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Value of Cow Herd Performance Gains

Good herd managers routinely consider strategies to improve the bottom line over the long haul. Examples range from genetic selection decisions, to shifting breeding/calving seasons, to renovating pastures. To compare among alternatives, it can be helpful to start by working from a simple estimate of gross income over time due to improved cow herd performance.

The table illustrates expected gross revenue changes with incremental improvements in commonly measured production parameters: Calf crop (CC), Weaning weight (WW), and Calf death losses (CD). "What-if" scenarios quantify the expected revenue impacts with sustained changes in productivity, given the current price outlook. No one knows for certain what cattle price levels will be over the next decade, but that does not mean intelligent estimates of prices are not useful. This analysis is based on recent price projections published by the Ag Markets and Policy group at the University of Missouri.

Changes in beef cow-herd gross revenue with incremental changes in productivity, 2017-2026.

	Annual improvement per cow										Cumul.	Cumul.
What-if Scenario	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**Per Cow**	**50 Cows**
CC rate improves, 5 % points	$36	$34	$34	$35	$37	$39	$40	$40	$41	$43	$379	$18,974
WW improves, 50 lbs/hd	$25	$22	$22	$23	$26	$28	$29	$30	$31	$33	$269	$13,454
CD rate improves, 2% points	$14	$14	$14	$14	$15	$16	$16	$16	$17	$17	$152	$7,589
Above combined	$77	$72	$71	$74	$79	$84	$86	$89	$91	$95	$819	$40,950

So, given the assumptions in this tabulation, any practice that results in sustained improvement in the calving rate by five percentage points, say from 88% to 93%, is expected to generate additional revenue in each year. At the end of ten years, the accumulation of additional revenue is $379 per cow, equivalent to almost $19,000 for a 50-cow herd. There are at least two important conclusions to be drawn from the first line of the table. 1) A cow herd with consistently underperforming reproduction rates leaves a lot of money on the table—enough to make substantial investments, if needed, to correct under performance. 2) However, for 50 cows any investment with up-front costs over $19,000 is a non-starter if the payback must come from increased calving rate alone and within the ten-year period.

Similarly, an increase of 50 pounds in weaning weight for steer and heifer calves accumulates added gross revenue of $269 per cow after ten years, including a modest price slide adjustment for heavier calves. Reducing the calf death loss rate by two percentage points adds $152 per cow over ten years.

This analysis uses a model herd of 50 cows with production performance parameters assumed to be typical in Missouri cow-calf budgets *http://agebb.missouri.edu/mgt/budget/index.htm* . For brevity and simplicity, this illustration does not consider everything that may be needed in a complete economic analysis, such as, discount rates, costs, etc.

For assistance with evaluating management alternatives, consult with your regional Ag Business Specialist.

Source: *Brent Carpenter, Ag Business Specialist*

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Heifer Nutrition After AI Breeding

Dr. George Perry from South Dakota State University gave a presentation to livestock specialist about beef heifer nutrition at breeding time, and the impact of dietary changes on pregnancy rate and early embryonic development. Some of the information from his presentation is highlighted below.

Heifers are particularly sensitive to large changes in diet composition at or near breeding time. These effects are most noticeable with AI bred heifers. Much of the work Dr. Perry presented focused on drylot vs. pasture systems for developing heifers pre-breeding, and then looking at the impact of dietary change on animal behavior, animal gain, and AI pregnancy rates.

If heifers are developed in a drylot and then turned out to pasture, several behavioral and performance issues emerge. One study indicated that heifers developed in a drylot took 70% more steps on the first day they were turned out to pasture than heifers developed on pasture (17,000 steps vs. 10,000 steps). Additional research was shown that indicated drylot developed heifers can lose as much as 3.0 pounds per day the first week they are turned out to pasture. This increase in energy expenditure and reduced intake can have impacts on AI pregnancy rates in heifers.

This response was seen in a study which looked at turning drylot developed heifers out to pasture immediately after AI breeding and providing them with either 5 pounds of dried distillers grains or no supplement. Weight gain and AI pregnancy rate was checked 42 days after AI. The supplemented heifers had gained 32 pounds in 42 days and had a 76% pregnancy rate to AI. The unsupplemented heifers lost 5 pounds in 42 days and had a 61% pregnancy rate to AI.

Some of these impacts affect natural service breeding systems also. Dr. Perry cited a study reported in 1999. This study concluded that a decrease in feed intake from 120% of maintenance to 40% of maintenance resulted in a loss of over 50 pounds during a two-week period, and 60% of heifers stopped ovulating within 13 to 15 days of diet change. While this may sound extreme, the studies mentioned above show that dry matter intake and heifer growth rate can dramatically decrease if drylot or supplemented heifers are abruptly shifted to pasture only diets.

The main take home message is to avoid abrupt diet changes immediately after AI or before turning out bulls for natural service breeding. If heifers are shifted from drylot development to pasture, be sure to supplement additional energy to overcome some of these negative effects. Bottom line is that as heifers transition from hay-based rations to grazing, ease that shift through continued supplementation to avoid drastic reductions in energy intake to improve AI or early breeding success.

Source: *Gene Schmitz, Livestock Specialist*

The Integrated Pest Management (IPM) Website

For over 30 years, the University of Missouri IPM program has served the agriculture, horticulture, and urban pest management sectors in educating Missouri's citizens on responsible and sustainable pest management methods.

An interlinked community of state faculty specialists, regional extension specialists, the MU Soil Testing and Plant Diagnostic Service, and MU IPM staff strive to deliver timely updates of ongoing and potential pest problems, and the research-based approaches to controlling them. Coordinating our efforts with our partners at Lincoln University broadens the reach of our land grant mission and allows the collective to accomplish even more.

In 2016, we unveiled a new IPM website for Missouri that acts as a modernized communication vehicle for our pest monitoring program, newsletter articles, and social media information. Our state and regional specialists are engaged in an array of research programs that aren't just a reaction to current problems, but also proactively plan for future pest threats.

Sign-up for alerts!

https://ipm.missouri.edu/pestMonitoring

BUILDING PASTURE NUTRIENT NEEDS ON YOUR FARM

Whether it is crop production such as corn and beans or livestock production everyone knows if you don't feed it a ***well-balanced diet*** it will not yield, produce, nor gain. This being said most farm pastures, which are crops, are usually being neglected. Some more than others. Not to say all producers are neglecting there forage needs but the question still remains. "Are they doing their best to maintain soil fertility while maximizing potential for outputs and/or profitability?" After all the more grass produced the more cattle you can run on the same number of acres over a longer period of time.

Fertilizer is not cheap!!!! I get it… But neither is feed. Building your soil for future production is of greater value over the long hall than many think. If you are soil testing, you are at least thinking about this. Even if you are only renting a neighbor's farm, fertility will help you in the future. By the way, if you are fertilizing for plant growth don't forget that weeds are plants too and they use the high dollar fertility as well. Do not loose valuable fertility to weeds…eliminate them...

No two farms are alike when it comes to soil type and its ability to produce, so what do you really know about your soil conditions and what do you look for in a test?

When I look at a soil test I look at the following items. Thinking first about production and second about build-up and/ or back… Just what is in there right now.

Soil pH This controls the flow of nutrients which are available in the soil to the plant. Soil fertility is soil chemistry. Don't panic, this is not rocket science. If the valve is only half open then it is restricting the ability of flow and plants don't feed as well as they could thus lowering production and/or probability. By meeting the needs of the plants pH range, opening the flow valve if you please, you will get the best bang for the bucks on the nutrient flow currently available in your soil. Remember it take time for the lime to get into the soil so liming at least 3-6 months before you are wanting to see results is a must.. If fertilizer finances are limited lime first. Do not skip this as it will affect how the rest of the fertilizer's work when you apply it as well. ***Lime is the gatekeeper***. Calculate your needs based on the suggested limestone rate in ENM's. If you are around a half a ton or less per acre it may not be cost effective but extra lime will not go to waste I promise you. You usually take soil tests every 3 to 4 years and apply lime only once in that time period so a little extra will not hurt.

Phosphorus (P) Although different crops require different amounts of fertility based on plant type and yield goals I am looking for a **balanced soil**. One ready to go to work as you apply and build fertility for the future. This seems to be the mineral most often short in most of the soil test I review. It will limit production even though you pour on the nitrogen… And by the way the more nitrogen you put on the soil the lower your pH will go over time. I am looking for the P number to be around 40Lbs./A. This may seem like over kill but better to have a little extra available than not enough on those lean years when fertilizer dollars are limited. If broomsedge seems like it is increasing in your hay fields look here. If you continue to mow, rake, and bale hay as well as remove it from your fields without fertility you are depleting/ mining your minerals at an alarming rate.

Potassium (K) This, like phosphorus, will limit production if a shortage occurs in the soil as well. Again different crops require different amounts of fertility based on plant type and yield goals. Here, I am looking for a K number around 200-225 Lbs/A. Remember not all plants are alike and these are guidelines for you to look for so you can get a feel for where you are at and how you would like to proceed.

Magnesium (Mg) Even though magnesium is considered a secondary nutrient it is still important you meet all nutrient needs for the crop. Keeping this in the medium range on your soil test is a bonus. There are different ways to apply secondary and micro-nutrients but one of the most common ones used for magnesium is dolomitic limestone, it just comes with the lime from the quarry.

Crop being grown	Soil pH
Alfalfa and Alfalfa/grass Establishment	6.6-7.0
Birdsfoot trefoil and Birdsfoot trefoil/grass Establishment	6.1-6.5
Clover and Clover/grass Est. and Production	6.1-6.5
Cool-Season grass Est. and Production	5.6-6.0
Lespedeza and Lespedeza/grass Establishment	6.1-6.5
Over seeding with Legumes	6.1-6.5
Warm season grass Est. and Production	5.6-6.0
Sudan grass and Sudan/sorghum crosses	5.6-6.0
All row crops	6.1-6.5

When using the MU Extension soil testing service you will receive our recommendation for your cropping system, not only for this year, but for the next 8 years.

Yes, this is an 8 year build-up program based on your requested yield goals. This level of fertility needs to be applied every year (Excluding Liming) until you retest and get a new recommendation based on your progress. Our goal is to balance your soil for future use as well as the meet the production yield goals you have now as well as in the future. Remember, if you refuse to feed it right do not expect it to grow at an acceptable rate that will meet your needs in the future.

Another factor soon to play a major part in soil fertility is soil quality. Research in soil compaction, absorption, permeability, and nutrient flow are all being looked at. These too have an overall effect as to how the nutrients flow in your soil. Remember the true definition of soil is "A living, naturally occurring dynamic system at the interface of air and rock. It forms in response to forces of climate and living organisms that act on parent materials in a specific landscape over a period of time." We are the keepers of the land. We are responsible for the future generation.
Just how are we going to leave it for them?

Source: *Terry Halleran, Agronomy Specialist*

Impact of Veterinary Feed Directive on Honey Bees and Beekeeping

The Veterinary Feed Directive (VFD), as administered by the Food and Drug Administration (FDA), took effect on January 1, 2017. The purpose of this directive is to help slow antibiotic resistance from developing in bacteria. One of the ways FDA hopes to accomplish this is by removing all growth promotion uses from antibiotics fed to food-producing animals. Now, antibiotics will only be used for prevention, control, or treatment of a disease.

Anyone that feeds antibiotics to an animal needs to have a prescription from a veterinarian to obtain the antibiotics. Honey bees are considered food producing animals by the FDA Center for Veterinary Medicine. If you do not need antibiotics, you do not need to have a veterinarian. If you choose to give antibiotics to your bees, you will need to have a veterinarian. The antibiotics that beekeepers currently use without a prescription are oxytetracycline (Terramycin®) for control of American and European Foulbrood, and tylosin (Tylan®) for the control of American foulbrood. These products fall under the new VFD rule. At this point, fumagilin does not fall under the VFD rule.

A beekeeper should contact a veterinarian and develop a legally defined relationship called the Veterinary Client Patient Relationship (VCPR). The veterinarian needs to conduct an exam to ensure they are familiar with the keeping of the bees and that there is a need for antibiotics. The veterinarian can then write a prescription or VFD order. If the veterinarian writes a prescription, depending on the state, the beekeeper accesses the antibiotics directly from the veterinarian, a clinic, or a pharmacy. If the veterinarian writes a VFD order, the beekeeper accesses the antibiotics from a feed mill that mixes the medication for direct application. Regardless of how the beekeeper accesses the medication, the beekeeper agrees to follow the directions of the veterinarian when they apply the treatment. The veterinarian agrees to be responsible for the medical management of the bees and to be available for follow up if needed, for instance if the treatment does not work.

Contact your local veterinarian to determine whether he or she is a “bee vet”. If they are not, they may be able to refer you to another veterinarian that is trained in the care of bees. Additional information regarding the VFD impact on honey bees, as well as a listing of bee veterinarians around the country, can be found at ***beevets.com***

Source: Travis Harper, Agronomy Specialist