May 2022
Go to www.sunflower.ksu.edu for more details on these programs.

Inside Your Newsletter...
Preemergence Herbicide Application and Dry Field Conditions…..Crop Production page
Pelvic Measurements in Replacement Heifers………………………..Livestock page
Spring is here!! Let’s Enjoy!!.............................................Family & Consumer page
Youth and Gardening...So Many Benefits!..........................4-H Youth Development page

SUMMER DAY CAMP SCHEDULE

June 2—Little Camp on the Prairie (Goodland)
June 7—Babysitting Clinic (Goodland)
June 9—Fishing Clinic (Belamy’s Pond)
June 10—Flight Day Camp (Bird City)
June 23—Photo Camp (St Francis)
June 25—Survival Camp (St Francis)
June 28—Farm to Fork (Goodland)
July 9—Livestock Learning Day (St Francis)
Preemergence herbicides are cornerstones of weed control. You will hear many agronomists say the best weed is the one that we never see. Like their name suggests, preemergence herbicides control weeds before they emerge. They are sprayed on the soil surface and are carried into the soil by water, either from rainfall or irrigation. Without rainfall, the activation of a preemergence herbicide can be in jeopardy.

Why is water an important part of a preemergence herbicide efficacy?

When we think about a postemergence herbicide application, we are applying an herbicide directly to weed and relying on direct contact of the herbicide and weed for control. However, for a preemergence herbicide, there are no weeds for the herbicide to come in contact with because they have not yet germinated. There are weed seeds, though, that we can target with preemergence herbicides.

Weed seeds must imbibe water to start the germination process, just like a corn or wheat seed must imbibe about half of its weight in water to begin to germinate. During this process of absorbing water, the herbicide is also absorbed by the weed seed. Then the herbicide is moved within the plant cell to its site of action to control the weed.

For a preemergence herbicide to be effective, the herbicide must be located in the top of the soil profile where the weed seeds germinate. That is roughly in the top inch of soil. There must be enough water to keep the herbicide dissolved in soil water. Getting the herbicide in solution and moved into the top inch of soil can be challenging if there is limited rainfall after application.

How much water does it take to activate an herbicide?

Typically, it takes around 0.5 inch of water to activate an herbicide, with amounts ranging from 0.25 to an inch appearing on herbicide labels. Activation of an herbicide is when the herbicide is moved into the soil, to where the weed seeds are located. It is important to know that this amount of rainfall can vary according to moisture conditions in the field. If the upper inch or two of soil is dry, the quantity of rain for activation will be slightly higher. This is because the soil first must be wetted before water will move the herbicide into the soil.

We also know there are differences in the water solubility of herbicides and the length of their half-life in the soil. Figure 1 shows some commonly applied herbicides with water solubility and soil half-life.

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Site of Action</th>
<th>Solubility in water (ppm)</th>
<th>Soil half-life (days)</th>
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<tbody>
<tr>
<td>atrazine</td>
<td>Photosynthesis inhibitor</td>
<td>33</td>
<td>60</td>
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<tr>
<td>mesotrione</td>
<td>HPPD-inhibitor</td>
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<td>S-metolachlor</td>
<td>Long chain fatty acid inhibitor</td>
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<tr>
<td>Dicamba</td>
<td>Auxin disruptor</td>
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1 The higher the number for solubility in water, the more water soluble.

2 This does not represent how long there will be herbicide activity, but how long 50% of the herbicide applied can be detected in the soil.

Preemergence herbicides are often applied as a tank mix. This is to incorporate multiple herbicide sites of action. In many cases, you also get variations in water solubility and soil half-life. A tank mix of atrazine and dicamba offers two sites of action and very different water solubilities. Dicamba is very water soluble and may take as little as 0.25 inch of water for activation, whereas atrazine needs more water for activation. However, the half-life of dicamba is much shorter than atrazine. Together, these herbicides can offer a two-pronged approach to longer preemergence weed control.

All in all, herbicide activation is likely going to be a challenge this spring with drier conditions in the forecast. So, for the sake of better weed control (and many other things), I hope everyone has their rain dancing shoes on!
Calving difficulty, or dystocia can be caused by a number of reasons including an over-conditioned dam, malformation of the calf or dam, abnormal presentation of the calf, uterine torsion, and the inability for the calf to pass through the birth canal due to lack of dilation. However, the most common reason for dystocia is the disproportion of the calf’s size to the size of the cow or heifer’s pelvic area (Rodning et al., 2018). Calving difficulty can be minimized through various means including making sire selections that are appropriate for the level of risk in the females, managing females that are genetically predisposed for calving ease, and making selection decisions based on pre-breeding measurements in females. Such a management practice to reduce the risk of dystocia is measuring pelvic area in replacement heifers to understand their likelihood to birth a calf that is too large for them to handle.

Generally, a producer would want to measure pelvic areas during a pre-breeding soundness exam for replacement heifers. While the pelvic areas in heifers 12 to 14 months of age are likely to get larger as they mature, the growth will be proportional across all heifers. This suggests that heifers with small pelvic areas during a pre-breeding exam will always have a small pelvis compared to other females measured that day. Much like calculating the measurement of a rectangle, the pelvic measurement is calculated by multiplying the width and height of the pelvis as shown in Figure 1 and demonstrated in Example 1. The measurement, in square centimeters can then be used to estimate the appropriate size and birthweight of her first calf.

Researchers from the University of Nebraska developed a system that uses ratios to estimate the size of a calf that a heifer can safely deliver based on her age and weight. The corresponding ratio can then be used with the pelvic area measurement to estimate the calf birthweight that the heifer can handle when calving at two years of age. Ratios can be found in Table 1, but a more specific example of this method of estimation is described in example 2.

### Example 1

pelvic height—14 cm, pelvic width—12 cm

\[14 \text{ cm} \times 12 \text{ cm} = 168 \text{ cm}^2 \text{ pelvic area}\]

Researchers from the University of Nebraska developed a system that uses ratios to estimate the size of a calf that a heifer can safely deliver based on her age and weight. The corresponding ratio can then be used with the pelvic area measurement to estimate the calf birthweight that the heifer can handle when calving at two years of age. Ratios can be found in Table 1, but a more specific example of this method of estimation is described in example 2.

### Example 2

\[168 \text{ cm}^2 / 2.1 = 80 \text{ lb calf that the heifer can safely deliver}\]

Just like any method of prediction, there is a margin of error. Researchers have reported that this method of estimation can be used with 80% accuracy.

While pelvic measurements can be recorded before breeding or during pregnancy checks, it is more responsible to do so before breeding. This would aid in avoiding calving wrecks by culling heifers whose pelvic area is considered small, or making more appropriate breeding decisions. As with most management practices, using more information when making decisions typically leads to the desired outcome. If replacement heifers are important to a producer and there are adequate facilities and labor, measuring pelvic areas can lead to reduced risk of calving difficulties. This responsible decision can lead to many benefits including quicker rebreeding, earlier calving in following years, and more live calves on the ground.

For more information on preparing for breeding season, please visit or call the Cheyenne County Extension Office at (785)332-3171.

For more resources and event announcements, please follow us on Facebook at K-State Research and Extension Sunflower District.
Research shows that organized living, playing, and working spaces tend to be less stressful when our items of life, play, and work are easily accessible.

Organized living and working spaces help us spend less time hunting for lost or misplaced items. We may find it easier to engage in leisure activities in well-organized living spaces. Living spaces are more likely to be healthful environments when kept free of excessive dirt, discarded food, and other bacteria and germ related debris.

To promote healthful living environments, we can follow a few basic cleaning guidelines.

▪ Keep kitchen appliances free of food spills.
▪ Keep refrigerators cleared of food that is older than is safe.
▪ Appliances that are kept clean run more efficiently, saving energy and repair costs.

The frequency of cleaning any one place in our living spaces depends on several factors:

▪ The number of people residing in one living space.
▪ Types of activities taking place in the living spaces.
▪ Personal preferences for organization and cleanliness in the living spaces.

Often one person in a household will have different preferences for organization and cleanliness in the living spaces than another person.

Conflicts could arise about who should pick up and clean up and how often. Household members will need to work out these conflicts. Talk to other household members about dividing the work in age-appropriate ways. A schedule provides guidelines that help eliminate the problem of excess clutter, so cleaning doesn’t become an overwhelming chore. Your family may decide that some of these tasks should be done more frequently or less frequently than suggested.

Work together as a family to get the job done!
Youth and Gardening … So Many Benefits!

Summer brings opportunity for gardening and outdoor learning! School gardens, community gardens, home gardens— Citizen Science projects and more! Part of the summer programming in the Sunflower District will revolve around vegetable gardening, pollinator gardening, and all kinds of hands-on outdoor education. Join us at North School in Goodland. Call the Sherman County Extension office for dates and times.

Youth who participate in gardening activities develop health-related behaviors and see an improvement in their overall well-being.

Research shows garden based learning may promote student perceptions of happiness, pride, cooperative behavior, and a sense of wonder.

Youth eat more fruits and vegetables after participating in garden-based programs.

Students who garden report stronger family and neighborhood connections.

Gardening is beneficial for both mental and physical health.

Gardening for youth promotes awareness of sustainable agriculture practices.

Gardening is beneficial for children’s physical and mental health, as well as social emotional learning.

Engaging youth in gardening activities increases academic and environmental knowledge.

Source: https://mailchi.mp/childrenandnature/rd-march2022?mc_cid=449b03048d&mc_eid=5468189d7c

Contact:
Karen Nelson, 4-H Youth Development Agent
Sunflower District—785.890.4880
karennelson@ksu.edu

K-State Research and Extension is an equal opportunity provider and employer.
4-H Discovery Days - 2022

When: June 1st-3rd, 2022

Who: Youth ages 13-18 before January 1, 2022

Cost: $195

Registration: Registration will close May 1st.

Discovery Days objectives:

- Help youth learn new ideas, techniques, and skills they can use personally and in their 4-H clubs or groups and communities
- Give youth in-depth training through hands-on educational sessions from content and youth development experts
- Prepare youth to make informed decisions about their careers and college path
- Enhance personal growth by giving opportunities to develop responsibility, confidence, independence, accountability, problem-solving, decision-making, and time management skills
- Help youth meet new people and make new friends from different places and with different backgrounds from across the state
- Provide an opportunity for youth to experience the K-State campus and its wealth of resources

Develop college and career readiness skills which prepare participants academically and socially for a successful transition to college and life as an adult.

May 2022:

1: Project Deadline –
   Final Add/Drop for Projects
1: CN Breeding Heifer & Horse ID’s Due
1: KSF/KJLS Market Beef Nomination Due
15: CN Market Livestock ID’s Due

June 2022:

1: CN Breeding Pig, Lamb, Goat I.D.’s Due
1-3: Discovery Days in Manhattan
3-12: Citizenship Washington Focus
8: Small Animal DNA Envelope order Due
9: Fishing Clinic at Belemy’s
15: KSF/KJLS Heifer, Pig, Lamb, Goat Nomination Due
15: County Livestock Registrations Due
23: Photo Day Camp-CN
25: Survival Day Camp-CN

To all Graduates-
Best Wishes for your future!
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<td><strong>May 1st Deadlines</strong></td>
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<td>Project Spotlight Day Camp</td>
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<td>Happy Mother’s Day</td>
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<td>St. Francis Graduation</td>
<td>County Market Livestock ID’s Due</td>
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Cheyenne County
**Important Dates**

May 1............. Add/Drop Project Deadline
May 1............. Horse IDs are due to the Extension Office
May 1............. Market Beef Nominations Due
May 1............. Discovery Days registration closes
May 2............. 4-H Council
May 4............. Foods
May 7............. Project Day Camp
May 8............. Mother's Day
May 8............. Ruleton Eager Beavers
May 14.......... Cloverbuds
May 15.......... Prairie Dale
May 15.......... Sunflower
May 16.......... Country Clovers
May 21.......... High School Graduation
May 26.......... Last Day of School
May 30.......... Memorial Day
June 2.......... Little Camp on the Prairie

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**Congratulations Graduates!**

Caleb Dechant, Natalie Dorn, Walker Eslinger, Alexis Franz, Matthew Nemechek, Haylee Schurr, & Dallin Tew

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**Come & Experience the Good Ole Days to the Millennial Days**

- Little Camp on the Prairie - June 2, 2022
- Babysitting Clinic - June 7, 2022
- Fishing Clinic - June 9, 2022
- Aerospace Camp - June 10, 2022
- Photography Camp - June 23, 2022
- Survival Camp - June 25, 2022
- Farm to Fork Camp - June 28, 2022
- Livestock Learning Day - July 9, 2022

Look for flyers from the schools in the Sunflower Extension District Cheyenne, Sherman, & Wallace Counties

Registration & payment can be mailed to your Local County Extension Office.

Address's & Phone #’s can be found on the back of the newsletter or on the Sunflower District Webpage

OR

Call your local Extension Office

OR

Register Online

(Sorry we do not have an online payment method). All registration fees must be received by May 20, 2022, to hold your spot.

Register Online here:

https://www.facebook.com/sunflowerextensiondistrictshermancounty4h/

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<td>Add/Drop Projects Due</td>
<td>4-H Council 7:00 PM 4-H Building</td>
<td>Horse IDs Due</td>
<td>Foods 3:30 - 5:00 PM 4-H Building</td>
<td>Market Beef Nominations Due</td>
<td>Discovery Days Reg. Due</td>
<td>Project Day Camp 8:00 AM VO - Tech College</td>
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<td>Ruleton Eager Beavers 3:00 PM 4-H Building</td>
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<td>Cloverbuds 10:00 AM 4-H Building</td>
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<td>Sunflower 3:00 PM 4-H Building Prairie Dale 5:00 PM 4-H Building</td>
<td>Country Clovers 7:00 PM 4-H Building</td>
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<td>Last Day of School</td>
<td>Last Day of School</td>
<td>Extension Office Closed</td>
<td>Memorial Day</td>
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**4-H Discovery Days 2022**
June 1-3, 2022
Youth ages 13-18 before Jan. 1, 2022
Cost is $195
*Help youth learn new things they can use personally and in their 4-H clubs or groups and communities
*Give youth training with hands-on sessions from content and experts
*Prepares youth to make decisions about their future
*Enhances personal growth in many areas
*Help youth meet new people and make new friends from different places across the state
*Provides opportunities for youth to experience the campus
*Develop college and career readiness skills for the future

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**2022 Regional Club Days Results**

Harrison Endeavors—1st Blue, Skit
Kasen & Lincoln Stramel—1st Blue, Sr. Demonstration/Illustrated Talk
Brennan Aldridge—1st Blue, Sr. Demonstration/Illustrated Talk
Claire Helsel—1st Blue, Sr. Reading
Jensen Vandike—1st Blue, Int. Project Talk
Gage Cox—Blue, Int. Demonstration/Illustrated Talk
Addison Aldridge—Blue, Int. Demonstration/Illustrated Talk
Kayson Brown—Blue, Int. Project Talk
Bodie Larson—Blue, Jr. Project Talk
Trey Larson—Blue, Jr. Project Talk
Sterling Brown—Red, Jr. Talk

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**Dates to Remember**

**May**
1. Horse IDs Due in office
   Last day to Add or Delete Projects
30– Memorial Day—office closed

**June**
1-3– Discovery Days (Manhattan)
2– Little Camp on the Prairie (Goodland)
7– Babysitting Clinic (Goodland)
9– Fishing Clinic (Belamy’s Pond)
10– Flight Day Camp (Bird City)
23– Photo Camp (St Francis)
25– Survival Camp (St Francis)
28– Farm to Fork (Goodland)

**July**
9– Animal Science Camp (St Francis)
22– Fair Clean-up
23– Fair Horse Show
28-30– Wallace County Fair

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**2022 Wallace Co Fair Dates are**
July 28-30
“4-H Empowers Youth (Super-Hero)”
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Sunflower Extension District #6
Goodland Office
813 Broadway, Room 301
Goodland, KS 67735

Sunflower Extension District #6 Offices
www.sunflower.ksu.edu

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St. Francis Office
Heather McDonald
Livestock Agent
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Linda Elfers
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K-State Northwest Research and Extension Center - Colby
Jeanne Falk Jones
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K-State Research and Extension is committed to making its services, activities and programs accessible to all participants. If you have special requirements due to physical, vision or hearing disability, or a dietary restriction please contact Karen Nelson at (785)890-4880.