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EXTENSION**

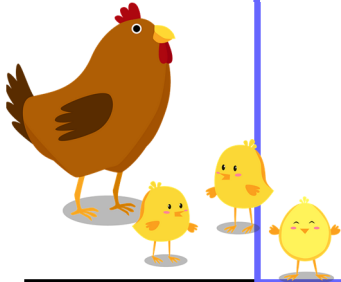


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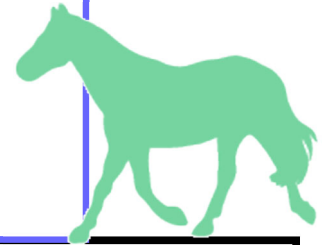
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A Fond Farewell

It is with very mixed emotions that I tell you all I have accepted another position and am no longer a small acreage specialist for Colorado, my final day in the position was March 28th. Over the past nearly five years I have worked for CSU and NRCS I have enjoyed both the duties of this position and the people I have been blessed to work with. Serving the landowners of the Peaks and Plains region has been an incredibly fun and educational career for me. Putting together this newsletter has been among the most consistent duties I have had in the last few years, and I came

to really enjoy it!

I want to thank all of you who have read, contributed, commented, shared, or in any other way interacted with the newsletter. You are all fantastic!

Please enjoy my final issue, and in the future, the newsletter will be done by the Front Range small acreage specialist, Kat Caswell.

All my best,

Kara Harders

Colorado Small Acreage News is published and edited by Kara Harders.

*The Colorado Small Acreage News will be going on a hiatus for Summer 2022
Please direct all inquiries regarding this publication to Kat Caswell (kat.caswell@colostate.edu)*



Highly Pathogenic Avian Influenza (HPAI)

Detection and Quarantine: When You Have HPAI in Your Poultry Flock

Highly pathogenic avian influenza (HPAI) is one of the most serious diseases that can affect your poultry flock. It is deadly for poultry, spreads quickly, and can devastate entire industries. In short, an HPAI outbreak is an animal disease emergency. The U.S. Department of Agriculture (USDA) and States have authority to respond and protect our country's poultry and livestock from harmful diseases. If there is HPAI at your farm or close to it, you'll see Federal and State workers responding in the local area. In the first days of the response, our top priority is to immediately contain the outbreak and protect animal health.

Diagnosis and Testing

We can make an early diagnosis of HPAI based on what we observe in your flock. If poultry show signs of infection, we consider it a "suspect case" until we receive test results. This means we can start working with you right away to put measures in place that will stop the disease from spreading.

For HPAI testing, trained personnel need to collect samples from your poultry. The samples first go to a National Animal Health Laboratory Network (NAHLN) lab for diagnosis. The NAHLN includes State, university, and Federal laboratories located throughout the United States.

This network has the capacity to handle a large volume of sample testing and give results quickly—in most cases, the same day a lab receives samples. With a positive test result (H5 or H7 avian influenza) from the NAHLN laboratory, the suspect case now becomes a "presumptive positive." This allows us to assign you a case manager, and move forward with confirmatory testing, and initiating the response.

Results are confirmed and tested for pathogenicity at the NVSL, the official reference laboratory for foreign animal disease testing in the United States. The NVSL handles all confirmatory testing for HPAI in our country. NVSL results give us more information about the virus (such as its subtype and genetic sequence). It typically takes NVSL 1-2 days to complete this work, but it may take longer and additional samples may be needed to complete the testing.

Quarantine

One of the most effective ways to stop HPAI from spreading is to set up a quarantine. Only authorized individuals can come in and out of infected farms that are quarantined. There are various movement restrictions for poultry, poultry products, and equipment from quarantined properties and surrounding areas. These controls on movement may allow some commerce to continue without creating an undue risk for animal health.

HOW WILL I KNOW?

If your birds appear sick, report it to your veterinarian. Samples will be collected from your farm to check for HPAI. Testing may also occur without your reporting sick birds if other HPAI cases are already in your local area.

If you do have HPAI in your flock, you will first find out from a State or Federal veterinarian. He or she will inform you after preliminary testing is finished, usually within 24 hours after collecting samples from your farm.

For example, poultry and other animals generally can't be moved at all from farms with an HPAI detection or flocks with a known exposure to HPAI, as well as those being investigated for HPAI signs. For properties outside the control area, there are often no movement restrictions; however, we monitor for HPAI through routine surveillance testing.

Initial quarantine authority rests with State government. The State issues quarantines and/or other restrictions that cover movements. Restrictions will vary depending on the State's own authorities and regulations and the scope of the outbreak. In some cases, USDA may issue a declaration of emergency under the Secretary's order.

Tracking Disease Spread

In an HPAI outbreak, it is crucial to find out where the infection came from and where it may have spread. To do this, we investigate and trace the movement of animals in and out of your farm, leading up to when HPAI was found in your flock and right after the detection. This is called an "epidemiological investigation."

Our goals are to:

- define the nature of the outbreak,
- identify the risk factors for disease spread,
- develop ways to reduce those risks, and
- locate all other infected or potentially infected sites.

This information helps us respond to the outbreak more effectively and stop the disease in its tracks. We can find infected poultry quickly and eliminate disease pockets before the outbreak has a chance to spread any further. The information also helps us give more detail on how you can best protect flocks from HPAI, based on the specifics of your own farm and how the disease got there. In doing so, we can better protect your operation and the poultry industry as a whole.

For More Information

If you have specific questions, talk with your case manager or call the nearest USDA office (www.aphis.usda.gov/animal-health/state-offices).

For general information on HPAI and emergency response, go to www.usda.gov/avian_influenza.html, www.aphis.usda.gov/animalhealth/defendtheflock and www.aphis.usda.gov/fadprep.

Following quarantines, using proper biosecurity, and supporting the disease response are the most important things you can do to keep HPAI from spreading. The faster we can contain the disease, the faster you can get back to business.

ACTIONS YOU NEED TO TAKE

Here are your main responsibilities at this early stage of the response:

- Know and adhere to all quarantine restrictions.
- Follow strict biosecurity procedures on your farm. Our emergency response team will instruct you on what to do.
- Train your employees on biosecurity. USDA has training materials if you need them.
- Allow Federal and State personnel access to your property to collect test samples and carry out emergency response work.
- Work with USDA and State officials to complete required paperwork, including an inventory of your flock. We'll let you know what details we need.
- Respond as quickly and completely as you can to our information requests during the epidemiological investigation.

HPAI—What to Expect if you Suspect

It is **critical** that unusual bird death be reported.

If you have:

- Sick birds or bird death from unknown cause
 - **CSU Avian Health Hotline:** 970-297-4008
- Multiple sick birds or multiple deaths
 - **CO State Vet's Office:** 303-869-9130
 - **USDA-CO Vet Services:** 970-231-5385
- Dead birds can be submitted for free HPAI testing
 - **CSU Veterinary Diagnostic Lab**
 - 970-297-4008 or 970-297-1281
- Three or more dead wild birds in a specific area within a two week period
 - Contact CO Parks and Wildlife

What Can Birds Owner Do Now?

- Monitor your flock: Know how your flock normally behaves and know what symptoms to watch for.
- Increase biosecurity: Backyard flocks are at risk of HPAI, decide on a biosecurity plan and maintain it.
- Know when to report: Familiarize yourself with the contacts above and be prepared to report sick birds when needed.

For up to date situation reports in CO, utilize the CDA Avian Influenza [web-site](#). As of publishing, HPAI has been detected in these counties:

Wild birds: Routt, Jackson, Grand, El Paso, Adams, Denver, Morgan, and Sedgwick

Domestic bird: La Plata, Montrose, Pitkin

Both domestic and wild birds: Weld

What Happens Next?

Summary of the presentation given by Dr. Lomkin during the HPAI Webinar for Backyard Flock Owners in April, 2022

- You have called the CO State Veterinarian's Office or the CSU Avian Health Hotline. Your call has been triaged and you have been referred for a disease investigation by a veterinarian.
- You will be called by the investigating veterinarian, they will ask you:
 1. What is your biosecurity? (What does the vet need to do to safely entire your flock?)
 2. What kind of birds and how many birds you have?
 3. Should they bring assistance or will you be able to assist?
- The vet will arrive at the property. They will ask:
 1. About movement on and off the site in the last 14 days
 2. What you think may have caused this, to determine if there is a known source
- The vet will collect samples, beginning with sick birds and moving to recently deceased.
 - Collected samples will be packaged and sent to CSU for testing.
- The vet will speak with you about:
 1. What to do with deceased birds to prevent spreading the virus to other birds.
 2. If there is a need for euthanasia.
 3. Amount of feed on hand and disposal.
 4. Human health questions and concerns.
 5. Bird inventory for indemnity—how many birds, what type of birds, sale receipts for birds, if they are organic, etc.
- The vet will speak with you about depopulation of your flock, if it is needed.
- You will decide on how to dispose of any eggs or manure that will not spread the virus.
- The vet will discuss how you can eliminate the virus and if you intend to start another flock.
 - Disposal and virus elimination can impact how and when it is safe for a new flock.

Remember, you are not in trouble for HPAI being found in your flock. Timely reporting and biosecurity can aid in reducing the spread and loss of birds.

Herbicides: A Chemical Romance

Kat Caswell, SAM Specialist

Often described as “Super Weeds”, herbicide resistant (HR) weeds are a common topic in the popular media when discussing the future of agriculture. Weeds can develop resistance to any control method when they are regularly and repeatedly exposed to a single method over time. More concerning for the agronomic producer is the increasing incidence of weed that are resistant to multiple herbicide modes of action. Small acreage owners using herbicides can follow the same best management practices as their large acreage counterparts to prevent herbicide resistant weeds and maintain the efficacy of existing products. While small acreage owners may not experience the same pressure of HR weeds or use as many herbicides as their farmer counterparts, an understanding of how herbicides function and their application can benefit the long-term management of any property.

Herbicides are an effective tool for weed or vegetation management but should be treated as a part of a larger Integrated Pest Management (IPM) plan. An IPM plan focuses on the use of multiple tactics to control a pest, rather than a single “silver bullet” control method. The basic principles of IPM are identifying the pest, establish pest monitoring, set an action threshold, implement control, document results, and evaluate the control methods. It is important not to rely solely on herbicides, but to use other methods to kill weeds such as hand-pulling, grazing, mowing, and occasional tillage.

Herbicides fall into three broad categories: grass herbicides, broadleaf herbicides, and broad-spectrum herbicides. As the categories imply, grass herbicides kill grasses, broadleaf herbicides kill broadleaves, and broad-spectrum kills everything. Glyphosate, the active ingredient in RoundUp, is likely to be the most known broad-spectrum herbicide. Herbicides will have three

names; the trade name it is sold under (RoundUp), the active ingredient or common name (glyphosate), and then the descriptive chemical name (N-(phosphonomethyl) glycine).

The active ingredient in a herbicide is the chemical compound component of a product that is causing death or injury to a plant. Each active ingredient falls into a Mode of Action (MoA) group. The MoA describes how a herbicide kills or prevents a weed from growing by interfering with a certain plant function. The specific site that is affected is known as the Site of Action. For example, the active ingredient 2,4-D, that is common broadleaf herbicide for pasture use, is a plant growth regulator for its MoA. As 2,4-D mimics the plant growth hormone, auxin, it causes uncontrolled growth in the vascular tissue. Symptoms of 2,4-D application are twisting and bending of the plant. Chemicals in the same MoA group function similarly. For example, 2,4-D and dicamba are both plant growth regulators that are auxin like and both cause twisting of plants. Plants that develop resistance to one active ingredient are more likely to develop resistance to another active ingredient with the same MoA. The Weed Science Society of America has grouped active ingredients by their MoA and assigned a number to each group. Referencing the herbicide group number can help assist you when planning an herbicide program.

Trying to decide which Pesticide Applicator license is for you?

Visit the Colorado Environmental Pesticide Education Program at

agsci.colostate.edu/cepep/

Or

The Colorado Department of Ag at ag.colorado.gov

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Herbicides can be applied when the weed has already emerged and is actively growing, or to the soil before the seedling has emerged from. An herbicide cannot kill a plant that is not actively growing. Soil applied herbicides have residual activity, meaning they remain active in the soil and are then absorbed by emerging seedlings. The length of residual activity will depend on the herbicide, some products have no residual activity, while others may last up to years. Check the label of any product before applying to ensure residual activity will not affect any future use of that area. Several broadleaf herbicides (aminopyralid, clopyralid, fluroxypyr, picloram and triclopyr) can remain active in compost after treated hay has been fed to animals. The hay is safe to feed to animals, but composted manure may cause injury to broadleaf plants, such as clovers, when spread.

When using an herbicide, it is critical to remember one simple statement: The label is the law. All pesticide labels carry the statement: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." Herbicide labels will contain all the general information you need to know about that product, from what crop it can be used on to how it should be applied. When in doubt of any information, the first step is to check the label.

The first step in selecting an effective herbicide is knowing what type of weed you have and its lifecycle. Differing lifecycles will have different time-windows in which herbicide applications will be most effective. For example, winter annuals are best treated in the very early spring when they are green and growing, while perennials are better treated in the fall. Weed species will respond differently to herbicides depending on the conditions, weed density, size of the weed, and the rating of that product. A broadleaf herbicide such as 2,4-D will have different levels in impact on different weed species. Herbicides are generally more effective when weeds are smaller and actively growing. Treating weeds when they are larg-

er or stressed by drought tends to make herbicides less effective.

Herbicide products can be sold under tradenames that contain a single active ingredient or as pre-mixes which include multiple active ingredients often with different MoAs. To prevent HR weeds, it is often recommended that at least two MoAs are used when treating weeds. This can be two MoAs used at application, across the season, or between years. Preventing the repeated and continuous exposure to a single MoA can prevent the development of HR weeds. If resistant species are already present in the area, it is important to select products that are either pre-mixes that contain a MoA the weed is not resistant to or to change to an entirely different MoA.

Besides changing the herbicide that is being used, it is important to incorporate multiple control tactics into an IPM plan. When a weed is constantly challenged by a wide variety of different control measures, it is less likely to develop resistance to any single tactic. Control methods can be combined in a single season or across seasons. Perennial weeds like curly dock can be mowed throughout the summer and treated with a herbicide in the fall.

In summary, weeds can develop resistance to any form of control if the population is repeatedly and consistently exposed a single control method over time. Herbicides are an effective tactic as apart of an IPM plan. Herbicides should be selected based on the weed population present and setting the product will be used in. Weeds should be treated at the appropriate time based on their lifecycle. Multiple MoAs should be used either within one season or rotating MoAs between years. Herbicides an effective tool and should be used appropriately to ensure their efficacy in the future. Finally, always remember: The label is the law.

Field Note: Leafy Spurge, List B Noxious Weed

Leafy Spurge is prevalent this spring but herbicides have the greatest effect on it in the fall. Start identifying this perennial now, and select a control method.

When is it no Longer Just a Drought?

Irene Shonle, CSU Extension El Paso County

Despite a statewide snowpack of right at 100% (as of Feb 7, 2022), most of the state is in moderate to extreme drought, especially along the Front Range. The Western Slope, thanks to recent snows, has improved to “just” moderate drought or even abnormally dry. This is because drought conditions only improve when precipitation falls on the area in question - the mountain snowpacks will help our reservoirs and rivers, but if snow doesn't fall in your yard or open space, it will remain in drought no matter how good the mountain snowpack is (if you don't live in the mountains).

Temperatures are warming, too. The statewide average temperature for this past December was 7.1°F above the monthly average -- the 2nd warmest December on record. Colorado observed its warmest Jul-Dec on record in 2021, far beating out the previous record from 1933. It also ranked as 39th driest. This year, Denver had its least snowy September through November period on

record and latest first snow on record since records began in 1882.

We are used to seeing drought in Colorado, even multiyear drought. It has come and gone over the years, but good times have always followed the bad times.

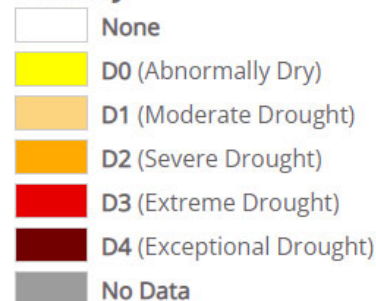
However, there is reason to believe that things may be changing, and that the current drought may not be a situation where we can just grit our teeth and endure for a time. Some scientists are suggesting that we abandon using the word ‘drought’ altogether, because that implies that a year or two of good precipitation will put things to rights again. Jonathan Overpeck and Brad Udall instead say that “anthropogenic climate change calls this assumption (that drought will end) into question because we now know with high confidence that continued emissions of greenhouse gases into the atmosphere guarantee continued warming and that this continued warming makes more widespread, prolonged, and severe dry spells and drought almost a sure bet.” (<https://www.pnas.org/content/117/22/11856>).

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Map released: Thurs. February 3, 2022

Data valid: February 1, 2022 at 7 a.m. EST

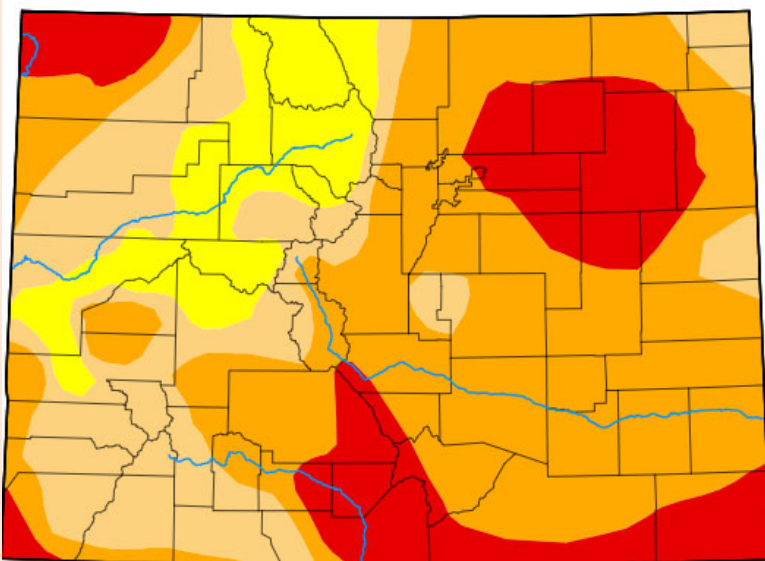
Intensity



Authors

United States and Puerto Rico Author(s):
Curtis Riganti, National Drought Mitigation Center

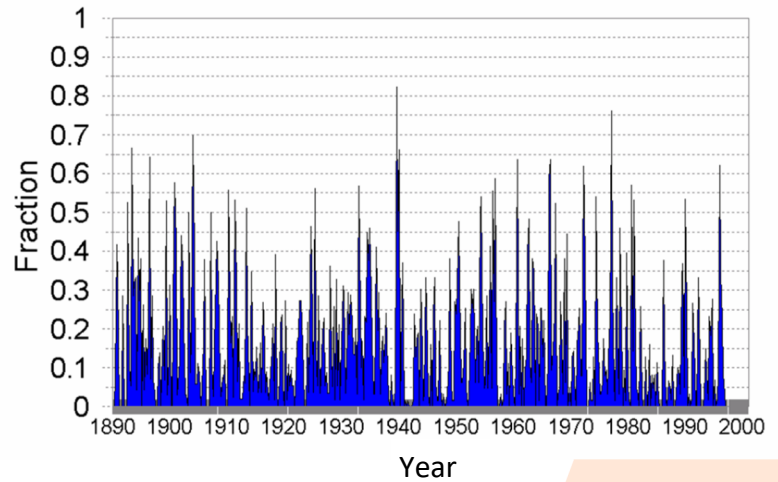
Pacific Islands and Virgin Islands Author(s):
Richard Tinker, NOAA/NWS/NCEP/CPC



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The reason that precipitation won't necessarily fix things is because even if the rains come, "the hotter temperatures we are beginning to experience are a potent driver of greater aridity: hotter climate extremes; drier soil conditions; more severe drought; and the impacts of hydrologic stress on rivers, forests, agriculture, and other systems". (<https://www.pnas.org/content/117/22/11856>). Warmer air holds more moisture and can basically suck more water out of soils and plants due to evaporation and evapotranspiration. So, even if climate change brings increased precipitation (which is still very unclear in the models), we will be seeing widespread aridification across the West, and even creeping eastward. Some scientists are beginning to compare the trajectory we are on to the medieval megadrought (<https://www.science.org/doi/10.1126/science.aaz9600>). Edit to add that 2 days after I published this post, an article in Nature Climate Change showed that the current drought is the driest period since the 1500s! (<https://www.nature.com/articles/s41558-022-01290-z>) It does seem as though we have already hit somewhat of a tipping point with our forests. Just a decade ago, you could count on clear mountain skies for summer hikes, but now, the huge fires across the west create unhealthy air conditions and poor air quality on a yearly basis. Smoke monitoring apps are now a thing. The fire season is no longer a season, but year round – as illustrated by the unprecedented wildfire in Boulder County on December 30, 2021, shaking many. Overall, we are seeing an uptick in large wildfires and wildfire severity, which studies have tied to human-caused climate change. Sixteen of the top 20 largest wildfires on record have occurred since 2008, according to the Colorado Division of Fire Prevention and Control. Unfortunately, there is no relief in sight – wildfires are only expected to increase in frequency and in scope (<https://csfs.colostate.edu/colorados-forests-changing-climate/>).

Fraction of Colorado in Drought Based on 3-month SPI



We will also see more challenges to agriculture, as producers may experience less water for irrigation either from overtapped aquifers or overappropriated rivers with less water, and unirrigated rangeland may become less productive. I am not intending this to be a doom and gloom post, although I know the message is grim, and one no one really wants to hear. I am really intending it to be food for thought for gardeners. Consider the plants you have in your yard. Are they resilient to drought? What if there are increasing water restrictions? What if prices for water go up? If you are going to do any yard renovation this year or in the near future, you would be wise to take the long view, and plant plants that are both waterwise and heat tolerant, so your yard can stay attractive, even in a changing climate. Consider planting drought-tolerant native plants – and consider “shopping” from the palette of plants just to the south of your location – or at a slightly lower elevation.

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Front Range gardeners could look at these two publications: SE CO Native plants: <https://extension.colostate.edu/docs/pubs/native/SESm.pdf> and Western CO native plants: <https://extension.colostate.edu/docs/pubs/native/WestSlopeSm.pdf>.

Here are more fact sheets on native trees, shrubs, and perennials you could plant (avoid the ones that require higher water):

<https://extension.colostate.edu/topic-areas/yard-garden/native-trees-for-colorado-landscapes-7-421/>

<https://extension.colostate.edu/topic-areas/yard-garden/native-shrubs-for-colorado-landscapes-7-422/>

<https://extension.colostate.edu/topic-areas/yard-garden/native-herbaceous-perennials-for-colorado-landscapes-7-242/>

And please, don't give up altogether and replace your yard with gravel – this just leads to increasing heat and aridification!

Here are some other resources to make your garden more resilient to drought:

<https://extension.colostate.edu/disaster-websites/landscape-management-during-drought-and-with-limited-water-availability-in-colorado/>

<https://extension.colostate.edu/disaster-websites/woody-plant-management-during-drought-and-with-limited-water-availability-in-colorado/>

<https://extension.colostate.edu/topic-areas/yard-garden/xeriscaping-retrofit-your-yard-7-234/>

<https://extension.colostate.edu/disaster-websites/flower-management-during-drought-and-with-limited-water-availability-in-colorado/>

<https://extension.colostate.edu/disaster-websites/home-vegetable-garden-management-during-a-drought-in-colorado/>

Equine Biosecurity

An outbreak of an equine influenza virus was identified as the likely cause of death of 95 horses at a BLM facility in Cañon City, CO. For information from the CO State Veterinarian's Office refer to their [website](#).

Biosecurity reduces the chances of an infectious disease being carried onto your property. Here are some biosecurity tips for equines this spring:

- When showing your horse
 1. Use your own equipment including: a clean trailer, feed buckets, brushes, or sponges.
 2. Clean and disinfect all equipment, tack, grooming supplies, and booth before leaving the show grounds.
 3. Do not let your horse touch other horses. Do not let strangers touch your horse (especially others with equines).
 4. When possible, keep horses that have been off the farm isolated for at least two weeks.
- When there are visitors to your horse
 1. Visitors should be wearing clean clothes and shoes.
 2. If vehicles need to be parked close to the horses, tires should be cleaned and disinfected.
 3. If you have many visitors, have them walk through a footbath.
- When you visit other horses
 1. Have a separate pair of shoes than those you wear around your horses or use boot covers.
 2. Wear coveralls or change clothes before returning to your horses.
- When bringing in a new horse
 1. Keep the horse isolated for 30 days.
 2. Use separate tools and equipment for the new horse than are being used for existing horses.
 3. Work with the new horse last each day or wear different clothing when working with existing horses.

Do you have a question for extension but don't know who to ask? <https://ask2.extension.org/>

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The Small Acreage Management Newsletter will be going on a hiatus for the summer of 2022.

Stay up to date with the [SAM website](#) or contact your county CSU Extension office for information on managing your small acreage.

Do you have a question about managing your small acreage?

Contact CSU Extension /NRCS Small Acreage Coordinator:

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