



# Master Cattleman Quarterly

## Oklahoma State University

### Transfer of Passive Immunity from Dams to Baby Calves

Glenn Selk, OSU Extension Animal Reproduction Specialist

Resistance to disease is greatly dependent on antibodies or immunoglobulins and can be either “*active*” or “*passive*” in origin. Baby calves are born with an immune system. However, they have not yet produced antibodies (“*active*” immunity) for disease protection. In “*active*” immunity, the body produces antibodies in response to infection or vaccination. “*Passive*” immunity gives temporary protection by transfer of certain immune substances from resistant individuals. An example of “*passive*” immunity is passing of antibodies from dam to calf via the colostrum (first milk after calving). This transfer only occurs during the first few hours following birth. Research (Wittum and Perino, 1995) conducted on over 200 calves, indicated that successful transfer of *passive* immunity, within hours of birth to a newborn calf, enhances disease resistance and performance for many months, even through the feedlot phase.

Timing of colostrum feeding is important because the absorption of immunoglobulins from colostrum decreases rapidly from birth. “Intestinal closure” occurs because specialized absorptive cells are sloughed from the gut epithelium. The very large molecules (immunoglobulins) are no longer absorbed by the intestine and

released into the circulation. In calves, “closure” is virtually complete 24 hours after birth. Efficiency of absorption declines steadily from birth, particularly after 12 hours. Feeding may induce earlier closure, but there is little colostral absorption after 24 hours of age, even if the calf is starved. This principle of “timing of colostrum feeding” holds true whether the colostrum is consumed directly from the first milk of the dam or supplied by hand.

Producers should provide high risk baby calves (born to thin first calf heifers or calves that endured a difficult birth) at least 2 quarts of fresh or thawed frozen colostrum within the first 6 hours of life and another 2 quarts within another 12 hours. This is especially important for those baby calves too weak to nurse naturally. Thaw frozen colostrum very slowly in warm water so as to not allow it to overheat. A microwave oven can be used only if it is set on low power and the frozen colostrum is very slowly thawed. A slow thaw means denaturation of the protein does not occur. If at all possible, feed the calf natural colostrum first, before feeding commercial colostrum substitutes. Remember, the first feeding of milk or colostrum will induce faster intestinal closure.

### Upcoming Events

**Southeastern Master Cattleman Mini-Summit**  
Southeast Oklahoma Expo Center  
McAlester, OK  
March 24, 2010, 9 a.m.– 4 p.m.

**Oklahoma Beef Industry Conference**  
Oklahoma State University  
Stillwater, OK  
April 8 - 9, 2010  
Call Chris Richards at 405-744-6060

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## Supplement or Replacer - What's the Difference?

Glenn Selk, OSU Extension Animal Reproduction Specialist

Beef cow calf producers occasionally will need to provide commercial colostrum to baby calves that are born to two-year old heifers with very little milk, or to calves after a difficult birth. Some of these calves are very sluggish and slow to get up and find the teat. Therefore, they may not get the colostrum that they need to achieve successful passive transfer unless colostrum is provided by the cattle manager. Knowing which products to use in different situations can be very helpful. Colostrum supplements are less expensive to purchase than colostrum replacers, but they may not be the best choice for the situation at hand.

The following excerpt from a Pennsylvania State University publication that is published on the E-Extension website helps to sort out the differences:

“Colostrum products that contain Immunoglobulin G (IgG) are regulated by the USDA Center for Veterinary Biologics. Supplement products are unable to raise the blood concentration of IgG above the species standard, which is 10 mg/ml. Any product that is able to raise serum IgG concentration above 10 mg/ml may be called a colostrum replacer.

Typically, colostrum supplements contain less than 100 g of IgG per dose and are composed of bovine colostrum, other milk products, or bovine serum. Colostrum supplements can be used to increase the amount of

IgG fed to calves when only low or medium quality colostrum is available. However, supplements cannot replace high quality colostrum. Even when a supplement is added to low quality colostrum, the IgG is often absorbed poorly, and antibody absorption is reduced compared to high quality maternal colostrum.

A limited number of products designed to replace colostrum are now on the market. These are bovine serum-based products and contain at least 100 g of IgG per liter plus fat, protein, vitamins, and minerals needed by the newborn calf. Colostrum replacer contains more immunoglobulin than supplement products and provides more antibodies than poor or moderate quality colostrum. In research trials, calves fed colostrum replacer have performed as well as calves fed maternal colostrum with no differences in IgG levels, efficiency of IgG absorption, incidence of scours, or growth rates.”

Source: E-Extension website “Colostrum Supplements and Replacer”, Authors: Sylvia Kehoe, Coleen Jones, Jud Heinrichs, The Pennsylvania State University, Department of Dairy and Animal Science.

## Wheat Stocker Graze Out Decision Tool Available

Eric A. DeVuyst, OSU Extension Economist

Although most producers have just placed stockers on wheat, it will soon be time to evaluate the end point for wheat grazing. Researchers have identified first-hollow stem (FHS) as a critical decision point in wheat physiology. Grazing up to FHS usually has minimal effect on wheat grain yield. After FHS, grazing has been shown to significantly decrease wheat yields. In central Oklahoma, FHS typically occurs in the first week of March but varies annually due to weather conditions. While most wheat stocker producers will pull stockers prior to or at FHS, are there circumstances that justify grazing past FHS? The Graze Out Decision Aid was written to assist producers with determining the economically optimal grazing termination date. Using data supplied by the user, the program computes the expected economic outcomes of pulling

stockers 14 days before FHS, seven days before FHS, at FHS, seven days post FHS, 14 days post FHS, or grazing out the wheat.

### *Data requirements*

The program requires the user supply production information (e.g., average daily gains, death loss, and supplemental feeding cost), purchase price of stockers, and production costs including wheat lease terms. The program will download futures prices and basis for feeder cattle if the user clicks the “download” button and has access to the internet. Otherwise, the user can manually enter prices and basis.

The program reports stocker revenues and costs in \$/head and \$/acre and breakeven sales price. The results also combine stocker and wheat revenues to

## Wheat Stocker Graze Out Decision Tool Available (continued)

find the maximum total return. Finally, the program reports the total returns if wheat is grazed. These results allow producers to determine the grazing termination date that maximizes their individual returns. For example, a producer who owns the cattle and rents wheat should look at the stocker returns. A producer who owns

both the cattle and wheat should consider the total returns from stockers plus wheat.

The program is written in Excel 2007 and can be downloaded for free at:

<http://agecon.okstate.edu/faculty/publications/3443.xlsm>

## IFMAPS: A Partner in Farm Financial Planning

Damona Doye, OSU Extension Economist

Intensive Financial Management and Planning Support (IFMAPS), a special program of the Oklahoma Cooperative Extension Service, provides free and confidential financial planning assistance to Oklahoma farm and ranch families. IFMAPS specialists work with families to gather information for financial plans. The plans typically include budgets for farm enterprises, a cash flow plan, income statement, balance sheet, debt worksheet (if applicable), and financial measures. Specialists provide professional, timely, and friendly assistance in evaluating the business aspects of the farm or ranch.

IFMAPS assistance is requested by Oklahoma producers considering a change in their operation, those simply wanting to get a better handle on their finances, and those applying for the Oklahoma Agricultural Linked Deposit Program. Producers with enterprises ranging from beef to tomato greenhouses have utilized the IFMAPS program. IFMAPS staff have worked with producers in every county in the state since the program began in 1985.

There is **no cost** to Oklahoma producers for using IFMAPS services. Funding for the specialists comes primarily from the state legislature through grants from the Oklahoma Department of Agriculture, with supplements from United States Department of Agriculture grants when available. This program only requires your time. Spending several hours assembling your records and working with a specialist to review your financial situation can produce great rewards.

To receive additional information or to schedule an appointment to receive assistance, call IFMAPS toll-free **1-800-522-3755** or e-mail [IFMAPS@okstate.edu](mailto:IFMAPS@okstate.edu). Requests for farm financial planning assistance can also be initiated through the Area Extension Agricultural Economics Specialists or the Oklahoma Cooperative Extension Service's Extension Educators - Agriculture. Additional information on the IFMAPS program is also available at <http://www.agecon.okstate.edu/ifmaps/index.htm>.

The typical process for using the IFMAPS program is this:

- Producer contacts the IFMAPS Center on the Oklahoma State University campus at **1-800-522-3755**.
- The case is assigned to a local IFMAPS specialist working for Extension on a part-time basis. These specialists have farm or ranch experience along with training in agricultural economics, accounting, or business.
- The IFMAPS specialist contacts the producer to discuss information needed and arrange a mutually convenient time to meet.
- The IFMAPS specialist mails a data collection packet to the producer.
- The producer gathers and summarizes farm records as much as possible before meeting with the IFMAPS specialist.
- The producer and specialist meet to review data and complete the packet. Depending on the complexity of the business situation and how much information has been assembled in advance, this meeting may take 1-5 hours.
- The IFMAPS specialist uses computer software to summarize data gathered into enterprise budgets and financial statements. For very simple cases, the data may be entered in the computer as the data collection packet is completed at the initial meeting. However, in most cases, the specialist will take the completed packet when he or she leaves and will enter the data later.
- Once the data is entered, the producer and IFMAPS specialist meet to review the preliminary plan. Alternatives are discussed. If extensive revisions are needed in the plan or several new alternatives need analysis, another meeting may be scheduled.

## IFMAPS: A Partner in Farm Financial Planning (continued)

- Producers are asked to complete an evaluation of the assistance provided so that the program's quality is ensured and any improvements needed can be made.

Developing a current business plan for your operation can help identify strengths and weakness and point out possible improvements. If you would like assistance in developing a plan, give IFMAPS a call.

## A Beef Calf Retention Decision Tool

Kellie Curry Raper, Eric DeVuyst, Damona Doye, and David Lalman

Cow-calf producers have multiple options regarding post-weaning marketing strategies for beef calves, due in part to the availability of fall and winter grazing. The Beef Calf Retention Decision V2.0 tool allows producers to compare retention scenarios based on ranch resources and price forecasts. Built-in constraints and variables help producers fully recognize the cost of resources used in production and determine the economic consequences of alternative retention strategies.

Maintaining ownership past weaning can increase value, but it also comes with increased risk (price risk and death loss) and costs (White, et al, 2007; Schroeder & Featherstone, 1990). In the decision model, producers first indicate retention options (preconditioning, drylot/backgrounding, grass pasture, wheat pasture, feedlot) and the order of occurrence. Price data linked to the spreadsheet through an Oklahoma State University (OSU) server is updated two to three times monthly. A spreadsheet "button" automatically updates price information when clicked. The user can choose up to five separate retention steps. For example, calves can be weaned to grass, then backgrounded, sent to wheat pasture, put back on grass and, finally, sent to a feedlot. The only limitations on the order of the

options are that preconditioning must immediately follow weaning and feedlot is the final retention step. A previous version of the program was more limited in the number of options and steps that could be considered.

The user enters relevant costs, including interest rates, production information and sales information for each retention step. The program then computes returns associated with each incremental retention step. Users can quickly evaluate if additional retained ownership is beneficial. The program also allows users to evaluate the sensitivity of results to changes in calf price, death loss, and feed expense.

The program also includes several links to OSU factsheets, websites and other resources that provide more information on increasing the value of your calf crop.

The program can be downloaded for free at: <http://agecon.okstate.edu/faculty/publications/3445.xlsm> and at <http://www.beefextension.com>.

### References

Schroeder, T. & Featherstone, A.M. (1990). Dynamic marketing and retention decisions for cow-calf producers. *American Journal of Agricultural Economics*, 72(4), 1028-1040.

## New Quicken Instructions Available

As noted in the last newsletter, Quicken, a popular personal financial recordkeeping tool, can be customized to help you sort farm/ranch income and expenses in meaningful ways. New Quicken instructions are available to be downloaded free at <http://agecon.okstate.edu/quicken/files/manual/QUICKEN2010.pdf>

Or, if you prefer, you can order a printed copy of

the manual with sample files and instructional video on an accompanying CD for \$25 at <http://agecon.okstate.edu/quicken/order.asp>. Learning to use software for financial records is a good investment. Dividends include the ability to sort and summarize income and expenses or generate tax reports with a few key strokes. Just do it!

## Producer Spotlight: Eddie and Christina Fields

Interview by Will Cabbage, Extension Educator-Ag, Osage County

Our spotlight for this edition is focused on the Fields Ranch of Wynona, Oklahoma in Osage County. The ranch today is operated by Eddie J. Fields and his wife Christina. Eddie is the third generation to ranch in the Osage and has been managing their business since 1993. Their family first began in the ranching business over 100 years ago in Texas and New Mexico. In 1952, the ranching operation was moved to the Tallgrass Prairie of Osage County by Eddie's grandparents, Ed & Viola Fields, and was then turned over to Eddie's parents, Dennis & Jan Fields in 1966. According to Eddie, "We are definitely a family business and wouldn't have it any other way."



In addition to ranching, Eddie was elected in 2008 to represent most of Osage County as a member of the Oklahoma House of Representatives from District 36. Eddie, though, has been no stranger to the political arena. Prior to his election, he served several years on the Wynona School Board and the Osage County Farm Bureau Board of Directors as well as a past president and board member of the Osage County Cattlemen's Association. Among other appointments, he is a member of the House Ag Committee and has co-authored several bills supporting agriculture and rural Oklahoma in his first year of service.

Recently, Eddie participated in the Oklahoma Quality Beef Network (OQBN) Sale held in Blackwell on November 30<sup>th</sup>. Their ranch has always been based on a cow-calf enterprise and currently utilizes Angus and Hereford genetics. When asked why he jumped at the chance to participate in OQBN, Eddie responded, "We see the OQBN as a market tool to expand our marketing capabilities and have an outlet to market our value-added products (calves). With our facilities, OQBN sales fit our program very nicely and allow us to sell our calves for a premium."

When cattle producers think of Osage County, the first thing that comes to mind is stocker cattle. Fields Ranch also has a stocker cattle enterprise in addition to the cow-calf unit. Several years ago, Eddie constructed a set of receiving pens for the stocker unit. There they began backgrounding calves for the summer

stocker season. As they gained experience in this, they also began backgrounding some additional calves for other ranchers in the area. However, he is considering an adjustment in the program. "We normally don't purchase backgrounded calves for summer grass because that is part of our business (backgrounding calves), but with competition of upgraded cattle, time constraints, markets and family issues, we will start looking harder at preconditioned calves to purchase," said Eddie. "We would buy calves through an OQBN sale if sale dates would fit our particular program and the type of cattle being offered fit our needs."

While Eddie normally markets calves at the Blackwell market, he was very satisfied with the premiums received in the November 30<sup>th</sup> marketing. Looking ahead to next year's calf crop, "We look forward to marketing more calves next year through OQBN sales, which gives us more options to market our cattle and more flexibility for our operation. The OQBN allows producers an option to market their cattle to a specific market or clientele and receive a premium for those cattle that meet those needs or goals."



If you would like to see ranches like Fields Ranch for yourself, The Osage County Cattlemen's Association holds a FREE Ranch Tour that is now in its 76<sup>th</sup> year. The tour takes place on Saturday during the Association's annual convention held each year on Fathers' Day weekend. Contact the Osage County Extension office at 918-287-4170 or email [will.cabbage@okstate.edu](mailto:will.cabbage@okstate.edu) for details.

*Editors note: If you know of someone who would be a good candidate for a future producer profile, contact David Lalman.*

## Simple Changes: *Crossbreeding Builds Profitable Genetics*

Clifford Mitchell

It's easy to blame pride or tradition or whatever other characteristic associated with ranchers or other individuals involved in some form of agriculture for the unwillingness to change. The discrepancy most cattlemen face, bears no burden on others in agriculture, is the length of time it takes to make changes within respective cow herds.

Crop farmers, who plant a variety that does not fare well in the existing soil type or cannot withstand some climatic condition, can get away with one bad seed because changes can be made for the next growing season. One line of wrong genetics introduced into the sow herd can be forgiven because whole herds can be replaced within months rather than years. One wrong move in the beef business can compromise years of hard work. In tough times, where variable markets exist, the advantages of crossbreeding can help provide both immediate and long term gains.

"In any market, there is a tremendous advantage to crossbreeding. Improvements in cow efficiency, lifetime sale weight and production can be critical in times of increased pasture rents and high feed costs," says Dr. David Lalman, Extension Beef Cattle Specialist, Oklahoma State University.

"When high corn prices and other cost factors exist, producers can tailor a product to fit different markets with a simple crossbreeding program. Typically, this will consist of an F1 type female mated to a purebred bull," says Dr. Robert Wells, Noble Foundation, Ardmore, Oklahoma.

Advantages of a crossbreeding system can be felt at many different market periods. Defining genetic selection could depend on the end point target.

"Most producers don't take their calves to the feedlot. Heterosis can account for an 11 percent increase in weaning weight and a four percent increase in yearling weight," Wells says. "Products of a well thought crossbreeding system can be more efficient in the feedlot and hit many grids that reward for quality and yield grade."

"Some producers have targeted a value-added marketing system that pays for quality grade and followed a trend without realizing they are passing on extra benefits provided through a crossbreeding system," Lalman says. "Depending on market conditions, a lot of people will argue the benefits breed complementary achieved through a crossbreeding system, bring from an efficiency,

quality and yield grade standpoint. In times of high feed costs and a low choice/select spread, I know which ones I want to own." Data from the Lerwick Brothers operation in Wyoming presented at the December "Vision in Action" symposium, shows a distinct advantage of \$70 to \$100 per head returned per cow when comparing crossbred vs. straight bred calves. Recently, Dan Dorn of Decatur Feedyard in Oberlin Kansas estimated the difference in one pound of conversion converts into a healthy \$90 difference in feed costs for a calf fed, based on \$4 corn.

Many production systems are well thought out, but are phased out because the resources do not exist to reap the benefits. Matching genetics to environment is one of the most daunting tasks commercial cattlemen face.

"A simple crossbreeding system will capture some hybrid vigor. Utilizing breed complementary allows producers to better fit cattle to their environment. Crossbreeding has proven to increase reproductive efficiency, calf growth rate and longevity all in one genetic package. This often translates into 25 percent higher lifetime profitability," Lalman says. "You can argue that there is a slight increase in costs due increased nutritional requirements for that crossbred cow. In most market conditions, the increase in pounds will outweigh the increase in production costs." According to, Dr. Kent Anderson, North American Limousin Foundation Executive Vice President, data presented at the recent "Vision In Action" program shows crossbred cows produce an average of 20 percent more pounds of calf weaned per cow exposed, have 1.3 years additional cow longevity and up to 30 percent greater lifetime cow productivity.

Replacement costs are often overlooked by most producers. Replacing cows in the herd with heifers that have been bought or raised is part of the process. Increased longevity and fertility are important numbers.

"Crossbreeding has a greater impact on traits that are low in heritability, such as reproduction, and it has less of an impact on traits that are moderate to high in heritability, such as growth, feed efficiency and carcass traits," Lalman says. "Therefore, crossbreeding is more beneficial in a breeding program where you are retaining your own replacement heifers."

"That crossbred cow is usually more fertile and has less likelihood of dropping out of the herd. She has longevity built in and will typically stay in the herd and breed in a variety of conditions," Wells says. "Every cow

## Simple Changes (continued)

has a cost associated with getting her into production. Once she's covered those incurred costs, every calf cheapens her replacement costs. Depending on your system and her salvage value, most cows will breakeven after her third or fourth calf. An advantage for crossbred heifers, usually, they'll reach puberty at 15 months and you can get them bred to calve as two-year olds."

During the "Vision in Action" program, Lerwick Brothers data shows production costs are made up of many different figures ranging from feed costs to the cost of bull power needed to produce the annual calf crop. Replacement figures from this same ranch lay a pretty heavy burden from an opportunity cost standpoint. Rex Ranch data also points to the benefits of cows staying in the herd after age seven. Older cows will decline two to three percent in weaning weight, but the difference is covered by not having to account for depreciation. Figures, for most, that would make a difference in an annual cow herd revision.

"The cows who wean calves when markets are trending up will have a shorter payback period than those weaning in the low market price part of the cattle cycle," says Dr. Damona Doye, Extension Economist, Oklahoma State University. "Once a cow has reached maturity, the costs of raising her are "fixed" and so greater longevity and more weaned calves allows a producer to spread those fixed costs over more calves, reducing the fixed cost per calf. If additional variable costs are required for supplements and/or productivity is impacted, then that has to be weighed against the reduction in fixed costs. Given the parameters for different factors, you could go through a budgeting exercise to look at the differences."

Sharpening the pencil and keeping active record books can show these advantages. Without proper records and tracking of each calf all the way through the system it is hard for producers to realize some economic advantages crossbreeding will bring.

"When you look at the table of traits for beef cattle, most are positively affected with crossbreeding. Increasing the calving rate by six percent and the weaning rate by eight percent seem like small numbers, but they can pay big dividends," Wells says. "Crossbreeding can help maximize profits without costing anymore."

"There are certain fundamental numbers that will help a producer look at the big picture first. Crossbreeding is important tool for increasing these fundamental

numbers," Lalman says. "Start with pounds at weaning per exposed cow or something like weaning rate and you'll see there is a lower cost per pound of weaned calf. Simple numbers are the foundation. Figures like dollars returned per cow has a lot to do with how the calf crop is marketed. Certain operations face disadvantages from a numbers standpoint or other factors they can't control."

More tools are available to producers now than ever before when it comes to incorporating profitable genetics to the cow herd. The art of crossbreeding can be as simple or as technical as a producer wants to make it. Changes as simple as updating the herd bull battery can alter annual production figures.

"We have the ability to select cattle that can meet a variety of production goals. The tools are available to select cattle for more marbling and maintain the advantages of crossbreeding," Lalman says. "The goal, over time, should be to incorporate genetics that will position the herd to take advantage of whatever opportunity the marketplace offers."

"Successful crossbreeding systems are in place that run an F1 cow and mate her to a purebred bull. This is the easiest way to get the calf crop to start exhibiting the advantages of heterosis," Wells says. "If you want to maximize heterosis within a given population, mate that F1 cow to an F1 bull. F1 bulls with known pedigree and Expected Progeny Differences are readily available. Take advantage of the work someone else has done to produce that product."

Adding efficiency to the genetic base is important in any production scenario. Most producers would benefit from a back to basics approach. Change comes when the market dictates it. Most producers will work to position the herd to be profitable in any situation. The time frame it takes to adapt is often the difference between a progressive outfit and one lagging behind the times.

"A back to basics approach is sometimes called for no matter what economic times we face. A lot of times producers look at weaning weight and brag about it. When we really need to take it a step further and look at pounds of calf weaned per cow exposed," Wells says. "The main thing producers need to keep in mind is a crossbred cow can fit many different environments. She is also pretty efficient and will work in a variety of production systems no matter what the end product goal is."

**Oklahoma Quality Beef Network Update**

Doug McKinney, OSU Beef Value Enhancement Specialist

The Oklahoma Quality Beef Network (OQBN) had producers from across the state of Oklahoma enrolled in one of four OQBN Vac-45 sales this fall. There were OQBN sales at OKC West Livestock Market (2), Blackwell Livestock Market, and Red River Livestock Market. 123 beef producers enrolled over 4600 head of cattle in the OQBN and sold cattle in at least one of the OQBN Vac-45 sales. Producers followed strict guidelines and met the minimum criteria in order to have cattle sold under the OQBN name. All cattle were ranch raised, castrated, dehorned, dewormed, bunk broke, weaned a minimum of 45 days, and followed one of three vaccination protocols. All requirements were verified through a 3<sup>rd</sup>

party process by extension personnel.

OQBN Vac-45 program benefits buyers and sellers in several ways. In addition to healthier, heavier calves when sold, sellers may earn higher prices. Research has found buyers paid \$3-6/cwt more for pre-conditioned calves in recognition of buying healthier, higher-performing calves in a stocker or feedlot program. OQBN offers unbiased information on beef value-enhancement. It provides producer education and tools to enhance access to value added programs such as health management verification, age and source verification, genetic verification, and production system verification.

Damona Doye  
515 Ag Hall  
damona.doye@okstate.edu  
405-744-9836

David Lalman  
201 Animal Science  
david.lalman@okstate.edu  
405-744-6060

Oklahoma State University  
Stillwater, OK 74078



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