

Get Vaccinating Right



The Importance of Vaccines



BE SURE IT'S RIGHT FOR YOU.

Disease Risks, Efficacy, Etc.

Just like people, any animal can get sick at any time. However, animals with increased exposure to others, or increased stress due to travel, work, breeding or weather are especially susceptible to disease.

Vaccinations strengthen animal immune systems, so they are prepared to face the challenges that lie ahead. They are a vital and effective management practice that contributes to overall animal health and well being.

Side Effects

The most common side effect is temporary soreness and swelling at the injection site. Mild side effects can also include a low-grade fever and unusual

lethargy that goes away after a few days. Rarely, more serious side effects can occur, such as unusual weakness, severe diarrhea, difficulty breathing and extreme swelling at the injection site. Contact your veterinarian immediately if serious side effects occur.

Check with Your Veterinarian

Vaccination programs may vary depending upon needs specific to your horse or cattle herd. Considerations might include: environment, travel, age, gender, use, and other factors.

Make sure you consult with your veterinarian concerning an appropriate vaccination program for your animal. Keep in mind that the plan should be re-examined as time and circumstances change.

What is a Vaccine?

Prevention vs. Protection

Vaccines are very important to stimulate immunity to lessen the negative health events associated with disease. There are three main principles to consider when planning your vaccination protocols—necessity, efficacy and safety. Each farm, ranch or stable is unique—ask your veterinarian to discuss all three principles when creating your customized vaccination program.

Not a Treatment

Vaccines raise the general level of herd immunity to minimize the spread of infectious disease or reduce the severity of clinical illness. Vaccines play a critical

role in protecting your animals and your pocketbook. Modern vaccines are an effective tool, but no vaccine provides 100% immunity all the time. Vaccines are not a replacement for livestock management best practices.

Vaccination is for Healthy Animals

Animals that have a fever, are currently sick, malnourished or stressed should not be vaccinated. Follow all vaccine label directions—pregnant, lactating and young animals require very specific protocols. Consult with your veterinarian if you have any questions.

Types of Vaccines

Killed vs. Modified Live Vaccines

Killed vaccines are made by growing an organism in a growth medium. The organism is then inactivated or killed by chemical or heat treatment. Modified live vaccines (MLV) are made with a virus or bacterium that is attenuated, or weakened, so the organism will not cause disease in animals, but will still stimulate immunity. MLV are light, heat and disinfectant sensitive. All forms of vaccines need to be kept cool and away from sunlight. Follow all label directions.

Intramuscular vs. Subcutaneous vs. Intranasal

Intramuscular (IM) vaccines are administered as an injection into a large muscle, routinely the neck of a horse. Subcutaneous (SQ) vaccines in cattle should always follow Beef Quality Assurance guidelines for proper injection site placement. Intranasal (IN) vaccines are administered in the nostril of the animal. IN vaccines are particularly effective against respiratory diseases and have been shown to be highly effective in young animals.¹

¹Stoltenow, C., Immunological Response of Beef Calves to Concurrent Application of Modified-Live Viral Vaccine (Intranasal and Systemic Administration) and Systemically Administered Mannheimia haemolytica Bacterin-Leukotoxoid. The Bovine Practitioner, Fall 2011.

Beyond Vaccinating

Nutrition

Five main groups of nutrients are required for a healthy animal: energy (simple carbohydrates), protein, vitamins, minerals and water. Energy for body maintenance, warmth during the cold and the building blocks for growth and development all hinge on balanced nutrition.

Management

Management best practices that increase the health and well-being of your animals include: good sanitation, adequate parasite control, stress reduction, protection from weather extremes, effective predator control and regular veterinary care.

Biosecurity

Biosecurity measures are adopted to prevent infectious agents or diseases from coming into contact with your animals. Screening, testing and quarantining new or returning animals; and monitoring and controlling human and vehicle traffic on premise are just a few key biosecurity measures to ensure good health.

Know the Diseases That Effect Your Horse



Core Vaccines

The American Association of Equine Practitioners (AAEP) has created a category of vaccinations called core vaccinations. Core vaccines have clearly demonstrated efficacy and safety, with a high-enough level of patient benefit—and low-enough level of risk—to justify their use in all horses.

These are vaccines against diseases that:

- Are endemic to a region
- Are virulent/highly contagious
- Pose a risk of severe disease
- Have potential public health significance and/or are required by law

Eastern/Western Equine Encephalomyelitis (EEE/WEE)

EEE/WEE are viral infections of the horse's brain and spinal cord. The virus is maintained in reservoirs (primarily birds and rodents) and transmitted to the horse by the bite of an infected mosquito. The disease is fatal in 50-90 percent of cases.

Venezuelan Equine Encephalomyelitis VEE is a risk-based disease. VEE vaccine is available in combination with EEE/WEE vaccine for use when indicated.

Tetanus

Also known as “lockjaw”, this disease stems from exposure to *Clostridium tetani* bacteria. Tetanus toxins cause muscles to spasm and go rigid, and respiratory paralysis and dehydration can lead to death.

West Nile Virus

West Nile virus affects horses, humans and birds. Spread only by mosquitoes, it is not directly contagious from a sick animal. Symptoms vary widely and generally include neurological signs such as ataxia (wobbliness) and muscle twitching (especially in the lips, neck and chest). Most horses will also have a fever, lethargy and decreased appetite. Some horses show no symptoms at all. Mortality may be as high as 30 percent. Vaccination is strongly recommended for all horses regardless of location.

Rabies

Occurs through transmission of the virus from saliva of an infected (rabid) animal, usually through a bite. The virus migrates via nerves to the brain where it initiates rapidly progressive encephalitis. Always fatal. See your veterinarian for this vaccine.

Risk-Based Vaccines

According to the AAEP, risk-based vaccines are administered on the basis of a risk assessment performed by your veterinarian. Criteria can include your horse's age, exposure level and geography. Use of these vaccines may vary among individuals, populations and/or geographic regions.

Flu

Equine Influenza, the flu, has symptoms which include fever, dry cough, runny nose, dehydration, poor appetite, lethargy, and sometimes secondary pneumonia. Death is rare and most horses recover, but the flu is highly infectious and results in lost time and money. Vaccination recommendations vary depending upon disease risk assessment.

Rhinopneumonitis

Equine Herpesvirus (EHV), sometimes called "rhino", has two main types: EHV-1 and EHV-4. EHV-1 is most virulent and can cause respiratory disease, abortion, foal death and neurologic disease.

EHV-4 is more common in young horses and usually only causes respiratory problems. Vaccination recommendations vary depending upon disease risk assessment. Pregnant mares need specifically labeled EHV-1 vaccinations as an aid in the prevention of EHV-1 induced abortions.

Other Diseases

Other common diseases seen in North America include Potomac Horse Fever, Botulism, Strangles, Anthrax, Leptospirosis and Equine Viral Arteritis. Consult your veterinarian on the risks in your area.

Flu Strains

Equine influenza (EIV) is caused by highly variable strains of the influenza A (H3N8) virus. It spreads rapidly with clinical signs appearing within 24 to 48 hours following exposure and can be transmitted more than 50 yards through the air by a coughing horse. In an unvaccinated horse population that has never been exposed to the virus, EIV has a nearly 100% infection rate.

The new line of Prestige® flu-containing equine vaccines continues to set the standard in safety and efficacy you've come to expect along with updated influenza strains:

Florida '13 Clade 1:

Based on a highly pathogenic isolate from the 2013 Ocala, Fla. influenza outbreak that impacted hundreds of horses. **Florida '13 was exclusively identified and isolated through the Merck Animal Health Biosurveillance Program.**

Richmond '07 Clade 2:

Meets World Organisation for Animal Health (OIE) and American Association of Equine Practitioners (AAEP) guidelines for Clade 2 influenza protection.

Kentucky '02:

Influenza strain maintained from previous vaccine line.

Know the Antigens

Combination Vaccines

Less stressful and more economical than individual vaccines, combination vaccines provide protection from two or more diseases in the same injection. Be sure to read the label of any vaccine to be certain of the antigens it contains. It may be necessary to use two separate vaccine injections to completely protect your horse.



Horse Vaccine Antigen Chart

| PRESTIGE® Vaccines | EEE/WEE | Tetanus | WNV | Influenza | EHV-1/EHV-4 | EHV-1/Abortion |
|--------------------|---------|---------|-----|-----------|-------------|----------------|
| PRESTIGE® 5 + WNV | ● | ● | ● | ● | ● | |
| PRESTIGE® 5 | ● | ● | | ● | ● | |
| PRESTIGE® 4 | ● | ● | | ● | | |
| PRESTIGE® 3 + WNV | ● | ● | ● | | | |
| PRESTIGE® 3 | ● | ● | | | | |
| PRESTIGE® 2 | | | | ● | ● | |
| PRESTIGE® WNV | | | ● | | | |
| PRESTIGE® PRODIGY® | | | | | | ● |
| PRESTIGE® TETANUS | | ● | | | | |

Know the Vaccines



Horse 5-way + WNV

Effective against:

Eastern/Western Equine Encephalomyelitis (EEE/WEE), Equine Influenza Virus (EIV), Equine Herpesvirus types 1&4 (EHV-1&4) respiratory, Tetanus, West Nile Virus

When to Use**

PRESTIGE® 5 + WNV

Horse 5-way

Effective against:

Eastern/Western Equine Encephalomyelitis (EEE/WEE), Equine Influenza Virus (EIV), Equine Herpesvirus types 1&4 (EHV-1&4) respiratory form and Tetanus

When to Use**

PRESTIGE® 5

Horse 4-way

Effective against:

Eastern/Western Equine Encephalomyelitis (EEE/WEE), Equine Influenza Virus (EIV) and Tetanus

When to Use**

PRESTIGE® 4

**When to Use:

- Horses 6 months of age or older
- Administer 1mL dose intramuscularly
- Duration of immunity has been shown at 6 months for EIV
- Pregnant mares 4–6 weeks prior to foaling*

*Mare recommendations per AAEP vaccination guidelines

Horse 3-way + West Nile

Effective against:

Eastern/Western Equine Encephalomyelitis (EEE/WEE), Tetanus and West Nile Virus

When to Use:

- Horses 6 months of age or older
- Administer 1mL dose intramuscularly
- Pregnant mares 4–6 weeks prior to foaling*

*Mare recommendations per AAEP vaccination guidelines

PRESTIGE® 3 + WNV

Horse 3-way

Effective against:

Eastern/Western Equine Encephalomyelitis (EEE/WEE) and Tetanus

When to Use:

- Horses 6 months of age or older
- Administer 1mL dose intramuscularly
- Pregnant mares 4–6 weeks prior to foaling*

*Mare recommendations per AAEP vaccination guidelines

PRESTIGE® 3

Horse Flu/EHV (Rhino)

Effective against:

Equine Influenza Virus (EIV) and Equine Herpesvirus types 1&4 (EHV-1&4) respiratory form

When to Use:

- Horses 6 months of age or older
- Administer 1mL dose intramuscularly
- Duration of immunity has been shown at 6 months for EIV

PRESTIGE® 2

Horse WNV

Effective against:

West Nile Virus

When to Use:

- Horses 6 months of age or older
- Administer 1mL dose intramuscularly
- Pregnant mares 4–6 weeks prior to foaling*

*Mare recommendations per AAEP vaccination guidelines

PRESTIGE® WNV

Equine Herpesvirus Type 1 (EHV-1)

Effective against:

Abortion and respiratory disease caused by EHV-1

When to Use:

- Horses 6 months of age or older
- Pregnant Mares, administer a 2mL dose intramuscularly in the 5th, 7th, and 9th months of pregnancy

PRESTIGE® PRODIGY®

Tetanus Toxoid

Effective against:

Tetanus

When to Use:

- Horses, cattle, swine and sheep 6 months of age or older
- Administer 1mL dose intramuscularly to horses, cattle and swine, or 0.5mL dose to sheep
- Injuries incurred from wounds or surgery

PRESTIGE® TETANUS



Make a Vaccination Plan

Key to activity in the vaccination plan chart below.

Low Risk

Risks are everywhere for your horse—everything from trail rides to mosquitos can impact their health. Even horses that have lowered risk and never travel should be protected against the five core diseases as identified by the American Association of Equine Practitioners. Core vaccines have clearly demonstrated efficacy and safety to justify their use in all horses.

High Risk

Risk-based vaccines are administered based on a risk assessment performed by your veterinarian. Risk assessment deals with the likelihood of disease introduction and the estimation of potential consequences, which includes the illness or death of animals. Also, if your horse is on the move, travel stress can weaken the immune system horses use to naturally fend off illness. Risk criteria can include your horse's age, travel, environment, gender, exposure level and geography.

Vaccinating your horse at the right time, well before exposure to viral and bacterial diseases, is extremely important.

Breeding

Maintaining health throughout your breeding stock is imperative. Your mare or stallion needs to be up to date on their vaccinations.

Pre-Breeding Mare -

Incorporate the core and other at-risk disease vaccines into your vaccination program.

Pregnant Mare -

Work closely with your veterinarian to develop a vaccination plan that protects the health of the mare and her unborn foal.

Foal -

The neonatal foal has limited immune capabilities for many months. Consult your veterinarian for a recommended foal vaccination schedule.

| RISK LEVEL | DISEASES OF CONCERN | MERCK ANIMAL HEALTH VACCINE OPTIONS |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <p>Low Risk</p> <ul style="list-style-type: none"> • Include Core Vaccines • Vaccinate annually prior to mosquito season.* • Evaluate booster needs based on geographic risks.* | <ul style="list-style-type: none"> • Eastern Equine Encephalomyelitis • Western Equine Encephalomyelitis • Tetanus • West Nile Virus • Rabies* | <p>PRESTIGE® 3 + WNV OR PRESTIGE® 3 AND PRESTIGE® WNV</p> <p>*Contact your veterinarian</p> |
| <p>High Risk</p> <ul style="list-style-type: none"> • Include Core Vaccines and Risk-based Vaccines according to need. • Vaccinate annually prior to mosquito season.* • Evaluate booster needs based on geographic and activity/exposure risks. | <ul style="list-style-type: none"> • Eastern Equine Encephalomyelitis • Western Equine Encephalomyelitis • Tetanus • West Nile Virus • Influenza • Rhino (Equine Herpesvirus Types 1-4) • Rabies* | <p>PRESTIGE® 5 AND PRESTIGE® WNV OR PRESTIGE® 5 + WNV</p> <p>*Contact your veterinarian</p> |
| <p>Breeding</p> | | |
| <p>Pre-Breeding</p> <p>Be sure Core & Risk-based vaccines are up to date</p> | <p>See Disease of Concern for High Risk horses above</p> | <p>See Vaccine Options for High Risk horses above</p> |
| <p>Pregnant Mare</p> <ul style="list-style-type: none"> • Include a vaccine labeled as effective against abortion at 5, 7 and 9 months of pregnancy. • Include Core & Risk-based vaccines 4-6 weeks prior to foaling to boost maternal antibodies. | <p>Equine Herpesvirus Type 1 which can cause abortions</p> <p>See Diseases of Concern for High Risk horses above</p> | <p>PRESTIGE® PRODIGY®</p> <p>See Vaccine Options for High Risk horses above</p> |
| <p>Foal</p> <p>Vaccine needs and timing vary based on factors such as age, risk level and vaccination history of mare.</p> | <p>Core & Risk-based diseases as needed</p> | <p>Consult your veterinarian for a foal vaccination plan</p> |

*Contact your veterinarian

Know the Diseases That Effect Your Cattle



Viral and Bacterial

The most common diseases affecting cattle fall into two main categories; viral and bacterial. For many diseases, treatment is not an option and the best defense against them is vaccines. An effective vaccination program gives you the power to get in

front of disease before it strikes, tackling it before it gains ground. Instead of treating disease, you can keep producing healthy, profitable cattle.

Viral Diseases

BRSV – Bovine Respiratory Syncytial Virus

Causes pneumonia and nasal discharge. Bacterial pneumonia often develops as a secondary infection. Primarily affects cattle less than 2 years old.

BVD – Bovine Viral Diarrhea

Types 1 & 2 - As the costliest viral disease in cattle, BVD causes digestive tract erosions, abortions, still births, infertility, birth defects, respiratory disease, and immune system suppression. It is estimated that 70 to 90 percent of all BVD infections go undetected.¹ This costs producers up to an estimated \$2.5 billion a year in losses.² Infection of a pregnant cow in the first 4 months can lead to a persistently infected (PI) calf that will shed the virus throughout their life. Those cows infected between 100 days and 150 days of gestation may produce calves with deformities, particularly of the nervous system. Calves born to cows that were infected later in gestation are twice as likely as non-infected calves to experience severe illness in the first 10 months of life.³ Testing for BVD-PI calves and removing them from the herd as soon as possible may be beneficial to prevent further infections and loss of performance gains.

IBR – Infectious Bovine Rhinotracheitis (Rednose)

Virus causes upper respiratory disease, eye lesions, abortions, and infertility. IBR is extremely contagious and outbreaks can be severe with excessive death losses. The IBR virus is one of the most common agents involved in shipping fever pneumonia of feedlot calves.⁴

PI₃ – Parainfluenza Type 3

Virus causes mild respiratory disease that may lead to other respiratory infections, both viral and bacterial.

Rotavirus and Coronavirus –

Leading viral causes of calf scours (diarrhea) in young calves. May weaken the calf and slow growth, and may cause death in highly-compromised calves. Calf scours is the number one cause of death in calves from 2 to 30 days old.⁵ As many other scour causing pathogens can also be lethal to the calf and are difficult to treat, a broad spectrum vaccine administered to the cow at the proper time before calving is important to produce good colostrum.

Bacterial Diseases

Brucellosis –

A reproductive system bacterial disease nearly eradicated in the United States. May cause late-term abortions, weak calves or retained afterbirth. May be spread to other species, including humans—although with different symptoms.

Histophilus Somni (Haemophilus somnus) –

Family of gram-negative bacterium that can cause pneumonia, neurological disease, and abortions. Can be primary cause of pneumonia and secondary bacterial invader. Outbreaks can be triggered by stress combined with viral infections.⁶

Leptospirosis –

This bacterium causes milk drop, abortions, and infertility in breeding cattle. May also cause urinary disease and anemia in all cattle groups. Five different types of “lepto” can cause disease. Most vaccines contain all five.

Vibriosis –

This bacterium is a venereal disease spread by bulls during natural service. Vibrio infection can cause early embryonic death and repeat breeders.

Clostridia are a class of anaerobic bacteria that form spores and are commonly found in soils and in the digestive tracts of people and animals. Cattle can be exposed to these spores through eating contaminated feed or pastures and also through open wounds. There are three major types of clostridial diseases: hepatic group, intestinal group, and muscle group.

Hepatic Group –

Cl. novyi (Black Disease), and
Cl. haemolyticum (Redwater)

Black disease causes liver necrosis, blood vessel damage, and produces a toxin that causes rapid death, usually within 48 hours. Red water is triggered by local liver damage and necrosis typically caused by migrating liver flukes. The disease destroys red blood cells leading to tissue death in the liver, red urine, and death.

Pasteurella & Mannheimia

(*Pasteurella multocida* and
Mannheimia haemolytica) –

A group of gram-negative bacteria commonly found in the environment and animal itself that lead to mild to severe pneumonia when the animal is stressed and/or infected with other bacteria or viruses such as IBR, PI-3 or BRSV. Use vaccines that are effective against the three common causes of bacterial pneumonia to lessen lung damage.

Pinkeye –

(caused by *Moraxella bovis*
and *Moraxella bovoculi*) –

Bacterium along with other factors causes infection and irritation that can lead to corneal ulcers with temporary blindness and/or permanent eye damage. Pinkeye is one of the most common non-fatal diseases of cattle.⁸ It is easily spread by flies feeding on the infected eye drainage.

Intestinal Group –

Cl. perfringens Types B, C & D (Enterotoxemia)
Commonly called “overeating” disease⁹ or “purple gut”, this group produces toxins that are absorbed into the cattle’s intestines. Stress can activate the disease and nursing calves who overeat can also trigger the disease when surplus milk enters the small intestine too rapidly. Oftentimes the disease onset is very rapid, with calves dying within 12 hours or less, and often showing few symptoms. Hemorrhagic Bowel Syndrome (HBS) is a newly emerging, highly fatal intestinal disease that leads to sudden death in adult dairy cows.¹⁰

Muscle Group –

Cl. chauvoei (Blackleg), *Cl. septicum* (Malignant Edema), and *Cl. sordellii* (Sord)

These organisms produce toxins arising from bacterial growth in necrotic/bruised tissue. Blackleg is nearly 100% fatal and typically starts after a deep bruise or injury and can result in muscle and/or heart lesions and death. Blackleg typically occurs between 4 month and 2 years of age in cattle.¹¹

Clostridial Diseases

¹Hairgrove, Tom; Beckham, Tammy; and Banta, Jason. “Understanding Bovine Viral Diarrhea in Beef Herds” Texas A&M AgriLife Extension Library Online. Texas A&M University. <https://agrillifeextension.tamu.edu/library/ranching/understanding-bovine-viral-diarrhea-in-beef-herds/>

²Ishmael, Wes. “How Much Money Have You Lost to BVD?” BEEF Magazine. April 13, 2016.

³Hairgrove, Tom; Beckham, Tammy; and Banta, Jason. “Understanding Bovine Viral Diarrhea in Beef Herds” Texas A&M AgriLife Extension Library Online. Texas A&M University. <https://agrillifeextension.tamu.edu/library/ranching/understanding-bovine-viral-diarrhea-in-beef-herds/>

⁴Sprott, L.R. and Wikse, Steve. “Infectious Bovine Rhinotracheitis” Texas A&M AgriLife Extension Library Online. Texas A&M University. <https://agrillifeextension.tamu.edu/library/ranching/infectious-bovine-rhinotracheitis/>

⁵Stokka, Gerald and Perino, Louis. “Calving Tips: Going to War on Calf Scours”. BEEF Magazine. April 1, 1999

⁶Arnold, Michelle – DVM (Ruminant Extension Veterinarian) University of Kentucky. “Pneumonia in Feeder Calves? Don’t Forget Histophilus Somni” Ohio BEEF Cattle Letter published by Ohio State University Extension Beef Team. October 31, 2018.

⁷Irsik, Max – DVM (Beef Cattle Specialist Veterinarian) University of Florida. “Bovine Respiratory Disease Associated with Mannheimia Haemolytica or Pasteurella Multocida” Institute of Food and Agricultural Sciences University of Florida. April 1, 2007. <http://www.thecattlesite.com/articles/954/bovine-respiratory-disease-associated-with-mannheimia-haemolytica-or-pasteurella-multocida/>

⁸Arnold, Michelle – DVM (Ruminant Extension Veterinarian) University of Kentucky. “Preparing for Pinkeye” Ohio BEEF Cattle Letter published by Ohio State University Extension Beef Team. June 20, 2018.

⁹Van Anne, Travis – DVM. “Preventing Overeating Disease in Your Cattle Herd” BEEF Magazine. February 25, 2018 <https://www.beefmagazine.com/animal-health/preventing-overeating-disease-your-cattle-herd>

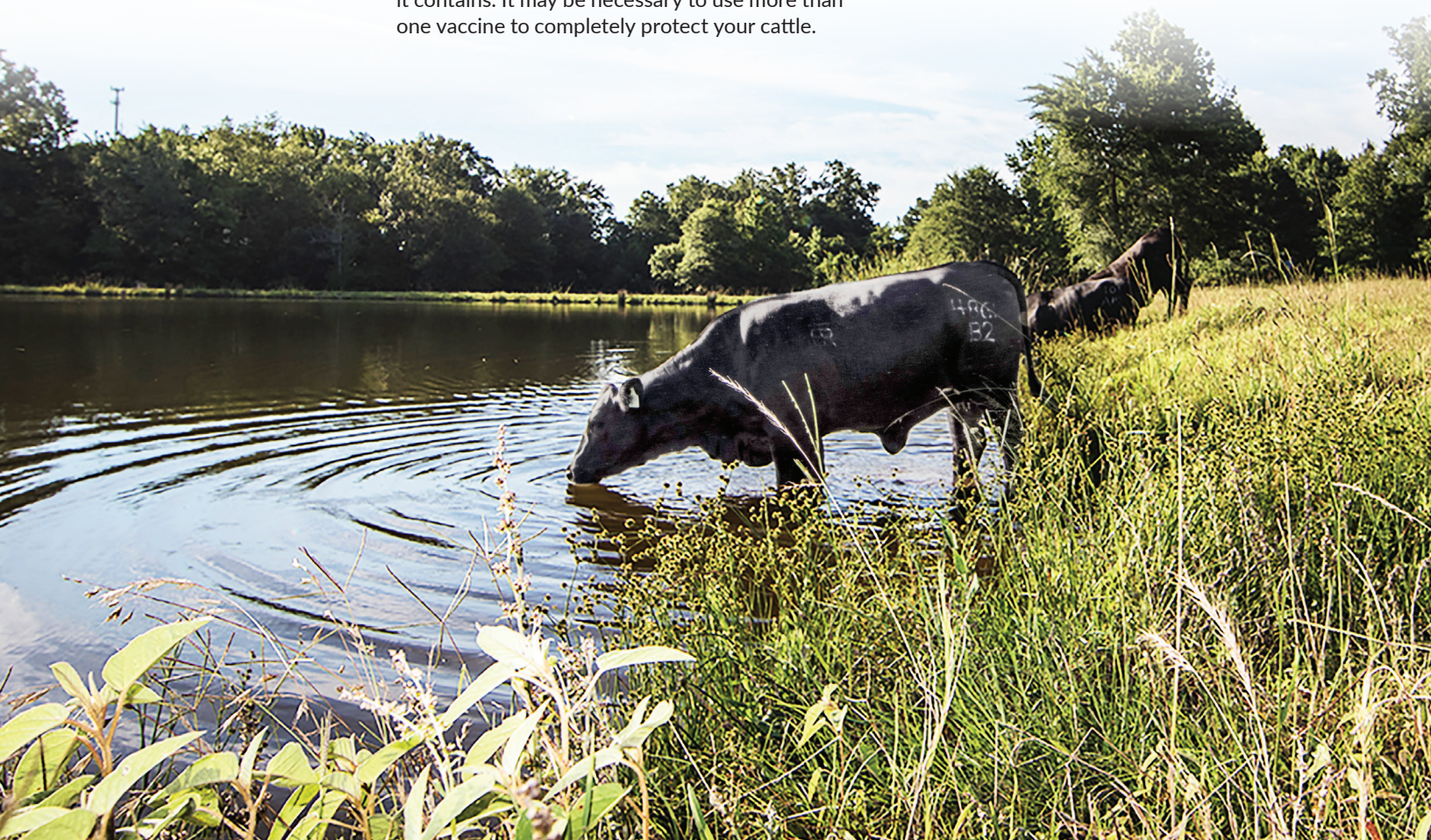
¹⁰Van Metre, Dave – DVM; Callan, Rob – DVM. “Hemorrhagic Bowel Syndrome” Integrated Livestock Management Colorado State University Veterinary Teaching Hospital. <http://csu-cvms.colostate.edu/vth/livestock/integrated-livestock-management/Pages/hemorrhagic-bowel-syndrome.aspx>

¹¹Rodning, Soren P.- DVM; Owsley, W.F.; Gard, Julie A. “Blackleg and Other Clostridial Diseases in Cattle” ANR-0888 by the Alabama Cooperative Extension System (Alabama A&M University and Auburn University). Updated December 2011.

Know the Antigens

Combination Vaccines

Protect your cattle against multiple diseases in one injection and minimize side effects and stress. Combination vaccines are available to fight the most common viral, bacterial and clostridial diseases affecting your herd. Be sure to read the label of any vaccine to be certain of the antigens it contains. It may be necessary to use more than one vaccine to completely protect your cattle.



Cattle Vaccine Antigen Chart

| Viral Vaccines** | IBR | BVD Type 1 | BVD Type 2 | PI ₃ | BRSV | <i>Mannheimia haemolytica</i> | <i>Pasteurella multocida</i> | Leptospirosis | Vibriosis |
|----------------------------------------------------------------------------------------------------------------|------------------------|---------------------------|------------------|-----------------|------------------|-------------------------------|------------------------------|---------------|-----------|
| BOVILIS® VISTA® ONCE SQ | ● | ● | ● | ● | ● | ● | ● | | |
| BOVILIS® ONCE® PMH IN | | | | | | ● | ● | | |
| BOVILIS® VISTA® 5 SQ | ● | ● | ● | ● | ● | | | | |
| BOVILIS® VISTA® 5 VL5 SQ CFP | ● | ● | ● | ● | ● | | | ● | ● |
| BOVILIS® NASALGEN® 3 | ● | | | ● | ● | | | | |
| BOVILIS® NASALGEN® 3-PMH | ● | | | ● | ● | ● | ● | | |
| BOVILIS® NASALGEN® IP | ● | | | ● | | | | | |
| BOVILIS® VISTA® BVD CFP | | ● | ● | | | | | | |
| Clostridial Vaccines | Blackleg | Malignant Edema | <i>Sordellii</i> | Black Disease | Enterotoxemia | Redwater | Tetanus | <i>Somni</i> | |
| BOVILIS® VISION® 7* | ● | ● | ● | ● | ● | | | ●* | |
| BOVILIS® VISION® 8* | ● | ● | ● | ● | ● | ● | | ●* | |
| BOVILIS® CAVALRY® 9 | ● | ● | ● | ● | ● | ● | ● | | |
| BOVILIS® COVEXIN® 8 | ● | ● | | ● | ● | ● | ● | | |
| BOVILIS® VISION® CD-T | | | | | ● | | ● | | |
| BOVILIS® VISION® CD | | | | | ● | | | | |
| *(with optional <i>Somni</i> available in VISION® 7 SOMNUS or VISION® 8 SOMNUS) | | | | | | | | | |
| Pinkeye Vaccines | <i>Moraxella bovis</i> | <i>Moraxella bovoculi</i> | Blackleg | Malignant Edema | <i>Sordellii</i> | Black Disease | Enterotoxemia | | |
| BOVILIS® 20/20 VISION® 7 | ● | | ● | ● | ● | ● | ● | | |
| BOVILIS® PILIGUARD® PINKEYE | ● | | | | | | | | |
| MORAXELLA BOVOCULI | | ● | | | | | | | |
| Scours | Rotavirus | <i>E. coli</i> K99 | Enterotoxemia | Coronavirus | | | | | |
| BOVILIS® GUARDIAN® | ● | ● | ● | ● | | | | | |
| BOVILIS® CORONAVIRUS IN | | | | ● | | | | | |
| *GUARDIAN is the only scours vaccine on the market that contains both Type 1 and Type 3 coronavirus infections | | | | | | | | | |

** **Modified Live Vaccines:** All VISTA vaccines are labeled as being safe for use in pregnant heifers and cows or calves nursing pregnant cows provided the cows and heifers in the herd are vaccinated prior to breeding, within the previous 12 months, with any of the modified live IBR and BVD containing vaccine(s) in this product line. Read product label carefully. If cows have not previously been vaccinated with modified-live vaccines consult your veterinarian before use.

Know the Vaccines



Viral Vaccines

5-way Viral + Mannheimia and Pasteurella combo

IBR, BVD Type 2, and BRSV, BVD Type 1, Parainfluenza-3, *Mannheimia haemolytica*, and *Pasteurella multocida*

BOVILIS® VISTA® ONCE SQ
50 Dose and 10 Dose

Intranasal Mannheimia and Pasteurella combo

Pasteurella multocida and *Mannheimia haemolytica*

BOVILIS® ONCE® PMH IN
50 Dose and 10 Dose

5-way Viral

IBR, BVD Type 2 and BRSV, BVD Type 1 and PI-3

BOVILIS® VISTA® 5 SQ
50 Dose and 10 Dose

5-way Viral + 5 Lepto + Vibrio

IBR, BVD Type 2, BRSV, and Leptospirosis, BVD Type 1 and Parainfluenza-3, and *Campylobacter fetus*

BOVILIS® VISTA® 5 VL5 SQ CFP
50 Dose and 10 Dose

Intranasal 3-way BRD Vaccine

Infectious Bovine Rhinotracheitis (IBR) virus, Bovine Respiratory Syncytial Virus (BRSV) and Parainfluenza-3 virus (PI3)

BOVILIS® NASALGEN® 3
50 Dose, 10 Dose and Single Dose

Intranasal 3-way BRD Vaccine + Mannheimia and Pasteurella combo

Infectious Bovine Rhinotracheitis (IBR) virus, Bovine Respiratory Syncytial Virus (BRSV) and Parainfluenza-3 virus (PI3), *Pasteurella multocida* and *Mannheimia haemolytica*

BOVILIS® NASALGEN® 3-PMH
50 Dose, 10 Dose and Single Dose

Intranasal 2-way BRD Vaccine

Infectious Bovine Rhinotracheitis (IBR) virus, Bovine Respiratory Syncytial Virus (BRSV) and Parainfluenza-3 virus (PI3)

BOVILIS® NASALGEN® IP
50 Dose and 10 Dose

BVD Vaccine

Bovine Virus Diarrhea virus (BVD) Types 1 & 2.

BOVILIS® VISTA® BVD CFP
50 Dose and 10 Dose

Clostridial Vaccines

7-way Blackleg Vaccine (+ Somni*)

Blackleg, Malignant Edema, *Sordellii*, Black Disease, and Enterotoxemia and (*Histophilus Somni**)

*(with optional *Somni* in VISION® 7 SOMNUS)

BOVILIS® VISION® 7 (+SOMNI*)
250 Dose, 50 Dose and 10 Dose

8-way Blackleg Vaccine (+ Somni*)

Blackleg, Malignant Edema, *Sordellii*, Black Disease, Enterotoxemia, Red Water and (*Histophilus Somni**)

*(with optional *Somni* in VISION® 8 SOMNUS)

BOVILIS® VISION® 8 (+SOMNI*)
50 Dose and 10 Dose

9-way Blackleg (Including Tetanus)

Blackleg, Malignant Edema, Black Disease, *Sordellii*, Enterotoxemia, Red Water and Tetanus

BOVILIS® CAVALRY® 9
125 Dose, 50 Dose and 10 Dose

8-way Blackleg (Including Tetanus)

Blackleg, Malignant Edema, Black Disease, Enterotoxemia, Red Water and Tetanus

BOVILIS® COVEXIN® 8
50 Dose and 10 Dose

Multi Species CD + Tetanus

Enterotoxemia and Tetanus

BOVILIS® VISION® CD-T
50 Dose

Pinkeye Vaccines

7-way Blackleg + Pinkeye

Blackleg, Malignant Edema, *Sordellii*, Black Disease, Enterotoxemia, and Pinkeye caused by *Moraxella bovis*

BOVILIS® 20/20 VISION® 7
50 Dose and 10 Dose

Pinkeye Vaccine

Pinkeye caused by *Moraxella bovis*

BOVILIS® PILIGUARD® PINKEYE
50 Dose and 10 Dose

Pinkeye Vaccine

Pinkeye caused by *Moraxella bovoculi*

MORAXELLA BOVOCULI
50 Dose and 10 Dose

Scours

Pre-Calving Scours Vaccine

Rotavirus, *E. coli* K99, Enterotoxemia, Coronavirus

BOVILIS® GUARDIAN®
50 Dose and 10 Dose

Calf Scours Vaccine

Coronavirus

BOVILIS® CORONAVIRUS
50 Dose and 10 Dose



Make a Vaccination Plan

No need to go it alone—make sure to work with your veterinarian to create a proper vaccination plan to meet the needs of your operation and combat routine threats to your herd that may be specific to your local area and weather conditions. Developing a long-term vaccination program for the life of your herd is top of

mind for most producers. In a 2017 survey of beef producers conducted with BEEF Magazine and Colorado State University, 57% of respondents identified cow-calf health as the number one challenge facing the cattle industry.¹

One of the biggest keys to a successful herd health plan is vaccinating the right animal at the right time. Start by planning and documenting the breeding and calving seasons and other routine management events. Use guidelines (like those

listed in the chart below) as a starting point to develop an effective vaccination program with your herd-health veterinarian. Always remember to safely store and administer vaccines according to label directions; adhere to designated meat withdrawal times; booster primary vaccinations when recommended; and follow all Beef Quality Assurance (BQA) guidelines.

Key to activity in the vaccination plan chart below.

Pre-Calving

Scours vaccine should be given 3 months prior to calving, followed by a booster dose 3-6 weeks later. This is far enough before calving to minimize the stress and possible effects from handling cattle near calving time. For subsequent calving, revaccinate with a single dose 5-7 weeks before calving.

Calving

Healthy calves can be vaccinated as young as 1 week of age with an intranasal respiratory vaccine against the leading causes of early onset BRD.

First Working or Branding

For calves 1 to 3 months of age, this is a crucial time to vaccinate calves around the time maternal protection from colostrum is starting to wane. Respiratory and clostridial vaccines may be administered during this time period.

Branding -

If giving a tetanus vaccine when castrating or banding bull calves, two doses are required prior to banding or castration procedure.

Pre-Weaning -

Vaccinate calves at 14 to 21 days prior to weaning. Avoid the stressful weaning period to ensure a better immune response and develop immunity to respiratory diseases prior to weaning when the risk is highest.

Weaning -

If you must vaccinate during this time, delay working calves until the stress of weaning is

over. It is best to wait until the calves are eating, drinking and most (if not all) have stopped walking and bawling. Parasite treatment should also be performed at this time or earlier—depending on the product label instructions.

Second Working/Weaning

If you have followed a pre-weaning or first working schedule, the second working will typically occur 3-6 weeks later from the first set of shots, or at weaning.

Pre-Breeding

All pre-breeding MLV vaccines should be done 14-60 days prior to breeding to avoid any possible side effects or complications that could affect fertility. Consult with your veterinarian before using any vaccine on a pregnant or lactating cow.

¹ USDA, 2020. Beef 2017. "Beef Cow-calf Health and Management Practices in the United States, 2017, report 2." USDA-APHIS-VS-CEAH-NAHMS, Fort Collins, CO. #782.1119

| ACTIVITY | CATTLE TYPE | CATEGORY OF TREATMENT | MERCK ANIMAL HEALTH VACCINE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-Calving | Pregnant Cows | Scours | BOVILIS® GUARDIAN® |
| Calving | Calves | Respiratory | BOVILIS® ONCE® PMH IN OR BOVILIS® NASALGEN® 3-PMH |
| First Working <ul style="list-style-type: none"> • Branding • Pre-Weaning • Weaning <p>If giving a tetanus vaccine when castrating or banding bull calves, two doses are required prior to banding or castration procedure.</p> <p>When tetanus is a concern, choose either BOVILIS® CAVALRY® 9 or BOVILIS® COVEXIN® 8.</p> <p>Do not use in combination with BOVILIS® VISION® 7/8. Contact your vet for more information.</p> | Calves | Respiratory | BOVILIS® VISTA® ONCE SQ* OR BOVILIS® NASALGEN® 3 OR BOVILIS® NASALGEN® 3-PMH <i>*For use in calves 3 months of age or older</i> |
| | | Clostridial | Choose one: BOVILIS® VISION® 7/8 OR BOVILIS® VISION® 7/8 SOMNUS |
| | | — OR — Clostridial + Tetanus | Choose one: BOVILIS® CAVALRY® 9 OR BOVILIS® COVEXIN® 8 |
| | | Pinkeye <i>Administer at least 6 weeks prior to peak fly season</i> | Choose one: BOVILIS® PILIGUARD® PINKEYE OR BOVILIS® 20/20 VISION® 7 +/- MORAXELLA BOVOCULI |
| Second Working 3–6 weeks later or at Weaning | Heifers/Steers | Respiratory Booster | Choose one: BOVILIS® VISTA® ONCE SQ* |
| | | Clostridial Booster | Choose one: BOVILIS® VISION® 7/8 OR BOVILIS® VISION® 7/8 SOMNUS |
| | | Pinkeye <i>Administer at least 6 weeks prior to peak fly season</i> | Choose one: BOVILIS® PILIGUARD® PINKEYE OR BOVILIS® 20/20 VISION® 7 +/- MORAXELLA BOVOCULI |
| Pre-Breeding | Replacement Heifers/Cows | Respiratory + Lepto + Vibrio | BOVILIS® VISTA® 5 VL5 SQ CFP* |

***Modified Live Vaccines:** All BOVILIS® VISTA® vaccines are labeled as being safe for use in pregnant heifers and cows or calves nursing pregnant cows provided the cows and heifers in the herd are vaccinated prior to breeding, within the previous 12 months, with any of the modified live IBR and BVD containing vaccine(s) in this product line. Read product label carefully. If cows have not previously been vaccinated with modified-live vaccines consult your veterinarian before use.

