



**FOOTHILLS FORAGE  
AND GRAZING ASSOCIATION**

*Innovation, education and regenerative agriculture*

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# GRASSROOTS NEWS & VIEWS October 2023

## Director's Note — Jerry Baerg

*Howdy folks,*

I am hoping you all had a great summer. Fall is here now and that brings us to think of the cold weather to come. We had a good summer here, we spent some time with family and a few trips to enjoy the mountains. As ranchers and farmers it is sometimes challenging to arrange a time to get away for a holiday. After a few days away, I come back with a fresh view and ready to work again. Taking the time to get away is an important thing for us in this industry.

The summer here was very dry again, with the rain being very spotty. I feel fortunate that some of my cattle went west for the summer, where they had more rain. I have had pastures where the water source has dried up with no grazing left. I'm sure I am not the only one that has faced that. There are a lot of temporary fences going up this fall to graze crop regrowth and any area that can be grazed in this area. Next year is what we all say- "maybe it will be wet next year".

As we are coming up to winter we are all thinking of winter feed. Whether it is grazing, swath grazing, grazing residue, or feeding put-up feed, it takes careful planning to make sure we are covered. We have to look at all the options with high feed costs we face now. It is also important to test your feed to ensure you don't underfeed or overfeed your animals. I have crop residue piles to graze for the first half of winter. I also have some

greenfeed that comes from grain crops that were too poor to combine.

I want to keep you up to date on upcoming events. FFGA is has planned five workshops on Securing Success: Funding & Grazing Strategies for your Operations. They will be on Oct 24 in Pincher Creek, Nov 8 in High River, Nov 21 in Cremona, Jan 10 in Acme, and Jan 30 in Patricia. This November FFGA is hosting their second Ranching For Profit School in Okotoks. It is full with many on the waiting list! If you didn't get in this time, you can put your name on our list for future schools. Ladies Livestock Lessons is on Jan 19 in Cochrane, and Ranching Opportunities on Feb 8 at Olds College. If you are looking for a getaway this winter you can sign up for our International Ag & Sightseeing Tour to South Africa leaving Jan 19. Keep an eye on FFGA's website for more upcoming events— <https://www.foothillsforage.com/events>

I enjoy putting cows out on summer grass but it is also an exciting time to bring the pairs home in the fall to see how they have all grown. The calf prices are also very good! Hopefully that can be a help to everyone in these times of high inflation. You all take care and have a great fall!

*Jerry*

*(Fall Grazing at Ribbon Creek Ranch. Photo: Jerry Baerg)*



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# Timing key when managing high-nitrate feeds



Photo: FFGA

You've tested your feed and you've got some high-nitrate crop in the field or the feedyard. What exactly are the risks to your cattle and what can you do to manage them?

High nitrate levels can affect reproduction, and this time of year is especially risky for herds calving in May or June, says Barry Yaremci, ruminant nutritionist and production management consultant based in Stettler, Alta. During the first 100 days of pregnancy, high nitrates can prevent the fertilized egg from implanting in the uterine wall, causing abortion. Farmers won't see any obvious signs of trouble during the first three months of pregnancy.

But it's not the nitrates themselves that cause problems for ruminants. Rumen microbes transform nitrates to nitrites and nitrites to ammonia. Converting the nitrite to ammonia is the hardest step, says Yaremci, and if the nitrites accumulate, the cow can't release carbon dioxide from her lungs. This decreases her oxygen-carrying capacity, and the cow can suffocate.

However, after three or four days

of exposure to nitrates, the microbes in the cow's rumen become more efficient at converting nitrate to nitrite to ammonia. After two weeks of nitrate exposure, the cow's bone marrow will produce more red blood cells, boosting her oxygen-carrying capacity.

What's the safe level for feeding nitrates? Many of the labs testing feed state that 0.5 per cent is the danger zone. Yaremci says that traces back to research by Crawford in the '60s. Crawford injected sodium nitrate directly into the jugular vein of the cows. Once concentrations hit 0.5 per cent, he started seeing animals having issues or dying. But at the same time, he was doing research feeding oat greenfeed at 0.9 per cent, "without any troubles whatsoever," says Yaremci. Cattle "shouldn't have any troubles with one per cent nitrate," at least most of the time, says Yaremci.

But when nitrates rise above one per cent, ranchers need to be careful, especially if cows are within 60 days of calving. At that stage, the fetus's oxygen demand is high. If the cow can't supply enough oxygen for herself and the calf, she will abort the calf.

"So once you get in that two to three months of pregnancy, then I start getting a little jumpy even at one per cent." For that reason, it's better to offer higher-nitrate feed before the last three months of the cow's gestation.

Yaremci recommends introducing high-nitrate feed to animals gradually, over four stages. At first, high-nitrate

feed should make up only 25 per cent of the ration. Give the herd half to three-quarters of its feed in the morning, and put out the high-nitrate feed mid-afternoon.

"The last thing you want to do is feed it in the morning when they're really, really hungry. The boss cows will get more than what they should and the more timid ones or older ones won't get what they need to get acclimatized."

After three to five days, if the manure looks normal and the animals look healthy, step it up to 50 per cent, says Yaremci. Follow the same process over a couple of weeks, eventually feeding 75 and then 100 per cent of the high-nitrate feed. By then, the animals will have more red blood cells and their rumen microbiomes will be more efficient at converting nitrites to ammonia.

When grazing canola regrowth with high nitrates, producers can use an electric fence to limit how much the cattle are getting each day. "There's really nothing much other than management to limit the feed intake of high nitrate levels so that they don't get too much."

Feeding two to three pounds of starch will also help cattle convert the nitrate to ammonia. Even an oat greenfeed with two-thirds of a kernel filled should help reduce nitrate poisoning, says Yaremci.

Another strategy producers may

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*On the Cover: FFGA Cattle Handling Workshop with Mike Sears in September. Photo: FFGA*

## Thank you for your support!





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have heard of is ensiling the crop to reduce nitrates. “It is possible,” says Yaremcio.

But University of Kentucky researchers found to cut nitrates in the silage, they had to do a poor job of packing and covering the pit. That leads to poor fermentation and a much lower-quality forage. They also noted an orange gas, which is dangerous, coming from the uncovered silage pit.

“If you’ve got yellow or orange gases coming off the bottom of the pit, don’t go anywhere near it. It’ll kill you.”

Researchers concluded it’s better to “cover the pit, pack it right, do everything properly and then manage the nitrate levels later when you mix off with other feeds.”

### Harvesting after a frost

A question often put to Yaremcio is whether producers will have nitrate problems if they cut the alfalfa crop after a frost. Whether it’s alfalfa or another legume such as peas, lentils or sainfoin, Yaremcio says the nodules in the legume’s root system will prevent any nitrate issues. “It’s regulated because nodules will only release what the plant needs.”

In his career, Yaremcio has only seen two alfalfa samples come back with high nitrates. “And the reason for that was, the producer went ahead and put out a whole bunch of liquid manure or slurry onto the field, which jacked the nitrate levels in the soil, and it just bypassed the nodules.”

Yaremcio says one of the biggest misconceptions is that a killing frost causes nitrate accumulation. A killing frost will kill all the plant’s vascular tissue, stopping all nutrient movement through the plant.

“It’s the light frost — the -1 C, -2 C — that causes the problem,” he says. After a light frost, the root system is still pushing up nutrients. The top of the plant is where nitrate is converted to protein, but that process is impaired by frost. Nitrates then accumulate, peaking about four or five days after a light frost or a hail storm.

If you do get a light frost, the best thing to do is cut it as quickly as possible, says Yaremcio, preferably with-

in a day or two. Otherwise, it will be 10 to 14 days after the frost before the plants recover and nitrates dissipate. Depending on the time of year, waiting for nitrate levels to drop may be an option.

But continual light frosts will stress the plant, eventually killing it. The worst-case scenario is a light frost, followed by a killing frost four or five days later, says Yaremcio. “Then your nitrates are locked into the plant and it doesn’t dissipate with time.”

Jenay Werle, a livestock and feed specialist with Saskatchewan Agriculture in Yorkton, advises harvesting high-nitrate crops in the best condition possible — in other words, “make sure that you can cut it and bale it dry.”

Nitrate levels after a light frost will “first spike, and then they’ll slowly decrease over about 10 to 14 days,” says Werle. “But as we get into the fall, we really run into weather issues.”

Rather than hoping for enough fair weather in the fall, Werle suggests

testing for nitrates and managing appropriately afterwards.

“If you try and wait out the weather, you might end up with really poor-quality feed and still (have) nitrates in the end anyway,” she says.

Yaremcio also has some advice on which type of feed analysis works best. Near infrared reflectance spectroscopy (NIRS) will yield similar results as wet chemistry for fibres and proteins, Yaremcio says, but the mineral results can be out by as much as 300 per cent with the NIRS. While wet chemistry tests may take an extra day or two, you can be confident they’re accurate, he adds.

Author: Lisa Guenther

Original Article: <https://www.canadiancattlemen.ca/crops/forages/timing-key-when-managing-high-nitrate-feeds/>

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# Grazing cattle on cropland can be mutually beneficial



Photo: FFGA

When we hear stories of farms from previous generations, mixed operations are often the tradition, where people grew crops and had some cattle and other livestock as well. With economies of scale and farm size increasing, farms have generally become more specialized. However, recent rises in input costs and climate crises such as drought have many producers rethinking integrated farming operations.

This may mean owning both cattle and cropland, but it could also mean working with neighbours. In some situations, beef producers have been working with their cropping neighbours to develop mutually beneficial deals where both parties can benefit from having cattle on cropland.

Integrating cattle and cropland is not new, but there are many questions about how it can work on our current landscapes. Researchers at the University of Manitoba have teamed up in search of answers. Dr. Yvonne Lawley, associate professor in the Department of Plant Science, and Dr. Emma McGeough, associate professor in the Department of Animal Science, have been working together on projects involving cover crops, polycrop blends, “shoulder season” grazing and extended grazing.

**Be Flexible and Manage Risk**  
“There is no such thing as a nor-

mal year,” says McGeough. She points out that while you can’t control the weather, having a diversified feeding strategy and relationships built with others in your area can help when plans need to be changed. Both researchers note that it is important to have a plan going into the grazing season, but it is just as important to have a plan B and be flexible if the weather throws a wrench in those circumstances. “You have risk management strategies and conditions you count on, but you have to be able to pivot if Mother Nature gives you a different set of conditions,” says Lawley.

“All of these systems can help with risk management,” says McGeough. Whether it is grazing cover crops, grazing stubble or crop residue, salvaging a failed commodity crop or any other method of integrating livestock and crops, having these systems helps provide some safety in case of drought or other climate disasters.

When talking to producers about adding cover crops or management practices to extend the grazing season, the two concerns Lawley and McGeough hear are that practices can be high-risk and high-cost. While these can be prohibitive, McGeough recommends trying practices out on a small scale first to see what will work in your area and on your operation. “Can you seed just a 20-acre plot to see if something will grow or manage only a small segment of your cattle a certain way rather than put all of your eggs in one basket?” she asks.

Even within their research trials, Lawley and McGeough have had to make adjustments due to weather. Over the years, between drought, flooding and hail, they have had to accommodate differ-

ences in seeding dates, change grazing timelines, salvage crops that were intended for harvest and even use some crops in different seasons than intended. While this can be frustrating it also provides real-world examples of how different systems may be used on farms and how sometimes that can have unexpected benefits. For example, due to weather conditions this year, they were late seeding an annual forage plot in July, however, that crop ended up greener and more lush than earlier seeded plots.

“You can think of us as a bit of a case study for producers who are out there trying to do this,” says Lawley. “I provide the agronomy knowledge and Emma provides the animal experience.” The research team points out that communication has been vital to working together, as both come to the table with different knowledge, goals and expectations. “It’s about building that safe space to have a really clear dialogue where we can discuss how the agronomy affects the feed value and vice versa,” Lawley explains.

## **Agronomic and Animal Considerations**

Key things to remember if thinking of salvaging a crop or grazing cropland for other reasons include:

- Keep lines of communication open
- Be willing to seek advice from professionals and others who have used similar systems
- Have a back-up plan
- Try new crops or mixtures on a small scale first
- Match the class of cattle with the feed available
- Feed test
- Ask about any withdrawal dates for products used on crops

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Turning cattle out onto cropland can be beneficial as it can return nutrients to the soil, but there are concerns about compaction and uneven nutrient distribution. While many soil scientists are looking into quantifying the costs and benefits of having cattle on cropland, Lawley points out that by being strategic about what crop you plan to grow the following year can help mitigate the risk.

“From a crop perspective, you are going in knowing that you may have to do some residue management or choose a crop that can thrive or at least cope with that,” she says. If grazing a crop with a lot of residue such as corn, you may want to consider a crop that can be seeded later in the following season to allow that residue to dry out. Working with an agronomist can help you plan what to seed next in the rotation. Depending on your fertility strategy, you may choose to seed something like a cereal after grazing annual cropland that could take advantage of the readily available nitrogen. Alternatively, you may choose a nitrogen fixing pulse crop that doesn’t need nitrogen early in the season to allow time for microbes to break down the nitrogen in time to mineralize and be available for the crop next year.

If planning on using cropland for winter feed, it is necessary to think of how the crops themselves will respond to winter weather conditions

and grazing. If cattle will be harvesting plants themselves in winter and snow, the crops’ ability to be accessible under snow needs to be evaluated. Considerations such as plant structure and leaf loss and retention late in the growing season are very important for extended grazing.

Another thing to be aware of is the infrastructure required. When turning cattle out on cropland, fencing and water availability need to be considered. Do the logistics of setting up grazing pay off or would it be more economical to bale or silage the feed and move the feed to the cattle rather than the other way around? If extending the grazing season is a long-term goal on your operation, it may pay to invest in infrastructure like electric fencing or portable water systems or to build these materials up over time.

Grazing cattle and crops together can be a win-win solution for both crop and cattle farmers with proper communication and the willingness to try new things and be adaptable to change.

Author: Beef Cattle Research Council

Original Article: <https://www.beefresearch.ca/blog/grazing-cattle-on-cropland-can-be-mutually-beneficial/>

# PODCAST CORNER



What is FFGA listening to?

Monthly Podcast recommendations given by FFGA Directors

## PODCAST CHANNEL CATTLE CHAT

TITLE  
GRAZING MANAGEMENT FOR FALL



LINK

<https://podcasts.apple.com/us/podcast/cattle-inventory-and-selling-strategies-grazing/id1407878070?i=1000623816962>

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# Planning before shipping cattle can save big dollars in reduced shrink



Photo: Kayla Minor

Generally speaking, the two largest cost components in a livestock marketing situation are shrink and transportation costs. And, shrink is one area of marketing with management opportunities, says Chris Bastian, a University of Wyoming associate professor of agriculture and applied economics.

“It’s your job, as the seller, to negotiate as much of that away as possible, because shrink means money out of your pocket,” he says.

Bastian says producers need to be mindful that shrink is a point of negotiation when marketing livestock, especially in private sales, and it’s a way to potentially improve return when marketing each year.

“It’s not that cattle buyers are evil; they’re providing a necessary service. Their incentive is to try to get the best possible price for whoever they’re buying for, and that’s just how the market works,” he explains.

A general rule of thumb is cattle will shrink 1% of their bodyweight per hour for their first few hours off feed and water, and continue to shrink at a lower percentage of their bodyweight after those first hours. He adds that the first couple of hours are primarily excretory shrink, followed by tissue shrink.

“Cattle will gain excretory shrink back fairly quickly upon being put on hay and water, but tissue shrink is a loss of moisture in the muscle mass. That takes longer to gain back (a few days),” he adds. He notes that, depending on the weighing situation, the buyer can end up with a lot more weight in cattle than he originally purchased,

due to shrink.

There has been research done that shows you can lose up to 5.5% in about eight hours, that’s 44 lbs. on an 800-lb. steer. So, if you’re selling that animal for \$1.10/cwt., that’s \$48.40/head that you’re sacrificing in terms of pay weight. Multiply that out over however many steers you’re marketing, and it becomes a large number fast.”

## Keep animals close by

But, there are some management steps to reduce that number. Curtis Rankin, whose family buys and grows thousands of spayed heifers each year on grass in multiple western states, offers this advice:

“One thing we do is have the cattle close to the corral prior to shipping. We usually save pastures back and put cattle into those ‘shipping pastures’ right next to the corral the night before we load out. That way, they’re on fresh feed and get a big fill before we bring them in.

“We’ve also gone to several Bud Williams schools, where we learned how to work with yearlings to get them settled and prevent walking. When we’re done trailing, we’ll go out and spend time with them until they quit walking and start spreading out and eating, so they’re full and calm the next morning instead of stirred and hungry.

“We also try not to put more than 600 head in the corral at once. Of course, that number depends on the size of your corral and its layout, but for us, it’s 600 head. Then we have two scales set up, our portable scale and a permanent scale, and we can weigh those 600 head in under an hour,” Rankin says.

“If we’re shipping more than 1,000 head, we’ll go back out after the first 600 are done and gather the next bunch, which we’ll have in another pasture adjoining the corral, and we’ll get them in and weighed next. It’s all

about how you handle them, and getting them across those scales as quickly as you can,” he explains.

Pasture sorting helps, too!

Lance Creek, WY, rancher Shannon Bruegger also pasture-sorts his yearlings a couple of weeks prior to shipping. Another timesaving trick he utilizes is sorting his pairs by calf sex at branding in order to reduce time spent handling cattle on sale day.

“When you can just come into the corrals and go across the scales, it really minimizes the actual shrink those cattle experience. Buyers will often want to go through the bunch and pick off any they don’t think fit prior to weighing, but you should always weigh all your cattle first, then go through and sort and work them,” Bruegger says. “You’re probably already losing between 0.5-1% just getting them into the corrals and across the scales. If you let a buyer sort on them for 30-60 minutes prior to weighing, that’s an additional 0.5-1% loss in your pay weight,” he says.

Bruegger says having everyone and everything organized and prepared goes a long way. That means having your corrals ready, and health and brand inspectors, as well as truckers, there at a certain time.

“If you have your cattle in and sorted, and a gate breaks and they all mix, you’ve just cost yourself time and weight resorting them. If you have to wait 20 minutes for the brand inspector to show up after you’re done sorting, they’re losing weight. If a truck is late, you have to wait on him, and the first truck isn’t going to leave without him; so, unless you weighed on the ranch, you’re losing money that entire time. Those little things can really make a difference,” he says.

## Minimize stress

Rankin has witnessed instances where producers run all cows and calves into an alley for sorting.

“That’s a mistake because those

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calves can get a little mashed and stressed that way. I feel it's more efficient to sort cows out of a pen, then run the calves into an alley to sex sort.

"Doing it that way, if you've got enough crew, you can be sorting the cows off and sexing calves simultaneously, and everyone can be done at just about the same time," he says.

Rankin also hires out his portable scales to ranchers who want to weigh on their ranch and don't own a scale.

"One outfit has used my scales multiple years. In the second year, I commented that if they tried sorting as I do to reduce the amount of time cattle spend in the corral, it would make them lots of money. I helped, and we got done 1½ hours sooner than the year before. That was a 2% shrink we saved on 400 head of 400-lb. calves, which comes out to 8 lbs./calf, which is, at a minimum, \$3,200 more in their pocket."

Rankin says producers often don't realize the true cost of following a system just because that's the way they've always done it.

"People need to keep their market-

ing options open, and pay attention to what's happening in the entire industry. This is a worldwide market, with worldwide impacts on our local prices. People need to be in tune with what's going on in every facet of agriculture worldwide to make the best decision of when and where to market their cattle," Rankin says.

"Sometime this winter, when you're done feeding and you go in and have a couple hours to work on bookwork, sit down and do a little analysis of your own. Put in the prices you got last year, estimate the shrink-related weight loss, and come up with an estimate on how much pay weight you had at the end of the process. Then you can multiply those pounds lost by the price you got, and that's the estimate of how much it cost you to sell in that market," Bastian suggests.

Bastian recommends then using that number as a breakeven to compare different marketing options, and determine if you're ahead or behind with your current choices.

"Maybe you can make some changes and put a few extra dollars in

your pocket. Sometimes people get fixated on the price they received, as opposed to the marketing costs they incurred as a result of accepting that price in that market. Being mindful of those marketing costs can make you more money," Bastian says.

Author: Heather Hamilton Maude

Original Article: [https://](https://www.beefmagazine.com/cattle-market-outlook/planning-before-shipment-cattle-can-save-big-dollars-in-reduced-shrink)

[www.beefmagazine.com/cattle-market-outlook/planning-before-shipment-cattle-can-save-big-dollars-in-reduced-shrink](https://www.beefmagazine.com/cattle-market-outlook/planning-before-shipment-cattle-can-save-big-dollars-in-reduced-shrink)

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# Regenerative Agriculture Soil Principles– Regenerative Agriculture Living Lab

We are taking a whole-systems approach that recognizes the link between plants and soil. This guides agricultural practices with the goal of optimizing soil health to improve the nutritive quality of food, help to manage water, control pests and diseases, and build resilience against climatic uncertainty, as opposed to studying a set list of individual Beneficial Management Practices (BMPs).

Regenerative agriculture is not synonymous with soil conservation. Although many of the same BMPs may form part of the approach to achieve 'regeneration' of the soil, in isolation they will not achieve regenerative soil goals.

The following graphic of a regenerative soil pyramid illustrates how all principles must be integrated to maintain the structure and integrity of the soil. As with the structure and integrity of a pyramid, all layers are integral. If we look to regenerative agriculture as a climate solution, all elements must be incorporated to have the maximum climate mitigation effect and serve to 'regenerate' or 're-carbonize' the soil through carbon sequestration.

## Principal 1- Living Roots (Green & Growing)

Maintaining living roots for as many days of the year as possible enables plants to allocate photosynthetically derived carbon to the microbial community. This soil carbon sequestration process mitigates climate change while helping crops to thrive under climatic uncertainty. Improved soil carbon increases or improves biological activity, water infiltration, soil structure, natural fertility, adsorption of pesticides and reduces soil erosion and compaction.

### BMPs include

- Cover cropping
- Crop rotation, including integration of pulses and small grains
- Relay/poly/inter cropping
- Perennials in annual production
- Annuals in pasture for cattle feeding strategies
- Strategies for marginal land and wetlands (including prairie potholes); riparian tree planting
- Shelter belts

## Principal 2- Diversity

Diversifying and lengthening crop

rotations, using carefully chosen cover crops and compost adds diversity to soil. Different plants allow for longer periods of time in the year when carbon can be allocated below ground to increase carbon sequestration and supports a diverse microbial community that plays a significant role in making nutrients available to plants and in soil carbon sequestration.

### BMPs include:

- Annual in perennial systems
- Perennial in annual systems
- Diverse crop rotations that include, for example, combinations of grains, legumes, oilseeds

## Principal 3- Reduced Synthetic Nutrients

Optimizing soil organisms (especially mycorrhizal fungi) is critical for regeneration of soil due to the role that mycorrhizal fungus plays in making nutrients available to plants and stabilizing carbon in soil aggregates. The application of soluble phosphorus fertilizer removes the need for a symbiotic relationship between plants and mycorrhizae. It is not possible to regenerate soil to its full potential when using conventional rates of synthetic fertilizers.

### BMPs include:

- Strategies to increase biological nutrient cycling
- Incorporate more compost/manure

## Principal 4- Manage Livestock

Managing livestock and grazing patterns benefit the soil through increased organic matter, rejuvenation of microorganisms, and restoration of water cycles leading to an exponential increase in the land's ability to sequester carbon. Animals of all types and sizes, including insects, play a crucial role in regenerative agriculture - grasslands evolved out of a symbiotic relationship with large, grazing herbivores.

### BMPs include:

- Animal Integration with cropping
- Integrate animals into cropping systems (for example post-harvest or swath grazing)
- Adaptive planned grazing strategies
- Agro-forestry
- Alley grazing

## Principal 5- Soil Armor

Crop residue, living plants, mulches, and/or compost on the soil surface are valuable sources of armour or protection, helping to avoid carbon loss from soil.

### BMPs include:

- Maintain soil cover, cover cropping
- Mulching
- Compost
- Increased litter, trash, chaff left on field after harvest
- Perennials
- Relay/poly/inter cropping
- Cover cropping

## Principle 6- Reduced/No Tillage

Tilling causes the fungal network to be broken up and moves the organic matter that adds richness to the soil to the surface, where the soil carbon is released into the atmosphere. Minimal tillage keeps soils covered, holding carbon in the soil rather than releasing it into the atmosphere.

### BMPs include:

- Reduce frequency of tillage and minimize soil disturbance
- Minimum tillage/no-till cropping
- Use of tools (roller crimper and/or high residue cultivator)



Original Article: <https://www.regenlivinglab.org/resources>



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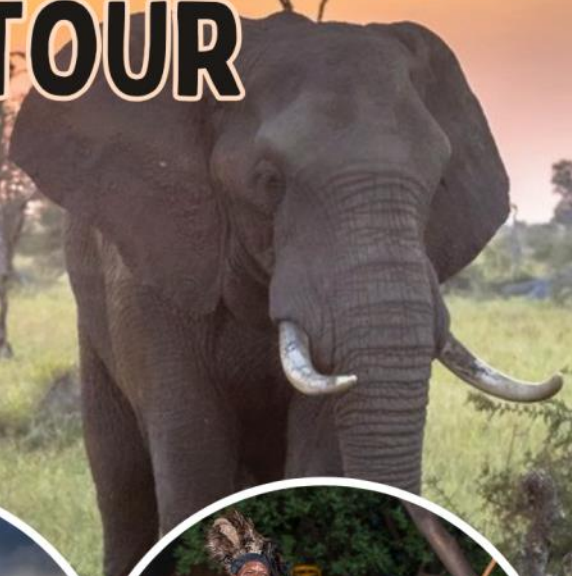
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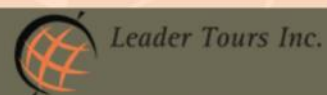
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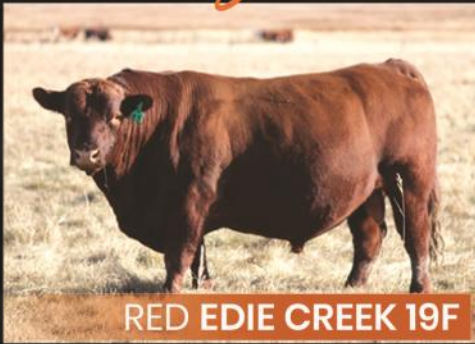
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