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Livestock and Natural Resources

Cattle are Upcyclers

So much about farting cows in the news as of late, when it's actually cow belches that emit methane. Here's an article by Sara Place, a PhD, Senior director of Sustainable Beef Production with the National Cattlemen's Beef Association.

In the livestock feed versus human food debate, we haven't been using the right numbers. Rather than being a drain on global resources and competing with human food supplies by eating lots of grain, livestock are often net contributors to the global protein supply. That's the conclusion of a new study from scientists at the United Nations Food and Agriculture Organization (FAO). Livestock, especially ruminants like beef cattle, play a key role in a sustainable food system. They allow us to produce food on marginal lands that are unsuitable for cultivated agriculture. Cattle act as "upcyclers" in our food system—they upgrade plants into high quality protein for people.

The FAO researchers developed a global database of what livestock eat and found 86 percent of the feed is human inedible. Mostly, livestock eat grasses grown on marginal lands and other forage crops, like alfalfa. Marginal lands are those that are too rocky, steep and/or arid to support cultivated agriculture, such as fruit or vegetable production. Globally, livestock also eat over 1.9 billion metric tons of leftovers from human food, fiber and biofuel production.

For example, livestock eat the residues of grain harvest (the stalks and leaves left in the field after corn harvest), the byproducts from milling grains for flour production (wheat midds), cottonseed that is a leftover of cotton production, and glycerol and distillers grains that are byproducts of soy biodiesel and corn ethanol production, respectively. If livestock didn't consume these plant-derived leftovers and byproducts, their disposal would likely result in an environmental burden. By being a part of the global food system, livestock enhance the sustainability of other food production and industries.

Considering that most of what cattle eat is not human edible, the FAO researchers found that 1 kg of protein in meat and milk only requires 0.6 kg of protein from human food. Additionally, the protein in meat and milk is of higher nutritional quality compared to the protein in grain that cattle eat.

The FAO research represents global averages, but beef production in the U.S. competes even less with human edible food. In a recent report published by the National Academies of Sciences, Engineering and Medicine, it was estimated that on average greater than 90 percent of what grain-finished beef cattle eat in their lifetime is human inedible forages and plant-derived leftovers. Less than 10 percent of their lifetime feed consumption is grain that could potentially be eaten by people.

Further, in a report published by the Council for Agricultural Science and Technology, U.S. grain-finished beef systems were found to contribute 19 percent more human edible protein than they consumed.

It's encouraging that more research is placing livestock where they belong—as a key component of the circular bio-economy. Linear thinking in the face of a challenge like increasing food demand and climate change won't cut it. Understanding how we can enhance the upcycling super-power of livestock is key to a sustainable food system that nourishes the world responsibly.

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Starter Fertilizer in Soybean

With any luck, corn planting will be in full swing by the time you are reading this. If so, you may also be thinking ahead to at least some degree to soybean planting. We can hope!

When we think about getting the starter fertilizer up and running on a planter, our focus is typically on use in corn. We're trying to get some level of nutrient near the root zone of that new plant while temperatures are cold and growth tends to be slow. For that reason, our response level in corn tends to be higher than in soybeans, even though soybeans remove significant amounts of nutrients per bushel of grain harvested as well.

Where soybeans do tend to (most consistently) respond to starter is where we are dealing with low soil test nutrient levels (or even medium soil test levels if high yield levels are attainable). This is particularly true if Phosphorous (P) is at low levels. We can also see some benefit to applied starter when we've had very high-yielding crops in the rotation so that optimum soil test levels can be maintained.

Banding fertilizer to the side and below the seed at planting is an efficient application method for soybeans. This method is especially useful in reduced-till or no-till soybeans because P and K have only limited mobility into the soil from surface broadcast applications. Fertilizer should not be placed in-furrow in direct seed contact with soybeans because the soybean seed is very sensitive to salt injury.

What about Nitrogen (N)? Research has shown that soybean seldom responds to starter N (small amounts) unless we are in irrigated, high-yield environments

Pest of the Week: Brown Coloration on Junipers

If you've looked at your Eastern Redcedar windbreak lately and it appears to have a brownish cast, don't be alarmed. In all likelihood, what you are seeing is the male flowers.

The male flowers sit on the tips of the leaves and look a little like a pinecone. On a dry day, shaking will tend to result in the release of a cloud of pollen.
cross between a miniature hand grenade and a

Why do only some of them look this way? Eastern Redcedar has both male and female plants. The female flowers are much less obvious. What you are probably seeing is the male plants. Fortunately, it should fade in time with no long term issues.

Cindy Williams
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Food, Nutrition, Health and Safety

Passing on Family Heirlooms and Stories to the Next Generation

Over the years I have done my fair share of collecting and keeping. Many items I have kept mean something to me. My mom's baby shoes, a diamond ring, my grandmother's cookie jar and my great aunt's steamer trunk are all things that I have kept for years. My hope is to be able to pass on these keepsakes and their stories to my children. But when I look around at all of these "special keepsakes", I realize I have failed to tell my family the story behind these relics.

Old baby shoes in the closet means nothing to others if they don't know the story behind it. Share some of the memories associated with each of those special items. By adding to the meaning of these special items it gives value and hopefully a story that your children can pass on to the next generation.

If you think back to a special holiday or event, you can remember some of the objects connected to that memory, whether it was the china on the table, the cookie jar that always sat on top of the refrigerator, the wallpaper on the walls of the dining room or maybe the smudges by the light switch, all of those things help to imprint that memory on your mind.

Sharing stories about special objects helps family members to understand the past and learn to appreciate another side of their family. These stories are part of your family legacy. So how can you share this story in a simple way that can easily be shared, preserved and passed on to others?

Create a note card, video or recording that answers the following questions.

- *What is the name of the item?
- *When did you acquire it?
- *How did you acquire it?
- *When and how have you used it?
- *Who else has owned it before you?
- *Who do you want to give it to when you no longer need it?
- *Why do you want this person to receive it?
- *What other memories do you have of this item?
- *What memories do you have of the people who owned this before you?

If you are lucky to have the time to share these stories in person, that is great. My preference is to have it written down. If you are using note cards to capture all of this information, then find a way to attach that card to the item so it becomes a part of the item. When you attach it be sure you do so in a way that will not harm the item. For example, I would not want to staple or tape this to my baby shoes, attaching the card to the shoe strings or hand tag may be a better option.

Family members are not going to understand or even value the importance of a family heirloom if the story is missing. That is why it is critical to make sure you have a method to tell the story so family members can understand and appreciate the significance of the item.

Source: Who Gets Grandmother's Yellow Pie Plate—Transferring Nontitle Property

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Family Life

Focus on Bone Health

Did you play hop scotch or jump rope when you were a child? It turns out these might be even better for your health as an adult than they were when you were young.

Bone is living tissue, just like muscle, and key bone-building years for your body are those when your skeleton is growing — typically through your mid-20s. This is a critical period for bone health because what is built during these years will need to last a lifetime. After age 35, you gradually lose bone as a part of the natural aging process.

Regular physical activity will help keep bones strong and slow the rate of bone loss, even if you have fragile bones or osteoporosis. By leading an active lifestyle, you can significantly decrease your risk of falling and breaking a bone.

What type of exercise is good for your bones? The weight-bearing kind, which is anything that forces you to work against gravity. This type of exercise is effective because as you put more tension on your muscles it also puts more pressure or “stress” on your bones. Your body responds by creating fresh, new bone and greater bone strength. Weight-bearing exercise is anything that involves an impact with the earth and requires your feet and legs to support you. Some examples include brisk walking, hiking, jogging, marching, climbing stairs, weight training, dancing, yoga, and tennis. Gardening can be weight bearing if you carry a water can, walk in your yard, etc.

There is another type of weight-bearing activity that could be better for your bones than the exercises mentioned above — jumping and hopping.

A recent study, reported in the American Journal of Health Promotion, reveals that jumping 10 times/twice a day provides greater bone-building benefits than running or jogging. This is not recommended for anyone who has osteoporosis, but for those who want to be proactive with exercise, this is great news.

Even if you walk briskly or jog most days of the week, you will get greater bone-health benefit if you also hop or leap every day to jar your bones a little and send a message that they need to get stronger. If hopping is too difficult, start with marching or doing heel drops. Remember that your goal is to create impact with the ground or floor to jar your bones just a bit.

First, warm up your muscles by walking for a minute or marching in place. **Marching with impact:** This movement is basic marching in place where you push, or stomp, your feet on the ground for impact. **Heel Drop:** Hold onto something, at the proper height, for stability (back of a chair or countertop, for example). Rise up on your toes, then drop your heels down abruptly. **Power Hop:** You can hop on both legs, or for maximum benefit hop on one leg. If necessary, hold onto something for stability. Bend your knees for cushion when you land. Never land on straight knees. You can do the hops quickly or rest for up to a half minute between hops.