

The Background on Soil Health

Soil quality can be broadly defined as the capacity of a soil to function. In traditional food production systems, the primary function of a soil has been to produce adequate quantities and quality of food to support a growing population. More recently, environmental and ecological awareness has resulted in long term consideration of soil and not simply as a medium for root biological growth and livestock production. It is necessary to assess and improve a soil's health, or the capacity of a soil to function within ecosystem boundaries in order to sustain biological productivity, maintain environmental health, and promote plant and animal health through the generations. Feeding an estimated nine billion world population by 2025 will require adoption of ecologically based systems which will influence the soil throughout the nation.

Soil Health was identified as an agency "national initiative" by the U.S. Department of Agriculture (USDA) in November, 2012. In order to meet the expected growing world population and subsequent food production demands producers are encouraged to reevaluate traditional management systems in order to maintain profitability as well as ecological and societal sustainability. These changes will require a different, more holistic perspective of agriculture, leading to substantial changes in agricultural crop management systems.

The new focus will be to demonstrate the logic and efficacy of using innovative new soil tillage and crop management practices, such as cover crops, specifically designed to more closely imitate natural ecosystems, resulting in reduced need for herbicides, pesticides and fertilizers, thus reducing farming costs while improving environmental quality.

While these changes may not happen over-night, must reevaluate the way we look at our system. Soil improvements from these new practices will allow increased precipitation infiltration, resulting in reduced soil erosion, more plant-available soil water (increasing yields), and because water will travel through the soil rather than over it, eroding as it flows, cleaner water will be delivered to surface and subsurface aquifers. Offsite benefits will include increased wildlife habitat, rebuilding of soil attributes known to allow environmentally sound, sustainable plant growth, reduced sediment loads in lakes, reservoirs and rivers, increased rates of groundwater recharge and significantly increased soil carbon sequestration. The work will be done with consideration of, and planning for, increased variability in local weather, with particular emphasis on increasing frequency and intensity of severe thunderstorms and increasing likelihood of late summer plant water deficits.

Finally, increasing soil health has important implications for meeting the management challenges imposed by increased weather variability. Research has confirmed that biologically diverse systems are much more resilient in the face of environmental stresses. Reliance upon current production system during times of increased weather variability, especially increased frequency and duration of drought, is a potential recipe for economic and environmental disaster.

Source: *Todd Lorenz, Agronomy Specialist*



Title is King: Ownership of Property in Missouri

How is your property held? Are you the sole owner or is there more than one owner? If there is more than one owner, are you a tenant in common, a joint owner, or (if married) a tenant by the entirety. Do you need the consent of another individual to sell the property?

The form of ownership that you have in a piece of property determines what you can do with it, how the property will be taxed, and what will happen when you die – whether the property will be transferred to your spouse, children, a joint owner and/or other heirs at law.

There are several ways real and personal property can be held. Missouri recognizes four forms of property ownership: sole or individual ownership, tenancy in common, joint tenancies with right of survivorship, and tenancies by the entirety.

Sole ownership means that you are the only person who owns all the interest in a piece or property. It is the simplest form of ownership and gives you the greatest control of any form of ownership. You can give it away, sell, mortgage, or will your property to another person. If you are married, *however*, your spouse would have to consent to the transfer of real property to others and to give up certain rights such as the dower or curtesy rights.

Tenancy by the entirety is a form of ownership that can exist only between a husband and wife. Each spouse owns *100%* of the ownership. Since each owns all of the property, the property cannot be sold without the consent of both spouses. Creditors of one of the spouses cannot go against entireties' property to satisfy the debt of the one spouse. Upon the death of the first spouse, the surviving spouse remains as the sole owner of the whole property.

Joint tenancy with right of survivorship (JTROS) can exist between any two or more persons. All of the joint tenants have to own *equal* shares in the asset. A joint tenant can sell or give away his or her interest during their lifetime, but the interest is not inheritable upon death to the heirs. Instead, when a joint tenant dies, the interest is automatically passed to and is divided equally among surviving joint tenants. The last person alive becomes

the owner of the entire property. Joint tenancy is usually created by the words "John Doe and Jane Doe, as joint tenants, with right of survivorship, and not as tenants in common."

Tenancy in common exists when two or more persons own an undivided interest in a property. The owners *do not have to own equal* portions of the property. A distinguishing feature of tenancy in common is that it is inheritable. The owner can sell, give away, or pass on interest to his/her heirs. The word "and" and sometimes "or" between owners' names creates tenancy in common. If a deed or title does not state the form of co-ownership, the court usually assumes it is tenancy in common.



It is extremely important to know how your property is titled. The method by which titles are held can have important estate planning implications. Many times heirs discover property that was assumed jointly owned by parents only lists one parent on the title. Even if the deceased has a legal will or trust, the title of an asset actually takes precedent over the will or trust and may force assets to be divided differently than intended, *title is king*. For example, a father and son operate a family business together where assets are owned as joint tenancy. The father is a widow and expects to die before his son, who has a wife and four children. The father plans for his assets to pass to his son. However, what if the son dies first? All of the son's interests in the joint tenancy assets will go to the father, leaving the wife and four children out of the inheritance of this property regardless of what the will says. Titles should be reviewed whenever there is a change in marital status, change in number of children, or a death in the family. It is also important to review non-titled assets such as machinery, livestock, and personal assets. Taking the time to review the titles of assets can help to alleviate problems down the road.

Source: *Nathaniel Cahill, Agricultural Business Specialist*

Bull Evaluation and Selection

This is the time of the year when cattle producers are taking their bulls out of the pasture, evaluating them, to determine if the current bull is acceptable for the next breeding season or if a new bull needs to be purchased. Evaluation of the bull should determine if he is meeting the cattle operation goals or if the purchase of a new bull will improve the likelihood of meeting those goals. The physical abilities of the bull also need to be evaluated to determine if he is sound and can continue to breed females during the next breeding season. Cattle producers also need to think about significant traits that need to be improved upon to make the cattle operation more successful in meeting their goals and determine if the current bull is acceptable or if a new bull needs to be purchased to improve those traits. If the decision is to purchase a new bull, take into account as much information as possible, as well as physical attributes, and purchase a bull that will make your cattle operation more successful.

When evaluating the current bull or selecting a new bull it is important to make sure the bull is adequately conditioned, muscled, and sound in structure. The bull should have a strong level topline and flexibility of structure such that on the move the bull walks smooth with ease. Also, the bull should have average shape and dimension of muscle throughout the body. The bull should be average frame size, with a deep wide chest floor, and bold spring of rib. When evaluating your current bull since he has been working his condition may be a 5 or slightly less, it is important to look at how he maintains his condition and how he puts on condition once the breeding season is over. If the bull is efficient in maintaining condition by not losing too much during the breeding season and efficiently putting the condition back on after the breeding season then he is acceptable. However if your bull is not managing his condition efficiently then it is time to cull him and purchase a new bull. When purchasing a new bull you should evaluate him and take into account the same physical attributes as you would your current bull with the exception of body condition score. Newly purchased bulls should have a body condition score of 6 (bull exhibits a good smooth appearance throughout).

Another test that determines if your bull can reproductively breed cows is a breeding soundness exam. Current bulls should have this test done and be satisfactory before the next breeding season and newly purchased bulls should have the test done and be satisfactory before you take possession. Also newly purchased bulls need to be tested and found negative for Trichomoniasis, an organism found in the reproductive tract of bulls and cows that leads to infertility, low pregnancy rates and abortions in cows.

When evaluating current bulls or bulls you are looking at purchasing it is important to look at the genetic merit of the bulls in addition to the physical attributes of the bulls and retain bulls that can genetically and physically make your cattle operation more successfully in meeting its goals.

The easiest tool to use in evaluating genetic merit of a bull is expected progeny differences (EPDs) which is a measurement of the animal's genetic value as a parent. When comparing two bulls the difference in EPDs is the expected difference in progeny performance between two bulls. For example, if bull A has a calving ease EPD of +0 and bull B has a calving ease EPD of +15 then bull B would have 15% more unassisted births compared to bull A. A new way to categorize EPDs is through EPD percentile ranks which will allow you to compare your current or purchased bull to all the rest of the bulls in the breed for that trait. For example, a bull that is in the 25th percentile rank for calving ease means that he is in the top 25 percent of all bulls in the breed for calving ease. Furthermore, if you had two bulls that you were evaluating and bull A was in the 25th percentile rank and bull B was in the 75th percentile rank for calving ease then bull A would have calves with more ease than bull B. Identify traits that will help your cattle operation be more successful at meeting its goals and retain bulls to use that have better than average EPDs and EPD percentile ranks of less than 50% for those traits. Finally another part of EPDs that is important is accuracy of the EPD. Basically the higher the accuracy of the EPD the more reliable the EPD. You should use bulls with EPDs with the highest accuracy possible. Some bulls that are being sold have genomic enhanced EPDs which means the bull had a DNA test done and it improved the accuracy of his EPDs. Therefore, since these bull's EPD's accuracy is higher you should probably look at purchasing bulls with genomic enhanced EPD's when possible.

When making a decision on the next bull that you're going to turn in with your cow herd always have your goals in mind and make sure the bull has the physical and genetic attributes that will be successful in improving traits to meet the goals of your cattle operation. If you have any questions contact your local MU Extension Livestock Specialist.



Source: Patrick Davis, Livestock Specialist

Get Ready to Mow Your Lawns

Get ready to start mowing and remember the first one often takes longer as you'll likely have to clean up sticks and leaves. Do you need a new lawn mower? Consider an electric mower. I got one last year, figuring it was less maintenance and it would be safer for my teenagers to use. The quietness is pleasant; my son described it like pushing an air conditioner across the lawn. It has two batteries and one can get about 45 minutes out of it between the two.

Crab grass preventer is commonly applied to cool season lawns, and should be put down before April 15th. But a little realized detail is that bare soil warms up quicker than sod. Since crabgrass germinates based on soil temperature, it will do so earlier where the soil is bare/open places. If you have that situation, consider applying at the earlier date, which is April 1st. Many crab grass preventers include fertilizer. This is ok, especially if you only fertilized once in the fall. But if you fertilize now, it would be best to NOT fertilize later this spring, with another weed control and fertilizer product. Two applications of fertilizer



Source: James Quinn, horticulture specialist for University of Missouri Extension active in the central area of the state. He is an avid gardener and enjoys his position to provide advice and programming in horticulture.