

Sustainable management: a global approach for healthy calves

Calves are the future of the herd: what happens to a calf in its first few days of life can reflect on its performance when an adult. Apart from an obvious decrease in growth while the animal is sick, it has been clearly demonstrated that heifer disease between 0-6 months of age induces late first calving, lower survival rate at calving, lower milk production and, as a consequence, a higher culling rate at first lactation.

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To ensure animal immunity should be the first goal of every farm

The first thing to be kept in mind by everyone is that animals fall sick because they are not able to fight against an agent of disease. This can happen because the pathogen load in the calf environment outnumbers its immunity capacity, or because the calf has a weak immunity.

To ensure immunity of the calf, colostrum is one of the most important levers to activate. It provides the calf with immunity from its mother: antibodies, immune cells but also vitamins and trace minerals for immunity metabolism.

This passive immunity will last a few days, enough for the young calf to start building its own active immunity. This is why colostrum quantity and quality is of tremendous importance, both to extend the passive immunity 'shelf-life' and to ensure the widest coverage of diseases possible.

However, even if calves have a complete intake of their mother's rich colostrum, an excess of pathogens into the environment can still be harmful. Attention to cleanliness, ventilation, temperature, humidity of calves' hutches in the first weeks of their life should be accentuated. Feeding equipment is quite often a source of contamination between a sick calf and a healthy calf, disinfection of the latter is helpful to lower the pathogen load and thus the risk of disease.

Nutrition, especially milk programmes for

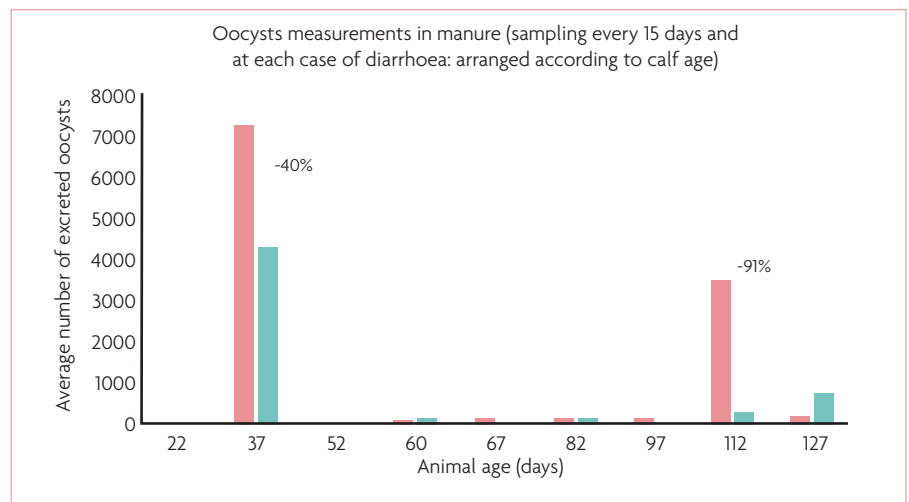


Fig. 1. Results of faeces sampling from heifers involved in a trial from 0-6 months of age. Supplementation with the product reduced the protozoa counts at the most sensitive period of growth.

calves, has been documented in recent years. The use of dairy cow milk and/or milk replacers, the amount of milk per day, and the best composition in protein or fat are all important topics and should be discussed with your nutrition specialist.

Calves need energy to grow bones and muscle, but the overall immunity system also needs energy to function as antibodies are made from protein, etc. Mastering these parameters will allow you to reach your target of weaning weight, and later calving age.

Several management tips and strategies can be implemented, according to each herd and each farmer, to reduce the risk of disease. It is important to keep in mind that always benchmarking your own practices with others can be a source of success and improvement.

Focus on diarrhoea issues

Among the diseases affecting calves, diarrhoea, pneumonia and septicaemia are the three more important. In 2007, an official study in the USA reported that 57% of mortality in weaning calves was due to diarrhoea and that most cases happened before one month of age.

However, diarrhoea is only a symptom of disease and not the cause. Multiple pathogens can be involved, such as viruses (rotavirus, coronavirus), bacteria (salmonella, E. coli, clostridium) or protozoa (eimeria, cryptosporidium).

Infection from several type of pathogens at the same time is very common, but depending on the age of the calves some pathogens are more likely to be the cause than others. For example, most cases of viruses happen in the first two weeks, whereas most cases of cryptosporidium occur from 2-4 weeks old.

Nevertheless, clear diagnosis of the cause of scouring is mandatory to implement the right treatment for the sick calf and to implement better practices for other newborns.

It is quite hard to recognise a specific pathogen from animal observation, as the signs can be the same: diarrhoea with blood or mucus sometimes, dehydration, loose skin, general weakness of the animal, etc. Additional tests are mandatory to identify the pathogen: faeces sampling and an ELISA test can be done on farm, but more precision would be achieved with a laboratory test and veterinarian visit.

Protozoa are present in the environment of

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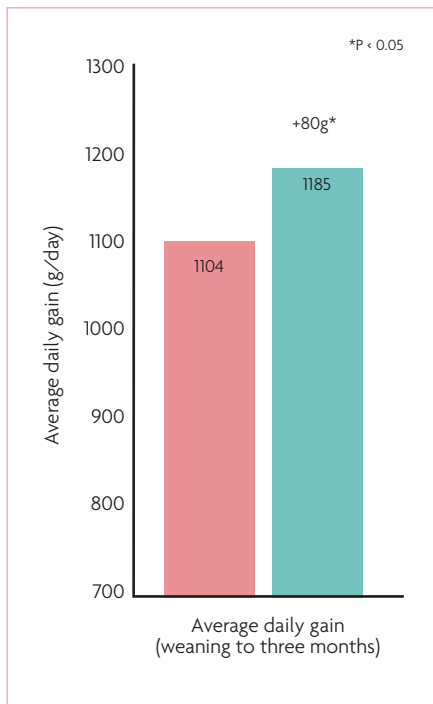


Fig. 2. Performance results for the same heifers. As the weaning period is the most sensitive time for calves, supplementation with the product and its help in the reinforcement of natural defences has allowed a significant increase in average daily gain.

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calves, from their mothers or from the barn. These are very resistant in the environment and can survive for as long as one year in pasture for example.

They use the intestinal tract of animals for reproduction, but cause severe damage to the animals: the oocysts invade and destroy the epithelium of the intestines. The nutrient absorption is stopped and opportunist bacteria take advantage of the damaged tissues to proliferate, causing secondary infection and inflammation.

Calves are able to develop their own immunity against these protozoa, as long as the number of oocysts stays relatively low. That is why adult cows are often infected by protozoa but very often do not develop any diarrhoea or other symptoms.

MiXscience's strategy regarding this issue is to reduce the risk of the disease by management of protozoa outbreaks and reinforcement of the calf's natural defences.

Lately, an experiment has been carried out on the herd at the MiXscience Research Center (MRC). Some 52 heifers have been involved in a trial from 0-6 months of age.

Half of the animals received a supplementation of Protonat 2C, a product based on specific plant extracts, with an average of 7g/animal/day (from 2-12g/animal/day according to age).

Faeces sampling, conducted throughout

the six months of the trial, shows a clear reduction of the oocyst count in the trial group compared to the control group (Fig. 1).

The performance around weaning was significantly increased for the group receiving the product (Fig. 2).

Conclusion

In conclusion, there are three main keys to healthy calves: a clean environment for the calf to grow, quality of the nutrition and overall improvement of the animal's immunity status. Along with improvement of management practices, alternative solutions based on plant extracts show promising results to help reduce the outbreaks of animal disease.

This type of product should allow the best use of veterinary products, reducing the risk of antibiotic resistance of pathogens now and in the future. It is a strategy that has been chosen by industry leaders to feed almost eight billion humans on the planet with safe and sustainable food products.

In parallel, MiXscience has also launched a new solution based on plant extracts, targeting the breathing comfort of calves and beef cattle. Respiratory disease is the second main cause of mortality before weaning, and the first one after weaning. ■