

# Survey of Management Practices in Preventing Respiratory Illness in Feeder Cattle

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The cattle producer and feeder is continuously faced with respiratory problems in cattle of all ages, but primarily in calves during and following the transition period from range to feedlot environment.

In 1967, the respiratory problem in calves experienced a revised emphasis on various management and disease prevention programs. As a result studies were initiated to evaluate one phase of the much publicized multiple procedure prevention program, the prevention of respiratory diseases by vaccination. A total of 6,027 calves were involved in these investigations.

## Investigation No. 1

One investigation involved 3,679 calves in 48 feedlots. The calves were born and raised under typical North Dakota range conditions. They were castrated, dehorned, and vaccinated for blackleg and malignant edema. Of these calves 370 received a shipping fever (SF) vaccine which consisted of killed parainfluenza-3 (PI-3) vaccine with a *Pasteurella multocida* and *Pasteurella hemolytica* (double pasteurilla bacterin) bacterin. This combination vaccine was administered as directed by the manufacturer and under veterinary supervision with the first administration made at least three weeks prior to the last administration. The final vaccination was made on the day the calves were "rounded up" and moved to a grading and sales ring. All calves were in their respective feedlots within 24 hours after the last vaccination.

## Results

Of the vaccinated calves, 13.3 per cent in 27.3 per cent of the feedlots exhibited clinical symptoms of SF while 4.06 per cent of the control calves in 54.6 per cent of the lots had clinical symptoms of SF. Preventive medication used on vaccinated calves, other than the SF vaccines, was valued at \$1,056.15 and veterinary services and medication required were valued at \$57.75.

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## Investigation No. 2

Another group of calves from the same sources as those of Investigation No. 1 also received attenuated PI-3 and an infectious bovine rhinotracheitis (IBR) viral vaccine. These vaccines were administered under veterinary supervision on the day the calves were "rounded up" for the sale. These calves had been vaccinated with the inactivated PI-3 vaccine and double pasteurilla bacterin as described in Investigation No. 1. There were 312 calves in two lots in this group. Of these calves, 27.2 per cent exhibited clinical symptoms of SF with calves in both lots involved. Preventive measures other than vaccination cost \$933, with \$250 required for veterinary services and medication.

## Investigation No. 3

This investigation involved 546 range-reared, performance tested calves that were dehorned, castrated and vaccinated for blackleg and malignant edema early in life. The calves were treated for cattle grubs at the first vaccination. The calves were vaccinated for SF, employing two commercially available SF vaccines, while still under range conditions. One vaccine was a killed PI-3 viral vaccine plus a double pasteurilla bacterin and was administered to 218 calves. The other vaccine consisted of an attenuated PI-3 and IBR viral vaccine with a highly concentrated double pasteurilla bacterin which was given to 135 calves. The balance of the calves (193) were unvaccinated controls. Both vaccines were administered twice, with an 18 day interval. Final vaccination was made when placing the calves in an "acclimatizing" lot at the ranch. All vaccinations were made under veterinary supervision. Nearly all calves appeared "doggy" (weak) for a day or two following vaccination.

Early in the three week period the calves were in the "acclimatizing" lot, most exhibited nasal discharge and a depression that lasted for one or two days. Eight calves had severe enough symptoms to require veterinary service. Of these, three had received the killed PI-3 vaccine, plus the double pasteurilla bacterin, one had received the attenuated PI-3, IBR viral vaccine plus the concentrated double pasteurilla bacterin and four were control animals.

Following the "acclimatization" period the

calves were placed in three feedlots. During the first three months medication was required for four calves vaccinated with the killed PI-3 viral vaccine and double pasteurilla bacterin and for three control calves in one lot. Another lot had one control calf die. This calf, unvaccinated, reportedly had an acute pneumonia and died during restraint for medication. The third lot reported no illness.

#### **Investigation No. 4**

This investigation consisted of a survey of problem cases encountered following various approaches to SF prevention. All of the calves were vaccinated under range conditions and remained on the premises following vaccination unless otherwise stated.

One group of 83 calves received a killed PI-3 and IBR viral vaccine plus a double pasteurilla and a leptospiral bacterin in the three weeks prior to weaning. The second vaccination was not made at weaning as the calves were too ill. Six of the calves died before weaning.

Out of a group of 320 calves, 300 of which received attenuated bovine virus diarrhea (BVD), IBR, and PI-3 viral vaccine, plus a double pasteurilla and leptospiral bacterin three weeks prior to weaning, 15 calves died and 90 per cent exhibited acute respiratory symptoms within one week following vaccination. Twenty of the calves were not vaccinated and no respiratory illness was observed.

One group of 57 calves received an attenuated IBR, BVD, PI-3 viral vaccine, plus a double pasteurilla and leptospiral bacterin on the day they were weaned. Seven days later the vaccines and bacterins were readministered. The calves received a blackleg-malignant edema bacterin at the last vaccination. The first respiratory illness appeared 13 days later. Nearly all calves had acute clinical symptoms of a respiratory condition. Three of the calves died.

Another group of 68 calves received a killed PI-3 viral vaccine, a double pasteurilla bacterin, a leptospiral bacterin and an attenuated IBR vaccine. None of the calves died, but all had severe respiratory infections and acute weight losses were evident.

Of 843 calves purchased at a stockyard, 143 were vaccinated with a killed PI-3 vaccine, plus a double pasteurilla bacterin, before leaving the stockyard. Within two weeks, 27 of these required veterinary medication followed by a low and partial recovery. Twenty-one of the remaining 700 unvaccinated calves showed clinical evidence of respiratory illness. All of these responded well to medication.

Attenuated PI-3, IBR viral vaccine and a double pasteurilla bacterin were used to vaccinate a group of 119 range reared calves. Thirty of these calves served as unvaccinated controls. All vaccinations were done under veterinary supervision.

Seventeen lots containing 680 yearling feeders also were investigated. Four lots (168 cattle) received preventive medication, other than SF vaccines. In this group clinical respiratory symptoms were observed in four animals, two of which required veterinary medication. No other animals exhibited signs of SF.

#### **Preventive Medication**

It has often been suggested that the administration of antibiotics, sulfonamides, and/or vitamins in water or feed is an effective means of preventing respiratory illness in feedlot animals. Preventive medication consisting of various combinations of antibiotics, sulfonamides, and vitamins were given to 2,359 calves in 22 feedlots. The cost of this preventive medication was \$3,409. The 1710 calves in 14 of the 22 feedlots required \$1,368 for veterinary service and medication for respiratory illness, while 649 required no veterinary medication. Veterinary medication at a cost of \$223 was required for 464 calves in eight lots that had received no preventive medication.

#### **CONCLUSIONS**

The results obtained in these investigations would indicate that the various combinations of killed or attenuated PI-3, IBR vaccines with double pasteurilla bacterin are of doubtful value in preventing respiratory illness in feeder calves.

Respiratory infections seem to be less likely to appear if the SF vaccines and bacterins, in their various combinations, are administered at least once to nursing calves three weeks or more before weaning.

Calves that receive preventive medication and later show signs of respiratory illness often require more drastic and costly medication than untreated animals to correct the condition.

Yearling feeders appear much less susceptible to respiratory illness than younger animals.

On the basis of a thorough examination of the management practices observed in this investigation and the evaluation of various SF vaccines used, it would appear that "acclimatization" of the calves before arrival in the feedlot and the utilization of well organized feedlot management are the major factors in preventing respiratory illness and other feedlot diseases.