

needed to completely sort out the role of *H. somnus* in some respiratory disease outbreaks.

### Interstitial Pneumonia

Interstitial pneumonia associated with feed change is less identifiable in feedyards than in pasture cattle or breeding stock. These peracute respiratory problems result in acute, usually fatal, dyspnea. Necropsy reveals the classical "meaty", often-mottled, firm lung with diaphragmatic lobe involvement. Diagnosis in the feedyard may be aided by histopathology. The specific etiology of these is rarely known but some favor some type of hypersensitivity reaction. Keep in mind that BRSV lesion and acute verminous pneumonias may result in interstitial pneumonias. Our traditional concepts on atypical interstitial pneumonia (pulmonary adenomatosis) simply don't serve to describe all the observations in the feedyard. Deaths frequently occur in animals well into the feeding period which makes the cost even greater.

### Dust Pneumonias

Dust can be shown to influence performance but this author simply can't define a gross or microscopic lesion that can be associated with dust.

### Aspiration Pneumonia

These are usually the result of dosing errors. Some are difficult to differentiate from shipping fever while others produce unusual patterns and massive necrosis. Differences are apparently related to quantity, type of foreign material and degree of bacterial contamination.

### Differential Diagnosis

Some methods of differentiating various categories of respiratory disease have been discussed. These categories can often be differentiated by gross observations and laboratory support to provide information on agents present and microscopic pathology. Necropsy observations may be just as useful in evaluating treatment methods as in making specific diagnoses.

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## Abstracts

### **The efficacy of sulbactam—ampicillin in the therapy of respiratory disease associated with ampicillin resistant *Pasteurella* species in housed calves**

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Sulbactam-ampicillin is a combination of sulbactam, a beta-lactamase inhibitor, and ampicillin, a broad spectrum beta-lactam antibiotic. The efficacy of sulbactam-ampicillin was evaluated in the treatment of calf respiratory disease associated with ampicillin-sensitive and ampicillin-resistant strains of *Pasteurella haemolytica* and *Pasteurella multocida*. Treatment with sulbactam-ampicillin was compared with treatment with ampicillin alone in 123 Friesian calves, between three and five weeks old, exhibiting clinical signs of respiratory disease. Seven of the 59 calves treated with ampicillin died whereas only one death occurred in the 64 calves treated with sulbactam-ampicillin. In the calves which survived, treatment with sulbactam-ampicillin resulted in a significantly better clinical response, as measured by the reduction in severity of clinical signs. The results of bacteriological examinations indicated that there was a marked increase in the proportion of ampicillin-resistant isolates of *P. haemolytica* subsequent to treatment

with ampicillin, whereas the proportion of ampicillin-resistant isolates of *P. haemolytica* recovered from calves treated with sulbactam-ampicillin had declined. The superior efficacy of sulbactam-ampicillin observed in this study is explained by the inhibitory effect of sulbactam on beta-lactamases produced by resistant bacteria, thus rendering them susceptible to the ampicillin.

### **Vitamin E**

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Vitamin E activity was first identified as a dietary factor essential for reproduction in the rat. It is now known that this vitamin has a far wider range of functions in the body than its role in fertility. It interacts with selenium-containing glutathione peroxidase to prevent the oxidative breakdown of tissue membranes associated with the hydroperoxides of polyunsaturated fatty acids. Relationships with other factors such as stress and vitamin C, have been proposed. The symptoms of deficiency of vitamin E vary according to species. With so many variables it is difficult to estimate the optimum allowances of the vitamin for the many types of livestock diets. These problems are discussed and the calculation of allowances of vitamin E in rations for both monogastric and ruminant animals is explained.