

Estimation of enteric methane emission of three dairy breeds in Italy by a Tier-2 approach

Authors:

Ferronato G



Moliso M



Fioretti M,
Melilli C.,



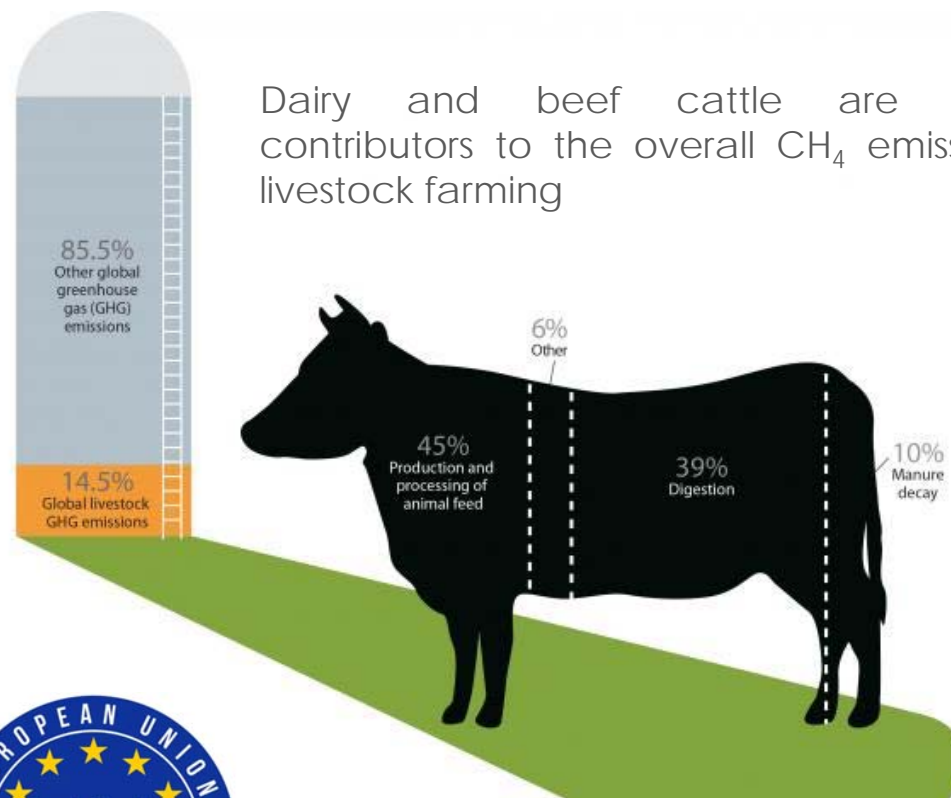
Luisi F.,
Pascarella L.,
Negrini R.



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The challenge

Dairy and beef cattle are significant contributors to the overall CH₄ emissions from livestock farming



EU promotes adoption of mitigation strategies at farm level



The need

Support farmers to adopt mitigation strategies



The idea

Exploit DHI longitudinal data along with feeding data on farm to robustly estimate CH₄ emission at farm level and provide a synthetic operative report



The pilot



138 dairy farms:
Holstein Friesian, Swiss Brown, Italian Red Pied



10,046 lactating cows
8,931 heifers
1,476 dry cows



Feeding composition recorded



estimation equations



The outcomes

From average breed to average farm, categories and single cows

Breed	g CH ₄ /kg FPCM	kg CH ₄ Livestock unity ⁻¹ /year
Italian Brown	22.14 ± 8.72	118.84 ± 8.60
Italian Holstein	21.29 ± 6.23	143.62 ± 20.77
Italian Simmenthal	32.68 ± 11.14	132.20 ± 14.97

The pilot establishes a robust framework for estimating nationwide enteric CH₄ emissions from the dairy sector and support the set up of a synthetic operative report distributed monthly to more than 12.000 herds

Parametri aziendali alla data CF	
Peso Vivo Medio	700
Media EVM Latte (kg)	10.277
Media EVM Grasso Medio (kg)	361
Latte EVM corretto grasso al 4% (kg)	9.530
Urea Media (mg/dl)	28

Consistenza media del periodo	
Mandria	96
Vacche	57
In lattazione	52
In asciutta	4
Manze	39
Tori	0
Torelli	0

Produzione media del periodo	
Produzione media a capo (kg/giorno)	28,3
Numero medio parti per vacca	0,9914

Stime	
Valori Medi per Vacca (kg/capo/anno escreto da ERM)	
Azoto	86,3771
Fosfato	39,2876
Fosforo	17,1562
Valori Medi per kg Latte prodotto	
Azoto	0,0091
Fosforo	0,0018

Stima Metano enterico per categoria (kg Anno)	A capo/giorno	A kg latte/giorno
Mandria	10.876,2105	0,3101
Vacche	8.623,7454	0,4142
In lattazione	8.357,4277	0,4373
In asciutta	266,3177	0,1558
Manze	2.252,4651	0,1580
Tori	0,0000	0,0000
Torelli	0,0000	0,0000

Thanks for listening

