Russell County Agriculture and Natural Resources Oct.- Nov. Newsletter

University of Kentucky
College of Agriculture, Food and Environment
Cooperative Extension Service

Cooperative Extension Service
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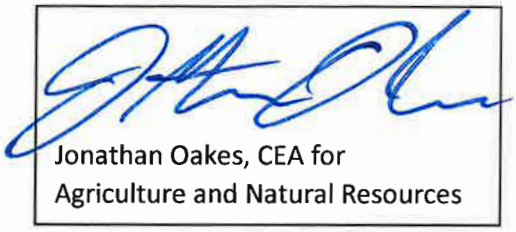
THINGS TO REMEMBER:



Jonathan Oakes, CEA for
Agriculture and Natural Resources

- Free Soil testing until funds are depleted. Limit 5 free test per Russell County land owner and/or household.
- Remember to Like us on Facebook: Russell County Extension Office- ANR to stay up to date on events.

MONEY FOR ON-FARM INVESTMENTS AVAILABLE...

KADF
KENTUCKY AGRICULTURAL DEVELOPMENT FUND

Russell County Extension Office
2688 S. Highway 127
Russell Springs, KY 42642
270-866-4477
270-866-8645
russell.ext@uky.edu

Visit russell.ca.uky.edu for more details or directions.

COUNTY AGRICULTURAL INVESTMENT PROGRAM (CAIP)

Applications will be available for Russell County's CAIP to assist farmers in making important on-farm investments.

Application Period:
October 3 – October 21, 2022
No applications will be accepted after October 21

Application Availability:
Russell County Extension Office
Monday – Friday (7:30 a.m. – 4:00 p.m.)

For More Information:
Contact Jonathan Oakes at 270-866-4477 or email jonathan.oakes@uky.edu.

All applications are scored, based on the scoring criteria set by the Kentucky Agricultural Development Board.

What is this new tick disease?

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

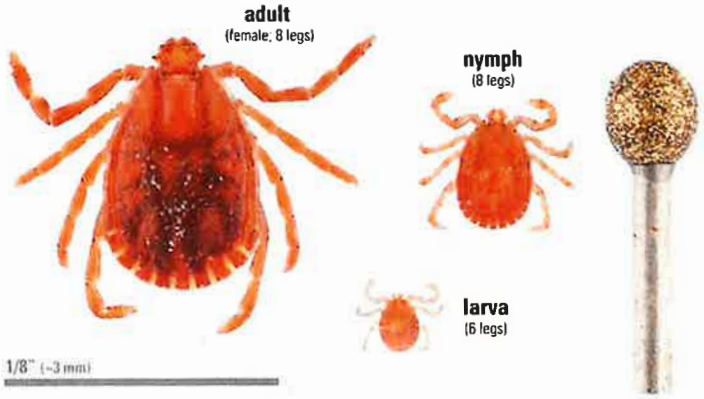


Figure 1: Three life stages of the Asian Longhorned tick sized relative to the head of an insect pin. Nymphs and adults can transmit Theileria to cattle. Photo used with permission from Dr. Matt Bartone, NC State

Office of the State Veterinarian is warning beef producers to look for signs of Theileria infection ("theileriosis") in cattle, with two confirmed cases in beef cattle recently reported in Kentucky. *Theileria orientalis* Ikeda is a microscopic protozoan parasite that infects the red blood cells of cattle, causing anemia. The disease is primarily transmitted by the bite of an infected Asian Longhorned Tick (*Haemaphysalis longicornis*) or by blood transfer through the use of contaminated needles and equipment. The tick can feed on many animal species, including humans, but the blood parasite only affects cattle. Once a cow is infected, it may take 1-8 weeks before she shows symptoms of disease. There is a spring peak in disease incidence in March-April and a fall peak in September-October. There is no effective treatment for sick cattle or vaccine to prevent infections. However, once infected, cattle become carriers and are protected from new infections. There are no recognized long-term health or production effects from persistent infection. *Theileria* is not a public health concern and contact with affected cattle doesn't pose a human health risk or food safety risk.

What to look for

- The majority of infected cattle have limited or mild clinical signs. The symptoms are very similar to anaplasmosis, another tick-borne cattle disease that causes anemia.
- Affected cattle show signs of anemia including lethargy, pale or jaundiced (yellow) mucous membranes, and increased respiratory and heart rates. Labored breathing may be mistaken for pneumonia, especially in young stock.
- Affected cattle may be exercise intolerant and lag behind the rest of the herd or be off by themselves.
- Affected cows may be off feed, have a fever, and sudden weight loss.
- May see sudden death, especially in late pregnant and early lactation cows.
- Late term abortions may occur due to lack of oxygen to the fetus with subsequent death of the calf. Metritis in the cow can follow. Breeding bulls may have decreased libido for 1-1.5 months.
- Calves, especially 6-8 weeks of age but up to 6 months of age, may show symptoms.

What to do if cows show signs of anemia

- Contact your vet. Theileriosis and anaplasmosis look almost identical so treatment with an approved antibiotic (LA-300 or Baytril 100-CA1) for treatment of anaplasmosis is recommended. However, if Theileria is the cause, there will be no response to the antibiotic therapy.
- Stress and movement of affected animals should be minimized, as their reduced number of red blood cells lowers their ability to transport oxygen around the body. This can lead to collapse and death. Affected animals should be rested, given high quality feed and water, and handled only when necessary.

- There is no treatment available for Theileria infection other than supportive care. Blood transfusions may be used for valuable animals. Recovery may take 1-2 months depending on the severity of the anemia.

Prevention and control of Theileria infection

- *Inspect cattle for presence of ticks.* Routinely inspect livestock, pets, and humans for the Asian Longhorned tick (ALT). Parthenogenetic strains exist in the USA, meaning male ticks are not required to produce eggs and viable larvae. A female can produce 1,000-2,000 offspring without mating. A single cow can quickly become host to thousands of tick offspring that may cause death due to blood loss without a blood-borne parasite infection. The ticks are light brown and often smaller than a sesame seed. The adult female is about the size of a pea when full of blood (see Figure 1). All 3 life stages (larva, nymph and adult) may be present at the same time (see Figure 2). In cattle, check the head, neck, ears, flanks, armpit, groin, udder and under the tail (areas where the skin is thinner). Cattle that seem lethargic or unthrifty should be closely inspected for ticks.

Figure 2: Asian longhorned ticks on the ear of a cow that died due to anemia from the massive tick infestation (Photo courtesy of the UKVDL).

• *Manage the tick population on Cattle:* The eradication or removal of ticks from a farm is virtually impossible. Ticks spend most of the time, nearly 90%, in the environment. Even though only a small proportion of the tick population is on livestock at any one time, treating cattle with a tick repellent will reduce the numbers that feed and develop into the next stage of the tick lifecycle. This will have an impact on the numbers of eggs that eventually get deposited in the pasture and helps manage the disease spread. Currently there are no acaricides labeled for use against the ALT. The use of pesticide impregnated ear tags, pour-ons, sprays, and back rubs that control the American dog tick and the Lonestar tick should provide beneficial tick control. There are field reports of success with macrocyclic lactone dewormers such as Cydectin® Pour-on and Dectomax® Injectable products.

• *Environmental Control to Reduce Contact with Ticks:* This involves mowing pastures, especially shaded areas, and fencing cattle from wooded areas. Perimeter fencing of a minimum of 20 feet from wooded areas will reduce the number of ticks on the grazing area. All stages of the tick like warm, damp conditions and long grass. Avoiding long rank pasture that has not been grazed such as around the edge of crops and brushy areas will reduce the likelihood of animals picking up ticks. Keep in mind that wildlife can serve as tick hosts and move the ticks to new areas. Virginia Cooperative Extension has produced a fact sheet entitled

"Managing the Asian Longhorned Tick: Checklist for Best Management Practices for Cattle Producers" that covers animal inspection, chemical control, and herd management options. It may be downloaded at https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ento-382/ENTO-382.pdf

- *Ease any underlying disease or stress*: Cows in late pregnancy, early lactation and young calves (2-3 months old) are more susceptible to severe disease. Pay close attention to cows around calving, avoid trace mineral deficiencies, and vaccinate cattle against the immunosuppressive BVD virus.
- *Treat "new" animals:* Treat cattle for ticks as they arrive to the farm and before moving cattle from one property to another to avoid movement of infected ticks.
- *Young stock:* Calves should be closely inspected for ticks and signs of anemia, too.

If you suspect a case of Theileria infection, contact your veterinarian for advice. A blood test is available to test for this disease.

What is the real cost of mineral supplementation?

Dr. Katie VanValin, Assistant Professor Beef Nutrition, University of Kentucky

For some management practices calculating the return on investment is straightforward. Unfortunately, determining the cost vs. benefit of mineral supplementation is not always clear. This is why it seems when input costs go up, the mineral is one of the things that can be easy to cut out or replace with a less expensive, lower quality option. The problem is that early signs of mineral deficiencies can be hard to. identify and often go unnoticed. Eventually, in cases of severe mineral deficiency, producers could see widespread issues throughout the herd that has us making phone calls to our veterinarian. But those early and often sub-clinical deficiencies can also eat away at performance, productivity, and, yes, profitability. Sub-clinical deficiencies might look like a few more open cows this year compared to last or needing to treat a few more calves this time around. Of course, there are several reasons we would see lower pregnancy rates or higher pull rates from one year to the next, and we shouldn't always blame it on the mineral. However, ensuring the herd is protected against mineral deficiencies is a simple practice in a business where so much is outside of our control.

Think about the mineral program as a good insurance policy. The problem is that many of our common feedstuffs are deficient in one or more minerals. The table below shows the mineral requirements for a lactating cow and typical mineral concentrations for common feedstuffs for select minerals.

Failure to provide a good quality mineral supplement leaves the herd susceptible to developing mineral deficiencies. So, what is a good quality mineral supplement? My definition is a mineral supplement that provides all the required minerals that need to be supplemented in adequate amounts to prevent mineral deficiencies without over-supplementation. I like to tell people when it comes to a mineral program, pay for what you need but not for what you do not need.

Minerals that typically require supplementation include calcium, phosphorus, magnesium, sodium, cobalt, copper, iodine, manganese, selenium, and zinc. However, if our mineral program consists of only a white salt block, we are only supplementing sodium and chloride and forgetting the other nine minerals that also require supplementation. Even when supplementing with a trace-mineralized block, we still miss three or more minerals altogether. Additionally, these products are 95-99% salt, meaning

Table 1. Mineral requirements for lactating cow, and average mineral concentrations for common feedstuffs

Mineral	Ca	P	Co (ppm)	Cu (ppm)	Fe (ppm)	Mn (ppm)	Se (ppm)	Zn (ppm)
Requirement	0.30%	0.20%	0.15	10	50	40	0.10	30
Common Feedstuffs								
Cool season forage	0.56	0.44	-	10	275	75	-	36
Cool season hay	0.58	0.23	-	9	156	72	0.06	31
DDGS	0.22	0.83	-	8	178	27	0.39	65
Corn gluten feed	0.07	1.00	-	6	196	23	0.19	75
Cracked corn	0.04	0.30	-	3	54	11	0.07	27
Soyhulls	0.63	0.17	0.12	10	604	26	0.21	35

Adapted from NASEM: Nutrient Requirements for Beef Cattle, 2016

the concentrations of the other minerals are so low that cattle are still susceptible to mineral deficiencies. Some mineral supplements will also include a source of iron, which makes the product red. Iron is one mineral that is abundant in the feed and does not require supplementation. This is a prime example of paying for something that is not needed.

Selenium deficiencies can be common in parts of the United States, including the southeast. Selenium is the only mineral we supplement to cattle that the FDA regulates. This is why you see something like "not to exceed 3 mg of selenium per head per day" on a mineral tag. In cases where cattle are especially susceptible to a mineral deficiency, the source of the mineral in the supplement also matters. Cattle are not able to absorb and utilize all sources of a mineral the same, which is why some sources are more bioavailable than others. This is especially important in the case of selenium because we cannot simply add more selenium to the supplement. Therefore, I typically recommend a 50:50 blend of sodium selenite (inorganic source of selenium) and Selenium yeast (organic source of selenium) for cattle at risk of selenium deficiency.

Something else that a good quality mineral supplement will also provide is vitamins. Cattle being ruminants, can rely on rumen microbes to produce some vitamins, but Vitamin A and Vitamin E often require supplementation. Leafy green forages are an excellent source of both vitamins, but we know that cattle often do not consume leafy green forages year-round especially during the winter months or during drought. Look for the inclusion of both Vitamin A and E in a good quality mineral supplement.

Hopefully, by this point, you are convinced that supplementing minerals and vitamins is a necessary part of the nutrition program, but what is the actual value of this practice? The table below shows an approximate cost for various mineral supplementation products and the annual cost per cow per year based on target

intakes. Although some supplementation options are cheaper than others, remember that failing to provide a good quality mineral can lead to lost performance and productivity of the herd. So when asked what the actual cost of mineral supplementation is, I often start thinking about the price of a couple of open cows or the cost of increased morbidity or mortality on the operation. When looking at the value of a calf in today's markets, I can quickly make a case for providing a good quality mineral supplement to the herd.

Table 2. Estimated cost of mineral supplementation based on supplement type per head per year.

Type of supplementation	Cost	Selenium adequate	Vitamin A adequate	Annual cost per cow
White salt block	7.79	no	no	$5.12
Trace mineralized salt block	7.29	no	no	$4.75
Complete mineral (inorganic selenium)	25.00	no	yes	$32.94
Complete mineral (blend of selenium)	30.00	yes	yes	$41.06

Shop around for the best value for their mineral program but remember this doesn't always mean the cheapest option. Sometimes working with a nutritionist to create a custom mix can be more economical than you might think. Especially if you remember my advice, pay for what you need but don't pay for what you do not need. Like other feed ingredients, buying in bulk can also cut down on price. Keep in mind that vitamins lose their activity over time, so only buy a 3–4-month supply of mineral at a time. For smaller producers, consider partnering with other small producers or local cattlemen's associations to take advantage of bulk discounts on mineral.

Lastly, remember it takes the same amount of labor to put out a poor-quality mineral as it does to put out a good-quality mineral. Keep an eye on mineral intake to ensure the herd gets the most out of the mineral you provide. A 50-lb bag of mineral with a target intake of 3 oz per head per day should last 25 cows for about ten days. Cattle have a desire to consume salt, so salt is the driver behind mineral intake. If cattle consume too much mineral, consider placing a bag of white salt out for a day or two to allow the herd to cost-effectively meet their desire for salt and then return to providing the free choice mineral. If cattle are not consuming enough mineral, ensure that the mineral feeder is located near the water source or shaded area where cattle will be more likely to visit it.

For more information on finding the right mineral supplement for your herd to prevent mineral deficiencies, work with your nutritionist or contact your local county extension office!

Starts with the Selection of Varieties with Resistance

By Carl A. Bradley, Plant Pathology Extension Specialist

The most consistent, problematic disease of wheat in Kentucky and the surrounding region is Fusarium head blight (FHB; also known as scab), caused by the fungus *Fusarium graminearum* (Figure 1). This disease can cause reduced grain yield, test weight, and quality. In addition, the fungus can produce toxins that will contaminate grain, such as deoxynivalenol (DON; also known as vomitoxin). Harvested grain with high levels of DON may be discounted or outright rejected at the elevator.

Figure 1. *Symptoms of Fusarium head blight of wheat (Photos: Carl Bradley, UK)*

To achieve the best management of FHB, the most important step is to choose varieties that have resistance to this disease. Unfortunately, varieties with complete resistance (immunity) to FHB do not exist, but there are several varieties available with high levels of resistance.

In addition to the ratings available from seed companies, the University of Kentucky Small Grains Variety Testing Program and the UK Small Grains Breeding Program do provide ratings for diseases that occur in their trials. Those disease results are available in the most recent KY Small Grain Variety Performance Test Report and on the Fusarium Head Blight (Head Scab) – Variety Testing Research Page, which both can be accessed here. In addition, the University of Illinois Wheat Breeding Program also provides similar ratings from their annual tests under FHB pressure, which are available here. Seeking out this information and making good wheat variety decisions will go a long way towards managing this important disease.

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

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LEXINGTON, KY 40546

Disabilities accommodated with prior notification.

Baked Apples and Sweet Potatoes

5 medium sweet potatoes
4 medium apples
½ cup margarine
½ cup brown sugar
½ teaspoon salt
1 teaspoon nutmeg
¼ cup hot water
2 tablespoons honey

1. Boil potatoes in 2 inches of water until almost tender.

2. Cool potatoes, peel and slice. **Peel,** core and slice apples.

3. Preheat the oven to 400°F. **Grease** a casserole dish with a small amount of margarine.

4. Layer potatoes on the bottom of the dish.

5. Add a layer of apple slices.

6. Sprinkle some sugar, salt, and tiny pieces of margarine over the apple layer.

7. Repeat layers of potatoes, apples, sugar, salt and margarine.

8. Sprinkle top with nutmeg.

9. Mix the hot water and honey together.

10. Pour over top of casserole.

11. Bake for 30 minutes.

Yield: 6, 1 cup servings.

Nutrition Analysis: *300 calories, 8 g fat, 59 g carbohydrate, 0 mg cholesterol, 320 mg sodium.*

Source: USDA Food Stamp Nutrition Connection, Recipe finder. June, 2008.

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers' market, or roadside stand.

Kentucky Proud

Kentucky Apples

SEASON: Early summer through December.

NUTRITION FACTS: A medium size apple, about 2 to 2½ inches round, has about 75 calories and provides bulk in the diet, which helps the body digest food. The apple is low in sodium and high in potassium, making it a great natural snack.

SELECTION: Look for firm, crisp, well-colored fruit. Avoid those with shriveled skins, bruises, worm holes, and decayed spots. Always handle apples gently to avoid causing bruises, blemishes, or other defects.

STORAGE: Use those with bruises or skin breaks as soon as possible. Apples that are slightly underripe should be stored in a cool place to ripen. Once ripe, apples will keep a week or longer stored in the refrigerator vegetable drawer or in a plastic bag.

PREPARATION: Raw apples will darken when the cut surface is exposed to the air. Protect cut or peeled apples from darkening by mixing with ascorbic acid such as lemon or orange juice. Only work with about five apples at a time to prevent darkening. Mix 1 teaspoon ascorbic acid with 3 tablespoons of water. Toss gently with apple slices. Apples may be preserved by several methods: freezing, drying, or canning. Please contact your county Extension office for more information.

VARIETIES: More than 2,500 varieties are found in the United States. The following are easily available and popular in Kentucky: Lodi, Red Delicious, Rome, Winesap, Gala, Jonathan, Cortland, and Golden Delicious.

APPLES 1

Source: USDA

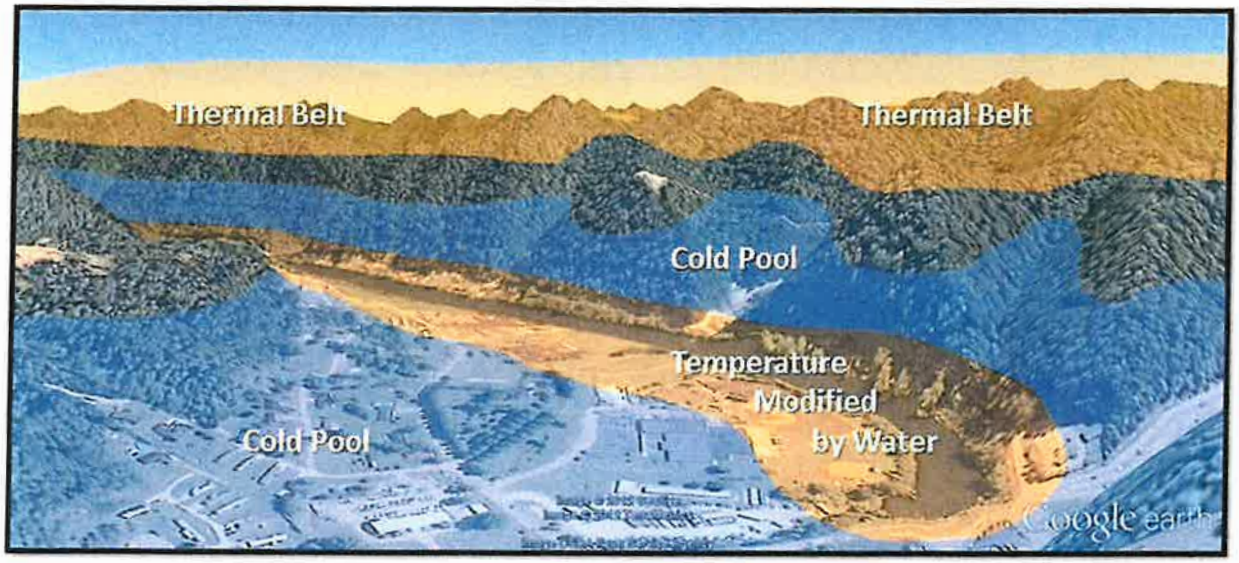
COOPERATIVE EXTENSION SERVICE
UK UNIVERSITY OF KENTUCKY College of Agriculture, Food and Environment

The Variability of the First Fall Freeze

by Tony Edwards - National Weather Service Charleston, WV

With the turning of the calendar to the month of October, Mother Nature typically responds with cooler temperatures and more pleasant weather compared to the heat and humidity of summer. With the cooler temperatures at night, most locations across Kentucky will likely see their first freezing temperatures during the month of October, putting an end to the growing season. However, where you live - and the elevation at which you live - can have a significant impact on when you see those first freezing temperatures of the fall.

Many locations in Kentucky typically see their first freeze during the last week of October. However, rural areas in valleys away from bodies of water can see this occur a week earlier, while locations on ridge tops or near large bodies of water can see this first freeze occur up to a week later, into early November. You may wonder why this variability occurs?



As shown in the illustration above, cold air is heavy and tends to drain into the lower elevation valleys and hollows on clear, calm nights. As this happens, warmer air rises and typically forms what's known as the thermal belt. This thermal belt can keep the ridgetops several degrees warmer than the valleys. In fact, in the extreme terrain of eastern Kentucky, ridgetop locations can quite often be 10 to 20 degrees warmer than the valleys below on calm and clear mornings. Water also holds heat longer and so larger bodies of water such as lakes and rivers can moderate the temperatures for nearby locations.

So, while it's pretty much inevitable that our gardens will succumb to the cold at some point during the month, the location of your garden in relation to elevation and proximity to bodies of water can make a big difference in how long those last tomatoes and peppers linger on the vines.

Predator Control Workshop

COOPERATIVE EXTENSION

University of Kentucky
College of Agriculture, Food and Environment

October 14th, 2022 @ 2pm EST/1pm CST

Presented by: Russell, Casey, and Pulaski County Extension and Southeast Kentucky Sheep Producers Association

- On-Farm Demos @ 2pm EST/1pm CT
  - Trapping Basics/ Hands on training
- Classroom portion @ 5pm ET/4pm CT
  - UK Specialists
  - KDA State Vet Office
  - Guard Animals

Cost: $15 which will include a Lamb Dinner and a One Year Membership to SEKSPA

- To register call: Russell Co. Ext. Office @ 270-866-4477

  2688 S. Hwy 127 Russell Springs, KY 42642
- Questions call: Patrick Angel @ 606-312-5264 or

  Jonathan Oakes @ 270-866-4477

ECONOMIC & POLICY UPDATE
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Editors: Will Snell & Nicole Atherton

Relating Farm Financial Terms to Real Life

Author(s): Kayla Brashears

Published: August 30th, 2022

A producer that works with any type of lending institution may hear their lender use words like liquidity, solvency, and profitability. Their banker may tell them their Term Debt Coverage Ratio is less than 1:1, so the new farm purchase is off the table. A producer may know that their Debt-to-Worth is good or their Current Ratio is bad. However, oftentimes there is a disconnect between paper ratios and the daily farm operation. Outlined below are five pillars of financial health and their effect on daily operations.

Liquidity

Liquidity is the ability to get your hands on cash quickly. It is your ability to meet financial obligations as they come due by generating enough cash for family living expenses, taxes, and making debt payments on time. Ratios that are used to measure liquidity include working capital and current ratio, which both measure the ability to meet short-term obligations without disruption to the business.

A farm that does not have strong enough liquidity feels the effects of timing more than a farm that is better situated. A farm with limited liquidity may need a short-term operating line increase at year-end to bridge the gap until January grain sales. Outstanding accounts at suppliers can mark more moderate liquidity problems because there isn't cash on hand to satisfy the balance. Late or non-existent equipment payments, bouncing payroll checks, and cash infusions from unlikely sources like family or retirement accounts are other markers of severe liquidity problems.

A farm with strong liquidity will have cash available for expansion, such as new land or equipment. The farm may not need to utilize an operating loan and may opt to use cash for large purchases. Another indicator of a strong liquidity position is freedom within grain marketing decisions – the farm is not beholden to cash flow stressors.

Solvency

Solvency is the overall health of the business. If everything was sold tomorrow – could all debts be paid? Two measures used to calculate solvency are Net Worth (assets minus liabilities) and Debt/Equity which compares the bank's ownership to your ownership. A ratio of over 100% means

the bank has more invested in the business than the operation does. This is common in beginning farmers that have not had the opportunity to grow their Net Worth. A farm with solvency problems may have issues borrowing money or refinancing. A farm with a strong solvent position will have more flexibility to handle profitability or liquidity problems.

Profitability

Profitability is the difference between the value of produced goods and the expenses used to produce them. Net Farm Income is the hallmark measure of profitability; it is what the owner's time, energy, and money generates. An operation with probability problems may have wasteful spending either on the farm or on family living. They may have old, unreliable equipment, or poor family labor efficiency. The farm may be cropping ground that is poor performance or in general have subpar production practices.

Repayment Capacity

Repayment capacity is your ability to pay your debts on time. A very common measure used to calculate this is Term Debt Coverage Ratio, which divides term payments against business income. If the term debt coverage ratio is less than 1, it means the farm did not generate enough income to service its debt. A farm experiencing repayment capacity problems may sell grain at a less optimal time to make the annual farm real estate payment. They may borrow money, sell equipment, or leave a supplier bill outstanding in order to make scheduled payments.

Financial Efficiency

Financial efficiency is the measure of how effectively your business uses assets to generate income. It is less likely to show an exact manifestation, but farms with poor financial efficiency will experience liquidity, repayment capacity, and solvency problems. One of the more common measures of financial efficiency is Interest Expense/Gross Farm Returns. If this number is 7-10% or higher, many operations will experience difficulty meeting cash flow needs. A ratio this high indicates the farm has a lot of outstanding debt, and in some instances, may be experiencing very high operating interest rates.

Every farming operation, every year, is unique. A farm with strong liquidity this year may not be as well off the following year, as 2022 has taught us with skyrocketing input prices. Conversely, farms experiencing repayment capacity problems or solvency concerns one year may course-correct and improve their financial position the next year. If you are a producer, working with a trusted source like your lender or KFBM specialist, can help you understand financial measures and their unique relation to the farm.

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