Red Bluff Research Animal Monthly Schedule

Jan:
Sheep: In Brush Camp Winter Range Pasture
Feeding 2/3 lbs./hd/day of a 25% protein base cake fed every other day

Ewe Lambs: By sheep facility
Feeding 2/3 lbs. Barley and 4 lbs. Hay per head per day

Cows: Siemsographe pasture on winter range
Feeding 2 lbs./hd/day of a 16% protein cake 3 times a week

Feb:
Sheep: Same as Jan. Schedule

Ewe Lambs: Same as Jan.

Cows: Same as Jan.
Vaccinate with a type of scour guard early in Feb.
Cut cows close to calving Feb. 20 and and take to calving facility
Feed heavies 30 lbs./hd/day hay along with supplement schedule in late afternoon

Mar:
Sheep: On winter range schedule until shearing usually after 3/12 or so.
After shearing: wormed, vaccinated with an 8 – way with tetanus, and poured with a
Ked control. Then kept on close range and still on supplement schedule.
Feed hay as needed and start all ewes on 5 lbs. Of hay 3/25 or so.

Ewe Lambs: Keep on regular schedule after shearing until lambing starts.

Cows: Calving starts 3/1 or so .
Around 100 hd in heavy lot on hay.
60 hd or so still on winter range until they show heavy. These maintained on the
supplement schedule.
Try to cut in to drop lot around 10 days prior to calving.
All cows maintained on 2 lbs. of supplement/hd/day fed 3 times a week until time for
MGA is fed 5/1 .
Cow/calf pairs weighed at birth and hauled to Stockade pasture and fed daily.

April:
Sheep: Start lambing 4/10 or so.
All ewes on 5 lbs. hay /hd/day and 2/3 lbs. barley /hd/day.
Ewes with lambs kepped in pens until they’re about 10 days old then shifted out in
Smaller pastures. The ewes with twins are kepped separate of the single bearing ewes
For feeding differences.

Ewe lambs: Turned out on bottom pasture and supplemented 2/3 lbs. barley/hd/day.
No more hay unless a lot of snow falls.

Cows: Cows still calving until 4/15 or so,
Feeding all cows by now.

May:
Sheep: Sheep lambing until 5/20.
Feeding all ewes with lambs until turn out.
Weigh day for ewes with lambs 5/25 or so.
After 5/25, sheep out with herder and started in 1st feeder pasture
Ewe Lambs: Out on creek bottoms with drys from lambing w/o supplement after 5/25
Are now yearlings.

May:
Cows: On MGA fed at rate of 2 lbs./hd/day fed every day tell 5/14.
Branding around first part of May or end of April.
Calves vaccinated with an 8-way, IBR - BVD-PI3, HEOMPHILUS?,
And fly tags.
Cows given 8-way, lepto, and vibrio.
All cows with calves fed hay until 5/20 or so.
Usually they are in the lower 2nd feeder pasture at this time.
5/27 or so cow/calf pairs moved to Owens Pasture

June:
Ewes: With lambs in 1st feeder and 16 mile pastures in June.

Yearling ewes: Out on bottom until weaning.

Cows: Inject with prostoglandin on 6/1
Ride heat and AI on herd until 6/7.
6/8, cows moved to Dump pasture and clean-up bulls added.

July:
Sheep: Go in Cottonwood pasture 7/1 with their lambs and the herder.

Yearling ewes: In bottom pastures.

Cows: In Dump pasture until 7/20, then the clean-up bulls are removed and the
Cows and calves go to the Cottonwood pasture.

Aug.:
Sheep: Cottonwood pasture until 8/15.
Moved to Upper 2nd feeder pasture to get ready for weaning.
8/20 or so weigh ewes and lambs.
Ram lambs and project lambs go to Ft. Ellis.
Sale lambs and some cull ewes go to PAYS Livestock Auction.

Yearling ewe: On bottom pasture until weigh day, then put in with
Ewes and ewe lambs kept for replacement back in to herd.

Sept.:
Sheep: Move to Warmsprings pasture 9/1.
Cull ewes 9/15 and sell or go to Ft. Ellis for projects.
9/16 move to Stockade pasture.

Cows: Prewean vaccinations at the Owens pasture 9/4
Pregnancy check cows 9/4.
Back to Cottonwood pasture until weaning.
9/27 - 10/1 weaning time.
All cows and calves weighed at this time.
Calves and cull cows go to Towne Farm.
Cows are treated with a lice and tick treatment and wormed at this time.
Cows stay in Owens pasture for 5 days.

Oct.:
Sheep: Ewe lambs weaned off.
Ewes go to Norris pastures 10/10 or so.
Ewes go on hay fields 10/25.

Ewe Lambs: Wormed and vaccinated with 8-way 10/11 or so.
Kept in large pen at sheep facility and started on barley and hay.
Oct.:  
Cows: Moved to Upper 2nd feeder pasture 10/5.  
Also use 1st feeder pasture during October.

Nov.:  
Sheep: 11/15 come to sheep facility for breeding. Put in pens in their respective groups.  
Fed 5 lbs./hd/day of hay.

Ewe Lambs:  
On feeding schedule of 4 lbs./hd/day of hay and 2/3 lbs. barley/hd/day.

Cows: Stockade pasture sometime after 11/15 or so.

Dec.:  
Sheep: 12/1 white face rams back to Ft. Ellis.  
Ewes out of breeding pens and in 1 big group with c-up rams.  
Still feeding 5 lbs./hd/day of hay.  
12/20 all rams back to Ft. Ellis.  
Ewes put out in Brush Camp winter range with the herder.

Ewe Lambs:  
Still on feeding schedule daily.

Cows:  
12/15 start supplement schedule 2 lbs./hd/day fed 3 times a week.  
12/15 move to Sismograph winter range.
Beef Cattle Herd

Presently the Montana State University / Montana Agricultural Experiment Station beef herd consists of approximately 160 mature beef cows maintained at the Red Bluff Research Ranch located at Norris, Montana. In addition to these mature (multiparous) cows, approximately 55 two year old first calf heifers and 55 yearling replacement heifers are maintained at the LT&RC and Fort Ellis Farms located at Bozeman, Montana. The principle breed represented is Angus with some Heterosis achieved by using some Hereford genetics. The English cattle fit in the environments that these cattle are placed in and also finish on a time frame consistent with the research done by Dr. Bowman and the marketing requirements based on the fiscal year for the University.

Replacement Heifers

The breeding season for the replacement heifers is scheduled so that they calve as first-calf heifers approximately (February 7) three weeks prior to the mature cows which is March 1. This allows an extended time for the post-partum return to cycling activity that these young primiparous cows require. In addition, this has allowed these first-calf heifers to be utilized for research done by Dr. Berardinelli.

The replacement heifers are synchronized using the MGA – prostaglandin synchronization protocol and then artificially inseminated.

Presently, the genetics used in these replacement heifers has been angus semen that has been selected primarily for calving ease combined with some growth, milk, carcass characteristics and moderate frame. This semen has at times been purchased and at other times has been semen donated from Montana producers. There is a challenge using donated semen. This semen may not have the optimum traits desired. In addition, typically, in order to be a benefit for the producer, the sires represented from donated semen, are generally young bulls that they would like to test. This results in using bulls that may have a low degree of accuracy for their EPD’s, which may be reflected in calves with calves that have some undesirable traits, such as, heavier birth weights than desired.

Two Year Old (First Calf) Cows

The two year old cows are maintained at the LT&RC located at Bozeman, Montana from calving until they are selected as replacement females for Red Bluff. This is generally around the December following weaning of their first calf. This group of females represents our opportunity to inject Heterosis in the cow herd by crossbreeding. These cows are utilized in reproductive studies by Dr. Berardinelli and upon completion of his research are synchronized and artificially bred using Hereford semen that has been purchased or donated. They are bred to calve March 1, similar to the mature cows that
they will replace at Red Bluff. Typically, the synchronization protocols used products such as GnRH or CIDR’s and are incorporated into some type of research.

**Mature Cow Herd at Red Bluff**

The mature cows are maintained at the Red Bluff Research Ranch located at Norris, Montana. These cows are bred so that they calve March 1. typically these cows have been synchronized utilizing the MGA prostaglandin protocol. They are then artificially inseminated using angus semen donated from Sitz Angus.

**Breeding Season lengths and cleanup Bulls**

Angus bulls are turned in with all the females as cleanup bulls following AI for a period of approximately 45 days.

**Costs, Synchronization Rates, and Conception Rates**

Costs for MGA treatments have been $ 3.22 per head when fed at a rate of .50 mg per day in a two pound carrier for 14 days.

Costs for prostaglandin when not donated has been approximately $ 2.10 per dose.

Semen costs when purchased has been approximately $ 12.00 to $15.00 per insemination.

Response to synchronization in the replacement heifers has been 95% plus with a AI conception rate of 70 to 80% and overall pregnancy rates of 95% plus.

Response to synchronization in the two year old cows has been 40 to 75% plus with a AI pregnancy rate to timed insemination of approximately 60%. Overall pregnancy rates have been 95% or better.

Response to synchronization for the mature cows at Red Bluff has been 90% plus with AI conception rates of approximately 80% and overall pregnancy rates of 93 to 94%.
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<th>Item</th>
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<tbody>
<tr>
<td><strong>January</strong></td>
<td><strong>Bred heifers:</strong>&lt;br&gt;Replacement heifers: feed to gain ≈ 1.75 lb./day (to meet target weight); vaccinate pre-breeding vaccinations; check for parasites; schedule breeding dates; monitor estrus to determine estrous status; order semen</td>
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<tr>
<td><strong>February</strong></td>
<td><strong>Bred Heifers:</strong> Calve; may add grain to ration; order semen&lt;br&gt;Replacement Heifers: keep them gaining (≈ 1.75 lb/hd/day)</td>
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<td><strong>March</strong></td>
<td><strong>Bred Heifers:</strong> Calve; add grain to ration (2 – 3 lb/hd/day);&lt;br&gt;Replacement Heifers: Feed to gain (1.75lb/d); Start on MGA (or in early April, 33 days prior to PGF₂α injection)</td>
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<td><strong>April</strong></td>
<td><strong>Bred Heifers (pairs):</strong> Transfer designation to read Two year olds with calves; (Jim Berardinelli’s trials); brand calves and give pre-breeding vaccinations (beef practicum labs)&lt;br&gt;Replacement Heifers: Feed MGA 14 days followed by injection of PGF₂α 33 days later; Breed end of April, follow w/cleanup bulls (for ≈ 30 days)</td>
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<tr>
<td><strong>May</strong></td>
<td><strong>Two yr olds w/calves (pairs):</strong> Synchronize and breed AI (follow w/cleanup bulls 14 days post AI for 45 days);&lt;br&gt;Replacement Heifers: Turn out to grass, keep clean-up bulls in for 30 days; ad – lib mineral and salt</td>
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<td><strong>June</strong></td>
<td><strong>Two yr olds w/calves (pairs):</strong> Turn out to grass; keep clean up bulls in for 45 days; monitor on grass; ad – lib salt and mineral; ultrasound for pregnancy determination for Jim Berardinelli’s trial&lt;br&gt;Replacement Heifers: Remove clean up bulls; monitor on grass; ad – lib salt and mineral</td>
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<tr>
<td><strong>July</strong></td>
<td><strong>Two yr olds w/calves (pairs):</strong> Pull clean up bulls; monitor on grass; ad – lib salt and mineral</td>
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<tr>
<td>August</td>
<td><strong>Replacement Heifers</strong>: monitor on grass; ad – lib salt and mineral</td>
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<td></td>
<td>Two yr olds w/ calves (pairs): monitor on grass; ad – lib salt and mineral</td>
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<tr>
<td>September</td>
<td>Two yr olds w/ calves (pairs): Vaccinate calves pre – weaning; Wean calves and place back on hay meadows; Pregnancy test cows, vaccinate w/ vac4, clostridial, vibrio/lepto; pour grubs and lice, (worm if necessary); place with cows for pregnancy diagnosis class</td>
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<td></td>
<td><strong>Replacement Heifers</strong>: Monitor on grass; ad – lib mineral and salt</td>
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<td>October</td>
<td><strong>Bred Two Year Olds</strong>: pregnancy class;</td>
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<td></td>
<td><strong>Replacement Heifers</strong>: Pregnancy test, vaccinate w/ Vac 4, clostridial, vibrio/lepto, pasturella; pour for grubs and lice; (worm if needed)</td>
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<td><strong>Weaned Calves (Red Bluff and L.T&amp;RC)</strong>: monitor on hay meadows, ad – lib salt and mineral</td>
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<td>November</td>
<td><strong>Bred Two Year Olds</strong>: Freeze Brand Start feeding if necessary, salt and mineral</td>
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<td><strong>Replacement Heifers (Transfer to Bred Heifer designation in Inventory)</strong>: Bring back from Fort Ellis for</td>
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<td></td>
<td>pregnancy testing class; salt and mineral; pour for grubs and worm (if necessary)</td>
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<td>collect fecal samples for parasite counts;</td>
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<td><strong>Calves (from first calf heifers)</strong>: Sort as replacements or culls; (Designate As Replacements or Culls); Vaccinate replacements for brucellosis (bangs), booster all w/ Vac 4, pasturella, clostridial; worm; implant culls if they are to be fed (synovex H orimplus H)</td>
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<tr>
<td>December</td>
<td><strong>Bred Two Year Olds</strong>: Ship</td>
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<tr>
<td></td>
<td>Replacement 2 yr olds to Red Bluff</td>
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|          | **Replacement Heifers**: Start feeding (to
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<th>gain as needed for puberty target</th>
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MSU Beef Management Calendar
Montana State University/Montana Agricultural Experiment Station
Beef Cattle Health and Vaccination Program

Anyone that produces beef has a responsibility to produce a safe product that meets consumer demands. As a State institution Montana State University must set an example by rigidly following health programs that assist in meeting these responsibilities and utilizing programs that have been developed by researchers for beef producers to follow, such as the Montana Beef Quality Assurance Program.

The program that we are using for beef cattle at the MSU/MAES LT&RC (Towne Farm) and the Red Bluff Research Ranch uses protocol consistent with the Montana Beef Quality Assurance Program. It not only allows us meet our responsibility in producing a safe, high quality beef product but, it works well in our management system. It has minimized morbidity in our cattle, increased estrus response to synchronization and helped the performance of our cattle in general.

We have been fortunate in that we have had industry involvement in helping us by donating some of the vaccines we need. This has allowed us to use a fairly aggressive vaccination program.

Branding

We vaccinate the cows and calves at branding (at approximately 2 – 3 months of age) with a modified – live vaccine for Bovine Viral Diarrhea (BVD), Bovine Respiratory Syncytial Virus (BRSV), Infectious Bovine Rhinotracheitis (IBR), and Parainfluenza-3 Virus (PI-3). We utilize the modified live vaccine at this time because these vaccines will tend to give us a greater immune response than killed vaccines, in addition, these vaccines will typically cost less. Although, there may be some risk of viral shedding associated with modified – live vaccines, we feel comfortable with administering them at this time, because this vaccination is administered before breeding season. This should eliminate most of the risk associated with the possibility of aborting the pregnant cow. Also, we want to start getting the highest level of immunity in the calves as well as the cows as soon as possible so that we feel comfortable using a modified live vaccine again in the fall on the calves for a pre – weaning vaccination while they are nursing their pregnant dams. Because we have a vaccination history of using a modified – live vaccine in these cows, we feel that the level of immunity these cows have built is sufficient to allow us to use this modified – live vaccine on these calves while they are still nursing these pregnant cows with minimal risk of abortion.

We also vaccinate the cows and calves at branding with a Clostridium 7 – way (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novyit – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease.

In addition, the calves receive haemophilus somnus and a pasteurella Haemolytica and Multocida vaccination at branding, while the cows are vaccinated for campylobacteriosis (vibriosis) and leptospirosis and haemophilus somnus.
Pre – Weaning

We vaccinate the cows and calves approximately 30 days prior to the time we would wean the calves. This bolsters (booster) the immune response to the vaccination that was administered at branding. The advantage of administering the vaccines at this time is that the calves are still nursing their dams and are in a stress free environment. This lack of stress, increases the opportunity for the vaccine to build an immune response.

The calves receive the same vaccination protocol that they received at branding (modified – live BVD, BRSV, IBR, PI-3 ; 7-way ; somnus ; and pasteurella). However, at this time the cows will receive a killed vaccine for BVD, BRSV, IBR, and Pi-3, just to reduce any possible risk of abortion. The cows would also receive a 7-way, and another booster for vibrio/lepto.

The cows and calves would be poured for grubs and lice at this time also.

Post – Weaning

After the calves are weaned, the calves are placed back out on hay meadows to graze and be managed much like they had been, except for the absence of the cows. This is another way in which the stress of the calves is minimized. They are allowed to run on these pastures for approximately 45 days, at which time they are brought in and given their final booster vaccination. The calves will usually be sorted at this time or shortly following this vaccination and either be managed as replacement heifer calves, feeder calves or be marketed.

Scours

Scours has not been a major problem with the calves born and raised at the LT&RC (Towne Farm). At this location, the primary cows that are calved are the first calf heifers. However, in the past there has been a pretty big problem with scours in the multiparous cows at Red Bluff. This creates a hardship, due to the minimal amount of labor available for treating these calves and the fact that the cattle are managed on range, increasing the difficulty in catching and treating these calves. Consequently, the cows at Red Bluff receive a injection of Scour Guard 3 KC prior to calving. This protocol appears to be a benefit.
Implants
The implant strategy that is used is a fairly moderate strategy. The steer calves are implanted with 100 mg progesterone and 10 mg of estradiol benzoate (Synovex C or Implus C) at branding. The feeder steers are then re-implanted with 200 mg of progesterone and 20 mg of estradiol benzoate (Synovex S or Implus S) following weaning and then again (if necessary) 80 to 100 days following this post – weaning implant. Feeder heifers are implanted post-weaning in the same manner as the steers except they receive 200 mg of Testosterone and 20 mg of estradiol benzoate (Synovex H or Implus H). Heifers selected as replacement heifers do not receive implants.

Parasite Control
Cows and calves are generally treated for grubs and lice in the fall when the pre-weaning vaccinations occur. In addition to this, the cows at Red Bluff are wormed at this time because they are required to forage on winter range (instead of being fed). This appears to help them maintain body condition. The replacement heifers are wormed, since it has been shown that worming (irregardless of parasite load) in replacement heifers hastens the onset of puberty and allows a higher number of heifers to conceive early in the breeding season. In addition to this, fecal samples are collected several times during the year to determine if the cattle have a parasite problem. If there is a problem with parasites, the cattle are treated appropriately.

Economics
We have had the benefit of some of these products being donated to us because we are the Land Grant Institution for Montana. This has allowed us to be aggressive with some of this protocol.

We are very pleased with the effectiveness of this protocol. The morbidity of all the cattle that are at Red Bluff, the LT&RC, and Fort Ellis, (on pasture and in the feed lot) is extremely low. In addition, the performance of the cattle in the feed lot is very good.
<table>
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<tr>
<th>Item</th>
<th>VACCINATIONS</th>
<th>Completion Date</th>
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<tr>
<td>January</td>
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</table>
| February           | **Calves**: at birth, iodine navel, tattoo and ear tag, inject Vitamin E (d alpha – tocopherol) and vit B12  
                    **Replacement Heifers**: Collect fecal samples for parasite counts  
                    **Red Bluff Cows**: Vaccinate with Scour Guard 3K-C |                 |           |
| March              | **Replacement Heifers**: (LT&RC) Pre-breeding: ¹ **Modified Live**  
                    BVD, BRSV, PI3, IBR (Pyramid MLV 4, or Bovishield 4) ² **Clostridium 8 – way**  
                    (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novvii – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease, ³ **Vibrio/lepto**. (Fort Dodge Tri – Vib 5VL) |                 |           |
| April              | **Calves**: (LT&RC and Red Bluff):  
                    Brand and castrate calves; vaccinate calves with ¹ **Modified Live**  
                    BVD, BRSV, PI3, IBR (Pyramid MLV 4, or Bovishield 4) ² **Clostridium 8 – way** with haemophilus somnus (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novvii – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease), ³ **pseudomonas haemolytica and multotcida**, ⁴ implant steer calves with Synovex-C or Implus-C;  
                    **Cows**: ¹ **Modified Live**  
                    BVD, BRSV, PI3, IBR (Pyramid MLV 4, or Bovishield 4) ² **Clostridium 8 – way** ³ **Vibrio/lepto**. (Fort Dodge Tri – Vib 5VL) |                 |           |
| May – August       |                                                                              |                 |           |
September

Calves: Pre-weaning, vaccinate calves with 1 Modified Live BVD, BRSV, PI3, IBR (Pyramid MLV 4, or Bovishield 4) 2 Clostridium 8-way with haemophilus somnus (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novvii – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease), 3 pasteurella haemolytica and multocida. 4 Pour for parasites.

Cows: Pregnancy Test, vaccinate with 1 Killed BVD, BRSV, PI3, IBR (Triangle 4 or Cattlemenaster 4 ect.); 2 Clostridium 8-way (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novvii – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease, 3 Vibrio/lepto. (Fort Dodge Tri – Vib 5VL) 4 Worm; 5 Pour for grubs and lice (warbex) If an ivermectrin type of product is used for worming, eliminate warbex.

October

Calves and Steer A Year Calves: Booster Vaccination, calves with 1 Modified Live BVD, BRSV, PI3, IBR (Pyramid MLV 4, or Bovishield 4) 2 Clostridium 8-way with haemophilus somnus (clostridium chauvoei – blackleg, clostridium septicum – malignant edema, clostridium haemolyticum – red water, clostridium novvii – Black’s disease, clostridium sordelli, clostridium perfringens – Type C and D – enterotoxemia or overeating disease), 3 pasteurella haemolytica and multocida, 4 implant steers and cull heifers with moderate growth implant (Synovex S and H or Implus S and H – with tylan)
**November**

Replacement Heifers: Vaccinate for Brucellosis (Bangs) All calves that are placed in dry – lots should receive an ionophore (monensin or lasalocid) or DeCoxx as coccidiostat

**December**

Costs of Products

Industry has contributed by donating products in the past such as Fort Dodge Animal Health has donated Pyramid 4-MLV, Presponse HM, Triange 4, and Tri-Vib 5 VL. Typically we have to purchase clostridials and any that we cannot get assistance with.

<table>
<thead>
<tr>
<th>Doses</th>
<th>Product</th>
<th>Cost per dose</th>
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<tbody>
<tr>
<td>1000</td>
<td>Ultra bac 8 (Pfizer)</td>
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<tr>
<td></td>
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<td>$350.00</td>
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<tr>
<td>200</td>
<td>Pyramid MLV 4 (Fort Dodge)</td>
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<td>$160.00</td>
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<td>Presponse HM (Fort Dodge)</td>
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<tr>
<td>200</td>
<td>Somubac (Haemophilus somnus) (Pfizer)</td>
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<td>$58.00</td>
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<tr>
<td>225</td>
<td>Scourguard 3 (K)/C Pfizer</td>
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<td>$495.00</td>
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<td>200</td>
<td>Ivomec (Merial) or Dectomax (Pfizer)</td>
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<td>$700.00</td>
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<td>150</td>
<td>Generic Ivermectrin Pour on</td>
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<td>Cydectin</td>
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<td>125</td>
<td>Synovex C</td>
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<td>Synovex S</td>
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<td></td>
<td>Synovex H</td>
<td>$0.90</td>
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<tr>
<td></td>
<td>Warbex</td>
<td>$45.00</td>
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Isolation of Livestock Arriving from Outside Sources Other Than Montana State Livestock

It has been recommended that any outside livestock such as new cattle arriving for certain research trials be housed separate (isolated) from the University livestock for three weeks prior to being placed near or with University livestock.

It is also recommended that non-university livestock adhere to the same vaccination protocol of University or Experiment Station owned livestock. In addition, a vaccination statement should accompany any livestock coming in to the stations from outside sources.
Administering Health Products

The goals of administering health products are to prevent or treat a health problem while maintaining the safety and quality of the meat that will be produced from the animal. The proper use of animal health products is an absolute requirement to ensure superior efficacy of the product and to provide assurance that the food produced from our beef is safe. Federally licensed products should be used in accordance with the label instructions. This includes dosage, timing and route of administration, withdrawal periods and any other warnings, storage conditions and expiration dates. **The use of any product in a manner not specified by the label requires a veterinarian’s prescription.** All products should be administered in a manner as specified by the Beef Quality Assurance Program. In addition, the method of administration is important because it affects the speed with which the product enters the animal’s system. Aseptic conditions should be utilized to ensure that the health product can be effective, as well as to ensure no other diseases or infections are transmitted. Every effort should be made to ensure that products are handled and administered in a manner that ensures the vaccine or antibiotic has an opportunity to be effective and to ensure food safety and safety for the personnel involved. Record all vaccinations and treatments. Log books should be kept at the MSU Beef Barn at the Livestock Teaching and Research Center (Towne Farm) for bred heifers, two year olds and calves and the replacement heifers. Log books for feed lot cattle should be kept at the MSU Feed Mill (LT&RC). Records of vaccinations and treatments for cattle at Red Bluff should be maintained in the office at Red Bluff.

**Injection Guidelines**

1. All injections, regardless of animal age, should be given in the neck only.  
   (See diagram on last page)

2. Use of subcutaneous (SQ), intravenous (IV) or oral administration of medication is preferred when possible.

3. Never exceed a 10 ml (10cc) injection in any one location site.

4. Protect needles, syringes, and medications from contamination, freezing, heat, or sunlight.

5. Use the minimum length and size of needle to accomplish the job.
   a. **For SQ injections:** 16 gauge ¾ to 1 inch needles are preferred (use a tenting technique).
   b. **For IM (intramuscular) injections:** 16 – 18 gauge 1 to 1 ½ inch will work.

6. Change needles frequently or if damaged, blunted, or contaminated.
7. When vaccinating, do not vaccinate when cattle are wet. Use care in injecting to be sure injection sites are clean of manure or other contaminants.

**Cleaning Equipment**

Clean syringes and other re-usable equipment by taking apart and boiling in clean water.

**Vaccinations**

**Product Administration**

**Clostridial 8-way** (with or without haemophilus somnus)

1. Draw vaccine from the original bottle

2. Use a 3/4 to 1 inch 16 gauge needle.

3. Change needles every 10 to 15 head or if needle becomes burred, dull or dirty.

4. Administer subcutaneous only (SQ)

5. Be careful! Clostridials hurt and may cause blood poisoning if inflicted in yourself or someone else.

**Modified Live Respiratory Vaccines**

1. Reconstitute with diluent that was packaged with the product, using a transfer needle.

2. Do not use product that has been reconstituted for more than 3 – 4 hours.

3. Discard unused contents when done with a location or at the end of the day.

4. Use a 3/4 to 1 3/4 inch 16 to 18 gauge needle.

5. Inject as directed on product, (SQ or IM).

6. Avoid extended exposure to sunlight or heat.
Routine Treatments

1. Respiratory Conditions — Use Judgment: Use the least least invasive therapy that will work. In other words when you consider it to be a mild case and feel that the animal or the performance of the animal are not in jeopardy, use a treatment such as Treatment 1. This not only is more economical, but it also allows us to save the therapies that seem to work better (perhaps, because organisms have not developed a tolerance for them as of yet) for when we really need them. This, may decrease the resistance an organism may develop to a therapy, saving this treatment for when it is really needed. In addition, always be aware of the withdrawal time that is required for an antibiotic and the stage the animal is at (example: if we have a steer that weighs 1225 lb. And we plan on marketing it within a week or two, do not use an antibiotic with a 28 day withdrawal period).

A. Symptoms : Depression, difficult breathing, coughing, off feed, discharge from nose and/or eyes; Temperature = 103.0 – 107.0 plus

Treatment 1 : Day 1

   a. 5ml LA-200 or Biomycin-200 / 100 pounds SQ or IV.
   b. 1.5 ml Banamine / 100 pounds Intravenous (IV)

   If cattle are not responding to treatment by day 2 or 3 , they should be switched to an alternate treatment.
   
   **Withdrawal 28 days**

Treatment 2 :

A. Symptoms : Depression, difficult breathing, coughing, off feed, discharge from nose and/or eyes; Temperature = 103.0 – 107.0

Day 1

   i. 1.5 ml Naxcel / 100 pounds IV
   ii. 1.5 ml Banamine / 100 pounds IV

Day 2

   iii. 1.5 ml Naxcel / 100 pounds IV
   iv. 1.5 ml Banamine / 100 pounds IV

Day 3

   v. 1.5 ml Naxcel / 100 pounds IV
vi. 1.5 ml Banamine / 100 pounds IV

**Withdrawal = 4 Days (96 hours) after last treatment**

**Treatment 3**
Day 1 – (good for 3 days)

a. 2.0 ml Excenel /100 pounds SQ
b. 1.5 ml Banamine may be added per 100 pounds (however it extends withdrawal period to 4 days)

**Withdrawal = 4 days (96 hours)**

**Treatment 4**
Day 1

a. 1.0 ml Naxcel /100 pounds IV
b. 1.0 ml Excenel /100 pounds SQ
c. 1.5 ml Banamine may be administered /100 pounds

**Withdrawal = 4 days (96 hours)**

**Treatment 5**
Day 1

a. 2.0 ml Baytril 100 /100 pounds SQ
b. 1.5 ml Banamine may be administered

Day 2

b. 2.0 ml Baytril 100 /100 pounds SQ

Day 3

c. 2.0 ml Baytril 100 /100 pounds SQ

**Withdrawal = 28 days**

**Treatment 6**
Day 1 (good for 3 days)

a. 4.0 ml Baytril 100 /100 pounds SQ
b. 1.5 ml Banamine may be administered

**Withdrawal = 28 days**

**Treatment 7** (only use if other treatments fail to show response)
Day 1

a. 6 ml Nuflor / 100 pounds SQ

**Withdrawal = 28 days**
Treatment 8
Day 1

a. Pfizer A180 (danofloxacin mesylate)
   Withdrawal = 4 days (96 hours)

Treatment 9
Do not use unless approved by Farm Manager or
Consulting Veterinarian
a. Micotil 300 1.5 ml/100 pounds SQ
   Be Careful
   (Injection of this product has been shown to be fatal in swine, primates and may
   be fatal to horses)

   Withdrawal = 28 days

Scours

Prevention:
Prevention of scours is more important than treatment. This is
accomplished by:

1. Cleanliness: Be sure to keep calving and holding area's as
   clean and dry as possible.

2. Colostrum: Be sure calf receives adequate colostrum
   (preferably from its own dam) as rapidly as possible. (at the
   least within 8 hours following birth).

3. Reduce as much stress (cold, wet, etc.) as possible.

Treatment:

1. Fluid therapy: Give oral electrolytes (it is better to give fluid
   early if it is needed; if in doubt, give fluid)

2. Collect stool and take to VTMB to isolate the agent causing the
   scours and to determine what it may be susceptible to (type of
   antibiotic that would kill the bug, if any)
Treatment 1:

3. 6 ml of LA-200 or Biomycin 200 / 100 pounds SQ or IV (do not inject more than 2 ml per injection site in baby calves.

Oral electrolytes

Withdrawal = 28 days

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Treatment 2:

Day 1:
1. 2 ml Naxcel / 100 pounds AM
2. 2 ml Naxcel / 100 pounds PM

Day 2:
1. 2 ml Naxcel / 100 pounds AM
2. 2 ml Naxcel / 100 pounds PM

Day 3:
1. 2 ml Naxcel / 100 pounds AM
2. 2 ml Naxcel / 100 pounds PM

Treatment 3:

Day 1:
1. 2 ml Excenel / 100 pounds AM

Day 2:
2. 2 ml Excenel / 100 pounds AM

Day 3:
2. 2 ml Excenel / 100 pounds AM

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Treatment 4:

Day 1:
Albon S-R calf bolus (or similar sustained release calf bolus such as Sustain S-R etc.)

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Foot Rot

Treatment 1:

Day 1:
5 ml LA-200 or Biomycin 200 / 100 lbs SQ
Clean infected foot and pour iodine over foot

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Treatment 2:

Day 1:
a. 5 ml LA-200 or Biomycin 200 / 100 lbs SQ
b. 1 Albon S-R bolus/200 lbs. (or similar sustained release bolus)

Clean infected foot and pour iodine over foot
Withdrawal = 30 days
**Bloat**

**Treatment 1:**
Get animal up and move around, if the animal does not start to rid l
Of gases, then pass a stomach tube down and try to relieve gas.
With stomach tube in place, drench animal with ½ to 1 gallon of
mineral oil or therabloat ect.

**Treatment 2:**
If tubing and drenching do not work and/or if the animal reaches
a point where the animal will die without immediate relief it may
require puncturing the rumen to allow the gas to escape. Use the
trocar if at all possible and only puncture left side.

**Injection Site**