

SusCatt - Increasing productivity, resource efficiency and product quality to increase the economic competitiveness of forage and grazing based cattle production systems

Maize silage for beef cattle: good or bad? Health traits of dual-purpose crossbreeds and pure beef cattle

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About

Most meat produced in Italy comes from specialised intensive fattening farms in the Po' Valley, importing young beef bulls and heifers from other EU countries. Cattle are fed high proportion of concentrates and diet are dominated by maize as silage, grain, mash and in other forms. Here we discuss the impact such diets have on the animal health of two beef breeds.

Challenge

Beef production in the Po' Valley has been growing in recent decades thanks to the large-scale exploitation of maize, greater availability of imported European calves and an increasing market for beef in the Italian regions, where demand is not met by local production.

However, new and increasing challenges force farmers to find alternative strategies to keep traditional agriculture alive; Italian beef consumption is falling while the demand for imported low-price meat is increasing. On the other hand, some meat consumers are prepared to pay more but are concerned about the environmental and ethical sustainability of the products they buy. Besides, historic European measures in favour of specialist beef farms have changed leaving farmers coming to terms with detrimental financial losses. As well as all this, agriculture needs to cope with climate change, which is especially challenging for maize production.

Objective

Animal feeding is one of the main concerns and the sector is searching for innovative strategies to maintain profitability from environmentally sound and ethical systems. We in-



Crossbreed beef cattle reared on a SusCatt farm.
Photo: Dr. Riuzzi Giorgia.

vestigated if replacing maize silage with other forages enhances the animal health of contrasting beef breeds.

What did we do?

Ten beef farms in the Veneto region were involved, finishing cattle classed as either French meat breeds (FMB) or dual-purpose crossbreeds (CSB). To evaluate the impact of the diets on animals' health, two farm groups were created based on the proportion of maize silage in the diets: high maize silage (HMS; $\geq 28\%$ of diet dry matter) and no maize silage (NMS).

Farms were visited 4 times in 12 months to assess animal health according to the Welfare Quality Assessment Protocol for cattle (2009), recording the incidence of: lean or fat animals (based on Body Condition Score, BCS), lameness, coughs, nasal or ocular discharge, hampered respiration, diarrhoea and bloated rumens. Subsequently, records were analysed to see how breed and diet, both individually and coupled, affected the animals' health status.

Results

In our study, cattle breed has strongest effect on the health status, with specialised beef animals more affected by lameness, nasal and ocular discharge, hampered respiration, diarrhoea.

Diet proved to be relevant mainly for the specialised beef cattle for whom hampered respiration and diarrhoea were higher in cattle without maize silage whereas bloated rumen was more common on farms feeding maize silage. For crossbreed animals the differences between the diet groups was a higher incidence of diarrhoea and bloated rumen found in cattle fed maize silage.

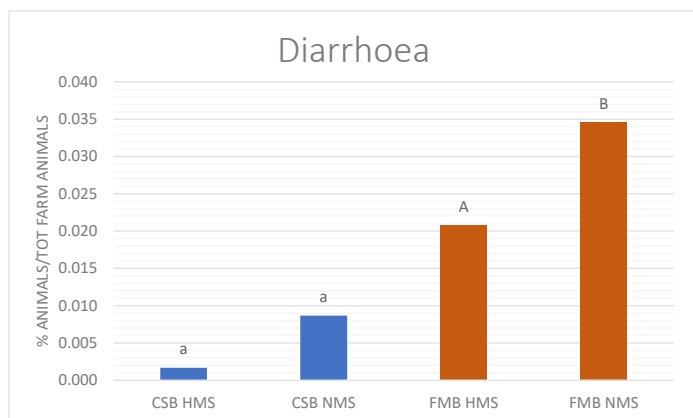
Findings on body condition deserve separate considerations. Within both breeds, diet did not have any impact on the presence of low BCS animals. However, within the specialized beef breed, HMS farms had higher number of animals with high BCS than the NMS farms.

Conclusions

We need to develop new and alternative feeding strategies to cope with changing climatic conditions and reduced water availability, which makes maize production more difficult.

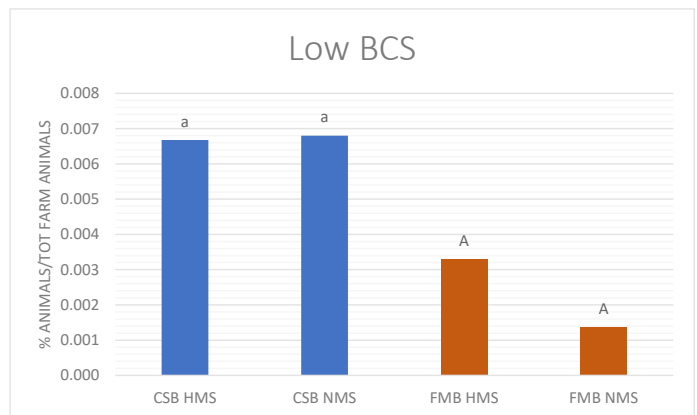
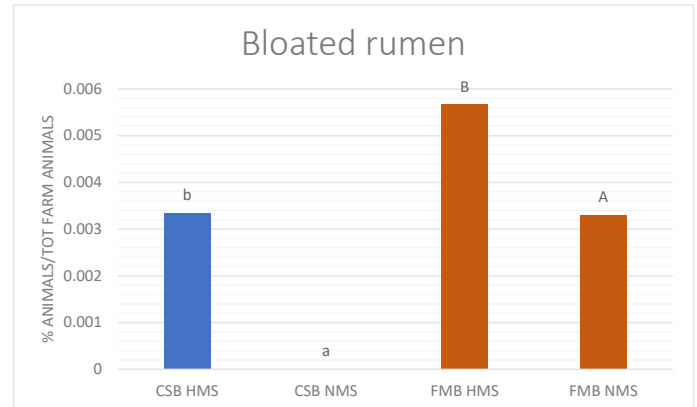
Our investigation found that feeding forages other than maize silage to purebred beef cattle does not seem to increase the percentage of thin animals (something farmers are usually concerned about) and, instead, appears to reduce bloated rumens. The negative impact of the no-maize diet on hampered respiration and diarrhoea is likely due to a dustier feed ration and faster passage of feed through the rumen, respectively.

Furthermore, dual purpose crossbreeds are valuable alternatives to specialised imported breeds showing



Percentage of animals with diarrhoea on the farms rearing either crossbreeds (CBS) or pure meat breeds (FMB) fed high-maize (HMS) or no-maize (NMS) diets. The letters show difference within category, when present.

greater resistance and adaptability to different housing, feeding and management conditions, all crucial for foreseeable changes expected in our production system. Regardless the feeding system applied, rearing Italian crossbreeds would avoid welfare issues, such as long-distance transportation.



Percentage of animals with bloated rumen or low BCS on the farms rearing either crossbreeds (CBS) or pure meat breeds (FMB) fed high-maize (HMS) or no-maize (NMS) diets. The letters show difference within category, when present.

Imprint

Citing: Giorgia Riuzzi, Severino Segato, Barbara Contiero, Flaviana Gottardo (2020): Maize silage for beef cattle: good or bad? Health traits of dual-purpose crossbreeds and pure beef cattle. SusCatt Technical Note 2.3.2. Download at <https://bit.ly/2GT1OHF>

SusCatt was possible by funding from SusAn, an ERA-Net, co-funded under European Union's Horizon 2020 research and innovation programme (www.era-susan.eu) Grant n°696231 and Ministero delle politiche agricole alimentari e forestali (MIPAAF).

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Review: Gillian Butler

Editor: Håvard Steinshamn

Publisher: Consortium of the SusCatt project, c/Norwegian Institute of Bioeconomy Research, Norway

