



UNIVERSITY OF  
FLORIDA

VM113

EXTENSION

Institute of Food and Agricultural Sciences

## Different Health Scenarios to Prepare Calves for Shipping and for Receiving Yearling Cattle<sup>1</sup>

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### Preparing Calves

Preparing a calf to withstand the disease challenges, ration changes, and changes in environment it will be subjected to during the pasture to plate trip must begin while the calf is at its mother's side. In a vertical integrated calf program where an individual or group of individuals control the preparation at all levels (pasture to plate) we should be able to adequately prepare the calves for the trip.

In addition to the required pre-weaning or pre-shipment programs for calves, we must also design programs for receiving calves or yearling cattle into either stocker operations and feedyards involved in the vertical integrated program.

Preparing calves for shipment requires that calves receive certain pre-weaning practices and vaccination programs.

The *recommended* pre-weaning practices and vaccination programs should include:

- Castrating bull calves and allowing sufficient time for healing before shipping.

- Dehorning all calves and allowing sufficient time for healing before shipping.
- Treating all calves for internal and external parasites before shipping (deworm, de-grub, delice and defluke where appropriate).
- If required, all heifers should be vaccinated against brucellosis at least 30 days before shipping.
- *Properly* vaccinating all calves at least 30 days before shipping against the following:

#### *Required:*

- Infectious Bovine Rhinotracheitis (IBR)
- Parainfluenza type 3 (PI-3)
- Bovine Virus Diarrhea (BVD)
- Bovine Respiratory Syncytial Virus (BRSV)
- Clostridial Diseases (7-Way Blackleg)

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Clostridium chauvoei  
 Clostridium septicum  
 Clostridium novyi  
 Clostridium sordelli  
 Clostridium perfringens Type C & D

- Pasteurella haemolytica

*Optional:* (depending upon where the cattle are sent)

- Haemophilus somnus
- Leptospira Diseases (Lepto-5)

The following is a calf rating system that I use to rank calves that have received varying degrees of prewean processing. I think the ranking is simple, easily understood, and provides only three options: 1) partially vaccinated calves (*1X calves*), 2) fully vaccinated calves (*2X calves*), and 3) fully vaccinated calves that have been weaned for at least 30 days (*2X+ calves*).

### 1X Calves

The 1X calf program requires a one-time vaccination against IBR, PI3, BVD, BRSV, *Pasteurella haemolytica* and 7-Way Blackleg diseases. The vaccines must be given after the calf is four months of age and at least 28 - 30 days before the calf is sent to market. This one-time vaccination will "prime" the animal's immune system. This priming effect does not stimulate a high level of resistance in the animal; however, the animal will be primed to adequately respond when the second dose of vaccinations are administered by the purchaser. Because of the lack of ample resistance, you must be aware of the possible problems when the 1X calves are challenged as they are shipped into different calf programs (commingled vs non-commingled). In addition, all calves must be dewormed and de-grubbed, bull calves must be castrated, heifer calves must be open (not pregnant) and calthood vaccinated against brucellosis if required, and all horned calves must be dehorned. All surgical (neutering and dehorning) sites must be healed before calves are shipped.

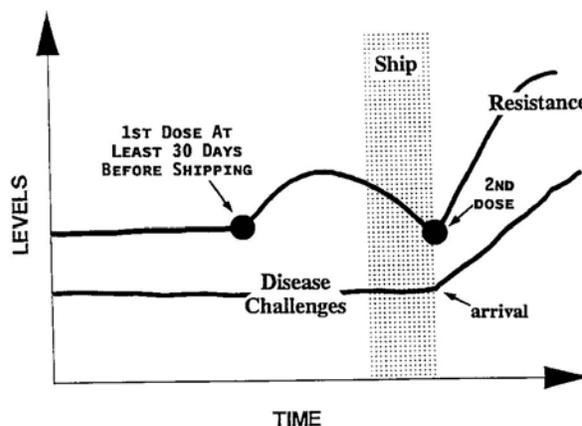


Figure 1. 1X Calf --> Non-Commingled Program

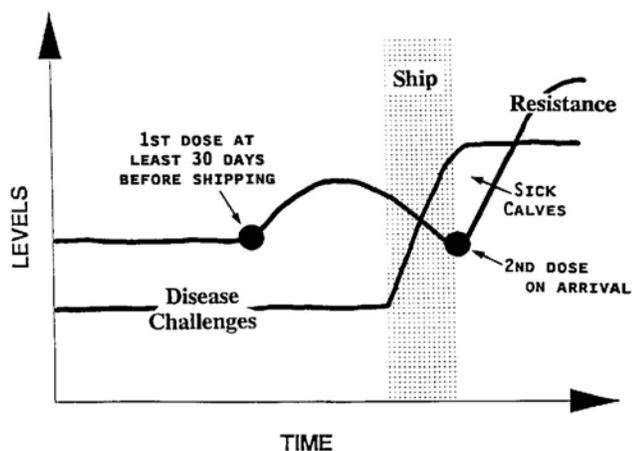
### 1X Calf Requirements

- Male calves are steers (and healed).
- All calves are polled or dehorned and healed.
- Heifers are open and, if required, Brucellosis vaccinated.
- All calves will be dewormed and de-grubbed.
- All calves have been vaccinated once against IBR, PI3, BVD, BRSV, 7-Way Blackleg diseases, and *Pasteurella haemolytica* (must contain leukotoxoid). The vaccines must be administered when the calves are four months old or older and at least 30 days before shipping.
- Calves must be re-vaccinated on arrival to stimulate the needed rise in resistance.

If 1X calves are subjected to a rapid rise in a disease challenge (seen in commingled systems) before re-vaccination (second dose), they will most likely become sick with a bovine respiratory disease (Figure 2).

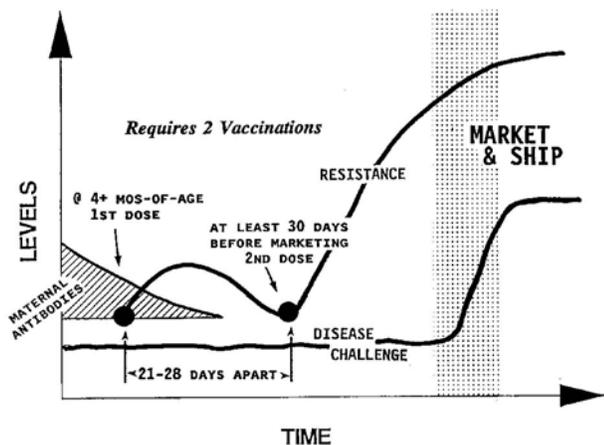
### 2X Calves

The 2X calf program requires that the calf be vaccinated twice against IBR, PI3, BVD, BRSV, *Pasteurella haemolytica* and 7-Way Blackleg diseases. The first doses of these vaccines must be administered after the calf is four months old. The second doses must be administered at least 21-28 days after the first doses are administered and at least 30 days before the calf is sent to market. The first



**Figure 2.** 1X Calf --> Commingled Program --> Sick

vaccinations will prime the calf's immune system and the second doses of vaccines will stimulate a rise in the calf's resistance to the diseases if administered at the proper times. Administering the second doses of vaccines sooner than 21-28 days following the first doses will not allow time for the calf to adequately process the first doses and the second doses will not be able to stimulate a rise in the calf's resistance level. Shipping the calf too soon after administering the second doses of vaccine will not allow sufficient time for the calf's resistance level to rise; 30 days are required for the calf to reach the desired resistance level. In addition, all calves must be dewormed and de-grubbed, bull calves must be neutered, heifer calves must be open (not pregnant) and calfhood vaccinated against brucellosis if required, and all horned calves must be dehorned. All surgical (neutering and dehorning) sites must be healed before the calves are shipped.



**Figure 3.** 2X Calves

### 2X Calf Requirements:

- Male calves are steers (and healed).
- All calves are polled or dehorned and healed.
- Heifers are open and, if required, Brucellosis vaccinated.
- All calves will be dewormed and de-grubbed.
- All calves have been vaccinated twice against IBR, PI3, BVD, BRSV, 7-Way Blackleg diseases, and *Pasteurella haemolytica* (must contain leukotoxoid). The first doses of vaccines must be administered when the calves are four months old or older and the second doses must be administered at least 21-28 days after the first doses and at least 30 days before shipping.

If the first dose of 7-Way Blackleg vaccine is of the formulation which only requires one dose to stimulate resistance, a second dose may not be required. *Read the label.*"

### 2X Plus (2X+) Calves

The 2X+ calf program requires that the calf be vaccinated twice and weaned for at least 30 days before shipping. The calf must be vaccinated against IBR, PI3, BVD, BRSV, *Pasteurella haemolytica* and 7-Way Blackleg diseases. The first doses of these vaccines must be administered after the calf is four months of age. The second doses of vaccine must be administered at least 21-28 days after the first doses are administered and at least 30 days before the calf is shipped. The first vaccinations will prime the calf's immune system and the second doses of vaccines will stimulate a rise in the calf's resistance to the diseases if administered at the proper times. Administering the second doses of vaccines sooner than 21-28 days following the first doses will not allow sufficient time for the calf to adequately process the first doses and the second doses will not be able to stimulate a rise in the calf's resistance level. Marketing the calf too soon after administering the second doses of vaccine will not allow sufficient time for the calf's resistance level to rise; at least 30 days are required for the calf to reach the desired resistance level. Since the 2x+ calf must be weaned at least 30 days before it can be marketed, the second doses of vaccine could be

administered at the time of weaning. The 30+ day waiting period before the calf could be shipped would then allow the animal to adequately respond to the second doses of vaccines. In addition, all calves must be dewormed and degrubbed, bull calves must be neutered, heifer calves must be open (not pregnant) and calfhood vaccinated against brucellosis if required, and all horned calves must be dehorned. All surgical (neutering and dehorning) sites must be healed before the calves are shipped.

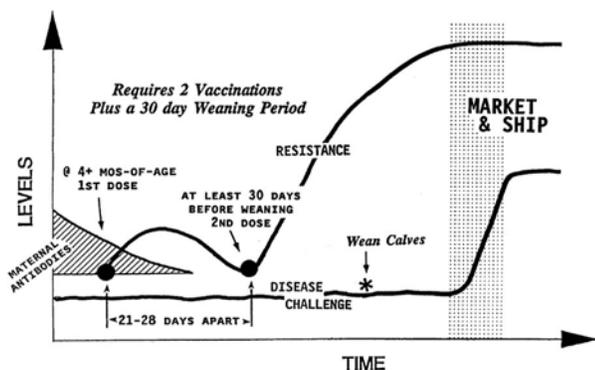


Figure 4. 2X+ Calves

#### 2X+ Calf Requirements:

- Male calves are steers (and healed).
- All calves are polled or dehorned and healed.
- Heifers are open and, if required, Brucellosis vaccinated.
- All calves will be dewormed and degrubbed.
- All calves have been vaccinated twice against IBR, PI3, BVD, BRSV, 7-Way Blackleg diseases, and *Pasteurella haemolytica* (must contain leukotoxoid). The first doses of vaccines must be administered when the calves are four months old or older and the second doses must be administered at least 21-28 days after the first doses and at least 30 days before marketing. Calves must be weaned for at least 30 days.

If the first dose of 7-Way Blackleg vaccine is of the formulation which only requires one dose to stimulate resistance, a second dose may not be required. *Read the label.*

Since disease challenges are applied to commingled calves differently than non-commingled calves, preshipping health programs must be designed to address the difference.

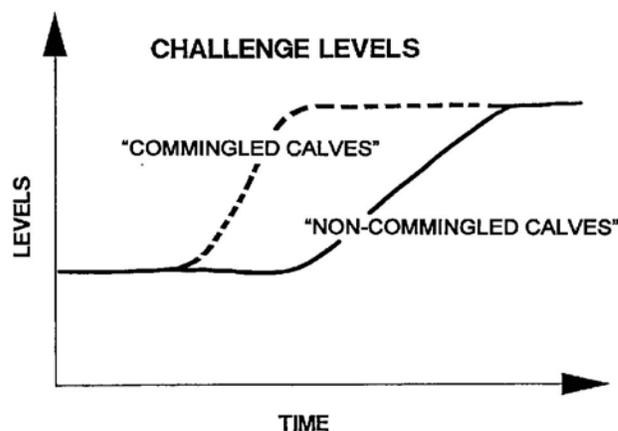


Figure 5.

Non-commingled calves will be exposed to the same diseases challenge levels as commingled calves; however, the *rate of application* is much less. For non-commingled calves, the disease challenges start later and go up much slower.

1. Calves that have received only one round of vaccines (1X calves) do not have an adequate level of resistance (immunity) to withstand the disease challenges associated with calves entering a commingled calf program. 1X calves should not be accepted into a commingled calf program.

2. 1X calves can be accepted into a *non-commingled* calf program if they are adequately handled and re-vaccinated on arrival; however, they must have received the 1X vaccinations after they were four months of age and before 30 days of shipment. They are still at risk, but, if properly handled and processed on arrival, they should stay healthy.

3. Calves that have received two rounds of vaccines (2X calves) can be accepted into either a commingled or a non-commingled calf program. However, timing of the vaccinations is of particular importance in preparing these calves to withstand the disease challenges.

2X calves that will not receive a weaning period when removed from the cows must have received the first round of vaccinations after they were four months of age. They must have a waiting period of at least 21-28 days before they receive the second round of vaccines, with the second round of vaccines administered between 90-30 days of shipping. Calves receiving vaccinations when they are removed from the cows and not subsequently subjected to at least a 30-day weaning period before shipping are not acceptable as 2X calves. They are still classified as 1X calves.

4. 2X Plus (2X+) calves are calves that have received two rounds of vaccines *plus* at least a 30-day weaning period before they are shipped. The vaccination regimen can be completed (second round) either before weaning (removal from cow) or at weaning time. However, under no circumstances can the second round vaccines be given within 21 days of the first round of vaccines; you must have at least 21 days (preferably > 28 days) between the first and second doses. We would also prefer to have the second round be administered between 90-30 days of shipment.

The first round of vaccines (initial doses) must be administered after the calf is four months old. *If you choose to administer the second round before the calf is weaned you must use viral vaccines that are permitted in calves nursing pregnant cows. However, if you choose to administer the second round after the calf is removed from the cow, you can use modified live viral (MLV) vaccines.*

## Calf Scenarios

### Scenario 1

Southeastern calves (450 - 600 lbs) that will be taken off the cows and immediately shipped to a dry lot backgrounding facility.

The calves must be 2X Calves and processed as follows:

1. When the calves are over four months of age:

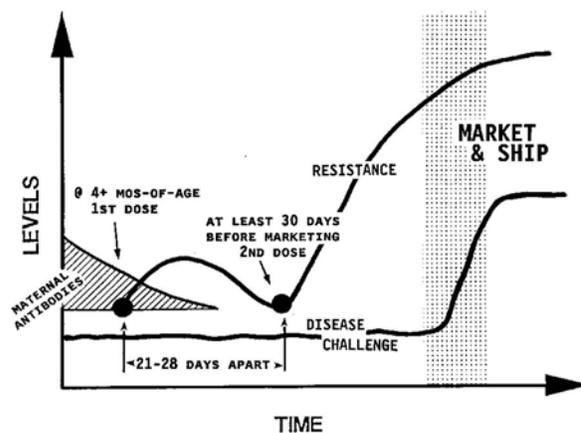


Figure 6.

- Vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*
- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, *if required for shipping*

2. Between 90 and 30 days before shipping and at least 21-28 days after the first round of vaccinations:

- Re-vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*
- *If the following have not already been completed:*
  - Castrate bull calves
  - Dehorn calves if not polled.
  - Deworm, degrub, delouse and (if needed) defluke
  - Vaccinate heifers against Brucellosis, *if required for shipping.*

## Scenario 2

Southeastern calves (450 - 600 lbs) that will be taken off the cows, weaned for at least 30 days and shipped to a dry lot backgrounding facility.

The calves must be 2X + calves and completely processed before they are removed from the cow. They will be processed as follows:

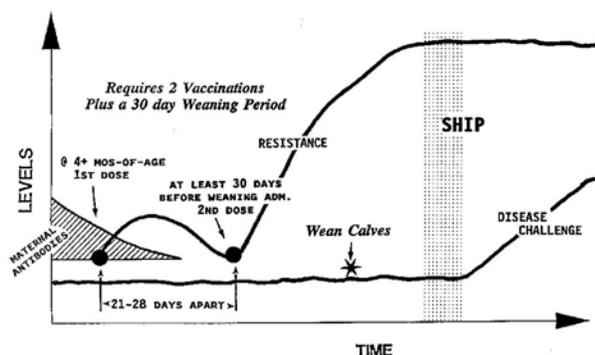


Figure 7.

1. When the calves are over four months of age:

- Vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*

- Castrate bull calves

- Dehorn calves if not polled.

- Deworm, degrub, delouse and (if needed) defluke

- Vaccinate heifers against Brucellosis, if required for shipping

2. Between 90 and 30 days before removing from the cow and at least 21-28 days after the first round of vaccinations:

- Re-vaccinate against: IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*

- If the following have not already been completed:

- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, if required for shipping

3. At weaning, (the calves must be subjected to at least a 30-day weaning period), the calves will be removed from the cows and as a group confined to a pen or small paddock, provided feed and water until they have "bawled out," and then held without commingling with other calves in a pasture by themselves with feed and water until shipped.

## Scenario 3

Southeastern calves (450 - 600 lbs) that will be taken off the cows, re-vaccinated and weaned for at least 30 days before shipping to a dry lot backgrounding facility in Virginia, Tennessee or Georgia.

The calves must be 2X+ calves, but they will receive the second round of vaccinations when they are removed from the cow. They will be processed as follows:

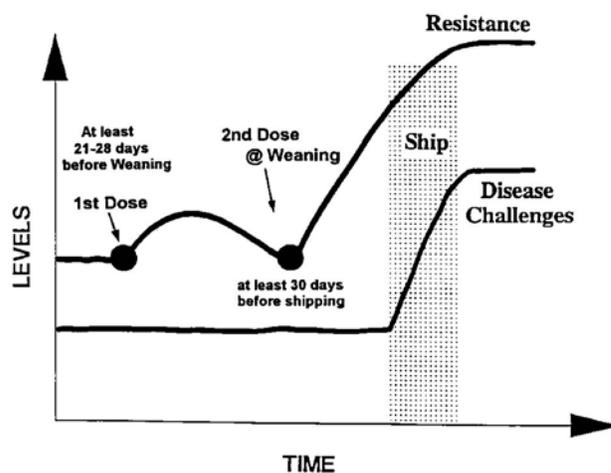


Figure 8.

1. When the calves are over four months of age and before 21-28 days of weaning:

- Vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica*

(must contain leukotoxoid), and *Haemophilus somnus*

- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, *if required for shipping*

2. At weaning they will be removed from the cows and:

- Re-vaccinated against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*
- Confined as a group to a pen or small paddock, provided feed and water until they have “bawled out,” and then held without commingling with other calves in a pasture by themselves with feed and water until shipped.

3. The calves must be subjected to at least a 30-day weaning period before they can be shipped.

#### Scenario 4

Southeastern calves (450 - 600 lbs) that will be taken off the cows and immediately shipped to a stocker operation.

The calves must be 2X calves and processed as follows:

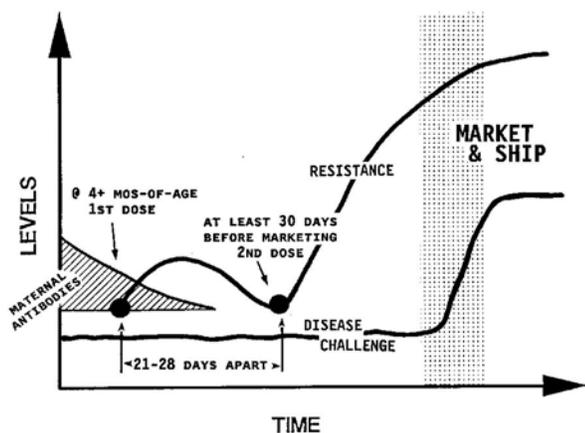


Figure 9.

1. When the calves are over four months of age:

- Vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus*, and 5 Way Lepto
- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, *if required for shipping*

2. Between 90 and 30 days before shipping and at least 21-28 days after the first round of vaccinations:

- Re-vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus*, and 5 Way Lepto
- *If the following have not already been completed:*
  - Castrate bull calves
  - Dehorn calves if not polled.
  - Deworm, degrub, delouse and (if needed) defluke
  - Vaccinate heifers against Brucellosis, *if required for shipping*

#### Scenario 5

Southeastern calves (450 - 600 lbs) that will be taken off the cows, weaned for at least 30 days and shipped to a stocker operation.

The calves must be 2X + calves and completely processed before they are removed from the cow. They will be processed as follows:

1. When the calves are over four months of age:

- Vaccinate against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus* and 5 Way Lepto

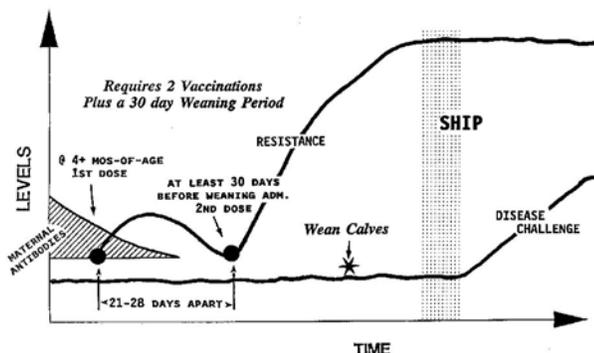


Figure 10.

- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, *if required for shipping*

2. Between 90 and 30 days before removing from the cow and at least 21-28 days after the first round of vaccinations:

- Re-vaccinate against:
  - IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus*, and 5 Way Lepto
- *If the following have not already been completed:*
  - Castrate bull calves
  - Dehorn calves if not polled.
  - Deworm, degrub, delouse and (if needed) defluke
  - Vaccinate heifers against Brucellosis, *if required for shipping*

3. At weaning: (The calves must be subjected to at least a 30-day weaning period) The calves will be removed from the cows and as a group confined to a pen or small paddock, provided feed and water until they have "bawled out," and then held without commingling with other calves in a pasture by themselves with feed and water until shipped.

### Scenario 6

Southeastern calves (450 - 600 lbs) that will be taken off the cows, re-vaccinated and weaned for at least 30 days before shipping to a stocker operation.

The calves must be 2X+ calves, but they will receive the second round of vaccinations when they are removed from the cow. They will be processed as follows:

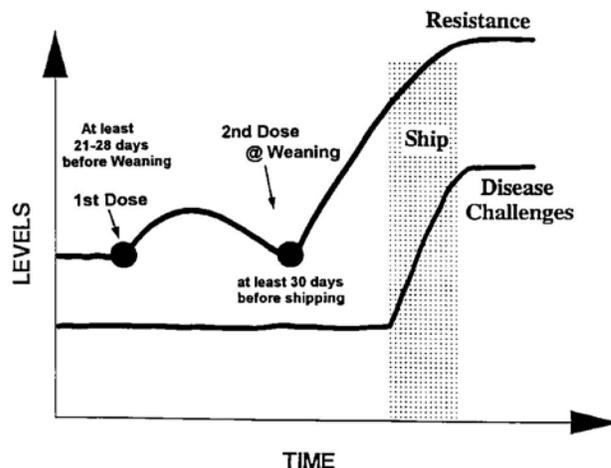


Figure 11.

1. When the calves are over four months of age and before 21-28 days of weaning:

- Vaccinate against:
  - IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus*, and 5 Way Lepto
- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke
- Vaccinate heifers against Brucellosis, *if required for shipping*

2. At weaning they will be removed from the cows and:

- Re-vaccinated against IBR, PI-3, BVD, BRSV, 7 Way Blackleg Diseases, *Pasteurella*

*haemolytica* (must contain leukotoxoid),  
*Haemophilus somnus*, and 5 Way Lepto

- Confined as a group to a pen or small paddock, provided feed and water until they have "bawled out," and then held without commingling with other calves in a pasture by themselves with feed and water until shipped.

3. The calves must be subjected to at least a 30-day weaning period before they can be shipped.

### Scenario 7

Southeastern yearlings (700 - 900 lbs) of *unknown health history* that are coming into the feedyard.

The yearlings should be processed as follows:

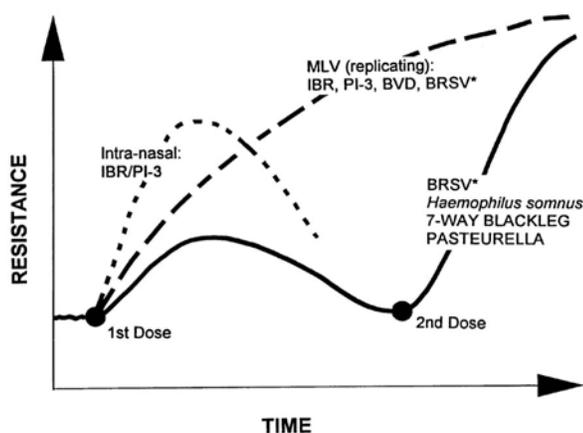


Figure 12.

1. On arrival at the feedyard:

- Vaccinate: (first dose)
  - IBR, PI-3, BVD, BRSV (*Modified Live Vaccine*), 7-way Blackleg diseases, *Pasteurella haemolytica* (must contain leukotoxoid), *Haemophilus somnus*, intra-nasal IBR and PI-3
- Castrate bull calves
- Dehorn calves if not polled.
- Deworm, degrub, delouse and (if needed) defluke

2. In 21-28 days after first dose of vaccines:

Re-vaccinate: (second dose)

BRSV, 7-way Blackleg diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*

### Scenario 8

Southeastern yearlings (700 - 900 lbs) with a *known health history* that are coming into the feedyard, *ie. previously properly vaccinated, castrated, de-horned and treated for internal and external parasites.*

The yearlings should be processed as follows:

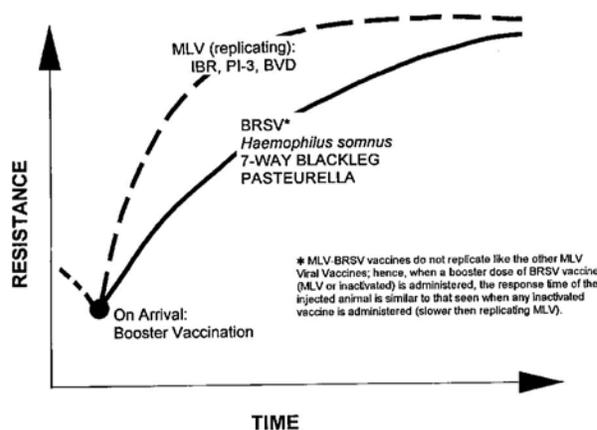


Figure 13.

1. On arrival at the feedyard:

- Vaccinate: (booster)
  - IBR, PI-3, BVD, BRSV (*Modified Live Vaccine*), 7-way Blackleg diseases, *Pasteurella haemolytica* (must contain leukotoxoid), and *Haemophilus somnus*
- Deworm, degrub, delouse and (if needed) defluke

### Scenario 9

Southeastern yearlings (700 - 900 lbs) that are 2X and 2X+ calves that have been backgrounded in a dry lot facility and are coming into the feedyard as yearlings, *ie. previously vaccinated, castrated, dehorned, treated for internal and external parasites, adjusted to feed, and water trough broke.*

The yearlings should be processed as follows:

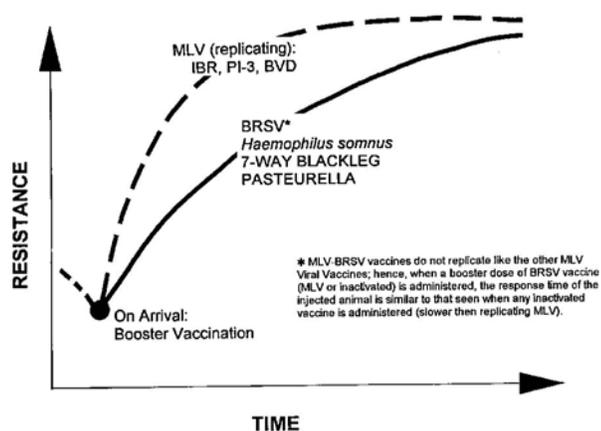


Figure 14.

1. On arrival at the feedyard:

- Vaccinate: (booster)

IBR, PI-3, BVD, BRSV (*Modified Live Vaccine*),  
7-way Blackleg diseases, *pasteurella haemolytica*  
(must contain leukotoxoid), and *Haemophilus somnus*

- Deworm, degrub, delouse and (if needed) defluke.