**Bovine vaccine and deworming schedule**

Dr. Linsey Hall, DVM

Shafer Large Animal Veterinary Associates

**\*Always follow label directions\***

\*I have listed a few specific vaccines that are often used, this does not mean you cannot use other brands, there are a lot of vaccines out there to choose from\*

\*Acronyms: Bovine Viral Diarrhea virus (BVD), Infectious Bovine Rhinotracheitis (IBR), Parainfluenza virus 3 (PI3), Bovine Respiratory Syncytial virus (BRSV)\*

**1) Breeding herd:**

* Pre-Breeding vaccines:
	+ Cows vaccinated pre-calving Do NOT need to be vaccinated for those same vaccines before breeding, the pre-calving vaccines act as their annual boosters.
	+ Heifers going into their first breeding season or cows that did not receive pre-calving vaccines should be vaccinated against:
		- **Respiratory diseases (BVD, IBR, BRSV and PI3)** (i.e. Triangle 10, Triangle 4, Pyramid 5, CattleMaster Gold, Vira Shield, Bovi Shield…..etc.)
			* In addition to causing respiratory disease in cattle these viruses also cause abortion and infertility in cows
		- **Leptospirosis** (i.e. Triangle 10, Staybred, Spirovac, Leptoshield,…. Etc.)
			* Leptospirosis is a common cause of abortion and is prominent in our area, it is spread by wildlife when they urinate near water that livestock drink
		- **Clostridium** (i.e. Calvary 9, BarVac, Vision 7, Caliber 7… etc.)
			* There are many types of Clostridium bacteria that live naturally in the soil and can cause enteritis/scours, kidney and liver disease when ingested or death of the muscle during wound contamination
			* Tetanus is included the in Clostridium bacteria
		- You can use either a Modified live vaccine or a killed vaccine for pre-breeding vaccinations
		- If the heifers have been vaccinated in the past they simply require their annual booster 2-4 weeks prior to breeding.
		- If cows/heifers have no prior vaccine history they may require a booster shot depending on the label directions.
		- **+/- *Campylobacter fetus* vaccine** (i.e. Staybred, Spirovac, ReproStar…. Etc.)
			* *Campylobacter fetus* is a bacteria that causes infertility and abortions in cows.
			* Spread via venereal transmission from infected bulls.
			* Cows and bulls may become long term carries after infection.
			* Vaccination is used as both treatment and prevention in cows and bulls.
		- **+/- Pink Eye Vaccine** (Moraxella bovis and bovoculi)
			* Recommend vaccinating all cattle 2-4 weeks before fly season starts
			* Recommend in our area, not the most effective vaccine, you might still have cases of pink eye but it will be fewer than without the vaccine
			* Also used for treatment of active pink eye
			* Follow label directions for booster.
	+ Bulls: Booster annual vaccines against **Respiratory diseases (BVD, IBR, BRSV and PI3) and Clostridium** 2-4 weeks prior to breeding.
		- **+/- Campylobacter fetus vaccine**
		- Follow label directions for boosters if bulls are previously unvaccinated.
		- **+/- Respiratory bacterin vaccines** (*Haemophilus Somnus, Mannheimia harmolytica and Pasturella multocida,* etc.)
			* Recommended if exposure is likely (i.e. bulls covering multiple herds of cow or bulls covering show cows or bulls potentially going into a feedlot setting or sale barn)
	+ Deworming:
		- Deworm heifers and bulls 2-4 weeks prior to breeding
		- If cows received pre-calving deworming, you only need to deworm any that appear “wormy” or ill-thrift.
* Deworming for bulls and bred cows and heifers can be repeated in the fall if needed
	+ Deworm with broad spectrum oral or injectable dewormer **labeled safe for use in pregnant cows**.
	+ Do NOT use Albendazole on pregnant cows
	+ Do NOT deworm cows/heifers within the first 60 days of pregnancy
* Pre-calving:
	+ Previously vaccinated cows/heifers should receive a booster ~4-6 weeks prior to calving with a **Clostridial vaccine**, a **Killed** vaccine that protects against **Respiratory diseases (BVD, IBR, BRSV, PI3)** and  **Leptospirosis**
		- **\*\***there are certain circumstances in which it is safe to use a modified live vaccine on pregnant cows but be sure to read and follow label directions closely before administering. When in doubt use a killed vaccine.\*\*
		- **+/- Calf Scours vaccine** (i.e. ScourGuard 4KC or Bovilis Guardian)
	+ Cows/heifers with no prior vaccine history, should be vaccinated against the pathogens listed above at ~7 weeks prior to calving and boostered 3 weeks later at ~4 weeks prior to calving.
	+ Deworming: administer an oral or injectable dewormer **labeled safe for use during pregnancy** ~4 weeks prior to calving (i.e. Ivermectin based dewormers)
	+ Deworming and vaccinating at this time ensures adequate antibody concentrations/protection in the colostrum for the calf.

**2) Calves:**

* Calves born to unvaccinated cows:
	+ **+/- Ecolizer** oral vaccine (Clostridial and E. coli associated scours) in calves <4 hrs old
	+ **+/- Bovilis Nasalgen 3-PMH** intranasal vaccine (IBR, BRSV, PI3, *Mannheimia haemolytica* and *Pasteurella multocida)* in calves ≥1 week of age.
		- for immediate protection of calves in high risk areas (i.e. calves born in feedlots or with an active outbreak or history of outbreaks on the farm)
		- will only provide protection for ~3 months
	+ Vaccinate against **Clostridium** and vaccinate with **Triangle 4 + PH-K** (BVD, IBR, BRSV, PI3 and *Mannheimia haemolytica* killed vaccine*)* at 3-4 months of age.
		- Follow label directions for booster shots.
* Calves born to well vaccinated cows:
	+ **+/- Ecolizer** oral vaccine in calves <4 hrs old
	+ Vaccinate against **Clostridium** and **Respiratory diseases** (BVD, IBR, BRSV and PI3, +/- *Mannheimia haemolytica* and *Pasteurella multocida)* at 4-6 months of age or 2-4 weeks prior to weaning.
		- Follow label directions for booster shots
		- If calves are weaned, can use any type of vaccine.
		- If calves are still nursing off of pregnant cows and the cows have been vaccinated with a modified live vaccine in the past 12 months, you can use the same vaccine on the calves as was used on the cows previously. If the modified live vaccine that was used on the cows is unavailable recommend using a killed vaccine (i.e. Triangle 4 + PH-K) on the calves.
* **+/- Pink eye vaccine** at 3-4 mo of age
	+ Follow label directions for booster shots
* All male calves – vaccinate against Clostridium and Tetanus (i.e. BarVac CD&T vaccine) at time of castration and follow label directions for boosters.
* All Heifer calves - Vaccinate against *Brucellosis abortis* (Bangs vaccine) and receive an ear tattoo and orange ear tag by a veterinarian between 4-11mo of age.
* Deworm all calves at 4-6 months of age or 2-4 weeks prior to weaning.
* \*\*Maternal antibodies will inhibit effectiveness of vaccines given to calves <3 months of age.
* If dehorning, vaccinate against Clostridium and Tetanus at time of dehorning.

Specific vaccines I use and a bit about them:

**Respiratory vaccines:**

* **Triangle 10** (Boehringer Ingelheim): BVD types 1&2, IBR, BRSV, PI3 and 5 strains of *Leptospirosis*
	+ Killed vaccine - safe for cows at all stages of pregnancy and all stages of life
	+ Recommend giving initial vaccine and booster to heifers pre-breeding and annual booster to pregnant heifer and cows ~4-6 weeks prior to calving
* **Triangle 4 + PH-K** (Boehringer Ingelheim): BVD type 1, IBR, BRSV, PI3 and *Mannheimia haemolytica*
	+ Killed vaccine - safe to use on cattle of any age, in pregnant cows and in calves nursing pregnant cows
	+ Recommend using on pre-weaned calves coming from unvaccinated cows or calves at any age.
	+ Requires a booster dose
* **Bar Somnus 2P** (Boehringer Ingelheim): *Haemophilus Somnus,* *Mannheimia harmolytica* and *Pasturella multocida*
	+ Recommend using on show cattle and stocker/feeder cattle at high risk of bacterial respiratory disease due to shipping or commingling
	+ Booster 2 weeks prior to shipping/stressful event
* **Pyramid 5** **+ Presponse** (Boehringer Ingelheim) : BVD type 1 & 2, IBR, PI3, BRSV and *Mannheimia haemolytica*
	+ Modified live vaccine
	+ Not recommended for use in pregnant cows or calves nursing pregnant cows, unless the cows have been vaccinated with the vaccine in the past 12 months
	+ Recommend for weaned calves, steers and as a pre-breeding vaccine in heifers, cows or bulls.
* **Express FP 5 – VL5** (Boehringer Ingelheim): BVD types 1&2, IBR, BRSV, PI3, *Campylobacter fetus* and 5 strains of *Leptospirosis*
	+ Modified live vaccine
	+ Not recommended for use in pregnant cows
	+ Recommended for cows and heifers pre-breeding in herds that have tested positive for *Campylobacter fetus* or high risk herds
* **Bovilis Nasalgen 3-PMH** (Merck): IBR, PI3, BRSV, *Mannheimia harmolytica* and *Pasturella multocida*
	+ Modified live intranasal vaccine
	+ Safe for use in all cattle ≥1 week of age, including pregnant cows and calves nursing pregnant cows
	+ Duration of immunity is 3-6 months (i.e. Requires a booster every 3-6 months long term)
	+ Recommended using in calves born to unvaccinated cows for early protection against the above pathogens. Recommend switching over to injectable killed or modified live vaccines for longer duration of protection after 3 months of age.

**Clostridial vaccines:**

* **Calvary 9** (Merck): *Clostridium -chauvoei, -septicum, -haemolyticum, -novyi, -sordellii, -tetanus* and *-perfringens C & D*
	+ Safe for use on all cattle >3mo of age, including pregnant cows
	+ Recommend as part of yearly vaccine program for all cattle
	+ Requires a booster ~3 weeks later. Calves vaccinated before 6mo of age should receive a series of 3 shots 3 weeks apart.
* **BarVac CD&T** (Boehringer Ingelheim): *Clostridium perfringens C &D* and *Tetanus*
	+ 5mls required for vaccination of cattle
	+ Safe for use at any age including pregnant cows
	+ Recommend using at time of castration/banding for protection against *Tetanus*
	+ Requires a booster 3-4 weeks later. If given to calves >6 mo of age, recommend a 3rd booster at 6mo of age.
* **Bovilis Vision CD-T with Spur** (Merck): *Clostridium perfringens C &D* and *Tetanus*
	+ Only 2mLs are required for all approved species (cattle, sheep and goats)
	+ Safe for use at any age including pregnant cows
	+ Recommend using at time of castration/banding for protection against *Tetanus*
	+ Requires a booster 3-4 weeks later. If given to calves >6 mo of age, recommend a 3rd booster at 6mo of age.

**Scours Vaccines:**

* **ScourGuard 4KC** (Zoetis): Rotavirus, Coronavirus, *Clostridium perfringens* C and *E. coli*
	+ Killed vaccine
	+ Recommended for vaccination of pregnant cows to aid in prevention of scours in calves
	+ Initial series requires 2 doses to be administered 3 weeks apart with the second dose given 3-6 weeks prior to calving. Annual booster 3-6 weeks before calving.
* **Bovilis Guardian** (Merck): Rotavirus, Coronavirus, *Clostridium perfringens* types C and D and *E. coli*
	+ Killed vaccine
	+ Recommended for vaccination of pregnant cows to aid in prevention of scours in calves
	+ Administer 1st dose ~3 months prior to calving and booster ~4 weeks later. Annual booster ~6 weeks prior to calving.
* **Ecolizer** (Elanco): *Clostridium perfringens* type C and *E.coli*
	+ Oral vaccine for use in new born calves <4 hrs old to prevent scours

**\*\* Modified Live Vaccines are only safe to use in pregnant cows or in calves nursing pregnant cows if the cows have received that same vaccine or a vaccine within that family within the past 12 months\*\***

**\*\*All cattle should be vaccinated against Clostridial dz, BVD, IBR, PI3 and BRSV (these are our “core” vaccines). Other vaccinations in addition to the core vaccines are based on risk and may vary from farm to farm. Call to assess your farm’s risk and develop a more personalized vaccination schedule.\*\***

**\*\*When in doubt for all vaccines follow the label directions for administration, boosters and withdrawal dates.\*\***

**\*\*\*\* If vaccine history is unknow, assume they have not had any\*\***

**Most vaccines require yearly boosters for all cattle, the one exception is the *Brucella abortis* vaccine in heifers which is a one time vaccination.**

**The advantage to Modified live vaccines is that they only require a single yearly dose for cattle > 6 mo of age, no booster series is required at the initial time of vaccination (i.e. less times running cattle through the chute) and in general they mount a better immune response for better protection than a killed vaccine might.**