

AGRICULTURE

Golden Plains Area Newsletter

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[Web Site: http://goldenplains.extension.colostate.edu](http://goldenplains.extension.colostate.edu)

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GOLDEN PLAINS AREA
COLORADO STATE UNIVERSITY
EXTENSION

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

Strong Grain Prices Support Pre-harvest Pricing Dr. Brent Young, PhD, Regional ABM Specialist

Grain markets are currently trading at prices not seen since 2012 and are offering producers an opportunity to lock in profits on the 2022 crop. With the prospect of marketing a portion of the anticipated production at a profit, producers should strongly consider pre-harvest pricing grain.

Pre-harvest pricing grain should be a technique found in every producers marketing toolbox. A strong seasonal tendency for grain prices to decline from planting to harvest and opportunities to lock in a profitable price are two very compelling reasons to devote time and energy to this marketing practice.

Using corn as an example we can clearly see the inclination for prices to fall from planting to harvest. Considering the December corn futures price on May 1st and October 1st from the 25 year period of 1990 to 2015, we find that the May price was higher than the October price 19 out of 25 years. In 13 out of the 19 declining years the price drop was greater than 10%. We would see a similar pattern in other grain markets.

Locking in a profitable market price should be a driving factor in making any marketing decision. The first step in determining if the market is offering an acceptable price is knowing your cost of production (COP). The secret to knowing your COP is having good farm financial records that allow you to conduct enterprise analysis. If your current record keeping system does not allow you to calculate your COP there are several reasonably priced, computerized accounting packages available that will help you to complete this important task.

Many times when I suggest to growers that they should consider pre-harvest marketing their grain they reply, “How can I sell something that I don’t have?” This is where crop insurance comes in to play. Revenue Protection (RP) crop insurance provides a bushel guarantee and a price guarantee. Producers can pre-harvest market the amount of grain up to their bushel guarantee and be assured that if they have a crop loss due to an insurable peril that they can cover their pre-harvest marketed production.

The next question I receive regarding pre-harvest marketing grain is “How do I it?” While there are several methods to pre-harvest market grain the three most common are selling grain with a forward contract and hedging using a futures or options contract.

The forward contract is the simplest, least costly option for the producer but has the disadvantage of eliminating the opportunity for taking advantage of rising prices. Hedging using a futures contract can be expensive but can result in higher prices if basis moves are favorable. Options contracts can be less expensive than futures and they allow a producer to take full advantage of improving prices.

The final question I receive is “When should I be looking for pre-harvest pricing opportunities?” My first response is that we should be monitoring the markets daily for pricing opportunities and look for price triggers to implement our marketing plan. Having said that there are times when markets tend to move more than others. Generally speaking those times of price movements correspond with the release of government generated supply and demand reports and key production related processes.

One government supply and demand related report that can have an impact on grain prices is the May World Agriculture Supply & Demand Estimate (WASDE). This is the first WASDE of the year that utilizes data from the March Planting Intentions Report. The 2022 version of this report was very bullish regarding corn and wheat prices. The December 2022 CME corn contract made a new contract high and the July Kansas City CME wheat contract traded up the 70 cent limit as a result of this USDA report.

Key production related process that tend to drive grain markets are planting, breaking dormancy (winter wheat) and pollination. Any weather related issues during these key production phases can impact potential grain supplies and therefore market prices.

Grain producers who don't pre-harvest market a portion of their production are failing to use a very valuable tool. If you have questions about this topic or any other agricultural business management issue, please feel free to contact me at 970-522-7207 or by email at brent.young@colostate.edu.

AGRONOMY

Prevathon[®] now Vantacor[®] Ron Meyer, Area Agronomy Agent

FMC company has announced an insecticide name and formulation change for the active ingredient Rynaxypyr[®] from Prevathon[®] to Vantacor[®]. Vantacor[®] insecticide is a high concentration, low use rate formulation of the active ingredient Rynaxypyr[®], which is the same active ingredient that was in Prevathon[®]. Vantacor[®] has a labeled rate of 0.7 to 2.5 fluid ounces per acre for crops such as cereals (wheat), corn, grasses, and sunflower. The product performs best on worm-type pests such as cutworm, western bean cutworm, and sunflower head moth larvae. It is a group 28 mode-of-action insecticide.

The restricted entry interval (time after application that one could enter the field) is only 4 hours. In addition, it has minimal impact on beneficial insects such as lady beetles and lacewing among others. The label is approved for foliar (ground and air), chemigation, and in-furrow applications.

2022 Wheat Field Days Sally Jones-Diamond, Research Associate Crop Testing

Colorado State University Crops Testing is excited to announce the details for the 2022 Wheat Field Days. They are made possible by our farmer-cooperators, seed companies and industry partners, and colleagues from the CSU College of Agriculture, Ag Experiment Station, CSU Extension, Colorado Wheat, and USDA-ARS. We have a great set of public and private wheat varieties to show off in our field trials and characteristics of these varieties will be shared at each field day. CSU faculty and experts will share the latest information and research relating to various aspects of wheat such as breeding, variety trials, entomology, pathology, seed programs, soil fertility, and forage use. Industry

representatives will provide wheat market updates and seed company representatives will share information about their varieties.

The field days will be held on Thursday, June 9th at Walsh, Lamar, and Brandon; June 10th at Burlington and Genoa; June 13th at Wiggins and Roggen (Orchard cancelled); and June 14th at Julesburg, Yuma, and Akron. The Akron site includes a wheat stem sawfly Q&A with an expert panel during dinner. The flyer with the full schedule and directions can be found at csucrops.com. Please contact Sally Jones-Diamond with any questions sally.jones@colostate.edu.

2021 Wheat Disease Loss Estimates from the United States and Ontario, Canada Ron Meyer, Area Agronomy Agent

Wheat diseases annually reduce yield in the United States and Canada. Diseases of importance vary from year to year, and diseases that affect yield are based on many factors, including weather conditions, crop production practices, and variety selection and susceptibility to disease.

Plant pathologists representing 28 wheat-producing U.S. states and Ontario, Canada, estimated the percent yield loss from wheat disease in their states or province. These reports account for more than 1.5 billion bushels (87.3 percent) of the total wheat produced in the United States and Ontario in 2021 (Figure 1). The yield loss estimates include foliar, root, stem, head, and kernel diseases in the states represented in this survey. This publication documents the impact of major diseases on wheat production during 2020. The North Central Regional Committee on Management of Small Grain Diseases (NCERA 184) and the Western Wheat Workers (WERA 97) revises disease loss estimates annually. It is important to note that methods for estimating disease loss vary by state or province. The estimates may be based on statewide disease surveys; feedback from university extension, industry, and farmer representatives; and personal experience with disease losses.

Disease loss values are based on yield before estimated losses for each state or province using this formula: **(harvested bushels/[100 – percent estimated disease loss]/100)**

Total bushels lost per disease are then formulated using **([percent loss/100] x yield before estimated loss)** for each state or province. Additional information on yield and economic losses due to wheat diseases can be found at the CPN [Field Crop Disease Loss Calculator](#).

2021 Conditions and Production

Farmers in the United States and Ontario planted wheat on 47.9 million acres in 2021. This produced nearly 1.8 billion bushels of wheat, worth more than 12.6 billion USD. The continental U.S. experienced above average temperatures in 2021. Many major weather or climate events occurred in 2021 in the U.S., including a derecho, drought, tornadoes, and severe storms. Much of the western U.S. experienced below average precipitation; above average levels of precipitation occurred across many eastern U.S. states.

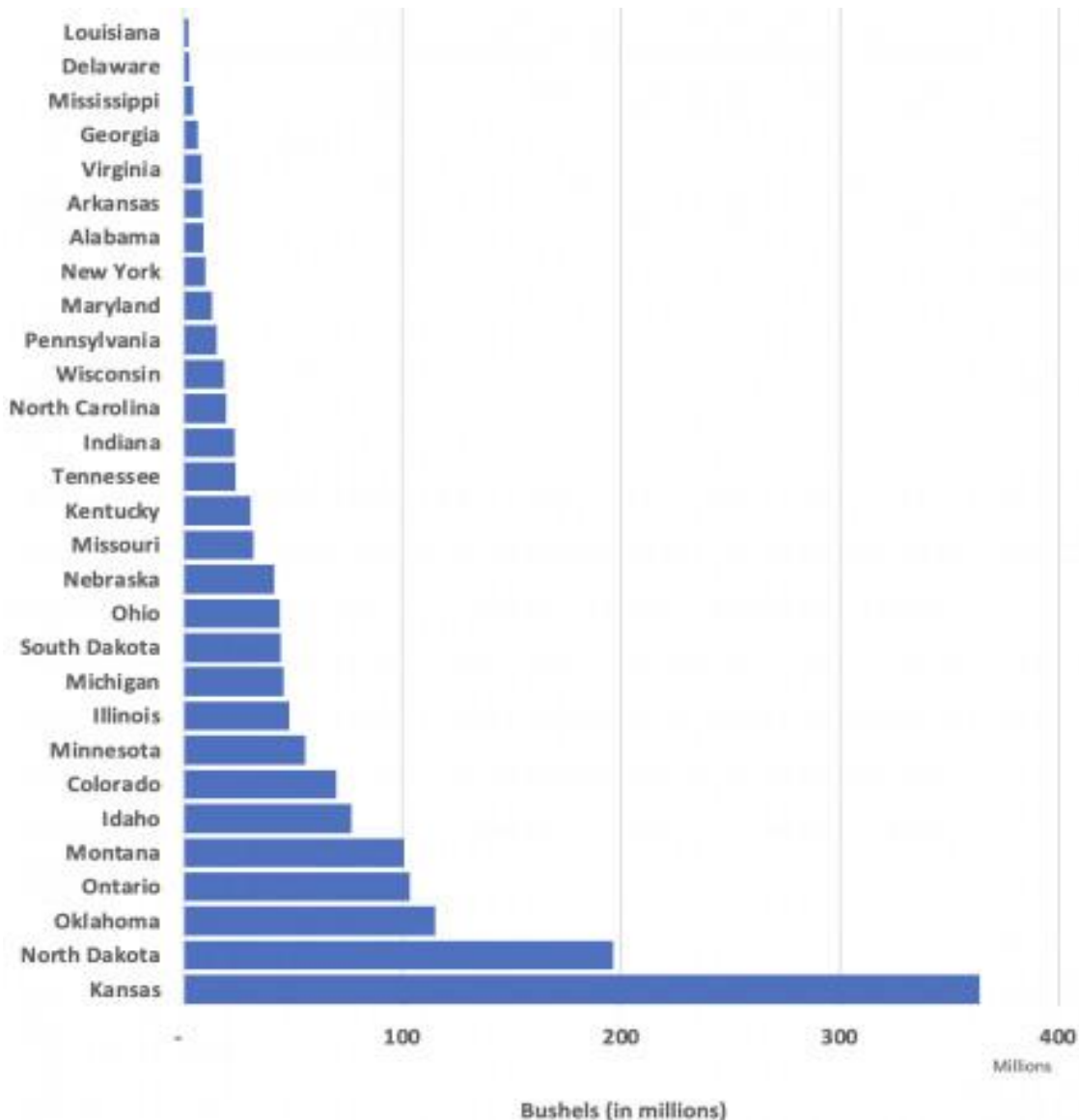


Figure 1. 2021 wheat production (in millions of bushels) in 28 U.S. states and Ontario, Canada.

2021 Disease Losses

In 2021, disease reduced wheat bushels by 8.1 percent across the U.S. states included in this survey and by 2.0 percent in Ontario. Table 1 provides yield loss estimates for all diseases.

In the Northern United States [Stripe rust](#) was the most damaging disease in 2021 — 21.1 million bushels lost (see Table 2). [Fusarium head blight](#) caused the second greatest losses, followed by [High Plains disease](#), [Triticum mosaic](#), and [Wheat streak mosaic](#). Overall, 108 million bushels of wheat were estimated to have been lost due to diseases in the northern United States in 2021

As in the northern U.S., stripe rust caused the greatest estimated wheat yield losses in the southernmost U.S. states in 2021 (Table 3). Although not even in the top five diseases in 2020, [Barley yellow dwarf virus](#) caused nearly 1 million bushels of estimated yield loss in 2021. Overall, 17.8 million bushels of yield loss occurred in the southernmost United States due to disease.

Table 1. Estimated wheat yield losses from diseases in 28 wheat producing states in the United States and Ontario, Canada in 2021.

Disease	Total US losses (thousands of bushels)	Total Ontario losses (thousands of bushels)
Root and Stem Diseases		
Fusarium root, crown, and foot rot	10,128	106
Root-lesion nematodes	7,964	0
Common root and foot rot	6,417	11
Sharp eyespot	1,151	0
Cereal cyst nematode	813	0
Rhizoctonia root rot	705	0
Pythium root rot	340	106
Take-all	142	11
Other nematodes ¹	95	0
Eyespot	49	11
Stem rust	8	0
Foliar Diseases		
Stripe rust	27,566	0
High Plains disease, Triticum mosaic, and Wheat streak mosaic	15,735	0
Tan spot	11,693	53
Leaf rust	7,738	106
Barley yellow dwarf	3,822	21
Stagonospora leaf and glume blotch	3,321	211
Septoria tritici blotch	2,734	317
Powdery mildew	1,795	792
Cephalosporium stripe	612	11
Bacterial leaf streak and black chaff	544	11
Wheat soilborne mosaic and Wheat spindle streak mosaic	342	21
Snow mold ²	13	0
Minor leaf spots ³	5	11
Minor viruses ⁴	5	0
Aster Yellows	0	0
Bacterial leaf blight	0	32
Flag smut	0	0
Head and Kernel Diseases		
Fusarium head blight	18,101	264
Common bunt (stinking smut)	2,195	21
Black sooty mold	794	0
Loose smut	793	11
Black point	275	0
Dwarf bunt	24	11
Ergot	8	11
Karnal bunt	0	0
Wheat blast	0	0

¹Can include needle, root-gall, root-knot, stem, stubby-root, and stunt nematodes; ²Can include pink snow mold, speckled snow mold, and snow rot; ³Can include Alternaria leaf blight, anthracnose, Ascochyta leaf spot, bacterial mosaic, and downy mildew; ⁴Can include Agropyron mosaic and Brome mosaic.

Table 2. Estimated wheat yield losses due to the five most significant diseases in the northernmost U.S. states¹ in 2021.

Rank		Disease/Pathogen	Total losses (thousands of bushels)
Northern Region	Nation		
1	1	Stripe rust	21,057
2	2	Fusarium head blight	16,934
3	3	High Plains disease, Triticum mosaic, and Wheat streak mosaic	15,089
4	4	Tan spot	10,866
5	5	Fusarium root, crown, and foot rot	9,993

¹U.S. States include Colorado, Idaho, Illinois, Indiana, Kansas, Michigan, Minnesota, Montana, Nebraska, New York, North Dakota, Ohio, Pennsylvania, South Dakota, and Wisconsin.

Table 3. Estimated wheat yield losses due to the five most significant diseases in the southernmost U.S. states¹ in 2021.

Rank		Disease/Pathogen	Total losses (thousands of bushels)
Southern Region	Nation		
1	1	Stripe rust	6,509
2	7	Leaf rust	4,453
3	2	Fusarium head blight	1,167
4	11	Septoria tritici blotch	1,033
5	9	Barley yellow dwarf	903

¹Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, Tennessee, and Virginia.

Summary

Environmental conditions varied across the United States and Ontario in 2021, which affected the presence of and damage from many diseases. Overall yield reduction caused by wheat disease was similar in 2021 compared to 2020, but much less than occurred in 2019.

Disclaimer

The disease loss estimates in this publication were provided by members of the North Central Regional Committee on Management of Small Grain Diseases (NCERA 184) and the Western Wheat Workers (WERA 97). This information is only a guide. The values in this publication are not intended to be exact estimates of wheat yield losses due to diseases. The members of NCERA 184 used the most appropriate means available to estimate disease losses and assume no liability resulting from the use of these estimates. Values reported were accurate as of publication date and do not reflect corrections or updates occurring since that time. For the most up-to-date values and additional information on yield and economic losses due to diseases, see the [Field Crop Disease Loss Calculator](https://loss.cropprotectionnetwork.org/) at <https://loss.cropprotectionnetwork.org/>.

Source: Crop Protection Network, Published: 05/09/2022 Andrew Friskop; North Dakota State University; Daren Mueller, Iowa State University; and Adam Sisson, Iowa State University.
DOI: doi.org/10.31274/cpn-20220509-3; CPN-3018-21

LIVESTOCK

Estimating Forage Production for Stocking Rates during Drought **Scott Stinnett, Livestock and 4-H Youth Development**

With a dry fall and winter behind us and a spring that did not produce the necessary moisture for pastures, trying to estimate a stocking rate can become difficult. Many producers who have grazed the same pastures year after year have a pretty good idea of how many animals should be turned out, but how accurate is that idea. And what if you are new to the pasture?

When we say a producer needs to calculate the stocking rate of a pasture, the stocking rate is defined by three factors: the number of animals grazing on an amount of land for a period of time. We may have a stocking rate of 30 head of mature cows grazing 500 acres for 4 months. What is not evident in this stocking rate is the availability of forage on the 500 acres. A producer will need to estimate the forage available on the pasture they are wanting to graze. With the unpredictability of precipitation and subsequent annual forage production, a producer needs to estimate the possible forage available for grazing.

Since there is a direct correlation between forage production to the timing and amount of precipitation, producers need to do a little research to determine what the possibilities are for grazing during a dry year or drought. For example, in one study, the same pasture produced around 200 lbs. per acre in 2002, 1300 lbs. per acre in 2003, and 700 lbs. per acre in 2004, due to drought conditions. Understanding the potential forage production, or the lack of, influences the stocking rate. Producers should first focus on the potential forage production of a pasture. Forage production is estimated in pounds of forage per acre and has two main considerations. First, an accepted best practice for managing grazing is to leave one half of the produced forage to promote proper regrowth the next growing season. Second, grazing cattle tend to ingest half of the forage they are allowed to consume. The other half of forage is missed and trampled under hoof as cattle travel across the pasture.

As an example, using data from the NRCS's Web Soil Survey (WSS) for an area of interest in northeast Kit Carson County, a normal year forage production for the area averages 1,700 lbs. per acre. A producer wants to leave half, and the cattle will only utilize half of what they are allowed. This means cattle will only consume 425 lbs. per acre (1,700 lbs. x ½ left for next year x ½ utilized by cattle = 425 lbs.). A mature cow weighing 1200 lbs. can consume between 2.5% to 3% of her body weight daily, or 30 lbs. to 36 lbs. Using the 3% daily consumption (36 lbs. per day), for a 180 day grazing season, she needs 6,480 lbs. of forage. Therefore, she will need 15.25 acres in the area of interest to meet her needs for the grazing season. Using the WSS, we can find the forage production for the same area of interest during an unfavorable year is only 900 lbs. per acre, resulting in only 225 lbs. per acre of utilized forage. The same cow now needs 28.8 acres in the same pasture for the grazing season during unfavorable conditions.

Understanding and estimating the forage production of a grazing area can help producers utilize a pasture appropriately and not overgraze or need to utilize supplemental feed. The correct number of cattle can graze and utilize pasture even during dry times.

Poultry Webinar (Recorded) Series Available for Backyard Producers and Youth Christine Schinzel, 4-H Youth Development, Lincoln County

This spring CSU Extension has been providing a webinar series on Poultry Production for backyard flock owners and youth. The series has focused on a number of topics including health, selection, business and marketing, and 4-H project information and resources from CSU Extension personnel and industry professionals. Each webinar also includes timely information on health and biosecurity relating to this year's Highly Pathogenic Avian Influenza Outbreak.

Webinar Series:

Poultry 101: Introduction to all things relating to Poultry ownership.

Poultry Paths: Industry panel to talk about industry involvement, resources, and opportunities in the poultry industry including career paths with featured panelists: Heather Reider-CSU Veterinary Diagnostic Lab (Avian Health); Brandon Legg-Leggs Peafowl and Legg's Landing; Kristen Ramey-Long Shadow Farms; Amelia Macy-Producer and Author of a Poultry Resource Handbook for 4-H Youth; Tom Whiting-Whiting Farms; and Rachel Gabel-The Fence Post.

Market Poultry 101: Information covering all areas on market birds including: selection, health and biosecurity, nutrition, structure, purchasing resources, general care and equipment.

Breeding & Show Bird 101: Information covering breeding and show bird species including: selection and sourcing, different purposes, management, equipment, nutrition, health and biosecurity.

Poultry Slaughter & Food Safety: Presentation on the step-by-step procedure for processing poultry by homeowners; food safety from pen to plate; and information on cleaning and disinfection.

Poultry Marketing, Regulation, & Business basics: Information and resources on how to start your poultry business; budgeting and financial statement information; general marketing; and regulation regarding selling poultry products in Colorado and general resources for bird movement.

Poultry Health & Biosecurity: This webinar provides valuable information on diseases and parasites common in the poultry industry, prevention, resources, and biosecurity planning for your operation.

Poultry Show Preparation, Showmanship & Biosecurity: This webinar will focus on preparing for the poultry show, how to show, and important biosecurity for your birds before, during, and after the show.

**** There is still time to register for this last webinar on *Poultry Show Preparation, Showmanship, & Biosecurity* coming up on June 28th @ 7:00pm. You can register @ tinyurl.com/2p8d8f5a.**

To watch all previous webinar recordings and check out additional resources as they are being added go to the CSU Extension Livestock and Range website under "Events" @ rangemanagement.extension.colostate.edu/poultry_production/.

Biosecurity Basics & Poultry Backyard Flock Biosecurity Reminders- Christine Schinzel, 4-H Youth Development, Lincoln County

Highly Pathogenic Avian Influenza (HPAI) has taken a toll on birds across the United States this spring including poultry flocks in Colorado. While we cannot stop viruses or diseases from occurring in general; we can take some steps in our own backyard flocks to reduce the likelihood of contraction. The best way to do this is through the development, implementation, and on-going timely review of a biosecurity plan for your operation.

What is a biosecurity plan? A biosecurity plan is simply a planned action-guide to reduce the likelihood of your livestock contracting diseases.

Who should have one? Everyone with livestock whether for personal enjoyment or business income should have a biosecurity plan.

Who should know? Everyone on the operation or property should be aware of the biosecurity plan and protocols. Have a conversation with vendors to let them know about the plan to educate their employees. There should also be signage for visitors including delivery drivers and friends to help make everyone more aware.

Getting Started:

-Work with your local veterinarian to do an assessment and develop a plan of action. Review the plan at least annually and make everyone aware of changes. *The resource section has great links for biosecurity plan templates. Put a copy of the plan in more than one location and don't forget to include disaster related protocols as well.

-Add signs to the property to limit access to animal areas.

-Educate employees and family members on the biosecurity plan and procedures.

-Provide essential PPE (personal protective equipment) and sanitizing stations.

General Biosecurity Reminders for Poultry:

-Keep different types of birds in separate pens if possible as one may be more susceptible to a disease than another.

-Regularly clean and disinfect (waterers, pens, feeders, equipment, etc.) with a 5-10% Bleach solution or other disinfectant according to label directions.

-Quarantine new arrivals of birds at least 21 days and keep baby birds separate from adult birds.

-Keep poultry in pens with covering to reduce contact with wildlife.

-Wear different boots and gloves (or use disposable ones) when moving from pen to pen for daily chores and health checks; especially during disease outbreak periods.

-Regularly monitor birds for health and wellness and contact your veterinarian or the CSU Avian Health Hotline for any sick birds.

Resources:

CSU Avian Health Hotline: 970-297-4008 or vdl_avianhotline@mail.colostate.edu

Colorado Dept. of Ag. (Reportable Diseases) @ cdphe.colorado.gov/animal-related-diseases

Defend the Flock (Poultry) Resources @ aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/defend-the-flock-program/defend-the-flock-program

Farm Animal Risk Mitigation-Farm PPE @ farmppe.netlify.app/

Your Local Veterinarian

HORTICULTURE

The Role of a Bumble Bee **Linda Langelo, Area Horticulture Agent**

According to Xerces Society, Bumble Bees pollinate wild flowering plants and crops. They do not depend on one flower type to survive. But it is not that way with some plants. Some rare plants that depend on bumble bees are native monkshoods and lady's tresses orchids. Bumble bees are the only known pollinator of the potato worldwide.

Other flowers the bumble bee pollinates are snapdragons, mints, orchid, and peas. According to the Brooklyn Botanic Gardens, flowers pollinated by the bumble bee must have a sturdy lip, apron, or heel for a landing pad. When the bumble bee lands on the monkshood it opens the flower. The petals pop open and it clammers over the male and female parts collecting pollen on its feet while reaching with its head to the nectaries in the hood of the monkshood. Once it flies to the next monkshood, seeds are pollinated, and the species is ensured continuation.

What would the world look like without bumble bees as pollinators? There would be several plants missing from the world. However, there is some recent research according to www.inverse.com in an article Bumblebees Have Learned to Hack Plants by Nina Pullano. Pullano refers to the hacking of plants as bumble bees nibbling on the leaves that are not producing flowers. This may damage the plant but stimulates faster flower growth. Plants not in flower can bloom up to a month earlier. This behavior was found in a lab at the University of ETH Zurich by researchers Mark Mescher and Consuelo De Moraes. They found that this also happens in the wild. This is a particular characteristic that only bumble bees possess. Researchers are uncertain if the bumble bees have something in their saliva that causes the plants to flower. It seems that we can say bumble bees are adapting to climate change. But what can they tolerate as the climate continues to change remains to be seen?

Bumble bees still need our help. Creating gardens with plenty of diverse flowers and the right habitat for bees is essential. Here is a list of trees that benefit bumble bees:

- Oak
- Black Locust
- Elms
- Wild Cherry
- Maples
- Honey Locust
- Plum
- Peach
- Apricot

The following link is a Colorado State University Extension Fact Sheet *Attracting Native Bees to the Landscape*: <https://extension.colostate.edu/docs/pubs/insect/05615.pdf>

Bumble bees need pollen because it is a great source of protein. They also need nectar which provides carbohydrates. The more diverse types of plants are in our landscapes, the more opportunities we give the bumble bees to obtain what they need when they need it. Having plants that bloom early to late season ensures the success of keeping bumble bees going.

The following link is a Colorado State University Extension Fact Sheet *Creating Pollinator Habitat* <https://extension.colostate.edu/docs/pubs/insect/05616.pdf>

Calling All Farmers

Linda Langelo, Area Horticulture Agent

In Northeast Colorado I am a part of a Food Summit. The reason for this Food Summit is to help bring people together to solve access to local food. Also on the Food Summit are Jodi Walker, Director at Kids at Their Best (KATB) Morgan County; Alicia Sears, RN who operates the Kirk Food Pantry in Yuma County; and Margo Ebersole, Rural Communities Resource Center (including Washington County Connections) Yuma and Washington counties and occasionally other areas.

Our focus is to build better access to local food and build connections between agencies so that we can have true collaborations. We have three overall objectives:

- 1) Raise awareness to access local food sources
- 2) Build a comprehensive directory of sources for food access, benefits by county and information from Hunger Free Colorado data.
- 3) Expand education on gardening in the schools

One of the first objectives we are interested in knowing is who are the farmers in the Golden Plains Area and Morgan County who might have fresh food to share with different entities in our counties? What type of food? How much food? And when will it be harvested?

The second objective is to collect data from each county about all the resources of food access and then make it accessible in several venues, for the broader population to have access to the information. Some of these venues include, but are not limited to Facebook, radio, newspapers, and other organizations throughout our counties.

The third objective is to expand education on gardening in area schools. There are schools across the United States that have school gardens. School gardens can serve many purposes. They can teach science and math while a student is learning to grow their own food. Sometimes school gardens provide fresh food for the school menu. School gardens can be a part of the curriculum. How much does the next generation know about raising their own food? Having the ability to do so can give a person the opportunity to become more self-sufficient.

Please feel free to contact, Linda Langelo at Sedgwick County Extension Office at (970)474-3479. If you prefer, use messenger on Facebook to contact me through Garden the Plains. We want to hear from farmers and those who provide food access in the following counties: Fort Morgan, Sedgwick, Phillips, Washington, Yuma, and Kit Carson.

High and Dry Gardens

Linda Langelo, Area Horticulture Agent

High and dry gardens are needed now more than ever. What are they? A high and dry garden demonstrates which plants can survive on natural precipitation. There is a high and dry garden located in the northeast corner of the Washington County Fairgrounds in Akron. We have used it for trialing plants to see how well they fare in drought.

What defines a drought? According to Oxford dictionary, a drought is a prolonged period of abnormally low rainfall, leading to a shortage of water. In the Golden Plains, a prolonged period could mean 10-14 days. According to Wraith, Blake, and Blake researchers from Montana State University, learned once plants are in a drought of 10-14 days it takes 2-3 days after subsequent rewetting periods for the plants to uptake any water.

In a high and dry garden, there are plants that can weather the drought. For some of the grasses that can weather a drought, here are three in the high and dry garden in Akron:

- 1)buffalo grass
- 2)slender wheatgrass
- 3)blue grama

There is a large selection of shrubs and perennials that can be added to your current garden to help reduce water usage and keep a diverse garden throughout the season. Here is a brief list:

- Aspen fleabane
- James' buckwheat
- Sulfur flower buckwheat
- Wild Four O'clocks
- Golden Columbine
- Russian Sage
- Chocolate Flower
- Sonoran Sunset Hyssop *Agastache cana* 'Sinning'
- Apache Plume
- Utah Serviceberry

If you want a full list, please contact your local Extension Office. They can give you a brochure with the photos to help you decide what might work for your garden.

Volcano Mulch

Linda Langelo, Area Horticulture Agent

You might ask yourself, "Is the author for real?" This is not actually a cultivated variety. Unfortunately, the technique of volcano mulch practice is still alive and well. This practice was considered the best practice during the lifetime of when my parents were young in the 40's. As Maya Angelou has said, "When we know better, we would do better." Hopefully.



Liquidambar styraciflua 'Volcano' - Sweetgum 'Volcano'

Photo credit: Anonymous

Liquidambar styraciflua is commonly called Sweetgum. It grows in zones 5-9 on wet river bottoms, swamps that frequently flood and sometimes on drier uplands. According to the Colorado Tree Coalition there is a sweetgum that is The Colorado State Champion Sweetgum (DBH 17"/Height 57') is in Fort Collins. Sweetgum can grow to be 80-120 feet tall and 4 feet wide. But this depends on many environmental factors such as growing it in a moist soil among other factors of wind, hail damage and our temperature extremes even though it is a hardy tree. It is a medium to fast grower. In alkaline soils iron chlorosis is a problem along with webworms, scale, bleeding necrosis and leaf spots to name a few issues.

As a tree hugger, seeing the volcano style mulch I should have titled this blog article, *How to Kill a Tree in Two Years or Less*. I might add the person who sent this to me is not a tree hugger and knows nothing about planting trees but knew that this didn't seem right at all. Knowing that we already have a Sweetgum as a Champion Tree why not give other Sweetgum trees the same opportunity? Or for that matter any tree the opportunity to become a Champion Tree?

Here is what can happen when trees are mulched this deeply:

- Oxygen starvation to the root system
- Soils with poor drainage become waterlogged

The symptoms of these problems take a while to appear. Here are the symptoms:

- the foliage starts turning yellow or off-color
- there are abnormally small leaves
- poor twig growth and dieback of limbs

What happens when you bury the root flare? Because the root flare has different tissues than other roots, piling mulch heavily decreases gas exchange stressing the inner bark. There are lenticels which are pores the tree uses for gas exchange. Blocking them or waterlogging them with a barrier of mulch begins to affect the health of the tree. When the inner bark dies, roots become malnourished and weak. It would be no different than if the tree were planted too deep.

By having a volcano of mulch around the trunk, this encourages diseases. Bacterial and fungal diseases require moisture. These diseases can get into the inner bark. This in turn will stop the flow and storage of sugars produced during photosynthesis. Many trees that are in decline can attract borers. As if oxygen deprivation and starvation are not enough in over-mulching a tree, heat excess is another issue. As the mulch decomposes, there will be high temperatures around the trunk again the inner bark is affected. If the tree is young and the trunk flare is not hardened off before a hard freeze, this will damage the tissues.

Rodents can be attracted to the mulch because they like cover. Mice and field voles will do a lot of damage. If they don't chew the bark, then they will attack the roots. The trunk will be girdled and then there is no saving the tree.

What's the solution? Leave the root flare free of mulch. Mulch 2-3 inches on the edge of the shoulders of the root ball. Here are some links to proper tree planting and mulching:

<https://cmg.extension.colostate.edu/Gardennotes/658.pdf>

https://static.colostate.edu/client-files/csfs/pdfs/TreePlanting_636.pdf

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More information to come.

Contact travis.taylor@colostate.edu for more information.