

## **CALF DIARRHEA INVESTIGATIONS**

I.A. Schipper, D. Landblom, D. Alstad, T.P. Freeman,  
P. Kotta, L. Ludemann, K. Fischer, and D. Krogh

Investigations have continued on a cooperative basis for the third year in the cause and prevention of calf diarrhea.

### **Vaccination of Cows with *E. coli* Bacterins:**

Thirty-four cows were vaccinated two times with a commercially available *E. coli* vaccine. Of the calves delivered from these cows, three had clinical diarrhea (8.9%) while four calves of 38 controlled cows exhibited clinical diarrhea (10.5%). *E. coli* bacteria were isolated from all diarrheic calves in both experimental and control groups.

In comparison, calves of herds, other than the Dickinson Experiment Station, demonstrated that of 1,295 vaccinated cows, there were 61 cases of clinical diarrhea (4.7%) with 4.6% of the calves of controlled cows exhibiting clinical diarrhea.

### **Infectious Agents Associated with Clinical Diarrhea:**

There were 14 clinical diarrhea cases studied, 12 of which were positive for *E. coli* bacteria, one of which had a K99 serotype *E. coli*. Ten of the calves had either the rotavirus or the coronavirus or both. All of the 10 calves' positive for the rotavirus and coronavirus were positive for *E. coli* bacteria. No presently recognized pathogenic agent was detected in two of the calves exhibiting clinical diarrhea.

Feces of calves not exhibiting clinical diarrhea were examined (controls). Of 118 specimens, 92 were positive for *E. coli* bacteria, nine of which had K99 serotypes.

Twenty-six cows were vaccinated with the rota-corona attenuated virus vaccine and 26 were used as controls (not vaccinated). The coronavirus was isolated from three of the calves from vaccinated cows and three of the controlled calves. The rotavirus was isolated from one control calf and two of the calves from vaccinated cows.

In comparison, examination of 68 calf fecal specimens, 16 (23.5%) were positive for coronavirus and 10 (14.7%) were positive for rotavirus. Ten of the calves exhibited clinical diarrhea.

#### **Calf Serum Immunoglobulin G (IgG) Levels:**

Calf serum (80 samples) was examined for IgG levels. Blood serum samples were collected at approximately 36 hours post-birth. Eight calves of this group exhibited clinical diarrhea. The IgG serum levels of these calves ranged from 3,000 to 8,000 mg/dl with a mean average of 3,650 mg/dl. The IgG levels of the calves not exhibiting clinical diarrhea was 740 to 14,800 mg/dl with a mean average of 5,850 mg/dl.

#### **Antibiotic Resistance:**

Seventy-four *E. coli* isolates from calf feces were examined for drug susceptibility. The drugs tested were ampicillin, chloromycetin, cephalothins, erythromycin, furadantin, kanamycin, gentamicin, neomycin, penicillin, oxytetracycline, and triple sulfa.

Ninety-six percent were susceptible to chloromycetin and furadantin. The greatest drug resistance was demonstrated for penicillin, oxytetracycline, neomycin, and triple sulfa.