

# GIORNATA STUDIO: LA CARNE BOVINA, QUALI NOVITÀ?

—  
VENERDÌ 31 MARZO

AULA MESSIERI  
DIPARTIMENTO DI SCIENZE MEDICHE  
VETERINARIE



## La sostenibilità attuale e futura dell'allevamento dei bovini da carne in Italia



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA

Prof. Massimo De Marchi

# La sostenibilità del bovino da carne

# La sostenibilità del bovino da carne

La sostenibilità è un concetto complesso che si riferisce alla capacità di mantenere l'equilibrio tra le attività umane e l'ambiente naturale in modo da garantire la possibilità di una vita dignitosa per le generazioni presenti e future. Nel bovino da carne:

- La riduzione dell'impatto ambientale
- Il mantenimento degli insediamenti zootecnici nel territorio nazionale
- Il contenimento dell'utilizzo delle risorse (es. consumi idrici)
- La garanzia di standard elevati di benessere degli animali e di biosicurezza degli allevamenti
- Il miglioramento della qualità (es. sensoriale) delle carni e prodotti derivati
- L'aumento della redditività degli operatori coinvolti nelle diverse filiere di produzione
- ...

# La sostenibilità del bovino da carne

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- La riduzione
- Il mantenimento
- Il contenimento
- La garanzia
- Il miglioramento
- L'aumento
- ...

## APPROCCIO OLISTICO

(impatto ambientale, benessere animale, reddito, ricambio generazionale, salute del consumatore, ...)

# Il bovino da carne in Italia

TENDENZE E DINAMICHE RECENTI  
Bovino da carne – novembre 2022



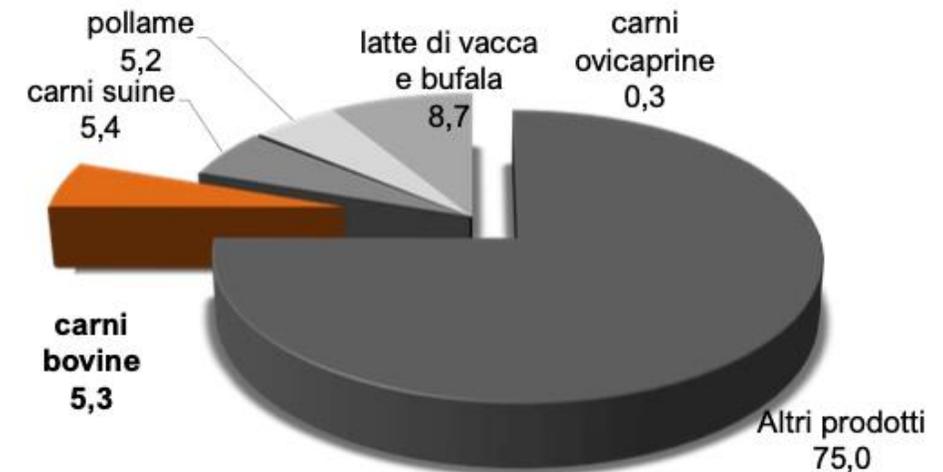
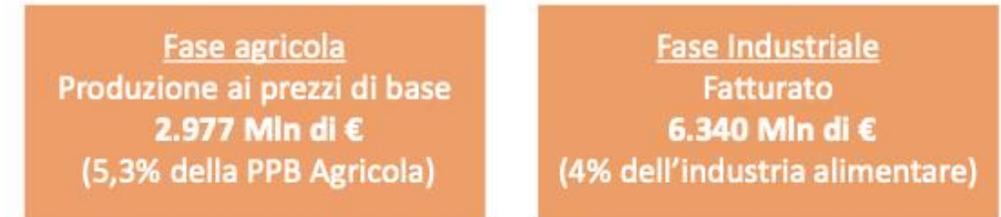
Istituto di Servizi per il Mercato Agricolo Alimentare

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# Il bovino da carne in Italia

Incidenza del settore bovino da carne su agricoltura e industria (Ismea, 2021)

- **2,45 milioni di capi** circa in allevamenti specializzati per la produzione di carne (oltre il **40% concentrato in Veneto e Piemonte**)
- 721 mila tonnellate di carne prodotte nel 2021
- Terzo produttore Europeo dopo l'uscita di UK
- Circa 17 Kg il consumo medio annuo pro-capite
- **47% tasso di autoapprovvigionamento**



TENDENZE E DINAMICHE RECENTI  
Bovino da carne - novembre 2022

# Il bovino da carne in Italia

Caratteristiche	Vitello	Vitellone intensivo		Vitellone estensivo
		leggero	pesante	
Alimentazione	polvere di latte	insilato di mais e concentrato	insilato di mais e concentrato	pascolo e concentrato
Razza	Frisona, Bruna	Incroci con razze da latte	Razze da carne (Charolaise, Limousine, Piemontese) o incroci	Chianina, Marchigiana, Podolica, Maremmana, Romagnola, Sarda
Zona di produzione	Lombardia e Veneto	Veneto, Piemonte e Emilia Romagna	Veneto, Piemonte e Emilia Romagna	Appennino centro-meridionale e isole
Incremento peso medio giornaliero (kg)	1,6-1,8	1,1-1,3	1,3-1,5	1,1-1,3
Peso alla macellazione	240-300 kg	450-500 kg	600-650 kg	650-700 kg
Età alla macellazione	5-6 mesi	14-16 mesi	16-20 mesi	18-24 mesi
Resa	59%	vitelloni maschi 58%, manze 56%	vitelloni maschi 58%, manze 56%	vitelloni maschi 58%, manze 56%
Incidenza su offerta di carne bovina	12%	11-13%	44-48%	14-18%

Nell'allevamento a ciclo aperto il costo di produzione è costituito prevalentemente dal costo per l'acquisto del ristallo (60-65%) seguito dal costo per l'alimentazione (20-25%)

... fra presente e futuro ...



... fra presente e futuro ...

- PAC

# PAC 2023-2027

L'ecoschema 1 "Pagamento per la riduzione dell'antimicrobico resistenza e il benessere animale", al quale sono assegnate risorse pari al 41,5% del budget complessivo per gli Eco-schemi, consiste in un pagamento annuale aggiuntivo al sostegno di base concesso agli allevatori per tutte le Unità di bestiame adulto (Uba) oggetto d'impegno.

Esso è suddiviso su due livelli di impegno.

- Il livello 1 "**Riduzione dell'antimicrobico resistenza**" introduce l'impegno alla riduzione dell'uso del farmaco, quantificato in base alla classificazione degli allevamenti rispetto al consumo di antibiotici attraverso lo strumento **Classy Farm**, suddividendo le aziende zootecniche in classi rispetto ai quattro quartili della distribuzione della mediana regionale del valore **DDD** (Defined Daily Dose) calcolata annualmente per le diverse tipologie zootecniche alle quali è concesso il pagamento.
- Il livello 2 "**Adesione al sistema Sqnba con pascolamento**" prevede come impegno l'adesione al Sistema di Qualità Nazionale per il Benessere Animale (Sqnba) con **pascolamento** nel rispetto degli impegni previsti dal relativo disciplinare (IM 20).

... fra presente e futuro ...

- PAC
- Approvvigionamenti di bestiame

# Approvvigionamenti di bestiame

Storica dipendenza dall'estero (broutard francese CH e LIM)



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9<sup>e</sup> édition  
Mercredi 18 janvier 2023

# Approvvigionamenti di bestiame

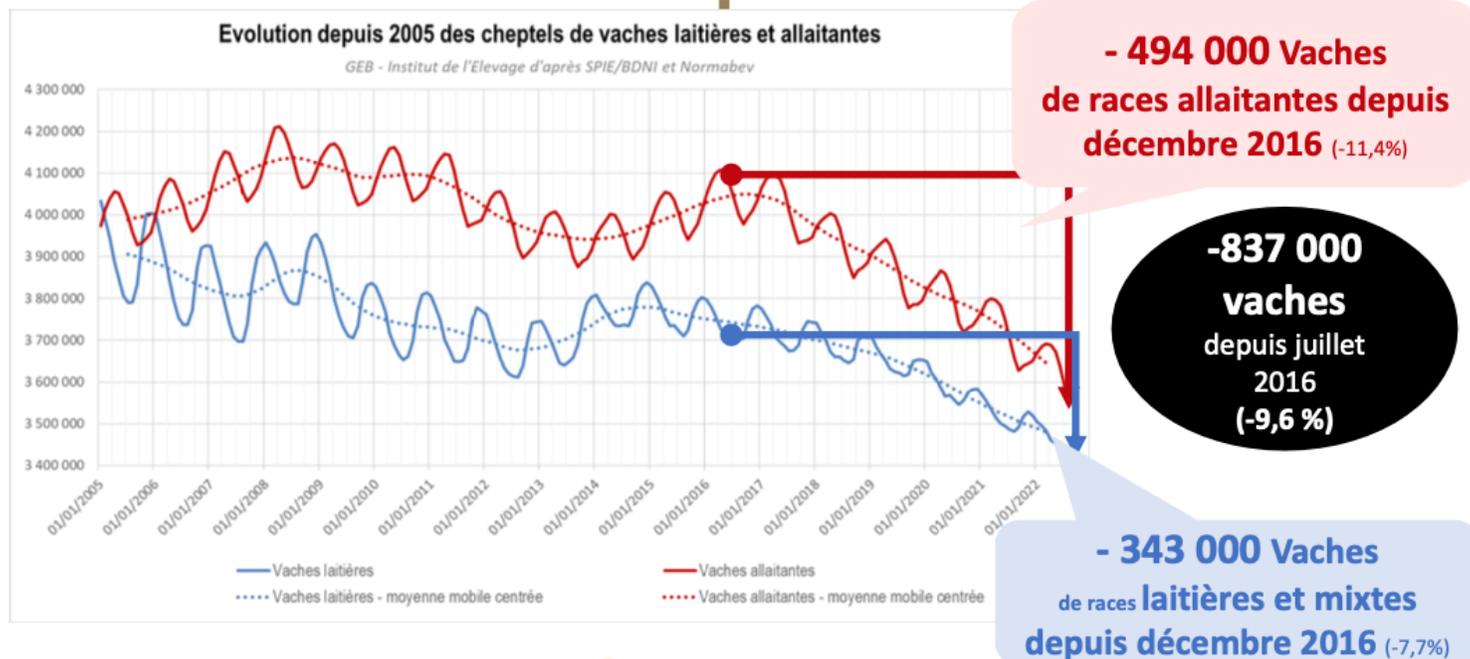
Riduzione della consistenza del bestiame bovino in Francia

Décapitalisation bovine et impacts sur la production

5

## La décapitalisation bovine, c'est **-837 000 Vaches** depuis 2016 !

Décembre 2016 à déc. 2022



1

La décapitalisation :  
ampleur, causes et perspectives

2

Quelle production de mâles issus du  
cheptel allaitant à horizon 2025 / 2030 ?

# Approvvigionamenti di bestiame

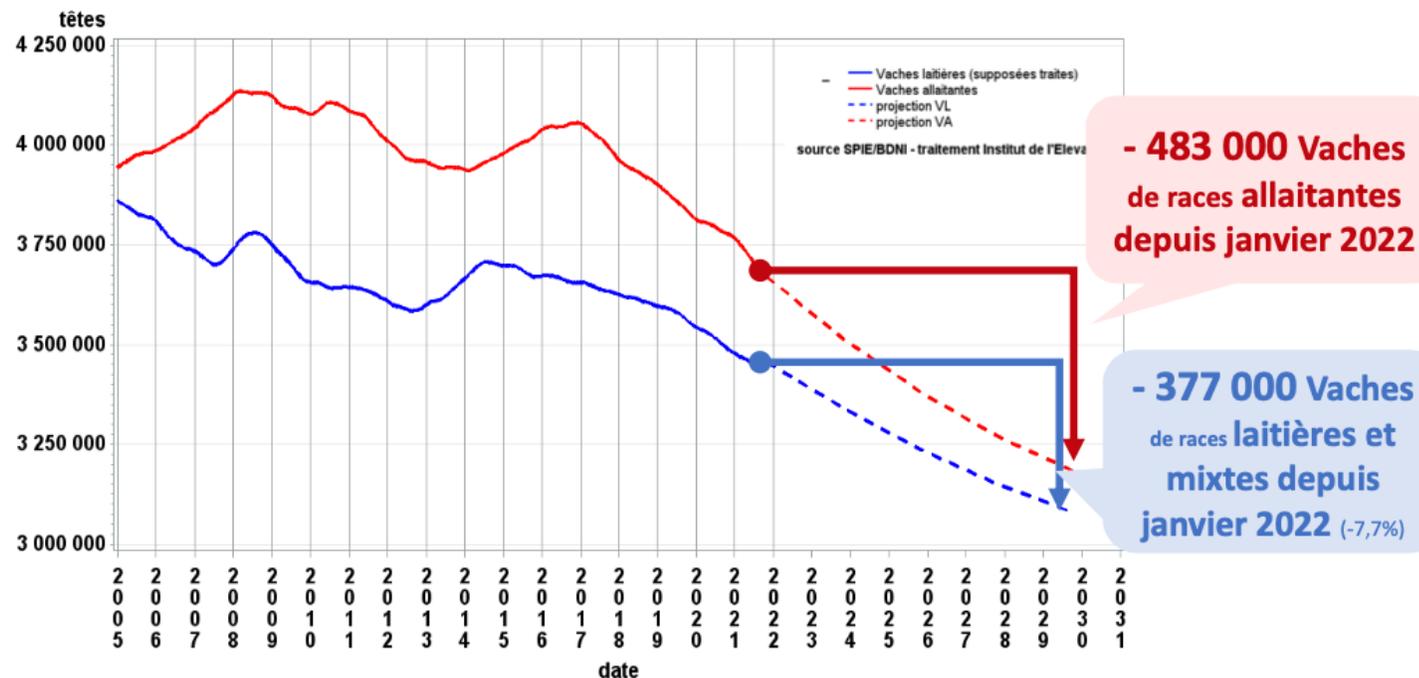
Nel 2030 riduzione 483.000 capi (filiera vacca – vitello) in Francia

Décapitalisation bovine et impacts sur la production

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## Projections basées sur la démographie des éleveurs

Evolution du nombre de vaches laitières et allaitantes (tendances désaisonnalisées) et projection 2030



# Approvvigionamenti di bestiame

Nel 2030 riduzione 483.000 capi (filiera vacca – vitello) in Francia

Soluzioni ?

- Valorizzazione del bestiame proveniente dalle stalle di vacca da latte (es. utilizzo incrocio toro da carne)
- Valorizzare le filiere vacca-vitello nazionali
  - Razze Italiane (es. Piemontese, razze Appennino)
  - Razze specializzate da carne non Italiane (es. CH e LIM)

## ... fra presente e futuro ...

- PAC
- Approvvigionamenti di bestiame
- **Benessere degli animali**

# Benessere degli animali

- 25 allevamenti, 1063 partite, 155.074 trattamenti antibiotici, 2016-2019, 6 razze, (AZOVE, Cittadella)

Least squares means (LS mean) and SE of sex, season of arrival of purchased beef cattle and year, and regression coefficient and SE of initial BW (kg) for treatment incidence 100 (TI100) indexes<sup>1</sup> obtained from the batches of beef cattle included in the final analysis ( $n = 1063$ ).

		TI100it		HPCIA TI100it		P-values
		LS mean	SE	LS mean	SE	
Sex						<0.001
	Female	1.07 <sup>a</sup>	0.20	0.53 <sup>a</sup>	0.14	
	Male	2.01 <sup>b</sup>	0.35	1.07 <sup>b</sup>	0.27	
Season						<0.001
	Winter	1.82 <sup>a</sup>	0.32	0.95 <sup>a</sup>	0.24	
	Autumn	1.95 <sup>a</sup>	0.35	1.08 <sup>a</sup>	0.27	
	Spring	1.16 <sup>b</sup>	0.21	0.53 <sup>b</sup>	0.14	
	Summer	1.13 <sup>b</sup>	0.20	0.59 <sup>b</sup>	0.15	
Year						<0.05
	2016	1.56 <sup>a</sup>	0.28	0.85 <sup>a</sup>	0.22	
	2017	1.50 <sup>a</sup>	0.27	0.70 <sup>b</sup>	0.18	
	2018	1.35 <sup>b</sup>	0.24	0.72 <sup>b</sup>	0.18	
Initial BW (kg) <sup>^</sup>		-0.002 ± 0.001*		-0.003 ± 0.001*		<0.05

<sup>a,b</sup>Different superscripts within trait and effect differ significantly from each other ( $P < 0.05$ ).

<sup>^</sup>Results for continuous covariate presented as regression coefficient ± SE; \* $P < 0.05$ .

<sup>1</sup> TI100it = treatment incidence 100 for Italy, calculated using the defined daily dose animal for Italy based on Italian guidelines of dosage obtained from the Italian database ([www.classyfarm.it](http://www.classyfarm.it)); HPCIA = Highest Priority Critically Important Antimicrobials.



## Exploring potential risk factors of antimicrobial use in beef cattle

A. Diana <sup>a</sup>, M. Penasa <sup>a</sup>, M. Santinello <sup>a</sup>, F. Scali <sup>b</sup>, E. Magni <sup>b</sup>, G.L. Alborali <sup>b</sup>, L. Bertocchi <sup>b</sup>, M. De Marchi <sup>a,\*</sup>

<sup>a</sup> Department of Agronomy, Food, Natural resources, Animals and Environment (DAFNAE), University of Padova, Viale dell'Università 16, 35020 Legnaro (PD), Italy  
<sup>b</sup> Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna 'Bruno Ubertini' (IZSLER), Sector Diagnostic and Animal Health, Via Bianchi 9, 25124 Brescia, Italy

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### ABSTRACT

Livestock species are major contributors to the increase of antimicrobial (AM) resistance which is a worldwide concern for both human and animal health. The over-use of AM is widely acknowledged, however, unlike pigs, poultry and dairy cattle, knowledge on potential risk factors affecting AM usage (AMU) in beef industry is limited. Hence, this study aimed to investigate the impact of farm, breed, sex and season of arrival of purchased beef cattle on AMU in Italian beef cattle. Data on 1063 batches were collected from January 2016 to April 2019 from specialised beef fattening farms located in the north of Italy. Information on breed, sex, date of arrival, performance traits and AM agents used on farm was collected, and the treatment incidence 100 (TI100) indexes per batch were calculated using the defined daily dose animal estimated according to Italian summaries of product characteristics. Factors affecting TI100 indexes were investigated using a cross-classified multilevel model. Farms largely differed in terms of AMU. Males had greater AMU than females ( $P < 0.001$ ), likely due to their higher susceptibility to disease. Statistically significant differences were observed between seasons of arrival with summer and spring having lower TI100 indexes than winter and autumn ( $P < 0.001$ ). Indeed, winter is commonly linked to an increase in respiratory diseases in beef cattle. Finally, the TI100it indexes tended to be different among breeds with Blonde d'Aquitaine and Limousine having greater AMU compared to the other breeds. Results of this study provided valuable information on potential risk factors of AMU in beef production which may be useful to address its reduction. For instance, the development of tailored management strategies for specific breeds, targeted approaches to improve the health of males as well as greater care towards batches purchased in winter are possible advice to implement on-farm for a more responsible AM stewardship.  
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### Implications

Strategies to reduce antimicrobial use are pivotal in the livestock industry due to concerns of public opinion over the problem of antimicrobial resistance. Defining potential risk factors affecting antimicrobial use in beef cattle may help to outline new on-farm strategies for more judicious use of medications. Results from this study demonstrated that breed, sex, season and farm are important factors associated with the use of antimicrobials. Hence, we suggested that simple actions applied on-farm such as greater care towards animals purchased in winter or tailored management strategies towards certain breeds, may lead to a reduction of antimicrobials in the beef industry.

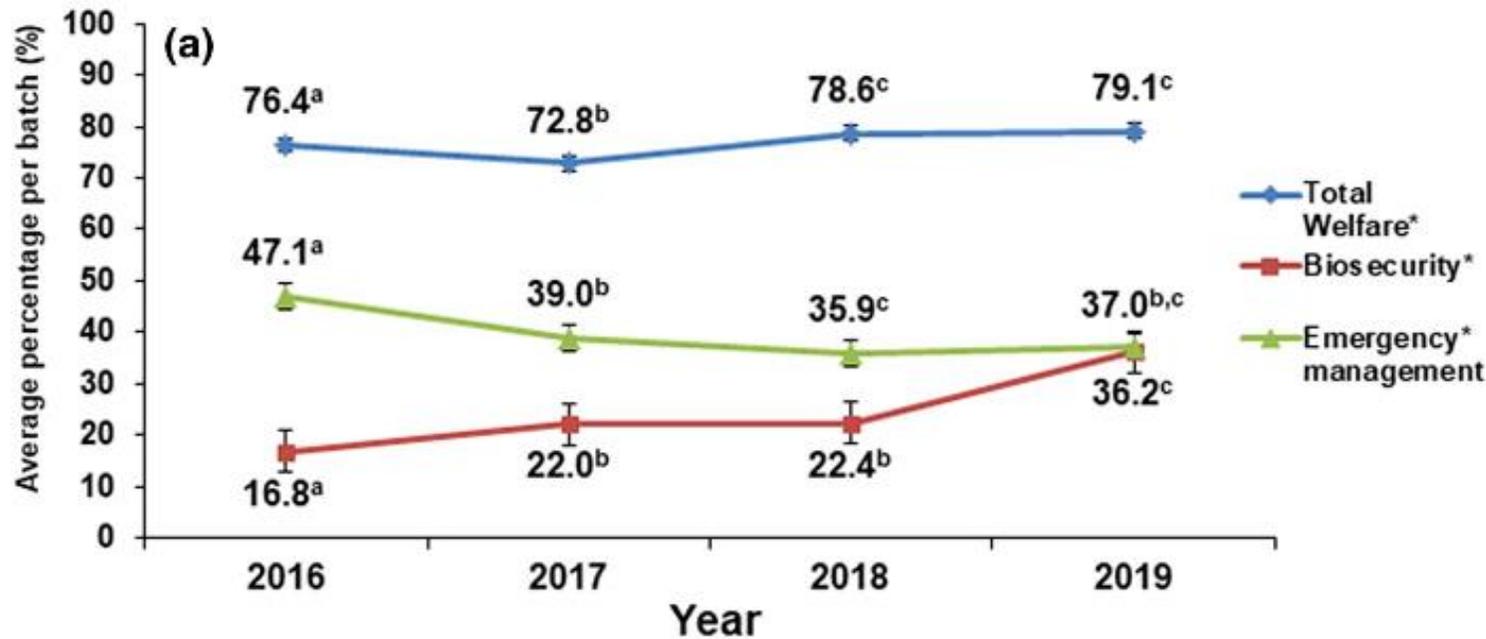
### Introduction

Since their discovery in the late 1940s, antimicrobials (AM) have been considered essential tools to tackle infectious diseases thus

\* Corresponding author.  
 E-mail address: massimo.demarchi@unipd.it (M. De Marchi).

# Benessere degli animali

- 35 allevamenti, 1487 partite, 87.902 vitelloni ristalli francesi, 2016-2019 (AZOVE, Cittadella)



## scientific reports

OPEN

### Effect of welfare standards and biosecurity practices on antimicrobial use in beef cattle

Alessia Diana<sup>1,2,3</sup>, Valentina Lorenzi<sup>2</sup>, Mauro Penasa<sup>1</sup>, Edoardo Magni<sup>2</sup>, Giovanni L. Alborali<sup>2</sup>, Luigi Bertocchi<sup>2</sup> & Massimo De Marchi<sup>1</sup>

Antimicrobial use (AMU) in livestock species and the associated antimicrobial resistance are a global concern, thus strategies for their reduction and a more judicious use are needed. Previous research has revealed a link between improved animal welfare, biosecurity and AMU reduction in pig and dairy sectors, however, little is known about the beef sector. This study aimed to investigate the impact of welfare standards and biosecurity on AMU in beef cattle. Data on performance traits and AMU were collected over a 3.5 year time from 27 specialised beef farms and a treatment incidence was calculated using the defined daily dose for animals. An on-farm assessment was carried out by assigning a score from 0 (very poor) to 100% (very good) to 3 sections: welfare, biosecurity and emergency management. The highest average score was obtained for the welfare section (76%) followed by emergency management (39%) and biosecurity (24%). This suggests that major focus on strategies for the implementation of biosecurity measures and emergency management is needed, due to the low scores reported. A statistically significant lower AMU was observed with improved level of welfare. These results may be helpful for farm benchmarking and highlight the importance of improved animal welfare for an efficient antimicrobial stewardship.

Animal welfare (welfare) is defined as 'the physical and mental state of an animal in relation to the conditions in which it lives and dies<sup>1</sup>, thus emphasising the importance of biological functioning and natural behavioural needs alike for the assessment of animal well-being<sup>2</sup>. The link between animal health and welfare is widely acknowledged<sup>3,4</sup> as well as the impact that good welfare may have on animal productivity<sup>5,6</sup>. Indeed, reduced stress levels are essential to avoid an impairment of animals' immune system which in turn would affect their performance and susceptibility to diseases<sup>7</sup>. Similar evidence is also reported for the positive role of improved biosecurity on animal health and welfare. Biosecurity consists of procedures intended to prevent both pathogens entering a farm (external biosecurity) and pathogens spreading within a farm (internal biosecurity)<sup>8,9</sup>. Pandolfi et al.<sup>9</sup> reported lower prevalence of some disease indicators and negative welfare outcomes, such as severe tail lesions and lameness, in pig farms with high biosecurity and average daily gain (ADG). Ohlson et al.<sup>9</sup> found an association between lower prevalence of infections with better biosecurity at herd level. In their review, Stokstad et al.<sup>10</sup> largely discussed about the importance of implementing biosecurity measures to prevent and reduce respiratory diseases in cattle. Hence, both biosecurity and welfare standards are recognized as basic principles of an efficient livestock management<sup>11,12</sup>.

Another important aspect of a general farm management is the use of antimicrobials (AMU), since they are useful tools in controlling infectious diseases, especially in intensive farming systems where the spread of pathogens is more likely to occur<sup>13-15</sup>. Despite such an essential role, massive AMU and the associated antimicrobial resistance (AMR) are major concerns worldwide<sup>16,17</sup>. New strategies to advance a more judicious use of medications are needed and providing accurate data on AMU is fundamental to achieve this goal<sup>18</sup>.

Livestock species in EU account for a large proportion of use of antimicrobials<sup>19-21</sup>, making them major contributors to the increase of AMR<sup>16,22</sup>. However, differently from dairy, poultry and swine, only few studies explored the potential risk factors of AMU in the beef sector such as farm size, the duration of the fattening period and quarantine of purchased animals<sup>24-26</sup>. In our previous study on Italian beef cattle<sup>27</sup>, we observed that breed was an important source of variation of AMU with Blonde d'Aquitaine and Limousine being at greater risk of treatment than Charolaise. We also reported a wide variability of AMU among farms suggesting, in

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# Benessere degli animali

scientific reports

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Effect	Category	TI100it		TI100vet		HPCIA TI100it		HPCIA TI100vet	
		LSM	SEM	LSM	SEM	LSM	SEM	LSM	SEM
Total welfare <sup>2</sup>	Low (< 60%)	NA	NA	NA	NA	NA	NA	NA	NA
	Medium (60% to 80%)	1.61 <sup>a</sup>	0.45	1.28 <sup>a</sup>	0.42	0.98 <sup>a</sup>	0.34	0.89 <sup>a</sup>	0.37
	High (> 80%)	1.25 <sup>b</sup>	0.35	1.02 <sup>b</sup>	0.34	0.81 <sup>a</sup>	0.28	0.75 <sup>a</sup>	0.32
Biosecurity <sup>3</sup>	Low (< 60%)	1.24 <sup>a</sup>	0.23	0.87 <sup>a</sup>	0.17	0.71 <sup>a</sup>	0.17	0.58 <sup>a</sup>	0.14
	Medium (60% to 80%)	1.63 <sup>a</sup>	0.76	1.51 <sup>a</sup>	0.87	1.12 <sup>a</sup>	0.65	1.14 <sup>a</sup>	0.88
	High (> 80%)	NA	NA	NA	NA	NA	NA	NA	NA
Emergency management <sup>4</sup>	Low (< 60%)	1.62 <sup>a</sup>	0.42	1.31 <sup>a</sup>	0.40	1.05 <sup>a</sup>	0.34	0.94 <sup>a</sup>	0.38
	Medium (60% to 80%)	NA	NA	NA	NA	NA	NA	NA	NA
	High (> 80%)	1.25 <sup>a</sup>	0.40	1.00 <sup>a</sup>	0.36	0.76 <sup>a</sup>	0.30	0.71 <sup>a</sup>	0.33

**Table 5.** Least squares means (LSM) and standard error of the mean (SEM) of the treatment incidence (TI100)<sup>1</sup> for the effects of total welfare, biosecurity and emergency management in beef cattle. <sup>a,b</sup>Different superscript letters within each TI100 index and effect indicate significant differences ( $P < 0.05$ ); NA = no batch felt within the category. <sup>1</sup>TI100it = treatment incidence 100 for Italy, calculated by using the defined daily dose for animals for Italy based on Italian guidelines of dosage obtained from the Italian database (<http://www.classifyfarm.it>); TI100vet = treatment incidence 100 for EU, calculated by using the defined daily dose for animals for Europe based on EMA<sup>51</sup> guidelines of dosage<sup>51</sup>; HPCIA = Highest Priority Critically Important Antimicrobials. <sup>2</sup>Total welfare = this section consists of variables grouped and listed within Area A, Area B and Area C (Supplementary Table S1). <sup>3</sup>Biosecurity = some examples of the variables included are control of visitors, quarantine, control of rodents and lorry cleaning (Supplementary Table S1). <sup>4</sup>Emergency management = variables included are fire alarm, ventilation alarm, risk of noise and source of drinking water (Supplementary Table S1).

OPEN

## Effect of welfare standards and biosecurity practices on antimicrobial use in beef cattle

Alessia Diana<sup>1,2,3</sup>, Valentina Lorenzi<sup>2</sup>, Mauro Penasa<sup>2</sup>, Edoardo Magni<sup>2</sup>, Giovanni L. Alborali<sup>2</sup>, Luigi Bertocchi<sup>2</sup> & Massimo De Marchi<sup>1</sup>

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# Benessere degli animali



## *Prova sperimentale nelle stalle dei soci AZoVe*

La prova ha previsto lo studio dell'effetto della quarantena sulle performance degli animali per migliorare le condizioni di benessere degli animali e di biosicurezza degli ambienti. La scelta di migliorare le condizioni di allevamento degli animali all'arrivo (primo mese di ristallo) è legata al fatto che gli animali, durante la fase di trasporto, possono sviluppare stress che rende il loro sistema immunitario più debole e di conseguenza meno pronto ad affrontare le eventuali patologie che si potrebbero manifestare nelle aziende di destinazione. Le principali patologie che vengono riscontrate riguardano l'apparato respiratorio e l'apparato locomotore.

In tabella 2 e 3 sono mostrate le statistiche descrittive generali sulle performance produttive degli animali totali e suddivise per sesso. Nelle figure 4 alla 7 sono mostrate le performance dei bovini in funzione della tipologia di trattamento ingrasso vs. quarantena posto in atto nei primi 30 giorni. Appare evidente che la quarantena, pratica fondamentale nei primi 30 giorni di ristallo degli animali, è risultata una pratica virtuosa non solo per la riduzione dell'utilizzo degli antibiotici nel ciclo di allevamento degli animali, ma anche sulle performance degli stessi. Infatti, a parità di condizioni gli animali sottoposti alla quarantena hanno mostrato dei migliori accrescimenti e pesi vivi finali rispetto agli animali posizionati direttamente nei box di ingrasso.



FEASR

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REGIONE del VENETO



PSR Veneto



### **AntibioticFreeBeef**

#### *I risultati del progetto*

*Strategie per l'eliminazione dell'utilizzo degli antibiotici nell'allevamento del bovino da carne - AntibioticFreeBeef*

## ... fra presente e futuro ...

- PAC
- Approvvigionamenti di bestiame
- Benessere degli animali
- **Trasporto degli animali**

# Trasporto degli animali



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## Più spazio, temperature più basse, viaggi più brevi: raccomandazioni EFSA per migliorare il benessere degli animali durante il trasporto

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# Trasporto degli animali

## What are the main outcomes?

- An average of approximately 4.3 million cattle were transported between Member States per year in the period from 2019-2021, across all means of transport.
- Road transport constituted 90% of total cattle transport from 2019-2021.
- Eleven (11) negative welfare consequences were identified as being highly relevant for the welfare of cattle during transport based on severity, duration, and frequency of occurrence. These included handling stress, heat stress, injuries, motion stress, prolonged hunger, and prolonged thirst.
- The occurrence of each type of welfare consequence varied depending on the stage (preparation, loading, transit, unloading and journey breaks), means (road, sea, air, or train), and duration of transport.
- Cattle may experience one or more negative affective states associated with these welfare consequences, including fear, pain, discomfort, frustration, fatigue, and distress.
- Specific ABMs were identified for each of the highly relevant welfare consequences, including behavioural, clinical, and physiological ABMs. These ABMs can be used to assess the condition of animals but are of limited use when animals are in a transport vehicle.
- A wide variety of hazards were identified for the different welfare consequences and transport stages.
- These were related to factors such as inexperienced/untrained handlers, inappropriate handling, structural deficiencies of vehicles and facilities, poor driving and road conditions, insufficient space and unfavourable microclimatic (heat) conditions in the transport vehicles.
- Despite its importance, no agreed scientific definition of the concept of fitness for transport currently exists.
- Severe heat stress for cattle starts at the upper critical temperature (UCT), which was found to be 25°C.
- Increased space in the vehicle with reference to the current space allowance is beneficial for the animals to adjust posture and balance in response to movements of the vehicle during transport thus reducing injuries, falls and stress.
- The number and the severity of hazards that animals are exposed to during transport influence the resultant welfare consequences.
- The amount of time the animals are exposed to the hazards is dependent on the journey duration.
- Motion stress and sensory overstimulation start as soon as a vehicle starts moving and continues while the vehicle is moving potentially leading to fatigue and negative affective states such as fear and distress.
- Pain and/or discomfort from health conditions or injuries can be severe and will worsen over time during transport and may lead to suffering.
- Problems associated with lack of resting become greater with increased journey duration and may lead to fatigue.
- Even when a transport vehicle is fitted with water drinkers, journeys that last more than 9 hours may result to prolonged thirst that can lead to dehydration and associated negative affective states.

## Key implications and recommendations

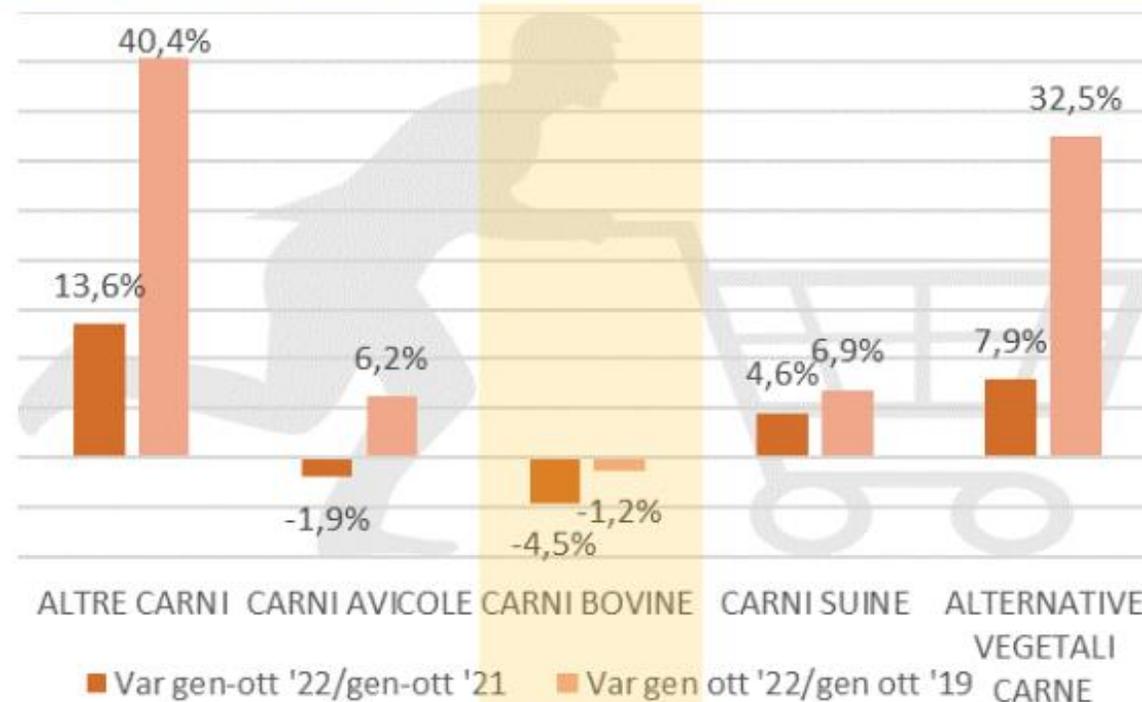
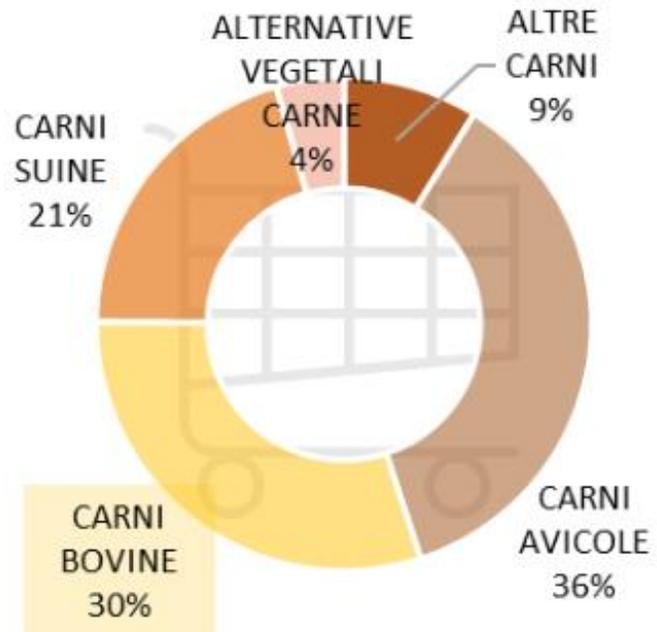
- To reduce the impact of transportation on animal welfare, greater space, lower temperatures, and reduced journey duration are required, compared to current rules and practices.
- The concept of fitness for transport should be properly defined, including guidelines and thresholds based on ABMs.
- Animals should always be handled sympathetically.
- To reduce the risk of welfare consequences due to exposure to high effective temperatures, the temperature inside vehicles transporting cattle should not exceed the UCT, which is estimated to be 25°C.
- Future research should be carried out regarding the development of systems to maintain the microclimatic conditions in stationary as well as moving vehicles across different compartments and deck heights by e.g., air conditioning.
- Sufficient space should be allocated for animals during transport to allow them to adjust posture and balance. Minimum space allowance should be calculated using a validated scientific method (see full opinion for more information).
- Based on evidence on continuous welfare consequences involving stress and negative affective states the journey duration should be kept to a minimum.
- Maximum journey time should consider the stress (and sometimes fear) that the animals will experience continuously or semi-continuously.
- During transport the animals will get thirsty after 9 hours and hungry after 12 hours, which should be considered when selecting the maximum journey time as well.
- To end the exposure to the hazards of transport and to allow the animals to eat, drink and recover, they need to be unloaded from the transport vehicle to suitable premises.

## ... fra presente e futuro ...

- PAC
- Approvvigionamenti di bestiame
- Benessere degli animali
- Trasporto degli animali
- **Qualità della carne**

# Qualità della carne

## Quote in volume e dinamica degli acquisti di carni totali e sostituti in volume



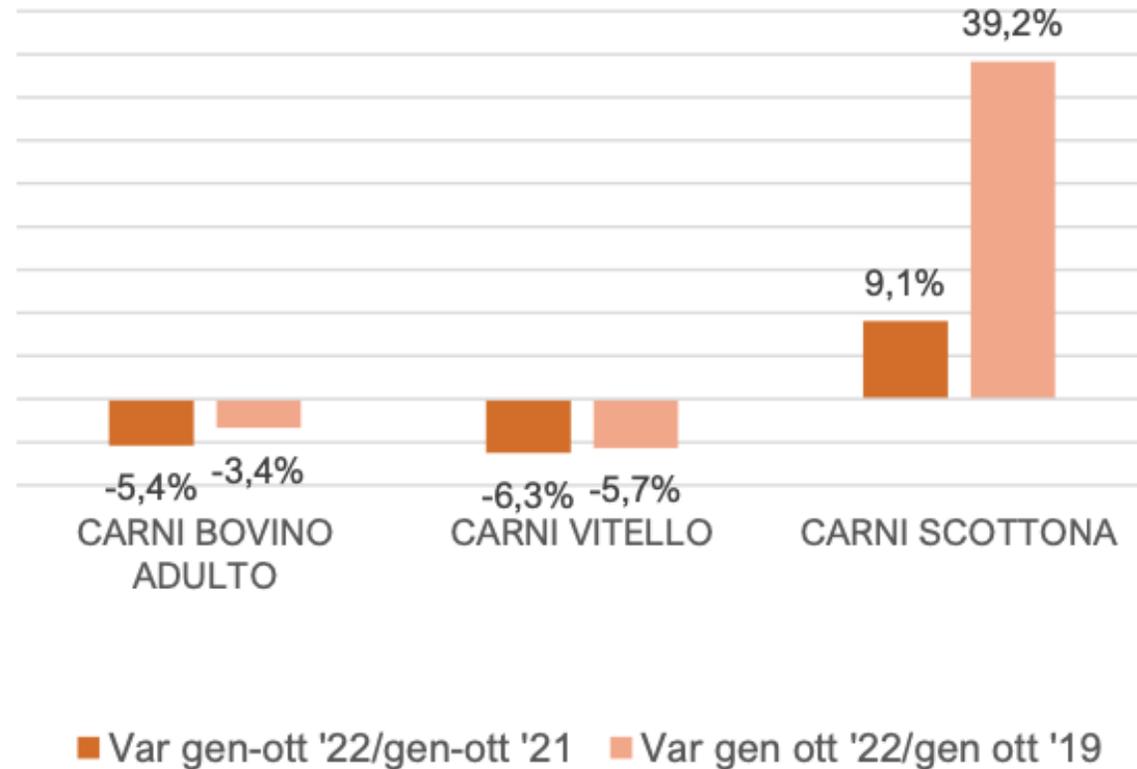
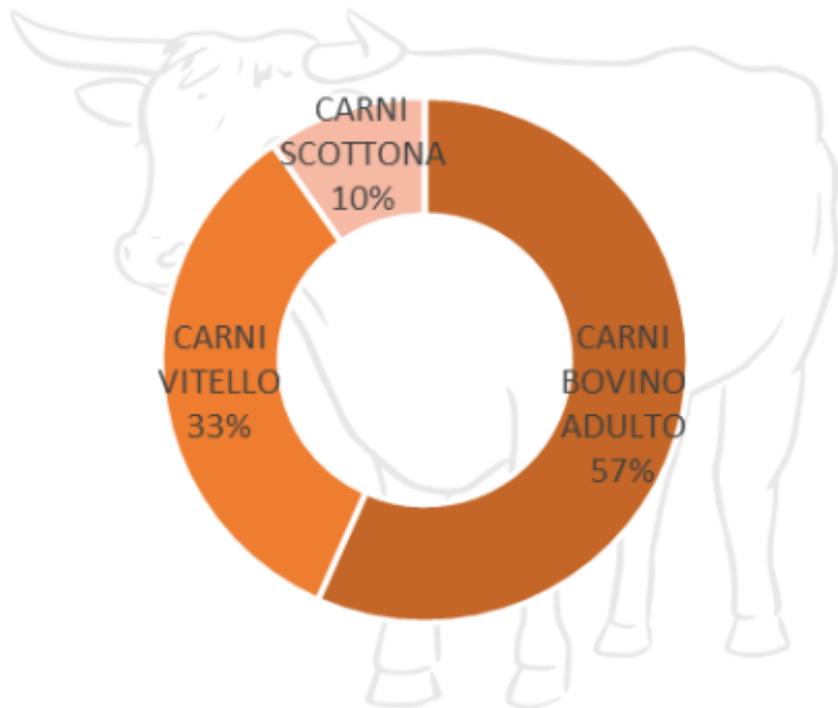
Fonte: Elaborazioni Ismea su dati NielsenIQ CPS

## Evoluzione della spesa per le carni bovine fresche nel periodo cumulato da gennaio a ottobre degli ultimi quattro anni e prezzi medi per categoria

TENDENZE E DINAMICHE RECENTI  
Bovino da carne – novembre 2022

# Qualità della carne

## Quote in volume e dinamica degli acquisti di carni bovine per tipologia merceologica



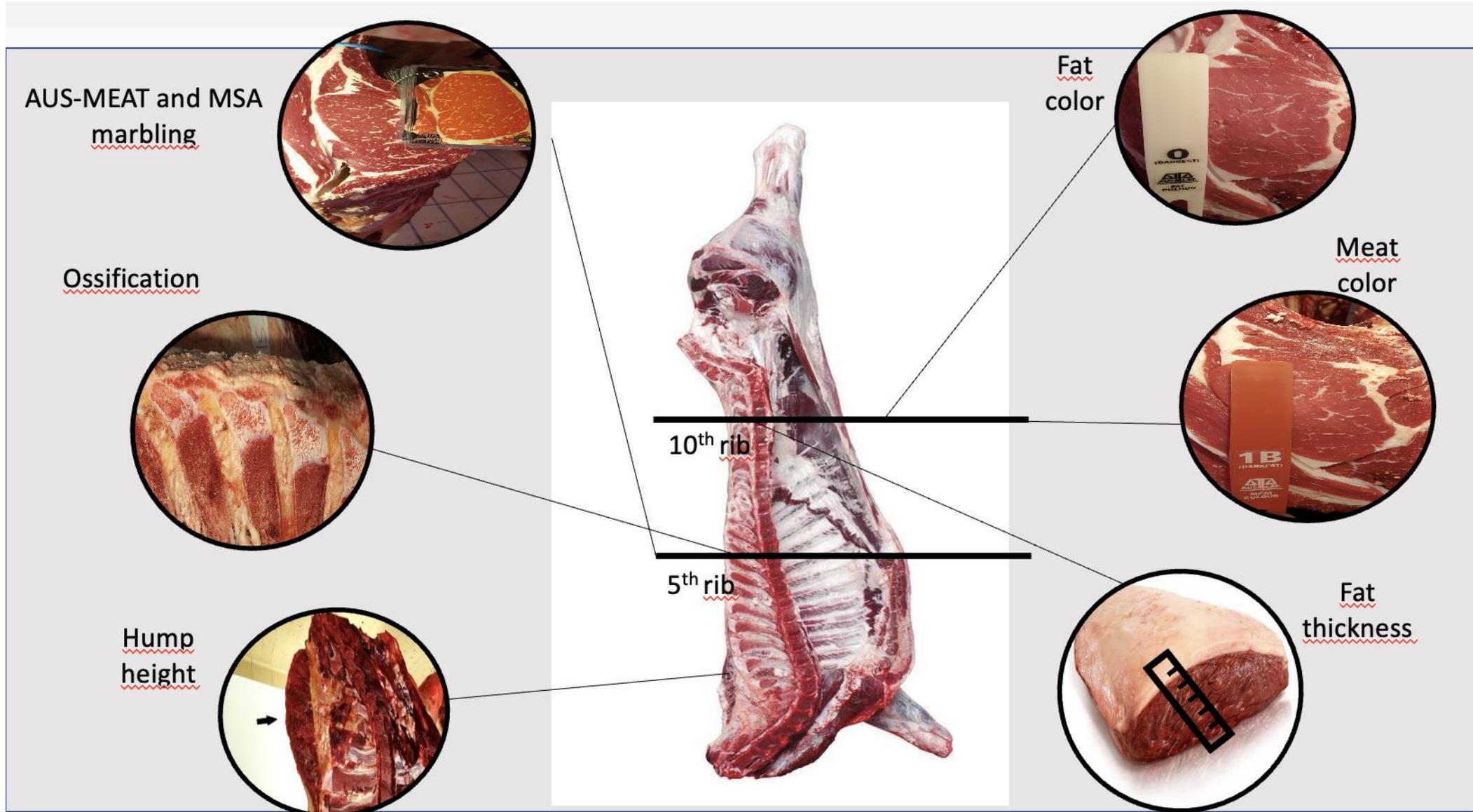
Fonte: Elaborazione Ismea su dati Nielsen

# Qualità della carne

## Beef grading systems and international guidelines

							
Marbling	✓	✓	✓	✓	✓	✓	
Meat color	✓	✓	✓	✓	✓	✓	
Fat color		✓	✓		✓	✓	
Fat Thickness	✓	✓	✓	✓		✓	
Eye muscle area	✓	✓	✓		✓	✓	
Ossification	✓	✓		✓	✓		
pHu	✓	✓		✓	✓		
Conformation + Fatness	✓		✓	✓	✓		✓

# Qualità della carne



# Qualità della carne

N	Fatness	MSA
1442	2	367,77 (67,78)
12	3	367,50 (82,37)

N	Conformation	MSA
17	S	370,00 (49,62)
1310	E	369,24 (67,84)
126	U	352.62 (68,91)



# La sostenibilità del bovino da carne



## La sostenibilità attuale e futura dell'allevamento dei bovini da carne

- Allevamento del vitellone da carne è un comparto che ha dimostrato una ottima resilienza negli ultimi anni ma alcune sfide difficilmente possono essere previste (es. Covid, utilities, ..)

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es. sostenibilità ambientale



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Lo dicono le indagini del **CREA** (Consiglio per la ricerca agricola e l'analisi dell'economia agricola) che con il progetto *Life Beef Carbon* hanno **verificato come in Italia le emissioni si siano ridotte in soli tre anni del 10% in media**. Merito del miglioramento della dieta degli animali, della cura per il benessere animale e di un'ottimale gestione dei reflui, destinati a fertilizzazione e produzione di energie rinnovabili. Un impegno che ha come obiettivo il bene dell'ambiente, ma anche il miglioramento delle performance produttive.

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- Investire nello svezzamento per la valorizzazione del ristallo nazionale

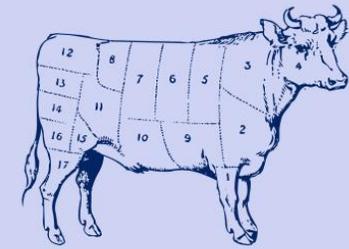
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- Ruolo fondamentale della comunicazione (informazione pubblica, extension)
- Investire nello svezzamento per la valorizzazione del ristallo nazionale
- Definire benchmark per il benessere animale (es. trasporto)
- Innovazione di prodotto e processo rappresenta una concreta strategia per la valorizzazione della carne bovina e una risposta alle alternative vegetali o artificiali

[massimo.demarchi@unipd.it](mailto:massimo.demarchi@unipd.it)



## GIORNATA STUDIO: LA CARNE BOVINA, QUALI NOVITÀ?

VENERDÌ 31 MARZO

AULA MESSIERI  
DIPARTIMENTO DI SCIENZE MEDICHE  
VETERINARIE



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA  
DIPARTIMENTO DI SCIENZE MEDICHE VETERINARIE

