

Ag and Natural Resources News

July 2023

Cooperative Extension Service
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Mark your calendars now!

- ▶ **Explore Gunpowder Creek**
July 15, 2023 9:00am
The Knot Marina
- ▶ **Cattle Parasite Control**
July 26, 2023 6:00pm
Boone County Extension Office
- ▶ **Boone County Fair**
August 7-12, 2023
 - Pre-Fair Free Day, August 5
 - Open Entries, Sunday, August 6
 - 4-H Entries, Monday, August 7

BCES Upcoming Office Closure:

- ▶ **Tuesday, July 4** in observance of Independence Day

Visit Our Farmers Market

Open 7 days a week
9:00 am-5:00 pm



Water is Nutrient Number 1 for Horses

Horses rely on many nutrients to thrive including protein, fat, carbohydrates, vitamins and minerals. However, water is the most important nutrient. Water accounts for nearly 75% of a horse's body weight. Most horses need at least 6-8 gallons every day, but the amount required will vary based on weather or diet. In hot weather, horses will need more water, and a horse eating hay requires more than one on pasture. Lactating broodmares always require more water.



Always prioritize fresh, clean water for your animals for many reasons.

Adequate hydration reduces the risk of colic and plays a vital role in digestion. Water helps horses regulate their body temperature, lubricates joints, assists in muscle contraction strength and gets rid of waste.

Most horse managers easily prioritize clean, fresh water in the barn. They have a daily routine of checking, cleaning and filling water buckets. But outside water may end up being more accidental than routine. You can't rely on streams and ponds for your water source. Horse traffic can break down stream banks, contaminate the water source and even cause animal injuries. Regularly check stock tanks and troughs, frequently change the water and clean the container.

Stock tank water may get a bit warmer than what some horses prefer, so watching the capacity of the watering device can help. Keep water cooler by changing it more often or having the water

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Asparagus Ham Quiche

- 1 pound fresh asparagus, trimmed and cut into ½ inch pieces
- 1 cup finely chopped ham
- 1 small finely chopped onion
- 2 (8 inch) unbaked pie shells
- 1 egg white, slightly beaten
- 2 cups shredded reduced fat cheddar cheese
- 4 large eggs
- 1 container (5.3 ounces) plain Greek yogurt
- ⅓ cup 1% milk
- ¼ teaspoon ground nutmeg
- ¼ teaspoon salt
- ¼ teaspoon pepper

Preheat oven to 400° F.

Place asparagus in a steamer over 1 inch of boiling water and cover. Cook until tender but still firm, about 4-6 minutes. Drain and cool.

Place ham and onion in a nonstick skillet and cook over medium heat until lightly browned.

Brush pie shells with beaten egg white. Spoon the ham, onion and asparagus into pie shells, dividing evenly between the 2 shells. Sprinkle 1 cup shredded cheese over the mixture in each shell.



In a separate bowl, beat together eggs, yogurt, milk, nutmeg, salt and pepper. Pour egg mixture over the top of the cheese, dividing evenly between the 2 shells.

Bake uncovered in a preheated oven until firm 25-30 minutes. Allow to cool approximately 20 minutes before cutting.

Makes 16 servings slices
Per serving: 200 calories; 11g fat; 4.5g saturated fat; 65mg cholesterol; 370mg sodium; 14g carbohydrate; 1g fiber; 3g sugars; 10g protein.
Source: Plate it up! Kentucky Proud Project.

refreshed in the waterer more often. This can help provide water horses want to drink. Carefully consider where to dump dirty water in the field so you don't create muddy areas.

Forages contain moisture and grazing horses will get some daily hydration while munching on pasture. However, still offer free-choice water sources for horses to visit throughout the day.



Learn to recognize dehydration signs in your horses. By the time you see the signs, your horse may have already lost 5% of its body weight. Dehydrated horses appear weak, have sunken eyeballs, dry mucous membranes, slow capillary refill time and an increased heart rate. Pinch the horse's skin near the base of their neck for two seconds. If the skin stays pinched, your horse most likely needs water and possibly electrolytes.

Heat Safety

While it's been a relatively cool start to summer across the Bluegrass State, heat and humidity more typical of summer are bound to arrive sooner rather than later. Heat is one of the leading weather-related killers in the U.S., resulting in hundreds of fatalities each year. During extremely hot and humid weather, your body's ability to cool itself is challenged. A body heating too rapidly, or losing too much fluid or salt through dehydration or sweating, can result in death or permanent injury. While everyone can be vulnerable to heat, some are more vulnerable than others. Infants, children, the elderly, chronically ill, and pregnant women are especially vulnerable.

During excessive heat, avoid heavy activity and direct sunlight. Stay hydrated, find a cool indoor place, and check on children, the elderly, and pets. Protect yourself outside by wearing light, loose-fitting clothes, stay hydrated, and spend time in the shade. Also, never leave anyone (or pets) alone in a locked car, even in the winter, as death can occur in as little as 10 minutes.

The Centers for Disease Control and Prevention (CDC) provides a list of warning signs and symptoms of heat illness, and recommended first aid steps.

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Heat Cramps

Heat cramps may be the first sign of heat-related illness, and may lead to heat exhaustion or stroke. Symptoms include painful muscle cramps and spasms, usually in legs and abdomen, and heavy sweating. First aid for someone experiencing heat cramps includes applying firm pressure on cramping muscles or gently massage to relieve the spasms. Give sips of water unless the person complains of nausea. Seek immediate medical attention if cramps last longer than 1 hour.

Heat Exhaustion

Symptoms include heavy sweating; weakness or tiredness; cool, pale, clammy skin; fast, weak pulse; muscle cramps; dizziness; nausea or vomiting; headache; and fainting. If you suspect someone is suffering from heat exhaustion, move the person to a cooler location, preferably an air conditioned room. Loosen clothing. Apply cool, wet cloths or have the person sit in a cool bath. Offer sips of water. Seek immediate medical attention if the person vomits, symptoms worsen, or last longer than 1 hour.



Heat Stroke

Symptoms include a throbbing headache; confusion; nausea; dizziness; body temperature above 103°F; hot, red, dry or damp skin; rapid and strong pulse; fainting; and loss of consciousness. **Call 911 or get the victim to a hospital immediately** as heat stroke is a severe medical emergency. Move the victim to a cooler, preferably air-conditioned, environment. Reduce body temperature with cool cloths or a cool bath. Use a fan if heat index temperatures are below the high 90s. A fan can make you hotter at higher temperatures. Do NOT give fluids.

Source: Tony Edwards - National Weather Service Charleston, WV

Heat Exhaustion	Heat Stroke
<p>ACT FAST</p> <ul style="list-style-type: none">• Move to a cooler area• Loosen clothing• Sip cool water• Seek medical help if symptoms don't improve	<p>ACT FAST</p> <p>CALL 911</p> <ul style="list-style-type: none">• Move person to a cooler area• Loosen clothing and remove extra layers• Cool with water or ice
<p><i>Dizziness</i></p> <p><i>Thirst</i></p> <p><i>Heavy Sweating</i></p> <p><i>Nausea</i></p> <p><i>Weakness</i></p>	<p><i>Confusion</i></p> <p><i>Dizziness</i></p> <p><i>Becomes Unconscious</i></p>
<p><i>Heat exhaustion can lead to heat stroke.</i></p>	<p><i>Heat stroke can cause death or permanent disability if emergency treatment is not given.</i></p>
<p>Stay Cool, Stay Hydrated, Stay Informed!</p>	

USDA Offers Kentucky Producers Many Conservation Choices with Continuous CRP

Agricultural producers and landowners in Kentucky interested in conservation opportunities for their land in exchange for yearly rental payments can find many possibilities through the U.S. Department of Agriculture's (USDA) Continuous Conservation Reserve Program (Continuous CRP). This option offers conservation benefits similar to others, like General and Grassland CRP, but also offers unique flexibility and several program choices.

"Creating sound conservation and climate-smart options for the agricultural community are top priorities for us," said Dean Schamore, State Executive Director for USDA's Farm Service Agency in Kentucky.

"Continuous CRP is one of the best ways we can do that because it offers so many options. Producers across the country are currently participating in Continuous CRP with more than 8.2 million acres enrolled, proving that agriculture and conservation can be strong partners."

The long-term goal of all CRP opportunities is to re-establish valuable land cover—helping to improve water quality, prevent soil erosion and reduce loss of wildlife habitat. Farmers enrolled in the program agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality in exchange for a yearly rental payment.

Under Continuous CRP, producers and landowners can enroll in CRP throughout the year. Offers are automatically accepted provided the producer and land meet the eligibility requirements and the enrollment levels do not exceed the statutory cap. The Climate-Smart Practice Incentive is also available in the Continuous signup.

There are several enrollment options within Continuous CRP, including:

- *State Acres For Wildlife Enhancement (SAFE)*

The initiative restores vital habitat in order to meet high-priority state wildlife conservation goals.

- *Highly Erodible Lands Initiative (HELI)*

Producers and landowners can enroll in CRP to establish long-term cover on highly erodible cropland that has a weighted erodibility index (EI) greater than or equal to 20.

- *Conservation Reserve Enhancement Program (CREP)*

Working with conservation partners, CREP leverages federal and non-federal funds to target specific state, regional, or nationally significant conservation concerns.

- *Farmable Wetlands Program*

Producers and landowners can enroll land in CRP to restore previously farmed wetlands and wetland buffers, improving both vegetation and water flow.

USDA continues to improve conservation programs by looking for opportunities to broaden reach and accessibility for producers and landowners. The Department has enhanced Continuous CRP by expanding CLEAR30 from two pilot areas to nationwide availability and repositioning SAFE within Continuous CRP to give producers and landowners more opportunities to participate. In addition, the Department has improved CREP by creating flexibilities within CREP for partners to provide matching funds in the form of cash, in-kind contributions, or technical assistance, adding staff to work directly with partners, and partnering with three Tribal Nations, for the first time ever, to help conserve, maintain, and improve grassland productivity while reducing soil erosion and enhancing wildlife habitat.

To sign up, producers should contact the FSA at their local USDA Service Center.



More Information

Signed into law in 1985, CRP is one of the largest voluntary private-lands conservation programs in the United States. It was originally intended to primarily control soil erosion and potentially stabilize

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commodity prices by taking marginal lands out of production. The program has evolved over the years, providing many conservation and economic benefits.

USDA touches the lives of all Americans each day in so many positive ways. Under the Biden-Harris administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America. To learn more, visit usda.gov.

USDA Farm Service Agency – Kentucky

Parasites Plague Kentucky's Cattle Industry, Inflicting Significant Damage

Kentucky's thriving cattle industry, renowned for its high-quality beef production, has been grappling with a growing menace—parasites. These minuscule creatures, often unseen by the naked eye, have unleashed their wrath on cattle herds across the state, leading to significant economic losses and health challenges for the animals. With a dire need for effective control measures, farmers and researchers are joining forces to combat this parasitic onslaught.

Parasites, such as ticks, lice, and worms, have found an ideal breeding ground in Kentucky's temperate climate and vast grazing pastures. The warm and humid conditions foster the proliferation of these parasites, enabling them to multiply rapidly and infest unsuspecting cattle. The most common parasites affecting Kentucky's cattle include gastrointestinal worms, flies, and ticks.

The economic impact of these parasites on Kentucky's cattle industry has been profound. Cattle infested with parasites often suffer from decreased weight gain, reduced milk production in lactating cows, anemia, and general ill health. These consequences translate into substantial financial losses for farmers, as the diminished productivity of their herds reduces profitability and compromises the overall quality of the beef produced. Additionally, parasites pose a considerable threat to the state's export market, as infested animals may be rejected due to health concerns and quality standards imposed by international buyers. Consequently, the reputation of Kentucky's beef industry may suffer, leading to a decline in demand and subsequent financial repercussions for both producers and the broader agricultural sector.



Parasitic infestations in cattle not only impact their productivity but also jeopardize their overall health and welfare. Gastrointestinal worms, for instance, can cause severe damage to the intestinal lining, leading to malnutrition, diarrhea, and dehydration. Similarly, ticks and flies can transmit various diseases, such as anaplasmosis and bovine babesiosis, which further debilitate the animals.

Recognizing the urgency of addressing this issue, Kentucky's cattle farmers have been working closely with agricultural experts, veterinarians, and researchers to develop effective control measures. The primary focus lies in implementing integrated parasite management strategies that combine both chemical and non-chemical methods. Chemical methods involve the use of anthelmintics, which are medications designed to kill internal parasites, and insecticides to combat external parasites. However, the excessive and indiscriminate use of these products can lead to the emergence of drug-resistant parasites, highlighting the need for judicious and strategic application. Non-chemical methods, such as pasture rotation, strategic deworming schedules, and genetic selection for parasite resistance, are gaining traction as sustainable

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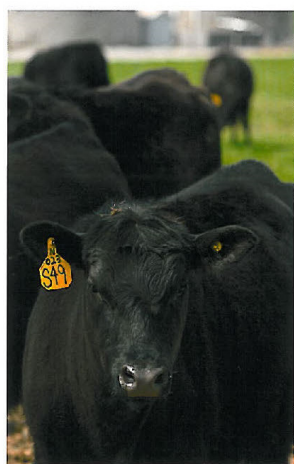
alternatives. By rotating cattle between different grazing areas, farmers can break the parasite lifecycle and reduce the exposure to infective larvae. Additionally, selectively breeding cattle for increased resistance to parasites can help develop more resilient herds.

To combat the parasite problem effectively, knowledge dissemination and farmer education play pivotal roles. State agricultural extension services, veterinary clinics, and research institutions are actively organizing workshops, seminars, and field days to raise awareness about parasite control strategies. By providing farmers with the necessary information and training, these initiatives empower them to make informed decisions and take appropriate actions to safeguard their cattle.

COOPERATIVE EXTENSION



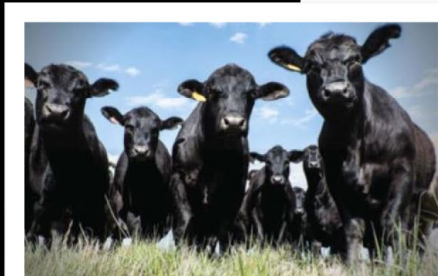
CATTLE PARASITE CONTROL



July 26, 2023
6:00 pm

**Boone County
Extension Office**
6028 Camp Ernst Rd., Burlington

• **CAIP Approved**



Please register
online @ boone.uky.edu
or call 859-586-6101

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
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Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.
LEXINGTON, KY 40546



Disabilities
accommodated
with prior notification.

Pond Turnover

Kentucky pond owners often have difficulty understanding the causes of “water turnover” in ponds and the reasons for the fish kills which may occur following these events. Fish kills are frequently caused by low dissolved oxygen concentrations in the water. The following article will attempt to explain the causes of these events and the relationship between them.

Water Turnover in Ponds

Most ponds in Kentucky mix or circulate their waters during the winter months. Generally, the pond surfaces only freeze for short durations, or do not freeze at all. However, little or no mixing of the pond’s water volume may occur during the hottest months of summer. Large populations called “blooms” composed of microscopic algae decreases sunlight penetration into the pond to a depth of about 6 feet. [Suspended clay particles in the water may also decrease sunlight penetration.] This deeper water cools due to the absence of sunlight to warm it. Cooler water has a greater density than warmer water. A “layering effect” of water occurs throughout the pond when the cooler, more dense water remains near the pond bottom, and warmer water resides near the surface. During daylight hours, plants and algae release oxygen into the water while producing glucose, their sugar-like food. Little or no oxygen is produced in these cool layers of water, due to the absence of sunlight which prohibits plant and algae growth. Eventually, the dissolved oxygen is consumed from the cool waters by decomposing organic matter. This is caused by plants and animals that have died and sunk to the pond bottom. During winter when water temperatures reach 32 degrees F, ice forms at the water’s surface and not the pond bottom. Water reaches its maximum density at 39.4 degrees F. Colder or warmer waters will always be found closer to the pond’s surface. Pond turnovers often occur during summer after cold, hard rains, windy weather or following the first cold weather of fall. When air and surface water temperatures cool during the fall, surface waters will “sink” when they become more dense than the waters near the pond bottom. Warmer, less dense bottom waters are forced to the surface creating a mix or a “turnover.” If large volumes of oxygen deficient bottom waters are present in the pond, the entire pond may be depleted of dissolved oxygen as the waters mix. Low concentrations of dissolved oxygen are responsible for most fish kills. Abrupt changes in weather conditions and air and water temperatures can rapidly affect the pond environment. Typically, ponds that are older, have greater depth, or are sheltered from prevailing winds, may be affected more severely from water turnovers. Shallow ponds, which have a maximum depth of 6 to 8 feet and are located in sites subject to prevailing winds, are less likely to have fish kills associated with water turnovers. Similarly, those ponds that contain less organic matter such as leaves, manure, and aquatic plants are less likely to experience fish kills as a result of water turnover. The type of vegetation in the watershed (wooded or pasture) will influence the amount of oxygen consuming organic matter which enters the pond. Human activities such as livestock pasturing, over-fertilizing lawns, and drainage from septic systems will encourage aquatic plant growth which will eventually die and consume dissolved oxygen.



Dissolved Oxygen and Fish Kills

Unless the pond has dense aquatic plant growth, microscopic algae “blooms” generally produce most of the dissolved oxygen in ponds and lakes. Algae and plants produce oxygen during daylight hours, but consume oxygen during the night.

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To a lesser extent, oxygen is also absorbed from the atmosphere at the water's surface. Wave action or other disturbances will increase the water's dissolved oxygen concentration by expanding its surface area for oxygen to enter. Healthy algae blooms and aquatic plant populations will produce enough dissolved oxygen to support life in a pond throughout a 24 hour period. However, dying populations may consume more dissolved oxygen at night than they produce during the day. When algae blooms or aquatic plants release less dissolved oxygen during cloudy days than they consume at night, low dissolved oxygen conditions may occur. The oxygen consumed by the constant decay of algae, vegetation and other organic matter will further deplete dissolved oxygen concentrations in the pond. Low dissolved oxygen conditions often occur during the night or just before dawn, particularly when water temperatures are warm. Warm water holds less oxygen than cold water. Increases in altitude and salinity will also lessen the ability of water to hold dissolved oxygen. Sudden fish kills caused by dissolved oxygen depletions are among the most common. Extreme dissolved oxygen depletions may kill all fish, invertebrates and often microscopic algae populations. However severe, these conditions typically last only a few days.

Due to the dying algae bloom, the water color may change from green to black or gray with black streaks. Partial fish kills may occur selecting the pond's largest fish or a particular species which has a high oxygen requirement (ie trout). Other fish may be seen at the water's surface "piping" or gasping for air. Warmwater fish (bass, bluegill, catfish) require 5 mg/L of dissolved oxygen to maintain good health while coldwater fish (trout, salmon) typically require 7 mg/L. All fish can tolerate low concentrations of dissolved oxygen for short periods, however these conditions may result in disease causing stress.

Prolonged exposure to dissolved oxygen of less than 3 mg/L will cause death to warmwater fish, while concentrations of less than 5 mg/L will kill coldwater fish. Low oxygen conditions may occur in ponds with prolonged ice and snow cover. Snow covered ice will prevent sunlight penetration to the algae blooms and aquatic plants, and if prolonged, will eventually cause their death. Under these conditions, dissolved oxygen cannot be produced, but is consumed by the algae blooms and plants. The water beneath the ice has no access to air at the surface. Decaying algae blooms and plant material will further lower dissolved oxygen concentrations, and eventually a fish kill may occur. To prevent a fish kill, ponds may be partially cleared of snow by shoveling long strips across the pond to allow some sunlight to penetrate the ice. Clearing snow from frozen ponds should only be done when the ice is 4 inches thick or greater.

Aeration devices may be used to prevent ice formation. Proper aeration, water circulation and water quality management will reduce the severity of "water turnover" and prevent dissolved oxygen-related fish kills. Avoiding excessive depths (greater than 8 feet deep when possible) and shallow areas when constructing ponds can help reduce the severity of dissolved oxygen depletions. Constructing minimum pond depths of 3 feet will help prevent the growth of aquatic plants and filamentous algae. For more information regarding pond management, contact your county extension agent, regional fisheries biologist or an aquaculture extension specialist.

Author: Forrest Wynne, Aquaculture Extension Specialist, KY State University.



Explore Gunpowder Creek

July 15, 2023 • 9:00am

Join us with Boone County Conservation on this short kayak trip in your local Gunpowder Creek at The Knot Marina!

Guided tour on the water! Enjoy Gunpowder Creek in a new light, learning about wildlife, water conservation and other topics. You must provide your own canoe or kayak, paddles, and life jackets, or reserve a rental from the marina (859-384-0634). Registration is limited and required.

**Call 859-586-6101 or go
online to boone.ca.uky.edu to
register.**

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