Veal calf fattening: It can work with less antibiotics

April 8 2021

After the initial quarantine, the calves come together in small groups and spend the rest of the fattening period outdoors in these groups in a covered paddock with access to a group igloo. Credit: NRP 72, Peter Mosimann

By adopting a few simple measures, farmers can drastically reduce the

use of antibiotics and improve the well-being of their animals without economic disadvantages. This was confirmed in a field trial– the first of its kind in Switzerland—carried out by researchers of the University of Bern based on the specially developed "outdoor veal calf" method.

Large amounts of antibiotics are used in the veal fattening sector—even if the branch succeeded in reducing their use over the past few years. However, many farmers are reluctant to implement further measures as it is often unclear how these will impact their economic efficiency. Researchers at the University of Bern have developed a fattening system that works with a lower antibiotic use, and have tested it in an extensive field trial. The findings of the project—funded by the Swiss National Science Foundation (SNSF) under the National Research Program "Antimicrobial Resistance" (NRP 72) as well as IP-SUISSE, Migros-Genossenschaftsbund and the Federal Office for Agriculture—are clear: compared to the established standard of the IP-SUISSE label, the use of antibiotics on test farms could be massively reduced, the well-being of the animals improved, and cost-effectiveness kept at a similar level.

The first weeks are crucial

Investigating the so-called "outdoor veal calf" system, a team headed by Mireille Meylan at the Vetsuisse-Faculty of the University of Bern started with the investigation of the reasons why veal calves develop signs of disease that make the use of antibiotics necessary. The main focus was on pneumonia, the main reason for antibiotic treatments in veal fattening operations. "Especially in the first weeks of their lives, many animals are exposed to a high risk of infection," explains Meylan. "Because they are mixed with other calves during transport from the birth herd to the fattening farm and then are introduced in even bigger groups on arrival, this often causes pathogens to spread very fast."

This is precisely where the new system kicks in. Veal farmers should

only buy new calves from local farmers, thus the short transportation distances make it unnecessary to mix animals from different farms. During the first few weeks after arrival, the calves are housed outdoors in individual igloos and vaccinated against pneumonia. They are moved to small groups of up to ten calves, where they spend the remainder of their fattening period (four months on average), only after this quarantine period. During that time, the calves always stay outdoors, where they have constant access to a group igloo and to a covered paddock with deep straw bedding.

Healthier animals

The investigation was conducted over a 12-months period at each of 19 veal fattening farms in the cantons of Bern, Fribourg, Lucerne, Aargau and Solothurn to determine whether the new concept actually produces healthier animals while reducing the use of antibiotics. Each farm was visited at least once monthly by the scientists from the University of Bern, who assessed the calves' health and well-being. For control purposes, they followed the same protocols at 19 control farms in the same region that follow the production guidelines of IP-SUISSE, a label with high animal welfare requirements. "This allowed for direct comparison between the two methods," says Jens Becker, the veterinarian who carried out most health checks. The trial showed that the "outdoor veal calves" not only presented with fewer respiratory and digestive diseases, but that premature deaths were also less frequent. "This is remarkable, particularly as the control farms were also exemplary in terms of animal health," says Becker.

Five times less antibiotics

With the help of the farmers, Becker also meticulously recorded antibiotic use, as its reduction was the primary objective of the new

system. "What we saw clearly exceeded our expectations," he reports. While every second calf required antibiotic treatment in the course of their lives in the control farms, this was the case only for every sixth "outdoor veal calf." And the difference was even greater for the overall duration of treatment: five times less treatment days were recorded on farms with the new concept than on the control farms.

Cost effectiveness largely unaffected

Lastly, Mireille Meylan and her team also analyzed economic aspects as these are crucial for the practical application of a new system. To this end, they calculated the specific per-calf expenditure incurred by the farm—from the purchase price over labor to animal feed costs. They did so using one variant based on actual figures from the trial and a second variant relying on mean figures for individual expense items as listed in the annual catalog of contribution margins in agricultural production sectors. Despite minor differences, the two variants showed that the "outdoor veal calf" fattening system is largely on a par with production according to the IP-SUISSE label with regard to cost-effectiveness.

"That's not surprising," says Ueli Straub from AGRIDEA, the agricultural advisory service of the specialist cantonal units, who was involved in this part of the study. "Feed and the costs of calf purchase make up ninety percent of the direct expenses for a fattening calf." The remaining factors therefore did not have much impact. In addition, the respective advantages and disadvantages of each system largely neutralized each other: The slightly higher labor input for "outdoor veal calves" was compensated, among other things, by the lower mortality and a good daily weight gain.

A pragmatic way forward

Mireille Meylan's take-home message from the project is very positive: "We have demonstrated the potential for a drastic reduction in antibiotic use at least in family-run calf-fattening operations—and this by a highly pragmatic way that is also economically viable." However, the cost-effectiveness calculations were based on the assumption that farmers using the "outdoor veal calf" method would receive direct payments from the government for ensuring that their animals get enough fresh air in accordance with a predefined standard, just as in IP-SUISSE farms. But this is not the case up to now, because of the roof over the straw-bedded paddock. Recognition by certification labels, federal offices and retailers will be indispensable to allow for the new system to be implemented broadly. As Meylan stresses, experience shows that this is a long and arduous path. Yet, little doubt remains that this path is practicable—and worth taking in the battle against antibiotic resistance.

More information: J. Becker et al. Effects of the novel concept 'outdoor veal calf' on antimicrobial use, mortality and weight gain in Switzerland, *Preventive Veterinary Medicine* (2020). DOI: 10.1016/j.prevetmed.2020.104907

Lara Moser et al. Welfare Assessment in Calves Fattened According to the "Outdoor Veal Calf" Concept and in Conventional Veal Fattening Operations in Switzerland, *Animals* (2020). DOI: 10.3390/ani10101810

Provided by Swiss National Science Foundation