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BOVINE HEALTH WATCH®

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AGRI LABS: PLACING STOCK IN LIVESTOCK PARTNERSHIPS

In the 23 years since AgriLabs was established in 1984, we have taken pride in orienting our business objectives toward the goal of becoming an invaluable ally to livestock producers. First and foremost, AgriLabs has embraced this notion of complete service philosophically. We want to make everyone we work with stronger (livestock producers, product manufacturers, research partners, veterinarians, and our distributor network) because we honor the principle of “interdependency.” We are all like the links of a chain. We realize our goals and our purpose fully only when each link is as strong as possible.

To express this commitment in our business operations, AgriLabs broke the long-established business model of competition in the animal health industry, replacing it with collaboration. In addition to our own R & D efforts, which promise several new product introductions in the near future, AgriLabs has become the sales and marketing partner of choice for companies that have new, exciting technologies for animal health, but don't have the ability to bring them to the U.S. livestock marketplace.

Here are some of our proudest achievements:

- AgriLabs attained the first ANADA (generic animal drug product) approved by the FDA in 1992. Generic animal drugs have saved the industry many millions of dollars over the past 14 years. AgriLabs currently has 12 generic drug-licensed products with more in various stages of research, making AgriLabs one of the leading generic animal drug companies in the U.S.
- AgriLabs launched the first cattle vaccine line (*Titanium*® and *Master Guard*®) with both Type 1 and Type 2 BVD protection in 1998. Today this product line is the standard by which all other 4/5-way viral cattle vaccines are measured.
- In 2004 AgriLabs launched the *SRP* vaccine, which uses totally new vaccine development technology to provide unsurpassed immunity against *salmonella* in beef and dairy cattle.
- In 2005 AgriLabs launched *Mycomune*®, the first USDA-licensed vaccine for prevention of mycoplasmal mastitis.



In addition to supporting research for the new and established products of U.S. manufacturers, AgriLabs has developed and markets more than 750 products through its own branded product lines. To ensure that AgriLabs products are well represented throughout the country, we have assembled a sales team comprised of 21 well-trained, experienced professionals that covers the United States. Each territory manager focuses his/her efforts in communicating the value of AgriLabs products in livestock operations.

Also, AgriLabs is proud to serve a very aggressive role in providing educational programs to veterinarians, distributors, and producers. These efforts are augmented by our own highly skilled technical services veterinarians.

AgriLabs' technical services team is involved in ongoing research programs and field safety and efficacy testing of new antigens for products in the research pipeline. Our technical services team is very active serving private-practice veterinarians and livestock producers by answering questions about the proper use of AgriLabs products.

The foundation of AgriLabs is our national network of 18 independent distributors, operating 175 branch locations and supported by more than 1,200 sales representatives. AgriLabs distributors comprise the largest animal health distribution network in the U.S., representing more than \$1.6 billion in annual sales. We recognize that a well-managed network of diversified, independent distributors is the most efficient way to get more manufacturers' products into the hands of more producers.

In research, education, marketing, distribution, and responsiveness to the rapidly changing market, AgriLabs is committed to the “success of all” as the best strategy to achieve our company's success. AgriLabs is here to serve the livestock industry, and we are in it for the long haul, always your committed partner.

TRACEABILITY IN THE 21ST CENTURY

THE RULES HAVE CHANGED

Traceability is not a new issue in the cattle industry, but it is one that has increased bearing on both domestic and international markets with each passing day. The rules for traceability significantly changed on Dec. 23, 2003, when bovine spongiform encephalopathy (BSE) was discovered in the United States. Since that time, it is requiring a “new level of thinking” to get export trade partners to accept U.S. beef again.

“We cannot hope to maintain the status-quo (pre-December 2003 export levels) without proactively addressing the desires of our export customers,” commented **Colorado State University Animal Sciences professors Dr. Tom Field and Dr. Keith Belk** in an early 2005 industry publication.

From a regulatory standpoint, international trading partners are demanding animal traceability. They want to be assured their beef is safe, specifically from BSE. **Mike John, a beef producer from Huntsville, Mo., and 2006 National Cattlemen’s Beef Association (NCBA) President**, explains, “Those who market U.S. beef overseas are constantly confronting the argument that Canada, Australia, and other beef-exporting countries have a national ID system, but the United States does not. The perception that these countries have moved past us is hard to

overcome, and it is hurting our efforts to rebuild international market share, which adds to the value of livestock.”

According to **Leann Saunders, vice president, IMI Global, Castle Rock, Colo., and Dr. Gary Smith, Colorado State University Distinguished Professor and Monfort Endowed Chair in Meat Science**, traceability of a food requires the development of “an information trail that follows the food product’s physical trail. Internationally, the U.S. is lagging behind many countries in developing traceability systems for food – in general – and for livestock, poultry and their products, especially.”

Saunders and Smith say, “Domestically, in the U.S., and internationally, it has now become essential that producers, packers, processors, wholesalers, distributors, exporters, restaurateurs, retailers, and government assure that livestock and meat are identified, that

procedures and resulting records assure traceability through all or parts of the complete life cycle of an animal, and that – in some cases – the source, the production practices, and/or the process of generating final products, can be verified and authenticated.”

Animal I.D. and traceability are strictly about maintaining consumer confidence.



Maintaining consumer confidence

Closer to home, the single largest purchaser of American beef – McDonald’s® – is also pushing for traceability. This quick-service restaurant purchases close to a billion pounds of beef each year.

McDonald’s strives to lead the industry in areas it identifies as important to both the corporation and the industry overall. It has helped the beef industry address food safety and animal welfare issues, and is now sending a clear message that it sees animal ID of utmost importance.

“We believe that there is a need for the U.S. livestock industry to move towards having the ability to source verify and quickly trace animals,” says **Rob Cannell, the director of U.S. Supply Chain Management for the McDonald’s Corporation**. “If/when an event occurs that requires animal trace-back, we want to make sure that the industry has those tools and resources available.”

Cannell says that animal I.D. and traceability are strictly about maintaining consumer confidence. This is a huge factor for

McDonald's because, world-wide, this food-service chain serves more than 50 million customers each day in more than 30,000 restaurants; nearly 50% are U.S. restaurants. According to Cannell, any loss of consumer confidence potentially affects the McDonald's brand, and most probably its business around the globe.

"Our customers today expect higher safety standards, better tasting products, and companies that care about social responsibility and sustainability. Our customers' expectations are our expectations," he says.

McDonald's has the highest food quality and safety standards in the business and aren't bound to compromise them. It works with beef suppliers who are willing to invest in innovation. One major supplier is OSI Industries, which has been a beef supplier since McDonald's opened 50 years ago. In fact, McDonald's beef suppliers conduct more than 100 individual and 2,000 safety and quality checks each day at every beef patty plant. It was the first in the quick-service restaurant industry to require multiple stages of *E. coli* tests in its hamburger processing, both before and after grinding.

This food-service provider has been able to trace all individual patties from its restaurants back to

certain lots of beef at certain packing plants for decades. But that's not enough. Many customers already expect that retail and food service segments are able to trace food products to specific animals and those animals back to where they were born, raised, and fed.

McDonald's itself isn't concerned about tracing individual patties back to individual animals and ranches. Its main concern is that a traceability program exists that could tell them within 48 hours if a specific animal is involved in a lot of beef they purchased. Basically, should a crisis occur, it wants to be able to assure customers that an auditable chain of data exists and that animals can be traced back to origin if necessary.

McDonald's definition of source-verification is auditable information that shows the season of birth, farm of origin, and the animal's every location between the farm and packing facility. However, McDonald's doesn't advocate one specific ID and traceability system over another. Cannell says that McDonald's supports accurate and effective programs that are able to provide the right information to the right people in a timely manner. "We see ID as an important tool for use by the proper regulatory or animal health officials."

McDonald's foresees that the

Source and Age Verification vs. National ID

Source and age-verified programs often utilize RFID tag technology to record and verify the sources and ages of beef cattle to fit end-use programs. While alliances and programs such as these complement National ID, they are unrelated.

The purpose of National ID – the National Animal Identification System (NAIS) – is to track animals from birth to harvest. Should a disease outbreak occur, the goal is to trace cattle back within 48 hours.

By comparison, source and age-verified programs are market-driven. They require source and age information and third-party verification of records. Depending on the program, other information such as genetic background and health records may also be necessary to participate in programs like these being driven by domestic and international consumer demand.

traceability issue isn't going to fade away. Consumers are becoming more educated and interested in their food products, including the source and handling, and most are willing to pay for safety assurances. Therefore, this hamburger giant is expanding its supply of source-verified beef.

Cannell recommends that producers be early-adopters of traceability programs. Start now and move quickly is his advice, because animal ID capabilities have to be in place and functioning before traceability can occur.

As he pointed out to participants at the International Livestock Congress' traceability session, "The rules have changed in the 21st century and we must change to survive."

McDonald's information sources: National Cattlemen, Fall 2006; BEEF, April 2005; Washington Cattlemen's Convention, Fall 2005.





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ETHANOL CO-PRODUCTS: A GROWING FEED RESOURCE

The current expansion and potential for continued growth of the ethanol industry is increasing the availability of alternative feed resources – ethanol by-products. These by-products, often termed co-products, can be used as a supplemental feed source for beef cattle as part of backgrounding and finishing diets, in forage-based diets, and in creep feeds.

According to the Renewable Fuels Association, the United States has 107 ethanol refineries in production, 49 under construction, and more on the drawing board. Corn is the favored raw material for the lion's share of both current and future facilities. Thus, the making and marketing of feed ingredients is becoming an increasingly important aspect of the ethanol business.

Wet vs. dry milling

As feedstuffs, distillers grains and other co-products are not new. Yet many cattle producers lack clear understanding of the various products and how they differ. Livestock nutritionist **Dr. Matthew Gibson, vice president of technical services and marketing for Dakota Gold Marketing**, explains different ethanol production processes yield different co-products. It depends on whether a wet milling or dry-grind (dry milling) process is used.

Dakota Gold Marketing is an arm of Broin Companies. Broin-operated plants yield about 22 percent of the dried distillers grains fed in this country, and Dakota Gold ranks first among distributors of dried distillers grains.

Gibson explains that wet milling involves soaking



Broin's Dakota Gold dried distillers grains product.

or steeping whole corn to soften the kernels. Then, further processing separates components. Processors are mainly after the starch fraction used in products such as dried corn starch, corn syrup, and sweetener. Another valuable fraction is the corn oil. Many of these products are marketed for human consumption. Some starch may also be converted to dextrose and fermented to create ethanol. The principal wet milling co-product used as cattle feed is called *corn gluten feed*.

Generally, fuel ethanol production is the primary goal of companies, like Broin, that use dry-grind processing. The grain is ground and fermented to convert the starch into alcohol (ethanol). Distillation to remove the alcohol leaves wet distillers grains and distillers solubles. These products may be marketed separately, or distillers solubles can be added back to the wet grains. Typically, blended distillers grains with solubles is sold as a dried feed ingredient, such as Broin's Dakota Gold product.

"Distillers grains are a tremendous feed ingredient for feedlot rations, with five to 15 percent more energy than corn. Some studies have shown the difference to be even greater," states Gibson. "With the starch removed, distillers grains are safer than corn – less risk of acidosis. And because they are a good source of protein, they also can replace part of the ration's protein supplement."

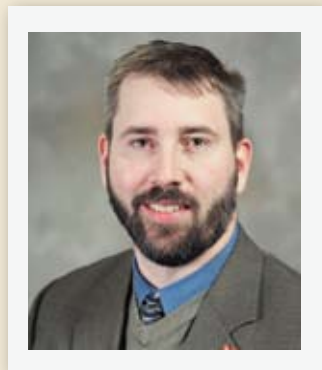
Corn is roughly two-thirds starch, with that removed during ethanol production. So the nutrients contained in distillers grains are concentrated three-

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Dr. Matt Gibson,
Dakota Gold Marketing

"Distillers grains are a tremendous feed ingredient for feedlot rations, with five to 15 percent more energy than corn. Some studies have shown the difference to be even greater."



Dr. Galen Erickson,
University of Nebraska Extension
Feedlot Specialist

“Producers will have to remember that not all co-products will be equal. They will need to know just what they are buying and how to use it.”

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fold, compared to corn. Providing considerable energy, protein, and minerals, distillers grains contain 27 to 30 percent crude protein, 11 to 12 percent fat, and 0.8 to 0.9 percent phosphorus (all on a dry matter basis).

The advantage of *dried distillers grains*, explains Gibson, is its stability and ease of storage. The wet product has a relatively short “shelf life” and will spoil unless stored in a pit or in big silage/haylage bags to reduce mold growth. Unless properly stored, producers won’t want to have more on hand than can be fed up in a few days.

Another consideration is cost. Wet distillers grains often appear to be less expensive, but usually contain 65 to 75 percent water.

Distillers grains vs. corn gluten feed

Perhaps least understood by many livestock producers are the differences between distillers grains and corn gluten feed. The latter, as mentioned previously, results from the wet milling process. It too is sold in wet (40 to 60 percent dry matter) and dried (85 to 90 percent dry matter) forms. Wet corn gluten feed’s energy content is similar to slightly higher than that of corn grain, while dried corn gluten feed’s energy content is lower than corn’s. Wet corn gluten feed also poses the

same storage and transportation cost challenges as wet distillers grains.

Compared to distillers grains, corn gluten feed has slightly lower levels of crude protein and fat, and slightly higher phosphorus content. Another difference related to protein is that 80 percent of corn gluten feed’s protein is rumen degradable, compared to 35 percent for distillers grains. Rumen-degradable protein must be converted to microbial protein in order to be utilized by cattle.

Like the feedlot industry, other sectors can benefit from ethanol co-product feeds. Dried distillers grains and dried corn gluten feed can fit well in calf backgrounding rations and beef cow diets utilizing low-quality forages. The co-product feeds supply energy, without the starch that can inhibit digestion of forages. They provide protein beneficial to rumen microbes, enhancing the bugs’ ability to break down fiber. Supplementing grazing cattle with co-product feeds may also meet the animals’ requirements for phosphorus, thus eliminating the need for additional supplemental phosphorus in free-choice mineral mixes.

Co-product limitations

Ethanol co-products do have some limitations. For some producers,

bulk product isn’t very convenient. Some companies are improving the integrity of their pellets or range cubes, but many producers have been disappointed with soft, crumbly products in the past.

University of Nebraska Extension Feedlot Specialist

Galen Erickson says some of the products’ advantages can become liabilities. For example, the high phosphorus levels that might be an asset to grazing animals can challenge feedlot manure management.

“Frankly, corn (grain) provides more phosphorus than the animals need. Using (co-products) adds more, bumping levels from about 0.3 percent to around 0.5 percent in the diet,” explains Erickson. “A greater excess in the diet means more phosphorus is excreted in manure, and close to double the cropland acres are needed to distribute the manure as fertilizer.”

That might be a problem in some localized areas, but it’s not as bad as it might sound. Erickson says high-phosphorus manure can be valuable. It should be to farmers that apply phosphorus as part of an expensive commercial fertilizer program.

Another limitation of distillers grains is related to the product’s high fat content. Too much fat in the diet can hinder rumen fermentation and reduce fiber digestion. Erickson recommends that total fat content not exceed seven percent of forage-based diets, or eight percent of finishing rations, on a dry matter basis.

Distillers grains and corn gluten feed are relatively high in sulfur and too much dietary sulfur may contribute to development of a neurological disease called polioencephalomalacia. Generally, it is recommended that sulfur comprise no more than 0.4 percent

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TITANIUM



MASTER GUARD



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of the diet dry matter. If sulfur is a problem, Erickson suggests feeding 100 to 150 milligrams daily of thiamine (a B-vitamin). And test the water. Special care must be taken in areas where the sulfur content of water is high.

While no rule-of-thumb is fool-proof, Erickson says most dietary problems can be avoided if ethanol co-product feedstuff inclusion rates do not exceed 40 percent of the ration on a dry matter basis.

One other reason to watch inclusion rates is the effect ethanol co-products may have on carcass merit. After conducting a review of 13 university studies, **Kansas State University Extension Feedlot Specialist Chris Reinhardt** notes that evidence suggests co-product inclusion rates above 30 percent may result in reduced marbling (intramuscular fat) deposition and lower quality grade. While this point is controversial, researchers speculate that low levels of starch in the diet may be the cause of small but statistically significant differences.

Many scientists and cattle feeders dismiss the notion of reduced quality grade due to co-products feeding; Erickson considers it a non-issue, as long as co-product



A Broin Companies plant. Broin, based in Sioux Falls, S.D., operates 19 ethanol plants and has several more under construction. It is the largest producer of ethanol from dry-grind (dry milling) facilities in the U.S., currently marketing over 1 billion gallons annually. Broin-operated plants yield about 22 percent of the dried distillers grains fed in this country.

feed ingredients are not fed at exceedingly high inclusion rates.

Co-products: good for the industry

There is little argument over whether co-product feedstuffs will play an increasing significant role in cattle diets. As a whole, ethanol co-products are considered good for the beef cattle industry.

“They work really well. And particularly in areas near the plants, they have made cattle feeders very competitive. I’m really optimistic about the future,” offers Erickson.

“Most of the ethanol industry

expansion will involve dry milling, so we can expect more production of distillers grains. We’ll see more corn gluten feed too, and I look for increased availability of more and different kinds of co-products,” Erickson adds. “But producers will have to remember that not all co-products will be equal. They will need to know just what they are buying and how to use it.”

Dr. Matthew Gibson and Dr. Galen Erickson discussed ethanol production and corn by-products and feeding ethanol byproducts to cattle at the December 2006 Academy of Veterinary Consultants Meeting in Denver, Colo.

Starch to Ethanol

Ethanol, a renewable energy source, can be produced from a variety of substances. The predominant substance is corn (and other grains), but ethanol can also be produced from wood waste, cheese whey, waste sucrose, potato waste, brewery waste, and food and beverage waste.

At its most basic, the process involves exposing the starch in the substance and then undertaking a fermentation process. When this process is used with corn, it may be done in one of two ways: dry milling (or dry-grind processing), the most common type of ethanol production in the U.S., or wet milling.

Corn contains approximately 61 percent starch, thus it’s easy to see why this grain is an ideal substance for ethanol processing. One bushel of corn produces 2.7 gallons of ethanol, 18 pounds of ethanol co-products, and 18 pounds of carbon dioxide.

Co-products – by-products – of ethanol production that can result from dry milling, and are of interest to the beef industry, are:

- dry distillers grains
- dry distillers grains with solubles
- wet distillers grains
- wet distillers grains with solubles
- condensed distillers solubles

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Today's beef producers strive to breed, raise, and market high-quality beef products, and AgriLabs is part of that commitment, helping to keep cattle healthy, productive, and profitable.

In 1998, AgriLabs made available to the cattle industry *Titanium*® and *Master Guard*® modified-live cattle vaccines through a unique manufacturer-distributor agreement. AgriLabs saw the need for a bovine viral diarrhea virus (BVDV) vaccine with type 2 antigens, and *Titanium* was the first BVDV modified live vaccine (MLV) brought to the marketplace indicated for both type 1 and type 2 BVDV protection.

Titanium has a proven safety track record and meets Beef Quality Assurance guidelines with its subcutaneous as well as intramuscular routes of administration, both available since the product was launched just over eight years ago. But something else that makes the *Titanium* and *Master Guard* lines unique is their exclusive manufacturing process known as the *Signature* cell line™.

Serial-to-serial consistency

The *Signature* line is “a well-characterized cell line,” says **Dr. Michael McGinley of Diamond Animal Health**, the manufacturer of the *Titanium* and *Master Guard* MLV product lines.

McGinley, a virologist and Diamond's vice president of operations and technical affairs, explains that consistency is a major advantage with the *Signature* cell line because it allows Diamond to stay very even during manufacturing. “We don't have wide swings above our target titer or below our target titer,” he says. What this means for producers is the virus product that comes out of the *Signature* cell line and goes into the bottle is reliable in the field.

“Producers can trust they are getting a consistent product serial after serial,” McGinley explains. “They don't need to worry, ‘is this serial going to be the one that makes my calves sweat or go off feed? Or is this serial the one I'm going to have to worry has enough virus in it to be efficacious?’”

“The way it will benefit the animal is that each animal will get an optimized dose of the product. In other words, they're going to get a dose that has been shown to provide adequate protection without pushing the limits of safety. So, they're getting all of the positive effects with minimized negative effects.”

Furthermore, McGinley says producers can have these product expectations over a wide range of conditions. “We don't know what these calves and cows are going to face out there. We've done all the testing that we can do, but we believe that by being consistent on a serial-to-serial basis and having that dose

optimized, we're providing good, adequate protection across a variety of environmental conditions.”

Safety guaranteed

While producers can expect reliable products each time they use *Titanium* and *Master Guard* vaccines, the *Signature* cell line – which is a system of cells and the media in which they're grown – also assures no other contaminating viruses, such as non-cytopathic BVD, are found in the vaccines.

McGinley explains why contamination from non-cytopathic BVD isn't an issue: “Number one is we're producing from a continuous cell line that has been very well characterized; it's been very stringently tested to make sure that we don't have any contaminating viruses – such as non-cytopathic BVD – in the cell line.” He adds the serum that's used as a nutrient supplement in the medium is of non-bovine origin and, therefore, cannot contaminate the cells and then the vaccine with extraneous cattle viruses that can come in through fetal bovine serum.

Diamond Animal Health is a contract manufacturer in Des Moines, Iowa. While it manufactures vaccine products for other entities, AgriLabs' *Titanium* and *Master Guard* products are the only lines manufactured with the cutting-edge *Signature* cell line technology. “It's exclusive to those two product lines,” McGinley assures.

“Vaccine safety and consistency are big benefits for the producer,” says **Dr. Brett Terhaar, AgriLabs' director of technical services**. “With *Titanium* and *Master Guard*, producers can go to their veterinarian or authorized AgriLabs distributor and buy the same product and expect the same results every time.”



Titanium:

- offers broad protection from BVDV because it contains both type 1 and type 2 BVDV antigens. Introduced in 1998, *Titanium* was the first modified live vaccine in the marketplace indicated for type 2 BVDV protection.
- is safe. It does not cause postvaccinal stress (sweats) or viral shedding, and any milk production loss or setback in feed intake.
- meets Beef Quality Assurance guidelines with subcutaneous use, as well as intramuscular use on the label.

- is available in 10 different combinations for targeted production and herd-health disease prevention.

AgriLabs' Territory Manager Brad Zumbach offers this: “Beef producers today are committed to producing a high-quality product for the consumer. If we're going to do that, we should also be committed to using the same type of product ourselves, and that's where *Titanium* comes into the picture.”



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HANDLE WITH CARE

Modified-live vaccines are effective when properly handled.

Modified-live virus vaccines (MLVs) have been around for nearly a half-century. While additional vaccine antigens have been added to provide broader protection for the herd, the importance of proper MLV handling hasn't changed.

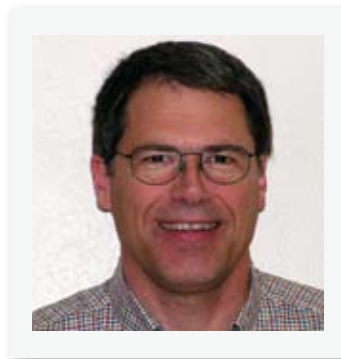
"Live viruses are fragile and susceptible to the damaging effects of disinfectants, ultraviolet light, and excessive heat," says **Dr. Roger Winter, an AgriLabs technical services veterinarian from Scott City, Kan.** "With MLV vaccines, a minimum number of viruses are needed to replicate and properly stimulate the immune system. Improper handling may result in the 'death' of enough viral particles that a dose of vaccine no longer contains a sufficient number to

properly immunize the animal."

MLV vaccines can play an important role in a producer's herd health program. Advantages of MLVs versus killed vaccines, Winter says, include smaller dose required; longer duration of immunity; less chance of anaphylaxis, or severe allergic reaction; stimulation of both cell-mediated immunity and antibody; stimulated interferon production for non-specific protection; and lower cost. To maintain these advantages, some simple precautions should be taken.

Handling pointers

Veterinarians and producers have come up with many creative techniques to keep MLV vaccines out of the sun while processing cattle. Winter says a feature as simple as a cardboard box placed on its side will provide the



"Live viruses are fragile and susceptible to the damaging effects of disinfectants, ultraviolet light, and excessive heat."

– Roger Winter, DVM

needed shade for the syringe and pre-mixed vaccine while waiting for the next animal to funnel into the chute. Some producers have taken Styrofoam™ coolers and cut holes in the side to slip the loaded syringe into while not in use, also

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providing a cool area for the mixed vaccine vial [see photo above].

It's important to consider the environmental temperature MLV vaccine is kept in after it is mixed just prior to use as well as while it is in storage. Winter says storage directions printed on the vaccine's box should be followed.

"Unmixed vaccine that is allowed to sit at room temperature will lose shelf life," Winter says. "It does not go bad overnight; it just accelerates the time at which the vaccine falls below the minimum immunizing dose level of potency."

Producers should be aware of expiration dates. "Manufacturers guarantee that there will be at least a minimum immunizing amount of virus in each labeled dose at expiration date," Winter says. "After the expiration date, this cannot be guaranteed."

Soaps and disinfectant residues can damage or kill viruses, thus destroying the effectiveness of an MLV. Winter advises against ever using a syringe that has been cleaned with anything but warm, clean water when administering MLV.

In order to reduce potential vaccine damage, Winter says to avoid mixing vaccine any further ahead of time than what is necessary to keep up with processing. "Even if processing is very rapid, mixing more than one vial beyond what is currently being used is discouraged," he adds.

The simplest way to properly mix MLV vaccine is to use a clean transfer needle, a device that has a needle on

both ends. "One end is first placed into the bottle of liquid diluent. With the bottle and transfer needle pointing down, the other end is then placed into the bottle of freeze-dried vaccine. There is a vacuum in the vaccine bottle, and the liquid should be sucked in," Winter says. "If there is no vacuum, the seal on the bottle may have been compromised, and there is potential for contamination.

"The vial of vaccine should be gently swirled until the 'cake' is completely dissolved. There should be no chunks floating in the solution after mixing," he adds.

Winter says if there seems to be fewer doses of vaccine in the bottle than there is supposed to be, producers should take a closer look at their syringes. "It is likely that the equipment used to administer the vaccine is not calibrated accurately," he says. "Quality control at vaccine manufacturers ensures that there is at least the number of doses in the bottle as there is supposed to be."

Although MLV success is tied to proper handling, there are other factors as well, Winter says.

"The vaccine is only half of the equation. The other half is the animal and what the immune system does with the vaccine," he says. "Vaccination is not the same as immunization. Achieving the state of immunization requires a healthy, non-stressed animal whose immune system recognizes the vaccine as foreign and mounts an effective immune response that provides protection in the event of future challenge."

Proper Handling of Modified-Live Virus Vaccines Check List

- Keep modified-live virus vaccines (MLVs) away from the sun's ultraviolet light.
- Protect vaccine from excessive heat; keep product cool.
- Do not use in syringes that have been cleaned with soaps or disinfectants.
- Mix only one vaccine vial at a time, or at least not long before use.
- Store the vaccine according to the box directions.
- Watch expiration dates to maintain product's effectiveness.

Lista del Manejamiento Apropiado de las Vacunas del Virus Modificadamente-Vivo

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- No use jeringas que han sido limpiadas con javon o desinfectantes.
- Mezcle solo una ampollita a la vez, o al menos no mucho tiempo antes de usarla.
- Guarde la vacuna de acuerdo a las instrucciones de la caja.
- Mire las fechas de caducidad para mantener la efectividad del producto.

TRACKING THE PREVALENCE OF FOODBORNE PATHOGENS

U.S. Meat Animal Research Center scientists aid in study of *E. coli* O157:H7 and *Salmonella*

With *E. coli* and *Salmonella* foodborne illness outbreaks still making headlines, they remain pathogens of concern to consumers. Fortunately, through research, the beef industry has made great strides in learning about control of these pathogens, reports **Dr. Mohammad Koohmaraie, director of the Agricultural Research Service's (ARS) Roman L. Hruska U.S. Meat Animal Research Center (USMARC) at Clay Center, Neb.** The ARS is the USDA's chief scientific research agency.

During the past decade, USMARC researchers have developed technologies and procedures to reduce the levels of potentially dangerous pathogenic microorganisms, making U.S. meat safer for consumers throughout the world.

In the process, they've collaborated with numerous industry partners, including the National Cattlemen's Beef Association, and meat packers such as Cargill, Harris Ranch Beef, Swift, and Tyson. "Checkoff-funded research has been extremely important to leverage our federal dollars to benefit the cattle industry," Koohmaraie says of the foodborne pathogen research conducted by USMARC scientists. Fourteen USMARC scientists and well over 30 support staff are dedicated to food safety research.

***E. coli* improvements**

Regarding the incidence of *E. coli* in the food chain today, Koohmaraie says, "The best news is that collaboration between industry and researchers has been extremely successful in bringing this pathogen under control."

In fact, the 2005 National Beef Quality Audit cited "improved microbiological safety" as one of the top three quality successes in the beef industry since the 2000 audit was conducted.

Of the research on *E. coli*, Koohmaraie says one of the most helpful studies has been in determining how long *E. coli* survives on the hide. "This is important to know because that is how it gets on the carcass and into ground beef," he says.

Through USMARC research, they've determined *E. coli* can survive on the hide for up to nine days. Koohmaraie says, "With that basic knowledge, we now know that feedlot intervention needs to be 10-12 days before the animal goes to slaughter."



Microbiologist Terry Arthur (left) and USMARC Director Mohammad Koohmaraie examine petri dishes for *Salmonella* growth.

With that, USMARC researchers realized that removing pathogens before removing the hides would be a very effective way to reduce the risk of carcass contamination. Thus, Koohmaraie and his colleagues developed a practical, effective hide-washing system to reduce on-hide pathogen levels. In this process, the hide-on carcass is cleaned in a high-pressure-water washing cabinet to remove excess organic matter, and then sprayed with an antibacterial compound. Field trials subjecting live cattle to a water wash and two applications of a chemical compound reduced the number of carcass samples that tested positive for *E. coli* O157:H7 from 23 percent to 3 percent.

Koohmaraie estimates that about 40 percent of the feedlot-raised beef harvested in the United States undergoes some method of hide-on carcass-washing treatment, a development that benefits both beef companies and consumers. The USDA's Food Safety and Inspection Service has reported that the incidence of *E. coli* O157:H7-positive ground beef samples it collected fell by 43.3 percent after the beef industry started using the washing cabinets. The Centers for Disease Control and Prevention (CDC) also noted significant reductions in illnesses caused by *E. coli* and the pathogens *Listeria*, *Campylobacter*, *Yersinia*, and *Salmonella*.

***Salmonella* studied, too**

Koohmaraie reports that USMARC researchers have also developed techniques to evaluate the effectiveness of their pathogen-reduction practices. Previously, tests could spot the presence of a pathogen in a sample but not the amount of it.

The Centers for Disease Control and Prevention attributes about 73,000 illnesses and 60 deaths every year to *E. coli* O157:H7.

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USMARC scientists addressed this by developing two methods for counting pathogen numbers – referred to as “enumeration” – on cattle hides and carcasses and in feces and ground beef.

Both methods enable scientists to count bacterial colonies and identify the target organisms within the sample. The newly developed processes also made the cost of testing more practical – from about \$100 per sample, if current methods are used, to about \$2 per sample with USMARC methods. Currently, these tests quantify *Salmonella* and *E. coli* O157:H7, but USMARC researchers hope to extend the technology to other pathogens.

The enumeration method is being used in present USMARC research for tracking the prevalence of *Salmonella* among beef through a national survey. “The purpose is to collect baseline data in order to assess what the concerns are and use that information to develop strategy to control *Salmonella* in the U.S. beef supply,” Koohmaraie explains.

For the national survey, eight regions from across the U.S. send in ground beef or beef trim samples from packing plants so the incidence of *Salmonella*, *Listeria*, and other microorganisms can be evaluated. This is an on-going study that was started one year ago. Koohmaraie says data is still preliminary but, as of July 2006, the incidence of *Salmonella* nationally in ground beef/beef trim samples was 2.6%, which is very low.

He concludes, “Overall, I would say the cattle and packing industries are doing a good job of improving food safety. This is being accomplished by investing in research, sharing data, and working together in reducing the pathogen threat before products reach the marketplace.”



Editor's Note: Research in the area of foodborne pathogens is continuing at USMARC. Some of the areas being studied include “super-shedders,” animals that may affect the length and quantity of infection in feedlots. The effects of transportation, stress, and commingling from the feedlot to the packing plant are also being evaluated in the transmission of foodborne pathogens among animals.

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THE IMPORTANCE OF *MANNHEIMIA HAEMOLYTICA* IN BOVINE RESPIRATORY DISEASE

By Anthony W. Confer, DVM, PhD, DACVP

Department Head, Regents Professor & Sitlington Endowed Chair, Oklahoma State University

Several bacteria are important in causing respiratory disease in beef and dairy cattle. These include *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni* (formerly *Haemophilus somnus*), and *Mycoplasma bovis*. *M. haemolytica* was previously known as *Pasteurella haemolytica*; however, in 1999, it was officially assigned to the genus *Mannheimia*. It is still often referred to in commercial vaccines by its previous name, *Pasteurella haemolytica*.

In the United States, *M. haemolytica*, serotype 1 is the main bacteria responsible for the clinical signs and lesions of severe bovine pneumonia (shipping fever), particularly disease that is seen within the first week to 10 days after stress such as shipping. The bacterium is a normal inhabitant of nasal passages and tonsils of ruminants. Following stress or viral infections, the bacterium proliferates and is inhaled into the lungs where it stimulates acute signs of severe respiratory distress: coughing, nasal discharge, high fever, loss of appetite and, maybe, death.

The typical lesion is inflammation of the lung (pneumonia) and chest cavity (pleuritis). These lesions, if inadequately treated, can become co-infected with other bacteria, including *Mycoplasma*, resulting in chronic pneumonia with scarring and abscess formation. Those cattle may live, but they will not

gain weight and may require additional treatments. *P. multocida* appears to be more involved in the cause of pneumonia in young dairy calves and, in recent years, has been isolated more frequently from shipping fever.

M. haemolytica has numerous components (antigens) that are of potential importance for stimulating immunity and, thus, of potential use in vaccines. These include surface molecules such as the capsule, endotoxin, outer membrane proteins (OMPs), and a secreted exotoxin called leukotoxin (LKT). Research indicates that a successful *M. haemolytica* vaccine must stimulate antibodies that neutralize LKT and antibodies that bind to surface antigens allowing for host defense mechanisms to kill the bacterium. Recent research seems to indicate that the most important surface antigens may be OMPs.

When designing a vaccination program for prevention of bovine respiratory disease, veterinarians and producers should address four fundamental questions. The first question is critical: (1) Should a commercial *M. haemolytica* vaccine be used in the herd under current management conditions? If the conclusion is “yes”, then the following questions must be addressed: (2) What type of *M. haemolytica* vaccine should be used? (3) When should a *M. haemolytica* vaccine be given? (4) How many



Anthony W. Confer, DVM, PhD, DACVP

doses of *M. haemolytica* vaccine should be given? The practicing veterinarian and producer must answer these questions based on the cattle production situation, stocker or feedlot management, interpretation of published literature, consultations with colleagues, and personal experience.

There are numerous commercially available cattle vaccines for *M. haemolytica*, which are often in combination with viral vaccines, *H. somni* or *P. multocida* bacterins, and occasionally *Clostridium spp.*, such as blackleg vaccines.

Vaccine efficacy has been demonstrated primarily with experimental models of pneumonia using one of several challenge methods, including direct *M. haemolytica* challenge.

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Demonstration of protection against experimental challenge does not always mean that the *M. haemolytica* vaccine will be efficacious against natural disease challenge under field conditions. Perino and Hunsaker reviewed 10 published studies of several *M. haemolytica* vaccines with respect to their efficacy in field studies of feedlot cattle¹. Of those studies, five showed positive outcomes based on reduced morbidity, mortality, or increased weight gain, whereas five studies demonstrated no positive outcome. In several field studies in which a positive outcome was demonstrated using a new generation *M. haemolytica* vaccine, economic benefits ranged from approximately \$10 to \$34 per head: morbidity and mortality rates were substantially reduced.

There are only limited field study results available with commercial *M. haemolytica* vaccines. However, Dr. Fulton's research team and others have presented evidence that cattle entering a feedlot with pre-existing serum antibody titers to *M. haemolytica* have less respiratory disease and greater gains than do those without serum antibodies². Therefore, vaccination of cattle prior to shipment so that they can develop appropriate immunity is ideal.

The appropriate time to vaccinate cattle for *M. haemolytica* is critical. *M. haemolytica* vaccine manufacturers usually recommend vaccination between 15 and 21 days prior to "weaning, shipping or exposure." This recommendation is supported by research studies that demonstrated, with few exceptions, antibody responses are at a maximum 14 days after vaccination and are markedly reduced by day 42, often approaching pre-vaccination levels. Thus, even though current *M.*

haemolytica vaccines are licensed for only one injection, manufacturers recommend a booster be given within two to three weeks of shipment to maximize antibodies at the time of shipment stress.

Vaccination of cattle with *M. haemolytica* vaccines upon arrival at the feedlot is somewhat controversial because it may not allow enough time for development of solid protection prior to the period of highest morbidity. In addition, if cattle have been vaccinated two to three weeks prior to shipment and had adequate antibody responses, antibody titers should be adequate. Re-vaccination may not be cost effective. However, because the vaccination history is not always known for beef cattle, vaccination upon entry to the feedlot may be considered.

Results in several field trials indicate that this practice can often afford some protection against shipping fever during the first 14 days in the feedlot. Managers may be more willing to vaccinate low-risk cattle, because high-risk cattle are either sick upon arrival or break with disease within the first week. Therefore, vaccination of high-risk cattle that have been exposed to *M. haemolytica* and may be incubating the disease would not stimulate adequate timely immunity. Low-risk cattle are less likely to break with disease soon after entry into the feedlot. When they are vaccinated, there is often adequate time for immunity to develop before a later respiratory outbreak occurs.

P. multocida is commonly isolated from dairy and veal calf pneumonia. Studies of *M. haemolytica* vaccination in these very young calves (two to four

***M. haemolytica* is the most important bacterium in beef cattle. Several currently available *M. haemolytica* vaccines stimulate antibody responses and, when used appropriately, may reduce disease in feedlot cattle.**

weeks of age) have usually shown limited vaccine efficacy. Therefore, vaccination of very young calves with *M. haemolytica* products may not be a sound health management practice.

In conclusion, *M. haemolytica* is the most important bacterium in beef cattle. Several currently available *M. haemolytica* vaccines stimulate antibody responses and, when used appropriately, may reduce disease in feedlot cattle.

Bibliography

¹Perino, LJ, Hunsaker, BD. A review of bovine respiratory disease vaccine field efficacy. *Bov Practition.* 31:59-66, 1997.

²Fulton, RW; Cook, BJ; Step, DL; Confer, AW; Saliki, JT; Burge, LJ; Welsh, RD; Blood, KS; Payton, ME: Evaluation of health status of calves and the impact on feedlot performance: Assessment of a retained ownership program for post weaning calves. *Can J Vet Res.* 66:173-180, 2002.

Shewen, PE. Host response to infection with HAP: Implications for vaccine development. In Donachie, W; Lainson, FA; Hodgson, JC (eds) *Haemophilus, Actinobacillus, and Pasteurella*. Plenum, London. pp. 165-171, 1995.

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Decrease Pathogen Load at Calving

Good calving management includes biosecurity measures that can decrease pathogen load for newborn and young calves. **John Maas, Beef Extension Veterinarian at the University of California-Davis**, says there are two schools of thought when cows are grouped: 1) Keep moving the close-up cows away from pairs through a series of clean pastures, or 2) keep moving the pairs out of the group.

Both methods have strong scientific reasoning behind them. Maas explains, “You’re decreasing the dose of any bacteria or other pathogen (i.e., virus or cryptosporidium) that might be in the environment of the brand new calf.” Both methods work, but one usually works better on a particular ranch than the other, he says.

For operations that have clean pastures but a moist environment, Maas advises it’s sometimes better to move the pregnant cows away from the calved cows. For real dry-type situations, sometimes it’s better to move the pairs out and keep the close-up cows in the original pen.

“It really depends on the environment and what works best from a management situation,” he says. “Both have the potential to decrease the pathogen load for the brand-new calf.”

Decreasing pathogen load is important because, as Maas explains, most pathogens are dose-related. The greater

the pathogen load, the more opportunity for infection.

Maas points out that feeding hay on the ground in snow or cold weather greatly contributes to pathogen build-up in a group of cows. Calves often lie in the leftover hay and, if they develop diarrhea, will defecate there. If pregnant cows lie in this hay, chances are they’ll get this calf manure on their udder.

“When that cow’s calf is born, the first thing it encounters is not the colostrum that is going to protect it, but the rota virus or cryptosporidium that is on its mother’s udder,” Maas explains. “That’s why it’s really nice to separate, one way or another, those close-up cows from the young calves.”

According to Maas, surveys indicate *E. coli* (K99 enterotoxigenic form) gets calves within the first 3-4 days of life up to day 10. After that, it’s either rota virus or cryptosporidium. “Those are the three most common organisms that cause calf scours in beef cattle.” And it is sometimes common to have all three at once.

“To that end, we always recommend pregnant cows get plenty of protein in the last trimester so that they can make plenty of colostrum.” He says it’s also important to vaccinate pregnant cows with K99, rota, and corona virus vaccines, and to make sure they’re not selenium-deficient, a common problem especially in the West.



Know When Newborns Need Extra Care

Producers work all year to get a live calf on the ground, so it’s important not to miss signs that indicate when a calf might need extra care early in its life. **Dr. John Maas** recommends that producers watch for tip-offs like these:

- Meconium, which is dark yellow or light brown staining, on a newly born calf. Meconium is the calf’s first bowel movement. Maas explains that if a calf is born with this yellow-type film, the calf was stressed enough before birth to defecate. “They usually don’t defecate until after they’re born,” he says.
- If a calf doesn’t get up and actively nurse within an hour.
- Any time there is abnormal interaction between mother and calf. Maas says

a mother that doesn’t clean off her calf should indicate a red flag.

- Any calf that looks dehydrated, weak, or is lying on its side.
- Calves that are obviously lame or appear weak within the first week. “Oftentimes white muscle disease or a selenium deficiency needs to be addressed.”

For calves that appear normal, other than unusual stools, such as watery or white-colored, Maas’ advice is to just keep an eye on them. “If you can’t catch it on foot, look at the calf again in eight hours.”

On the other hand, signs of dehydration include sunken eyes, cold extremities such as nose and feet, and tenting of the skin. “When you pick up the animal’s skin, it should snap right

back,” Maas explains. “If it stays, that’s called tenting indicating the animal is dehydrated and in need of oral fluids.”

He relates one of the most common calving management mistakes people make is treating sick calves first and healthy calves second. This spreads whatever bug is causing diarrhea in sick calves to healthy calves. “Always treat your normal calves first, and then sick ones afterward. Otherwise you become the spreader of disease instead of the curer of disease,” he says.

Maas adds that it’s a good idea to use separate pairs of latex gloves, rather than leather gloves, to treat sick calves individually. Leather will keep the viruses and bacteria from ill calves alive for several days.

Prebreeding Vaccinations Help Protect Your Herd

Two major viral infections producers face in their herd-health programs during the breeding season are infectious bovine rhinotracheitis (IBR) and bovine viral diarrhoea virus (BVDV), says **Dr. Roger Winter, an AgriLabs technical services veterinarian from Scott City, Kan.** These viruses can wreak havoc in the herd by causing abortions, fetal malformations, and the creation of persistently infected (PI) calves.

“The reason it is important to vaccinate prebreeding is to prepare the cow’s immune system for the potential challenge that may occur after conception,” Winter says. “Prebreeding vaccination will produce an immune response that is as high as it will ever be, during the time when protection is most needed if a challenge were to occur.”

While most agree prebreeding vaccination is effective to help maintain herd health, the type of vaccine used may also affect results.

“There is some discussion as to whether killed vaccines produce as high and as long of a level of protection as do modified live virus (MLV) vaccines,” Winter says. “Killed

vaccines are safe, but they may not be quite as effective at preventing some types of viral infections, namely BVDV.”

MLV vaccines are safe to use on cows before breeding season, Winter says. “In general, modified live vaccines should not be given within 30 days of the start of the breeding season. There is some concern that IBR virus from vaccines can replicate in ovarian tissues for several weeks and may result in early embryonic death if conception occurs during this time,” he says.

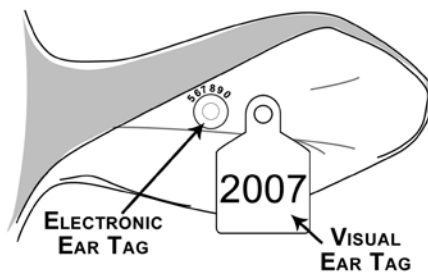
The boundaries aren’t as clear for use of MLV during pregnancy. There is still more to be learned, and it’s something producers should discuss with their veterinarians.

“Although modified live vaccines may be approved for use during pregnancy, the potential effect of MLV BVDV vaccine on the developing fetus is unknown,” Winter adds. “Abortion may not occur, but replication of the virus in fetal immune system tissues may result in damage that makes the calf more prone to episodes of illness after birth. This is a critical area that needs further investigation.”

RFID Tags: Tools of the New Trade

As domestic and international markets have stepped up their demand for source and age-verified beef, alliances and programs continue to emerge to address this need. To quickly and accurately ID animals and move data, RFID tags are often the ID devices of choice. To work effectively, however, they must be properly utilized. **Dale Blasi of Kansas State University’s Department of Animal Science and Industry** gives these electronic ID tagging tips:

- First and foremost, order tags ahead of when they will be needed.
- For proper application, use the tagger that comes with the tags. “Read the company’s directions and be sure you have the proper applicator on hand,” he advises.
- Train the individuals who will be applying the tags – tagging is an investment.



- Be clean. “I would treat an ear tag much like a growth implant,” Blasi says. “Disinfecting each ear tag is wise, but it’s probably more critical to make sure the ear is dry.”
- Apply EID tags only in the left ear (recommended in the U.S.).
- Apply EID tags 1 to 1 ½ inches from the head, between the two cartilages that run horizontally across the ear [see illustration]. The tag needs to be nestled on the interior of the ear. Placement is critical for maximum retention and readability by scanning devices.

National ID: How to Register Your Premises

This past fall, the USDA announced the National Animal Identification System (NAIS) – National ID – as a voluntary program, and a partnership of the States, industry, producers, and USDA.

The NAIS is strictly for rapid disease response should a disease outbreak occur in the national herd. There are three components of NAIS: 1) premises registration, 2) animal identification, and 3) animal tracing. Producers can decide, based on their needs, to participate in one, two, or all three NAIS components.

Premises registration is the foundation of NAIS and, as of December, USDA reported that more than 335,000 premises are registered. The benefit of registering a premises is that, according to USDA, producers with registered premises identification numbers will be notified quickly in the event a disease outbreak puts their animals at risk.

Premises registration is free and quick; producers may register online, by fax or by mail. Choosing to register for a premises identification number (PIN) does not require producer participation in the other two NAIS components (animal identification and animal tracing). However, voluntary participation helps ensure that American producers stay competitive in domestic and international trade. A number of other countries are already using national animal ID systems to gain a competitive edge in world markets. [See “The Rules Have Changed” on page 4.]

For more information on the voluntary NAIS, go to <http://animalid.aphis.usda.gov/nais> or contact your state department of agriculture.

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