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Small Farm Equipment Safety

By John Rizza, West Slope Small Acreage Coordinator, CSU Extension/USDA-NRCS

Many small acreage landowners utilize tractors and other equipment in order to maintain their property. There is a lot to know about farm equipment and one of the biggest aspects of ownership is knowing how to safely operate and maintain your machinery. Proper use of the safety equipment on your machinery will ensure years of injury-free use for the operator.

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Here are some tractor safety tips:

- Follow the recommended maintenance and service intervals. The manufacturer sets designated service intervals, which can be found in your owner's manual. Following these service intervals is important and can help to discover potential problems long before they become a safety hazard. Greasing the machine at the recommended interval will force the operator to inspect areas of the machine they might not normally look at and could help to find broken parts or loose nuts and bolts that could pose a safety hazard.
- Learn proper operation techniques. Don't be in a hurry with your tractor, take your time to do the job safely and correctly. Your ROPS (Roll-Over Protective Structures) equipped machine is only as safe as all the parts that make it up. That means a seatbelt should always be worn while operating the machine. Hills can pose a significant roll-over safety risk.
- On a conventional style tractor, back the machine straight up hills, keeping the front of the tractor pointed downhill at all times.
- When driving across hills, know the limitations of your machine and prepare for the unexpected rock or bump that might send the tractor onto its side. Slow speeds will enable you to negotiate slopes effectively. Also remember, if you feel unsafe, turn the front of the tractor downhill and back up the slope if necessary.
- Most machines on smaller acreages utilize front loaders that allow for a variety of implements. Keep the loader in the down position while operating the tractor. When the loader bucket is up, the center of gravity is higher, thus decreasing the stability of the machine. When the bucket is being used in the up position, operate on stable surfaces and at a low speed to maintain control.
- Do not modify or alter the draw bar or 3 point hitch on the rear of the tractor.
- Always hook up your implements correctly and make any necessary adjustments within the

specifications of the equipment. Failing to properly secure implements to the machine could cause serious injury to the operator or damage to the equipment.

- Remember to utilize the shields and stay clear of the PTO shaft while engaged, this is a very powerful tool and can cause a significant amount of damage to life and property when not respected (watch [PTO Shaft Accident video](#)).
- While children are often in awe of these machines, do not allow them to be an extra rider on the machine as it was not designed for more than one operator. Passengers are not permitted on smaller machines.

There are many aspects to safely operating tractors. Respecting this powerful tool and understanding how to properly operate the machine will ensure years of safe, reliable operation in order to maintain and enhance your property.

Additional Resources:

A Guide to Safe Farm Tractor Operation (Farm Safety Association)

http://nasdonline.org/static_content/documents/1650/d001534.pdf

The 10 Commandments of Tractor Safety (Utah State University Coop. Ext)

<https://extension.usu.edu/files/publications/factsheet/FM-27.pdf>

Are you looking to purchase a tractor or implement? Have you considered all the fixed and variable costs? Take a look at the following fact sheet, The Cost of Owning and Operating Farm Machinery, found here:

<http://www.coopext.colostate.edu/ABM/abmcostofmachinery.pdf>

Pollinator Protection-What's Your Role?

By Thia Walker-Extension Specialist, Pesticide Safety Education

Many organisms, including butterflies, moths, beetles, flies, hummingbirds, and, of course, honey bees and native bees, are pollinators of plants. In the United States, about one third of all agricultural output relies on pollinators to help produce seed or fruit. So protecting pollinators benefits everyone.

Promoting and protecting honey bees, and consequently other pollinators, requires a collaborative effort between beekeepers, agricultural producers and pesticide users. So what's your role? Here are a few suggestions:

As a grower, plant pollinator habitat in marginal lands or in areas that serve as a buffer between fields. Plant a diversity of pollinator-friendly plants that will bloom from spring through fall as this offers a variety of nectar and pollen sources that pollinators require for good nutrition.

Use Integrated Pest Management (IPM) to manage pest populations and reduce pesticide use and its environmental impact. IPM emphasizes cultural controls and host plant resistance as the first line of defense against insects and diseases, monitoring for pests, and applying the least toxic alternative only after an economic threshold has been reached.



Also work with beekeepers to locate hives in areas that will not receive applications of highly toxic pesticides during the growing season, especially during the bloom period.

As a beekeeper, work with growers to locate hives in areas that may not require repeated pesticide applications and be prepared to move, cover or contain your bees if a pesticide application must occur. Provide a clean water source near the hive. Most importantly, monitor colony health throughout the year. CSU Colorado Environmental Pesticide Education Program offers the free publication

“Integrated Hive Management for Colorado Beekeepers”. (Email cepep@colostate.edu to obtain a copy.)

As a pesticide user, practice IPM. When pesticide applications are necessary, and identify and confirm hive locations, maintaining appropriate buffers. Never apply when blooming weeds are present or when the crop is in bloom.

If an application is required during bloom, and allowed by the pesticide product label, apply the pesticide when bees are not present. This is typically very early morning or after dusk.

Finally, try to select insecticides and fungicides that are effective against the target pest and have the lowest toxicity rating to bees whenever possible.

Minimize drift by using the proper nozzles for the application and calibrating equipment. Also avoid creating pools of water that may contain pesticide residues when cleaning equipment.

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But the most important role that growers, beekeepers and pesticide applicators have is to COMMUNICATE with one another! In Colorado, FieldWatch is a tool that growers, beekeepers and pesticide users can use to collaborate on pollinator protection. This tool is available at www.fieldwatch.com. It includes DriftWatch™, BeeCheck™, and FieldWatch, FREE voluntary registry tools intended to help pesticide applicators, beekeepers and specialty crop growers in Colorado communicate more effectively and promote awareness and stewardship activities to help prevent and/or manage drift appropriately.

DriftWatch is for registering sensitive crop sites and is not intended to be a registry for homeowners or sites less than half an acre. Beekeepers with no specialty crops are encouraged to use BeeCheck to map their hives. FieldWatch is the registry that allows pesticide applicators to locate sensitive sites and provides a means to communicate with both beekeepers and growers to protect their sensitive sites. An informational brochure is available here: <http://www.cepep.colostate.edu/> under the Pollinator Protection tab.

Protecting pollinators is not the responsibility of any one individual. It requires a collaborative effort. It's important to know your role and recognize what you can do to promote pollinators. It will benefit everyone!

More Information:

Information on neonicotinoids and bees at Xerces www.xerces.org/neonicotinoids-and-bees/

Pesticide Toxicity to Honeybees <http://pesticidestewardship.org/PollinatorProtection/Pages/Pesticide-Toxicity-to-Bees.aspx>

Always read herbicide labels and keep in mind that “the label is the law.” The label, or the MSDS (Material Safety Data Sheet found online) for each pesticide, will explain target weeds, mixing rates, personal protective equipment needed, toxicity, and re-entry interval (amount of time after application in which grazing or other activities should be ceased). The user of any pesticide is liable for all aspects of handling the product, including mixing, loading, application, spill control, and disposal of container. **If you have specific questions about an herbicide, read the Material Safety Data Sheet (MSDS) at <http://www.cdms.net/LabelsMsds/LMDefault.aspx?ms=1,2,3,4> Find the herbicide MSDS by searching for Manufacturer.**



Individual grains of pumpkin pollen hitch a ride on a honeybee. As bees move from flower to flower, they carry pollen with them, fertilizing nearby plants.

Photograph © 2007 John Kimbler. Source <http://earthobservatory.nasa.gov/Features/Bees/bees3.php>

How to Identify Colorado Conifers

By Mark Platten and Brian Kailey, CSU Extension

What is a conifer?

A conifer is a tree or shrub that bears cones, is ever-green and has needle-like or scale-like leaves.

How to quickly figure out what family your conifer is part of:

- A. Does the tree have needles that are arranged mostly in clusters of 2-5? These are pine trees.



- B. Does the tree have scale-like or awl-shaped leaves and bear cones that are berry-like? These are Junipers/Cypress/Cedar trees.



- C. Are the needles held on peg-like projections that persist after the needle falls off and the

needles are fairly sharply pointed, usually easy to roll between your fingers, 4-sided or diamond shaped in cross-section? These are spruce trees.



- D. Does the tree have two sided needles that are attached to the twig and leave a leaf scar when pulled off, also have rounded buds and erect cones with scales that fall off when mature? These are fir trees.



Introducing LISA: A Smarter Way to Irrigate Your Lawn

By Blake Osborn, Extension Water Resources Specialist, Southern CO and Perry Cabot, Extension Water Resources Specialist, Western CO

If you're like most homeowners in Colorado, you might have a green lawn which, as we all know, likes to drink vast amounts of water in the summer months. If you have ever opened a water bill in July, you know what I'm talking about. Many homeowners irrigate their lawns using the conservative "shot-in-the-dark" method; better to over-irrigate than let our lawns look drought stricken. Well, what if there was a way to keep a healthy lawn *and* lower your water



Example of "catch can" test, the most crucial step in the physical lawn auditing process.

bill? This is one of the main goals of the Lawn Irrigation Self Audit (LISA) project, helping homeowners understand and manage their lawns to limit over/under watering while maintaining lawn health.

GreenCO, a leading landscape advocacy group in Colorado, estimates that about 50% of total homeowner water use in summer months (the most demanding time of year for water) goes to water outdoor landscaping.

To tackle this problem, a group from Colorado State University initiated an irrigation scheduling project to help homeowners water their lawns more efficiently. The group consisted of atmospheric scientists, water resources specialists, horticulturalists, and a vast network of Extension agents. Together, the group has

developed a LISA suite of tools that allows homeowners to check out a physical kit to perform a lawn irrigation audit. Tool kits will be available at select Extension offices throughout the state, but each region of the state should have at least one kit.

Once a homeowner performs a lawn audit they can use their data to generate a personalized watering schedule for an entire growing season.

The web-based irrigation tool was designed to be highly localized. Each user is provided with data from one of CSU's CoAgMet weather stations situated closest to their property, thus ensuring accurate lawn watering needs based on the evapotranspiration rates from their climatic region. The web-based irrigation scheduler was designed to account for each (users) specific conditions and includes the factors that most affect lawn water use. The goal is to give the lawn exactly the amount of water it needs to maintain health and vigor while eliminating costly excess water use. In the end, homeowners will be provided with a personalized irrigation schedule for the growing season.

Currently, the LISA project is in the final testing stages of our web-based irrigation scheduling tool and will be available for use starting this spring of 2016. Contact your local Extension office to use a LISA kit. You can also contact Blake Osborn (719) 545-1845 for more specific information about the LISA project.



Knowing the root depth of your lawn is also critical in knowing how much water to apply.

Plague-Riddled Prairie Dogs a Model for Infectious Disease Spread

By Anne Ju Manning

Every now and then, colonies of prairie dogs are wiped out by plague, an infectious disease most often associated with the Black Death of the 14th century. Plague doesn't usually kill people these days, but it's alive and well among the millions of ground-dwelling rodents of Colorado and other western states, notably the black-tailed prairie dog. They're resilient critters, though- following wholesale destruction of colonies, they seem to repopulate with a vengeance.

Colorado State University biologists say this sporadic ebb and flow of prairie dog plague is an ideal model for the study of rare infectious zoonotic disease – disease that can jump from wildlife to humans – like MERS (Middle East Respiratory Syndrome) and Ebola.

Plague, in all its terrible forms, is caused by the *Yersinia Pestis* bacterium, usually spread through flea

bites. Last year in Colorado, there were a handful of human cases, including at least two deaths. A multi-year, CSU-led study that involved trapping and testing thousands of prairie dogs across the Pawnee National Grassland, and tens of thousands of their plague-carrying fleas, was conducted by CSU biologists Daniel Salkeld and Michael Antolin, and is published in *BioScience*.

Research scientist Salkeld, and Antolin, professor and chair of biology in the College of Natural Sciences, assert that the swirl of ecological factors driving plague outbreaks in prairie dogs can lend key insights into the study of zoonotic diseases. Such diseases, among them Ebola, which swept through west Africa in 2014, are notoriously hard to study. Their outbursts are sporadic at best, making their spread trajectories elusive.

“Plague is deadly – it's not like the common cold. It kills its host,” Salkeld said. “It affects different hosts, including rats, prairie dogs and grasshopper mice. It is reasonably rare to watch an outbreak,

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Black-tailed prairie dogs are ground-dwelling rodents in Colorado and other North American plains states. They are susceptible to large-scale plague outbreaks.

Photo by Dan Salkeld/Colorado State University

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and doing so can give us insight into other rare diseases like Ebola.”

Throughout their analysis of plague in prairie dogs, they concluded that such diseases may “smolder” unnoticed in a population for years, rather than jump from species to species immediately before an outbreak. They also found that investigations occurring after outbreaks can be too shallow or yield false information about which host was chiefly responsible.

In other words, there’s no simple transmission model of diseases like Ebola and plague. Throughout their study, Salkeld and Antolin found that grasshopper mice and coyotes that scavenge plague-killed prairie dogs can speed transmission of the disease by spreading the disease-carrying fleas. They also found that an outbreak in a prairie dog colony might go unnoticed for years, because the animals are dying underground. Furthermore, the mechanism that drives the spread of plague during

the smoldering, unnoticed period might be different than during a full-blown epidemic.



Photo by Austin Allison/Colorado Parks and Wildlife

Ecological conditions come in bursts, too – for plague, a cool, wet season is best for the pathogen to proliferate. Prairie dogs are well adapted to surviving drought. “Prairie dogs spread like crazy during drought in Colorado,” Antolin said. “Without plague, they would probably spread faster during wet periods.”

The parallels with Ebola are without question, Antolin said. Ebola became a pandemic due to a combination of factors, including exposure of the virus in densely populated urban centers with little access to health care and sanitation. Similarly, the Black Death in medieval Europe spread due to things like concentrations of people living with animals; the pathogen was given a pathway to persist. In the case of Ebola, they argue that the sampling of fruit bats after human outbreaks may have biased subsequent investigations toward bat-Ebola virus ecology, and other, possible host species may have been overlooked.

The researchers hope their study leads to better measures for modeling and predicting infectious disease transmission, but there are still open questions about the human-wildlife interface of disease. In future studies, Salkeld will continue to investigate this question with other such diseases, including Lyme disease and Colorado tick fever.

The multi-year effort, supported by the National Science Foundation, was joined by other CSU researchers including evolutionary ecologist Colleen Webb, and mammologist Paul Stapp, a CSU Ph.D. now at Cal State Fullerton. Other partners were the Centers for Disease Control, and the Ranger District for the Pawnee National Grasslands, which provided long-term prairie dog town size and location data.

Full research article in BioScience: <https://bioscience.oxfordjournals.org/content/early/2016/01/11/biosci.biv179>

Article from CSU Source

USDA Expands Microloans to Help Farmers Purchase Farmland and Improve Property

Producers, Including Beginning and Underserved Farmers, Have a New Option to Gain Access to Land

WASHINGTON, Jan. 19, 2016 — Agriculture Deputy Secretary Krysta Harden today announced that the U.S. Department of Agriculture (USDA) will begin offering farm ownership microloans, creating a new financing avenue for farmers to buy and improve property. These microloans will be especially helpful to beginning or underserved farmers, U.S. veterans looking for a career in farming, and those who have small and mid-sized farming operations.

“Many producers, especially new and underserved farmers, tell us that access to land is one of the biggest challenges they face in establishing and growing their own farming operation,” said Harden. “USDA is making it easier for new farmers to hit the ground running and get access to the land that they

need to establish their farms or improve their property.”

The microloan program has been hugely successful, providing more than 16,800 low-interest loans, totaling over \$373 million to producers across the country. Microloans have helped farmers and ranchers with operating costs, such as feed, fertilizer, tools, fencing, equipment, and living expenses since 2013. Seventy percent of loans have gone to new farmers.

Now, microloans will be available to also help with farm land and building purchases, and soil and water conservation improvements. FSA designed the expanded program to simplify the application process, expand eligibility requirements and expedite smaller real estate loans to help farmers strengthen their operations. Microloans provide up to \$50,000 to qualified producers, and can be issued to the applicant directly from the USDA Farm Service Agency (FSA).



Photo by Thad Gourd

This microloan announcement is another USDA resource for America’s farmers and ranchers to utilize, especially as new and beginning farmers and ranchers look for the assistance they need to get started. To learn more about the FSA microloan program visit

www.fsa.usda.gov/microloans, or contact your local FSA office. To find your nearest office location, please visit <http://offices.usda.gov>.

Colorado Small Acreage Services Database

The source for landowners to find contractors, equipment, and services

[http://
sam.ext.colostate.edu](http://sam.ext.colostate.edu)



Need help with weed control?
Have a small pasture seeding project?
Search the site today to find a local contractor!



This is a free service brought to you by USDA-NRCS, CSU Extension, and your local conservation district

For a list of upcoming events in your area visit CSU Extension Small Acreage

Management website

www.ext.colostate.edu/sam/

Do you have a question about managing your small acreage?

Contact CSU Extension /NRCS Small Acreage Coordinators:

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