

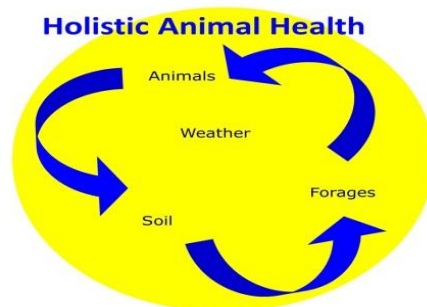
Holistic Approach to Animal Health and Well-Being

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Kerr Center for Sustainable Agriculture, 2011

Animal *disease prevention* or animal *wellness promotion*: what do these phrases bring to mind?

The first puts the focus on diseases, while the latter focuses on the well-being and health of the animal. The latter is what livestock producers need to think about in order to be most profitable with optimal production.

Animals don't have to get sick. Looking at the whole farm, instead of just the animals, gives the opportunity to observe the interactions between soil, plants, animals, and weather; and to recognize the changes that occur when any of one of those components changes. Diseases are more than just infections, but include anything that adversely affects the health of an animal.



I never expect my livestock to get sick. I look at the whole farming system, using the animals as my gauge to how well I'm managing the whole system.

I also know the problems I have to be aware of with the system. This can be things like running out of pasture because of drought conditions, calving problems if a bull throws calves that are too large, or parasites in sheep and goats.

Know Your Farm, Know Your Animals

The first step is walking the farm. Yes, that's right, *walk the whole farm*. The producer should look at everything, including the livestock. What does it look like as a single entity? Are the livestock contented and performing to the producer's satisfaction? What do the grasses and other pasture plants look like? Are they desirable plants? Are they strong looking or yellowed and weak? Are there bare spots in pastures or is there good ground cover? Are some pastures in better shape than others, or are they all uniform? Are they overgrazed or undergrazed? What color is the soil? Grab a handful and smell it. Does it have a good earthy smell? The producer needs to understand what is happening on his/her farm.

At this point, the producer needs to focus more in on the livestock, looking at individual ones to see how healthy they look. As the producer walks closer to livestock, their behavior should change, depending on how accustomed they are to being approached. They should all start to look at the person walking towards them and many will go ahead and stand up.

In fact, animal behavior is something that every livestock producer should spend time learning. Walking amongst the herd or flock on a daily basis teaches what normal behavior is. Remember that these are prey animals. Recognize the importance of the herding instinct, along with group behavior.

Notice how bright and alert they seem, how slick the hair coat looks, how full the rumen is. The latter is really important. It tells how well the animal is eating. This lets the producer know how well he/she is doing in providing adequate pasture or other feeds, and in turn, how well the animal is doing. A full rumen means a healthy ruminant. Quickly look at the body condition of the animals.

Then, and only then, should you look for animals with problems. First, check for animals that are not showing the normal behavior of herd mates. Which ones aren't looking at you? Are some lagging behind or off by themselves? These should be checked out carefully. If the herd is standing, check those that are still lying down. As livestock are observed more frequently, they become calmer and more relaxed. Those lying down may have nothing wrong with them, but walking over to them and checking is important.

By walking the farm and through the livestock, the producer learns what is normal and healthy. This gives producers an important tool in determining what changes need to be made in the whole farm to ensure continued good health and wellness.

Vitality and Profit

Health and wellness occur through good nutrition and low stress. Attending to nutrition, especially through controlled grazing, and reducing stress, are the best preventative strategies. As producers become more skilled in the management of their farms, they see the health of the whole system improve.

Controlled grazing is the best way for livestock to get the nutrients necessary to keep them healthy. The challenge in controlled grazing is to provide a high availability of quality forage to animals at all times. The resulting high nutritional status helps prevent many diseases that might necessitate antibiotics.

Controlled grazing also satisfies the natural behavior of the cattle, thus reducing stress. When stress is minimized, then animals remain healthier. This improves the profitability of the farm, by reducing the need for disease treatment. This makes it especially important to observe animals closely, and to provide them with the best nutrition possible through high availability of quality pasture.

Stress is the effect of change on an animal. It increases the susceptibility to disease and decreases the vitality or life force of the animal.

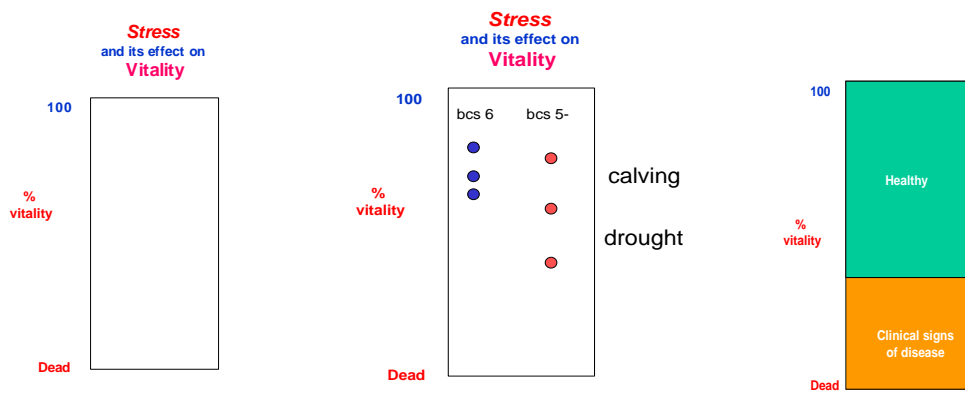
There are two ways of looking at the effect of stress on an animal. One, stress acts upon the body and sets up an imbalance. The body produces a reaction to stress that may give rise to symptoms in its attempt to regain equilibrium. This means that the producer needs to look for that first symptom, or change in the animal's behavior, to prevent the animal from progressing into a full blown disease process. These symptoms may be subtle, and if the stress is mild, may be corrected by another change in the animal's behavior.

The second way to look at the effect of stress is to view the animal's physiological changes. These changes are different depending on whether or not the animal is undergoing an acute, short term, or a chronic stress. Chronic stresses can be constant or intermittent. Intermittent chronic stress is much harder on the animal, as the animal just begins to recover when the same or different stress occurs.

Acute stress causes the flight or fright syndrome to occur. Adrenaline is released, along with a small amount of corticosteroids. This kind of reaction indicates the animal is in control and can be seen as a good thing.

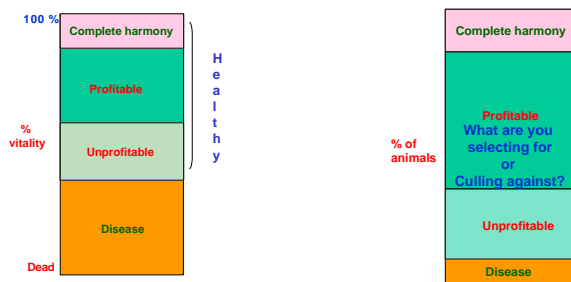
In contrast, chronic stress causes release of corticosteroids, which take a long time to clear from the animal's body, and which indicate that animal has no control over its situation. Rumination and digestion stop, which also stops growth and reproduction. White blood cells decrease in number, and the lymph tissues shrink in size. As a result, the animal is less able to fight off disease and its vital force goes down.

No one living has 100% vitality. There are too many external forces that affect it at least a little. If you have 0% vitality, you are dead. At some point on the vitality scale, there is a point that clinical signs of disease start showing up. Above that point, we think of the animal as having some degree of health--the mind and body being in harmony with its environment. Stress lowers that level of vitality and weakens the harmony, until an animal's vitality falls to a point low enough that disease shows up. Every animal is affected differently by various stresses. Nutrition, feeds, exposure to bacteria or other disease-causing agents, reproductive status, and age all have an effect, but not an equal



effect, on all animals. This is why one animal will get sick and not another one.

When we treat the disease, and cause the signs to disappear, but don't take care of the underlying stress, we will have a less vital animal. In this case, the animal appears healthy, but isn't. At that point, let's divide health into *profitable* health and *unprofitable* health. The animal's vitality has to be brought up to a level that achieves profitable health.



Less Stress, More Profit

You can see that treating sick or otherwise unhealthy animals, even successfully, makes no money for the farmer. It is a salvage operation. We need to start thinking of what stresses on in our herds and how we can avoid as many of them as possible. Any stress will increase the susceptibility to disease.

But certain things will help the animal counteract stress better. Nutrition is the most important thing, followed by the animal's environment. It is also most economical to work on animals that are unprofitable but not "sick". And remember that any treatment may help, but the degree to which it helps depends on where the animal is on the line of % vitality. If animals aren't fed well, are too crowded, have dirty places to sleep, are too pulled down from calving, or the weather is too stressful, then they won't be profitable.

Animals that are getting an abundance of protein, without adequate fiber or energy to use that protein will not be as vital either. Metabolic changes will occur, in the body's attempt to provide the energy, which will be a stress on the body. This stress will allow other conditions, usually internal parasites, to show up that would otherwise be kept under control by the immune system, if the animal's nutritional status were better.

Nutrition and environmental stresses are easier to control than some others. Psychological and other behavioral stresses are harder to measure and determine. Low-stress weaning and handling techniques affect behavior in a positive way which minimizes problems.

This includes treatment of sick animals. Research shows us the interaction between the animal and the treatment, and how that treatment actually impacts the disease for which it is being used. However, it leaves out the animal-human part of that equation, which also is a big factor in the health of that animal. Our thoughts and our actions affect the way our animals respond to any kind of stress and treatment. Farmers who use controlled grazing management, and thus are moving their animals frequently, will have calmer animals in any handling situation.

The immune system's function is to ward off disease. The ability of the immune system to fight and kill disease-causing agents is impaired by stress. This is especially true when there are too many acute stresses or continuous, low-level, chronic stresses.

Stress also alters the rumen microbes, which slows or stops rumination. This reduces dry matter intake, which means the animal has to use its body reserves to meet its energy requirements. If the stress is short-term, the animal will be able to overcome

these effects on its own, with no apparent problems. If the stress is longer lasting or chronic, returns in a short period of time, or if there are multiple stresses on the animal, these may throw the animal below the threshold between health and disease.

For example, a first calf heifer is not only undergoing the stresses of pregnancy, calving and lactation, but also is still growing herself. These are all physiological states for which she evolved. However, if there is inadequate or poor quality forage or feed available, rough handling, or weather extremes occurring, these additional stresses may be too much for her body to compensate.

The animal's response to any new stress can decrease or disappear depending on how it is dealt with. If weather extremes occur gradually, for instance, the animal is able to adapt to the change in temperature and will not be as adversely affected. How handling, hauling or other new situations happen the first time will determine how well the animal reacts subsequently to those situations.

Keep in mind that in the winter, wind chill is more of a factor than the cold. Windbreaks are crucial to keep the stress level down, to provide for more animal comfort, and thus, prevent respiratory disease outbreaks.

During hot weather, shade can be a factor to consider. The number of days when the heat index is over 75 degrees should be known in order to determine how big a factor shade will be for the animals. Once again, if that heat index is reached gradually, the animals will be able to adapt to a certain extent. Feed intake and reproductive failure are the two big problems related to heat stress.

Again, extreme heat and cold, if they occur gradually enough, will not cause the same amount of stress as sudden changes in cold or heat. The animal is able to adjust to the temperature change, even though some decrease in feed intake will still occur.

Other stresses to keep in mind and to develop ways of minimizing them are: livestock handling, introduction of new animals, chronic disease, weaning, parasites, and even antibiotics. Most of these can be managed quite easily.

Antibiotics kill the beneficial bacteria along with the disease causing bacteria. These beneficial bacteria take time to replenish following a course of antibiotics, which is a stress on the animal. This is just one good reason to keep antibiotic usage to a minimum. Keeping animals healthy makes antibiotic usage rare.

Weaning stress can be composed of nutritional stress, environmental stress and respiratory stress, all of which can be alleviated through pasture weaning.

Parasite stress can be alleviated through integrated parasite management (IPM) involving the animal, soils, pasture, and weather. For example, evidence now points to grazing plants high in bypass protein decreasing the impact of internal parasites. Pasture management strategies therefore can also be used as IPM. When grazing management improves, not only do the health of the soils and pastures also improve, but so does animal health.

When an animal gets sick, get in the habit of thinking back over the last two weeks to determine what stress has occurred. Some will be possible to remedy. Others, such as weather, have to be lived with. There are some diseases or conditions that will totally overwhelm the animal's defenses for which there is little the farmer can do or prepare for. Once again, having the animal at a peak nutritive level is the best defense in this case.

By focusing on animal wellness promotion, we can keep our livestock healthy. We are better prepared for problems when they do occur. The problems are also usually small. We can spend our time and money improving the system instead of dealing with disasters. This results in a healthy profitable farm, producing healthy food for people everywhere.



About the Author

Dr. Ann Wells, DVM, joined the Kerr Center September 1, 2010, as program director. She oversees the center's horticulture, livestock and natural resources conservation programs.

She graduated from Oklahoma State University School of Veterinary Medicine and has more than 25 years of experience in livestock production, including producing and selling natural lamb and now grass-finished beef.

Dr. Wells has been involved with grass-finished and organic livestock production on her own farm and working with other organic, natural, grass-fed producers for 25 years. She has worked with Heifer International at its Heifer Ranch, researching parasite management strategies to reduce the need for anthelmintics.

Operating a sheep and goat veterinary practice sparked her interest in complementary veterinary medicine. Her philosophy is to focus on the health of the animal through controlled grazing management and stress reduction techniques and strategies. She believes strongly that nutrition is the key to good health.

Dr. Wells works with ruminant producers, large and small, helping them develop health wellness management plans so their animals don't get sick. Since 2005, she has worked with limited-resource and socially disadvantaged livestock producers, including Native American and African-American producers who are wishing to revitalize their communities and improve the health of their families.

About the Kerr Center

The Kerr Center for Sustainable Agriculture has been serving Le Flore County and southeastern Oklahoma since 1965.

The award-winning non-profit educational foundation has its headquarters on the historic Kerr Ranch, five miles south of Poteau on highway 271.

The center gives farmers, ranchers, gardeners and educators from around Oklahoma the tools they need to be successful in challenging times. Through projects on the ranch, a comprehensive website and well-regarded educational events, the center reaches people around the world.

The center operates from earnings from its endowment, as well as grants and donations. People can support the Kerr Center's work by becoming a "Friend of the Kerr Center."