males are actively drumming on buildings and defending territories during mating season.

#### Trees/Shrubs

- Dormant oils:** Many insects that winter on plants can be controlled with dormant applications of horticultural oils.
- Ips beetles, twig beetles:** These bark beetles may be active during warm periods. Recently transplanted pines may need protection. Pinyon Ips may attack new trees at this time; preventive insecticides should be applied before trees are attacked.
- Southwestern pine tip moth:** Adults begin to emerge from pupae at the base of trees.

To receive the  
Golden Plains Agriculture Newsletter  
in a digital format. Email  
[travis.taylor@colostate.edu](mailto:travis.taylor@colostate.edu)