

Lung health of fattening calves - assessment and follow-up by ultrasound examination.

Kirsten Stemme¹, Lukas Köster²

INTRODUCTION

Respiratory diseases is very common in calf fattening farms, leading to mortality and significant losses due to reduced daily gains.

Thoracic ultrasonography (TUS) allows with a high accuracy to detect subclinical disease at an early stage and can easily be done on calf fattening farms¹.

OBJECTIVE

In the present study, the prevalence of subclinical respiratory diseases in calves was determined on a fattening farm at arrival and in the following 7 weeks.

MATERIALS AND METHODS

The study was carried out on a fattening farm in Lower Saxony in May 2020, with 140 Simmental calves brought in at an average age of 60d (43-89).

FARM'S ON-ARRIVAL SOP: intranasal vaccination against BRSV/PI3-V, eprinomectin, amoxicillin.

OBSERVATIONS DURING THE 7-WEEK FEEDING PERIOD:

- ▶ Twice daily inspection for signs of respiratory disease by the owner.
- ▶ Body temperature and respiratory rate measured twice a week.
- ▶ Body weight was determined on the day of arrival and 7 weeks later.

TUS EXAMINATION: 70 calves randomly selected and subjected to TUS at 4 days after

arrival (US1), 24 days (US2) and 43 days (US3) later by the same examiner (Fig. 1).

TUS SCORING²:

- ▶ **Score 1** - no abnormalities.
- ▶ **Score 2** - lesions <1cm.
- ▶ **Score 3** - one or more lesions ≥1 cm.
- ▶ **Score 4** - lesions ≥6 cm in one or more locations (Fig. 2).

Prevalence of subclinical respiratory diseases is highly underestimated, especially in calf fattening farms. Under practical conditions, TUS is well suited to determine the proportion of animals with subclinical respiratory disease, and to visualize them to the animal owner.



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RESULTS

TUS (Fig. 1):

▶ US1 (4 days post arrival):

- ▶ Score 1: 49 calves (70 %).
- ▶ Score 2: 15 calves (21.4 %).
- ▶ Score 3&4: 6 (8.6 %).

▶ US2 & US3:

Proportion of healthy animals decreased while the proportion of animals with both mild and severe lung lesions increased (Fig. 3).

Only 7/140 animals were detected as ill during the daily inspections by the owner and treated.

The diagnosis "respiratory disease" was only made twice.

Daily weight gains > 1000 g/day could only be reached by animals with no or only slight lesions (<1cm) during the study period.

AUTHORS' AFFILIATION

1. MSD Tiergesundheit, Unterschleißheim.
2. Urban GmbH & Co. KG, Wüsting.

REFERENCES

1. Buczinski et al. Prev Vet Med 2015; 119:227-31.
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FIGURE 1. Thoracic ultrasound examination approach used in the study.

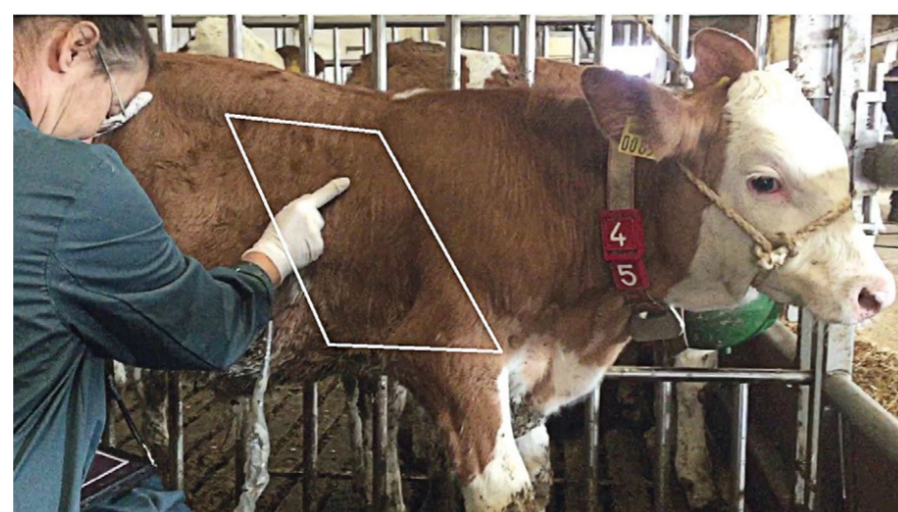


FIGURE 2. Ultrasound image of lungs with consolidation focus >1cm.

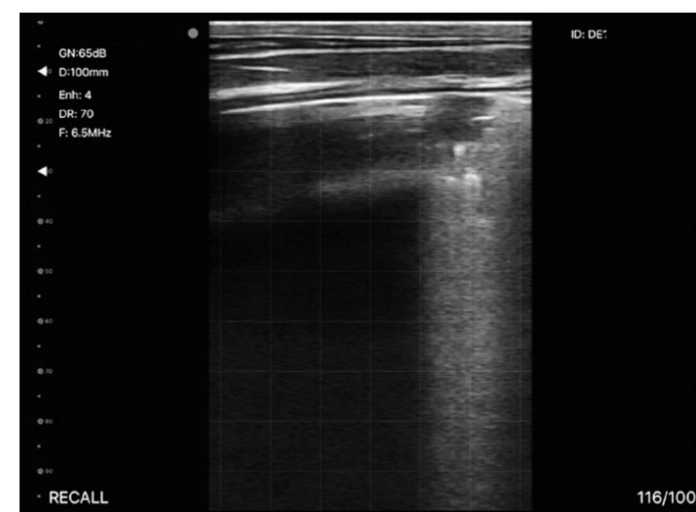


FIGURE 3. TUS scores for selected 70 calves at 3 examination time points.

