

Starting Herd Health Programs in Veal Calf Operations

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The veal industry is a new industry in agriculture and a new industry to veterinary medicine. Specialized fattening beef cattle has been around for many years in the United States, but the feeding of veal calves is only 15-20 years old. Veal raising is the confinement feeding of skim milk surplus and the byproducts of the cheese industry to dairy breed bull calves to produce a pale, but firm meat. Veal raisers and veterinarians have not worked closely in the past, but there seems to be new interest in using veterinary consultation on the part of the veal raisers. However, the vealers most rapidly consume the services of veterinarians who are interested in their industry and who are willing to learn their system instead of trying to correct the inherent problems with this type of calf rearing. It pays the veterinarian to leave his ego at the office. There is much we have to learn about the veal industry.

The veal calf arrives at the veal barn at three days to two weeks old. He has been trucked, mixed with other calves, sold and trucked again over a period of 48 hours. A high percentage have been colostrum deprived. They are tired, thirsty, hungry and perhaps chilled. The most life threatening of these is thirst. A warm dilute mixture of water and milk replacer can correct many ills. Electrolytes and dextrose are often substituted for the milk replacer for the first feeding. Following the first meal the veal grower should immediately check the calves for injury, severe dehydration, and navel infection. Systemic antibiotics are called for in treating the infected navels.

Dehydration seldom requires intravenous fluids, but high-quality electrolytes may have to be force fed. So many techniques are available to replace body fluids that dehydration deaths are almost unexcusable. The vealer may need to know what some of the veterinarian's abilities are in this area. Keep cost in mind. This is only a \$75 to \$100 calf at this time.

A high percentage of veal calves develop diarrhea in the first 48 hrs. after arrival. The veterinarian will be challenged to sort out the many factors involved in these diarrheas. Nearly always feed intolerance adds to the syndrome. It takes 7% to 9% high quality solids in the milk replacer-water mix to allow for milk clot formation in the abomasum. The clot is necessary to slow the passage of food and allow for proper enzyme activity on milk proteins.

On the contrary too high a percentage or too many ounces of powder will result in swamping or overload of substrate for the gastric enzymes. As a result undigested foodstuffs are introduced to the duodenum which allow for rapid growth

of bacteria, for creation of hypertonic solutions to absorb fluids from the body into the intestinal lumen and for stimulation of increased peristaltic activity. Vealers call this condition "blow-out." That is a term the veal consultant should learn. The veal consultant has to be very familiar with oral and intravenous electrolyte therapy to evaluate and recommend products and treatment strategies.

Many organisms can be isolated in new calf diarrheas. *E. coli*, *Salmonella sp*, *Cryptosporidea sp*, *Eimeria sp*, and *Clostridia perfringens* have been isolated in our lab or at Purdue A.D.D.L. I suspect that rotovirus and coronavirus are also present if we were to look hard enough.

Generally after two weeks there are few problems with diarrhea other than overfeeding. The anticipation of problems now changes from diarrhea problems to respiratory diseases. Many factors are involved in the health of the pulmonary system beside disease causing organisms.

Ventilation is critical in any confinement system. Veal calves are usually housed in such a manner that they are very susceptible to drafts and chilling. Generally, air dispersion systems, such as air tubes, are used to distribute and warm incoming air prior to release into the environment. These systems are good but not perfect, and as a result there can be areas where an increased incidence of disease can be measured.

The production of irritant gases occurs in veal confinement barns such as in any confinement system. Most barns have gutters leading to an outside holding pit. Regular cleaning of the floors and gutters is essential to keep gas production to a minimum.

With any respiratory problem always monitor location of sick calves to help spot problem areas in the barn. Any significant localization of disease incidence within the barn can point to ventilation problems or manure gas problems. Producer treatment records can be a tremendous help in localizing a problem, but veal growers need more encouragement in this area.

Veal calves are especially susceptible to disease organisms beginning about the second week as passive immunity begins to diminish and active immunity is only rudimentary. We have been able to detect most of the common respiratory disease causing organisms found in other type of barns. The most common culprits are *Pasteurella hemolytica*, *P. multocida* and BVD virus.

Other disease processes occur at various times throughout the feeding process. Anemia is a great concern to the veal grower. The grade that is given to the finished meat is largely

based on the paleness of it. To achieve this end the calves are kept nearly anemic toward the end of the feeding period. Anemia causes respiratory distress, poor appetite and poor feed conversion. Anemia is not welcome in the veal barn. These hemoglobin levels are guidelines for use in the feeding process.

Day 1 to Week 7 10-11 mg.%
 Week 7 to Week 9 9 mg.%
 Week 9 to Week 15 gradually reduce to 7.0 to 7.5 mg.% at slaughter

Feed company fieldmen or the veal growers themselves can and will use hemoglobinometers. Your office should have the service available, and you as a consultant must be able to evaluate the results.

Lice can be a problem in these calves as in any other. When using topical insecticides remember to observe withdrawal times and repeat treatments three times at three week intervals. Some producers have used Ivomec successfully.

The rapid growth and artificial diet of veal calves makes them prime candidates of vitamin E-selenium deficiencies. Occasionally white muscle disease occurs, but more often pulmonary edema with resultant dyspnea occurs. Treatment with vitamin E-selenium injectables is advisable soon after arrival.

The high energy diet fed to veal calves makes them very susceptible to enterotoxemia caused by *Clostridia perfringens* types C & D. Affected calves drool, suffer abdominal pain and develop a diassociated look in their eyes. Many good producers can spot these calves and bring about good responses to C & D antitoxin and penicillin.

I recommend C & D toxoid as part of the regular vaccination program. It must be realized though that veal calves do not tolerate this toxoid well. They develop fever and anorexia that can be somewhat alleviated by use of antihistamine or other systemic fever reducers given at the time of vaccination and again 12 or 24 hrs. later. Always use the dose recommended for sheep rather than the one for cattle. Booster shots are necessary.

Otitis externa is one of the most frustrating problems facing vealers. A whole spectrum of bacteria can be isolated in individual cases. The wax and mucus present in infected ears needs to be removed so that antibiotic therapy can be more effective. Soap and water with thorough rinsing is a necessary first step to therapy. Encourage the producer to continue treatment for several days as most will stop after one or two treatments.

There are numerous other problems and diseases that can occur. When dealing with these new problems, remember basics of therapy and draw on experience in other species. There may need to be modifications necessary to adapt the treatments to veal calves but don't be afraid to be imaginative and thorough.

Let me reiterate that many times the disease organisms are really secondary to underlying management mistakes. But precautions need to be taken to immunize the calf in

addition to proper management. Several basics to immunization of the veal calf have to be considered. First of all veal calves are very stress prone. Full doses of vaccine designed for mature animals will cause fever and anorexia in newly arrived calves. A special problem occurs in the use of modified live vaccines which are usually too virulent for the calves to tolerate.

Since a major problem time for respiratory disease is two to five weeks after arrival, immunization needs to start almost immediately after arrival to be in effect at this critical time. Like any juvenile animal that may possess maternal immunity, a series of vaccinations is superior to single vaccinations that may be neutralized by passive immunity. Below is listed the vaccination guidelines we follow. Realize that there has to be adjustments made for each barn and that this is what works in our geographic area.

- Day 2 Vaccinate calves with Triangle 3 (1/2 dose, 2cc). Give 10cc of Quadricon 2x ("injectable colostrum").
- Day 3 Give 2cc of injectable vitamin A&D. Give 1cc of selenium-vitamin E (not in same syringe as A&D).
- Day 7 (optional) Give 1cc of Ivomec, an injectable delouser.
- Day 12 Vaccinate for Pasteurella with PreCon PH. (1/3 dose, veterinarian will give)
- Day 14 Vaccinate calves with Triangle 3 (1/2 dose, 3cc). This booster is an important as first dose.
- Day 35 Vaccinate calves with C&D toxoid. Give a dose of antihistamine or dipyrone to reduce fever following vaccination.
- Day 49 Vaccinate calves with C&D toxoid. Give a dose of antihistamine or dipyrone to reduce fever following vaccination.
- Day 49 A second dose of selenium-vitamin E may be necessary.
- Day 105 Sell calves for top price.

One area where the veal consulting veterinarian has an advantage is that we can make a diagnosis. Diagnostic work-up is indicated any time that a significant (10% morbidity) outbreak occurs. It is important to get as complete a work-up as economics will allow so that additions to the vaccination program and/or treatment strategy can be made wisely. Many times extra label drugs are the only drugs that are effective. I like verifying that this is true with bacterial culture and sensitivity as much as possible.

Serology has proven beneficial to confirm my preliminary diagnosis, but it is unfortunately an after-the-fact diagnosis in most cases. Attempts to isolate viruses have been frustrating in my hands. Post-mortem exams are an unequalled opportunity to get diagnostic data. The veal client often fails to understand the benefit of all these tests or doesn't know of the availability of diagnostic services

provideable by our profession. The veal client only has to be shown once that proper diagnostics pay their dividends in healthy calves in subsequent groups.

A second area where we as veterinarians should have some control is that we can *legally* prescribe medicine. Establish a good doctor-client-patient relationship, and realize that you must work to help your clients use drugs effectively. With your help the vealer's medicine cost per calf had better go down.

An obtainable goal is to have less than 2% death loss and less than 2% cull rate. In other words 96% of the calves put in should be sold as top quality veal calves. These calves should weigh from 340 lbs. to 375 lbs. at 15 to 16 weeks of age. Feed conversions usually run from 1.7 to 1.8 pounds of feed per pound of gain. (Eat your heart out broilers!)

To achieve these goals it takes a good producer, and many of them are or can be helped to become one. Few veterina-

rians can immediately come into a veal barn and initially be a competent management advisor. However, we can offer diagnostics and advice on the discrete use of antibiotics and on the proper use of vaccines. In all that you do be sure that no harm is done intentionally.

Be willing to learn from your client. Be willing to offer suggestions. Be reluctant to make major changes in the operation until your experience with veal producers grows. With persistence, it will.

Our profession has a lot to offer the veal industry, but too often in the past we have been reluctant to learn their business. As a result our advice was based on insufficient knowledge. Our profession needs to let the veal industry know what we can do and that we are willing to learn how to do more. It can only be profitable to both groups in the long run.