

Field-scale study of rumen function, efficiency and emissions in dairy cows 'The 1000 cow study'

Rumen microbiome

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Content of the presentation

- Introduction
- Overview of the results
- Concluding remarks

Sampling design

Holstein Friesian

Italy

UK

Bianchini 185

NUDC 243

Gandolfi 48

Park 164

Franciosi 176

Nordic Red

Finland

Sweden

Minkio 100

Robacksdalen 100

Maize silage

Grass silage

South-North gradient

Sampling design

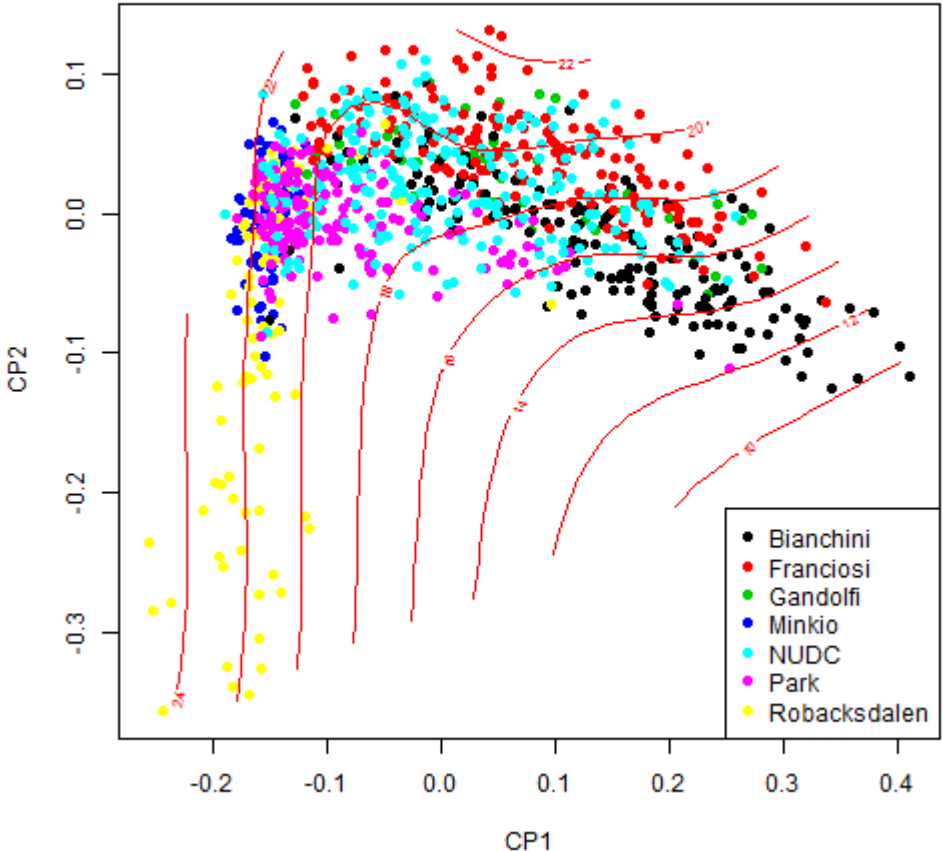
Country	Farm	3-Low	2-Medium	1-High
		6.6-15.6 methane g/kg DMI	15.6-22.4 methane g/kg DMI	22.4-39.4 methane g/kg DMI
UK	NUDC	48	147	49
	Park	47	77	39
Italy	Franciosi	16	98	62
	Bianchini	132	50	2
	Gandolfi	5	39	4
Finland	Minkio	0	40	60
Sweden	Robacksdalen	5	54	37

Sampling design

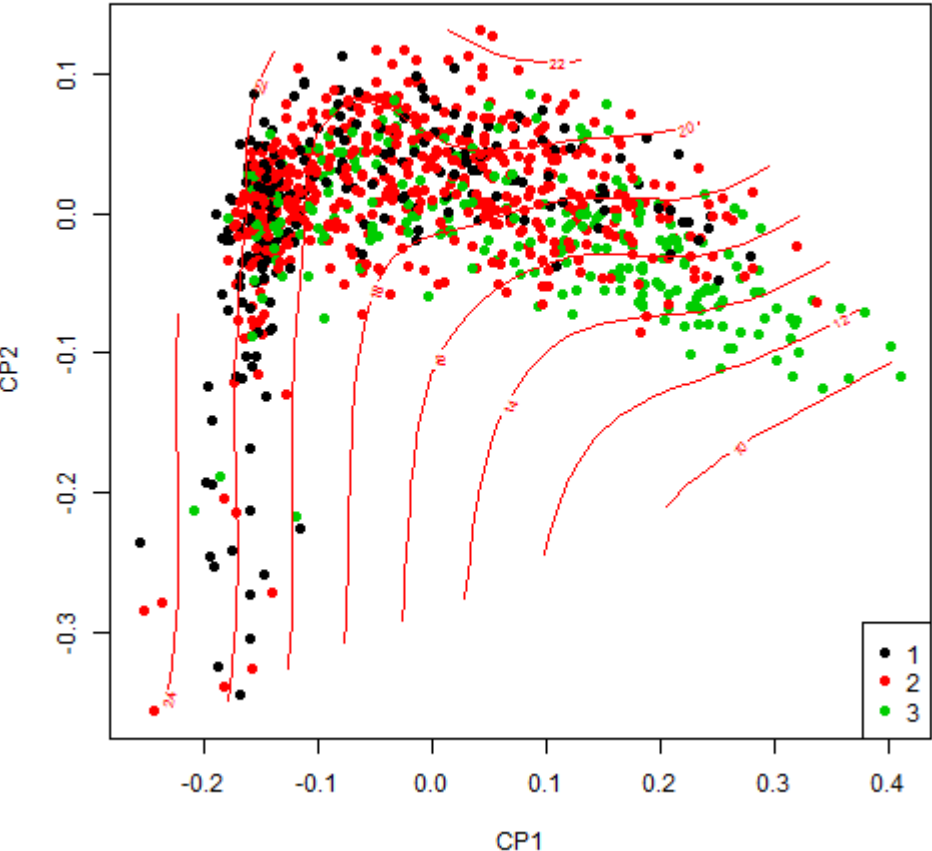
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Rumen bacteria

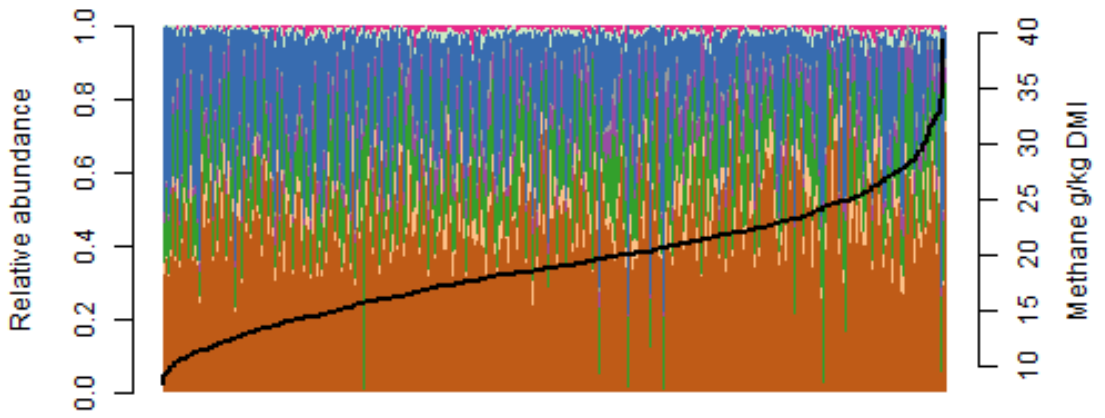
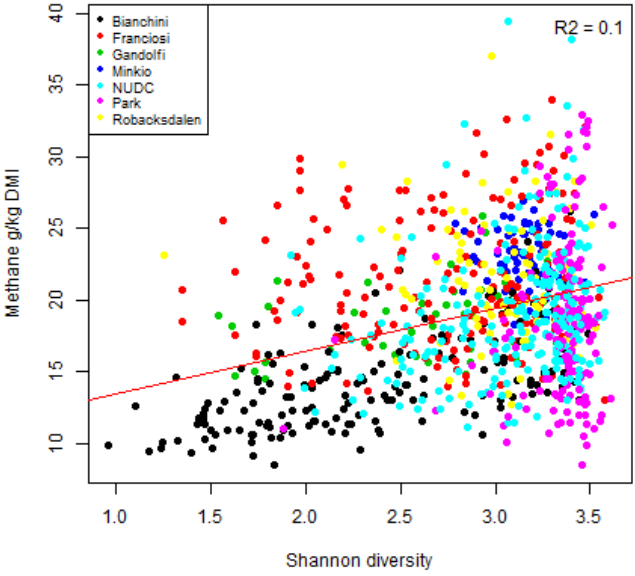
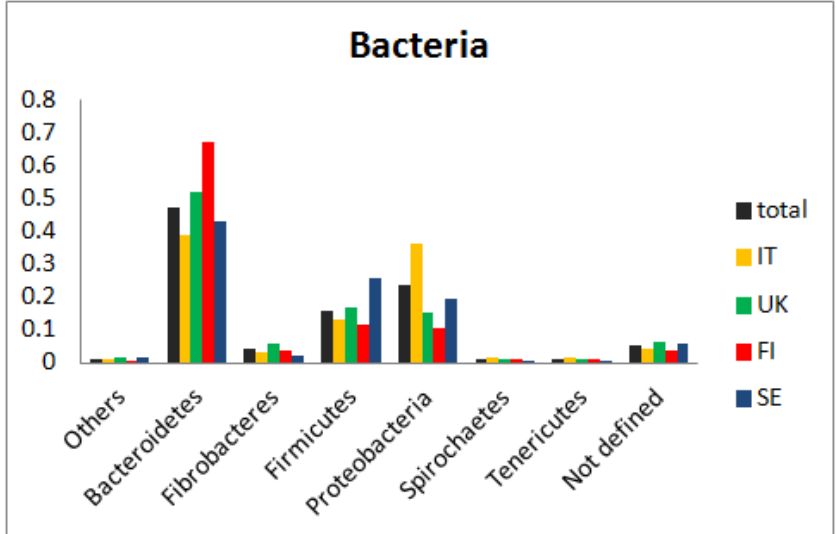
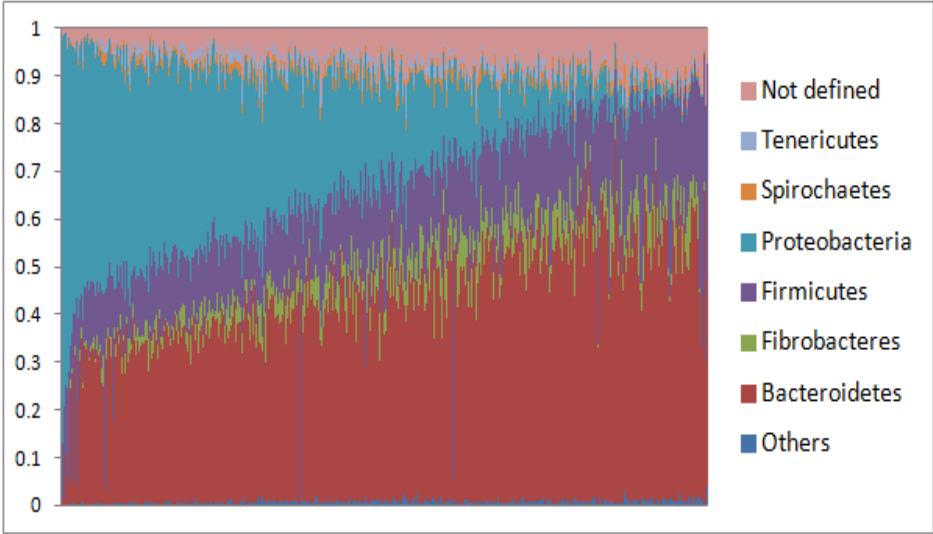
Bacteria by farm



Bacteria methane g/kg DMI high (1), medium (2), low (3)

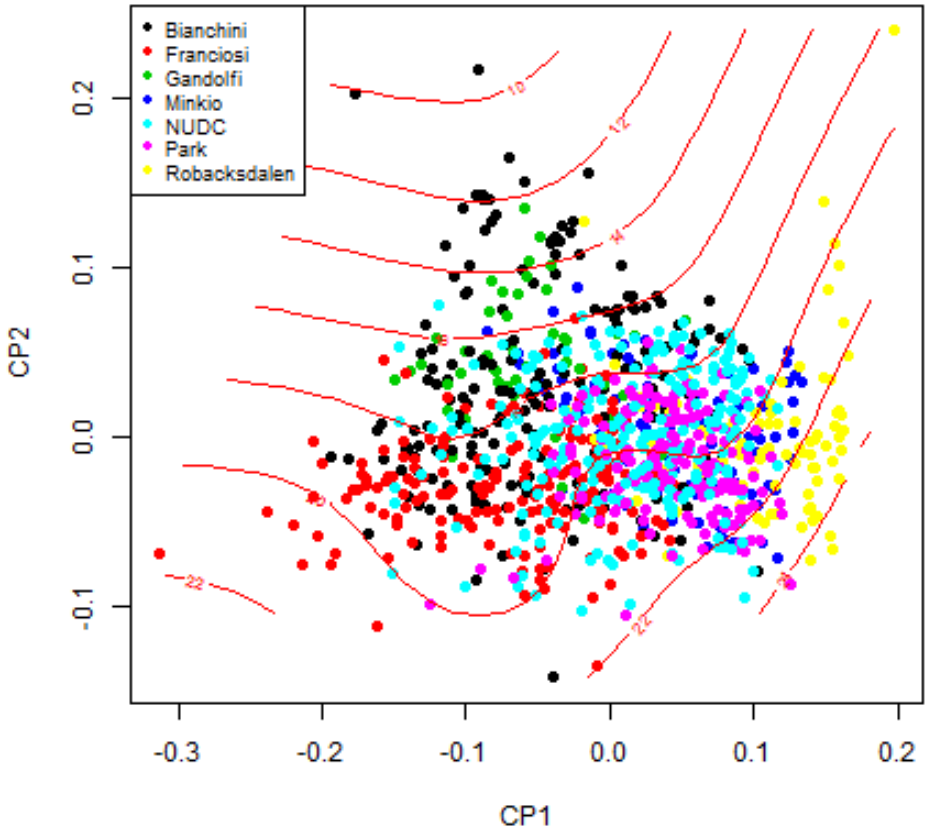


Rumen bacteria

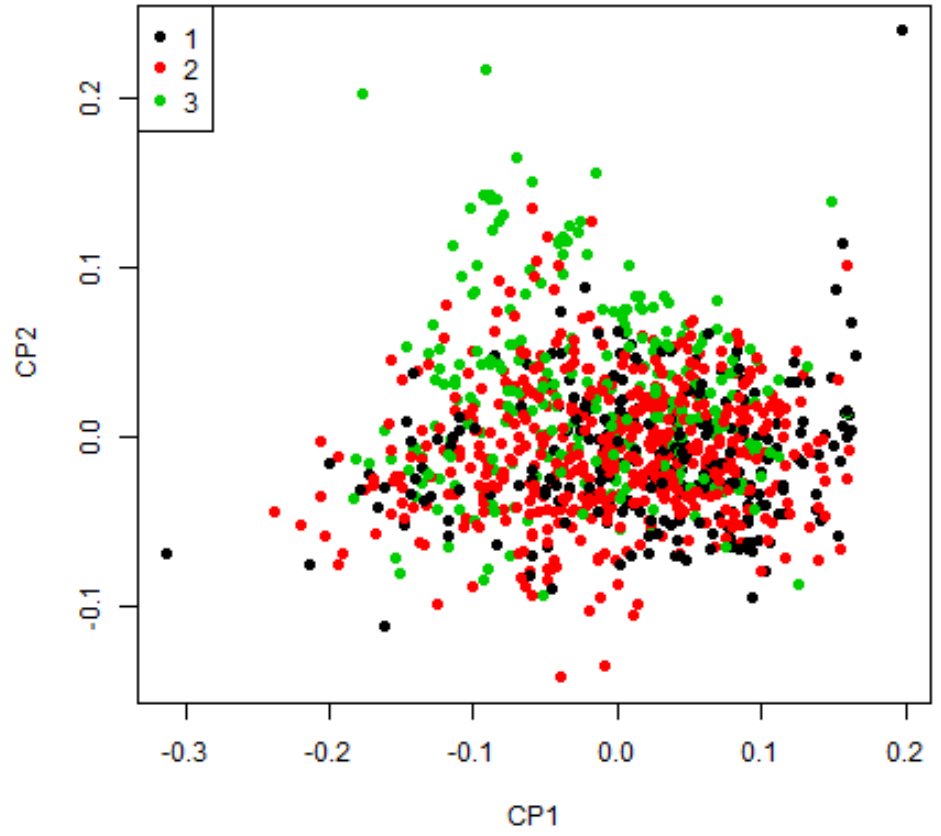


Rumen archaea

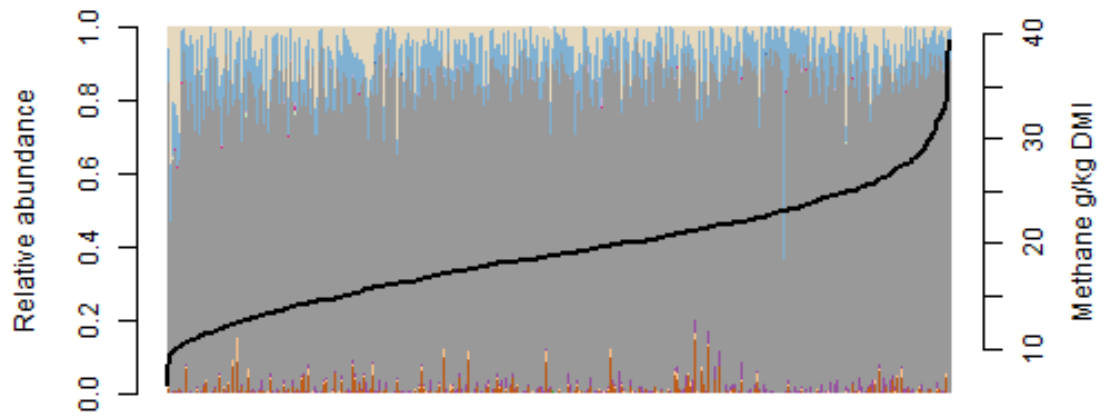
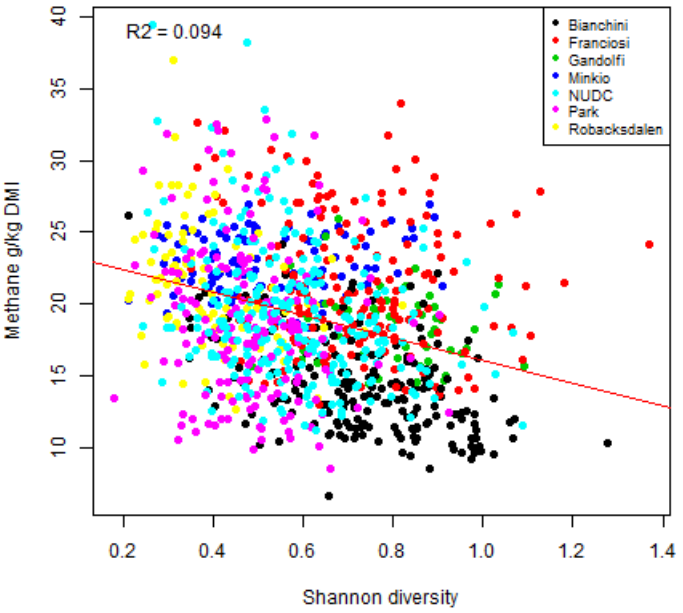
Archaea by farm



Archaea methane g/kg DMI high (1), medium (2), low (3)

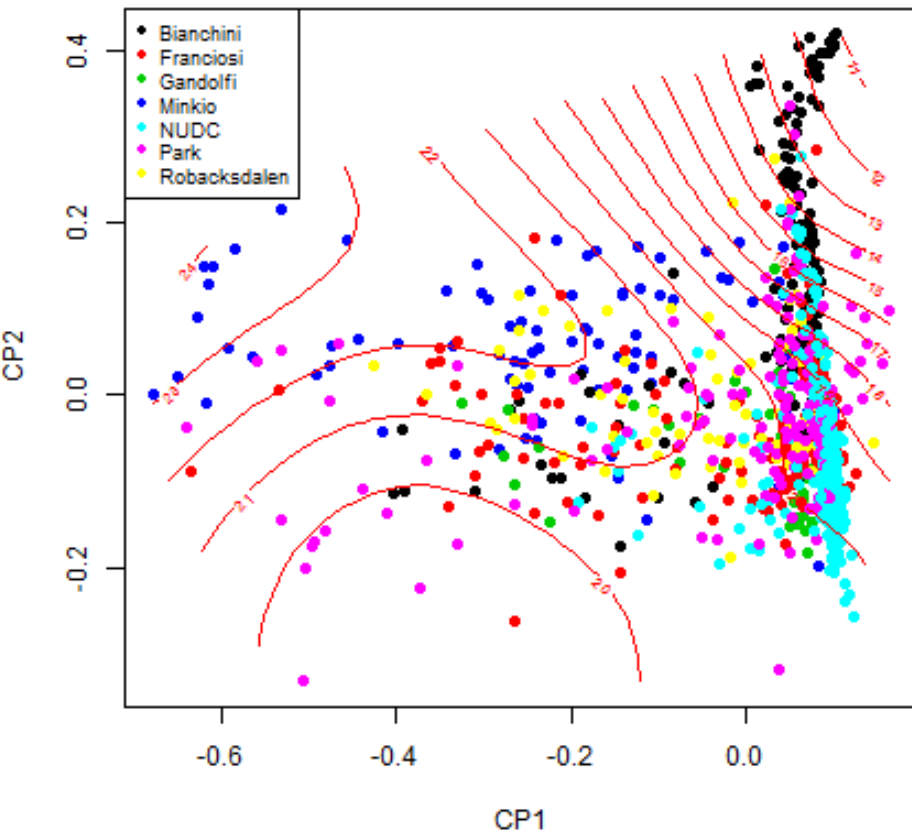


Rumen archaea

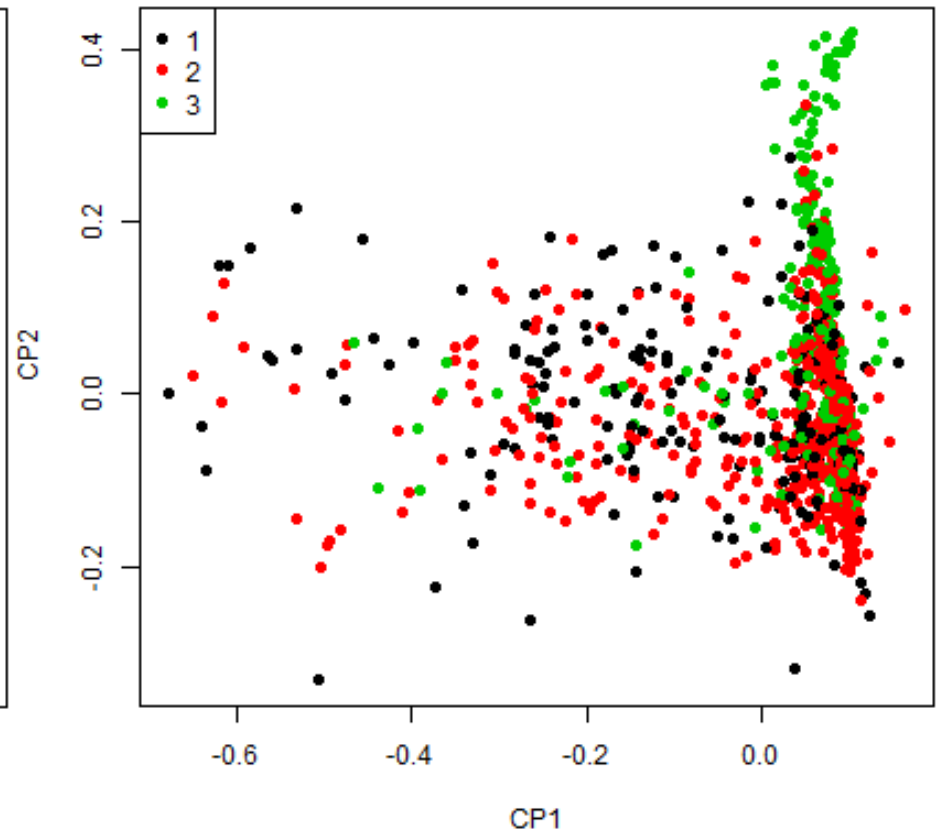


Rumen anaerobic fungi

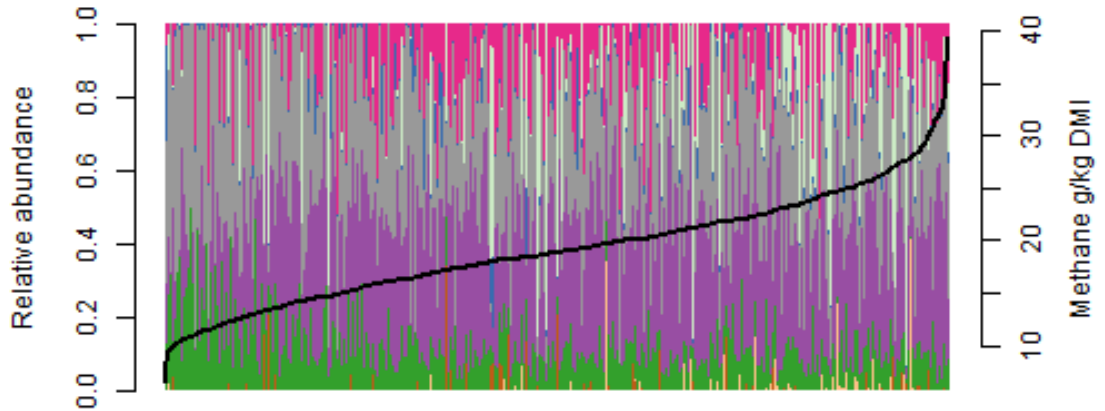
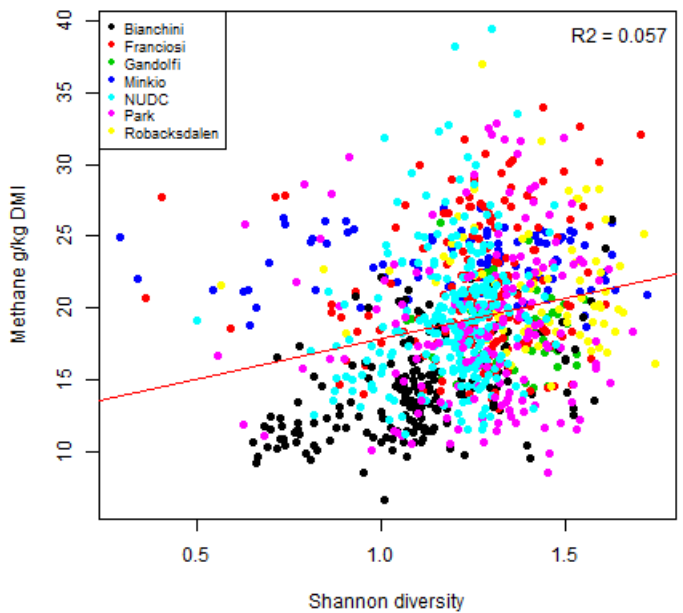
Fungi by farm



Fungi methane g/kg DMI
high (1), medium (2), low (3)

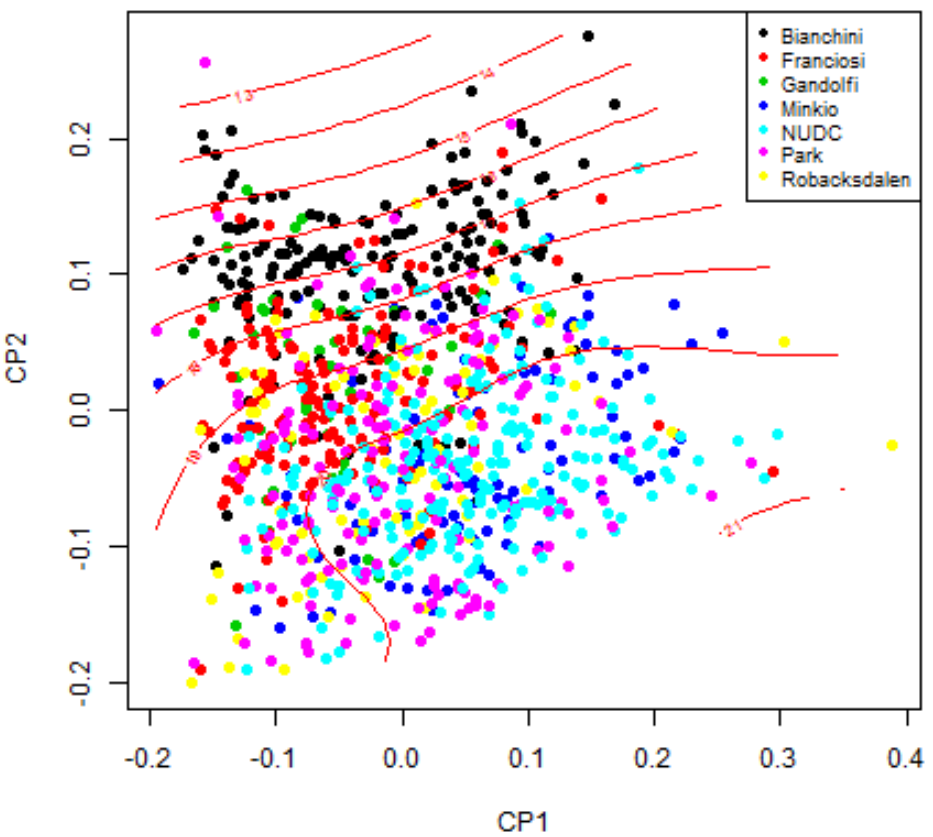


Rumen anaerobic fungi

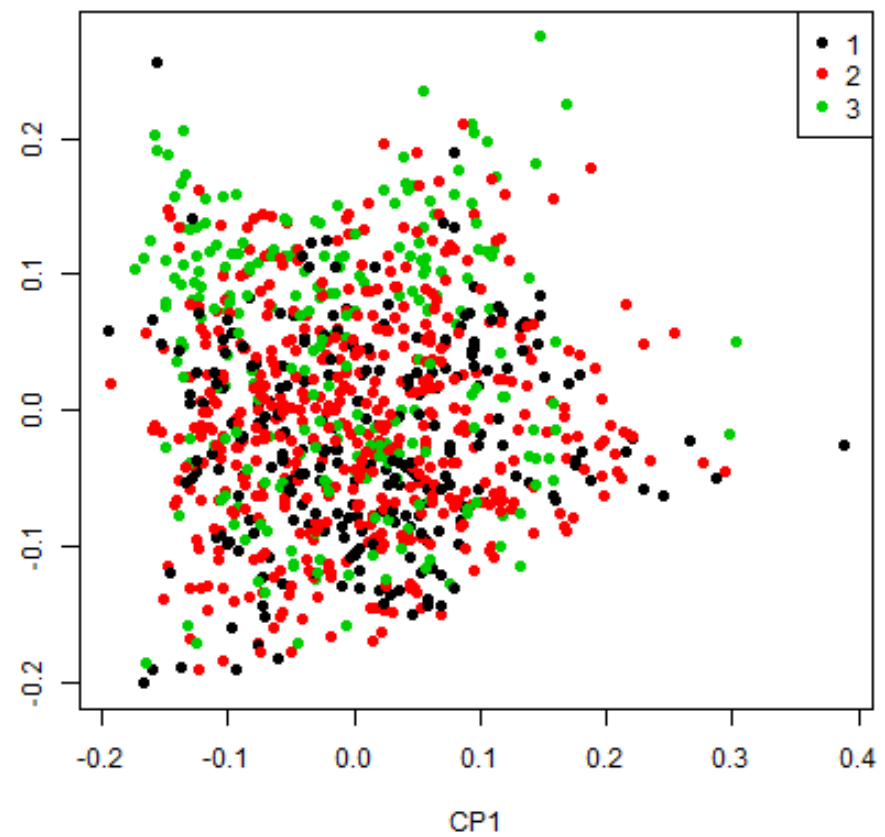


Rumen ciliate protozoa

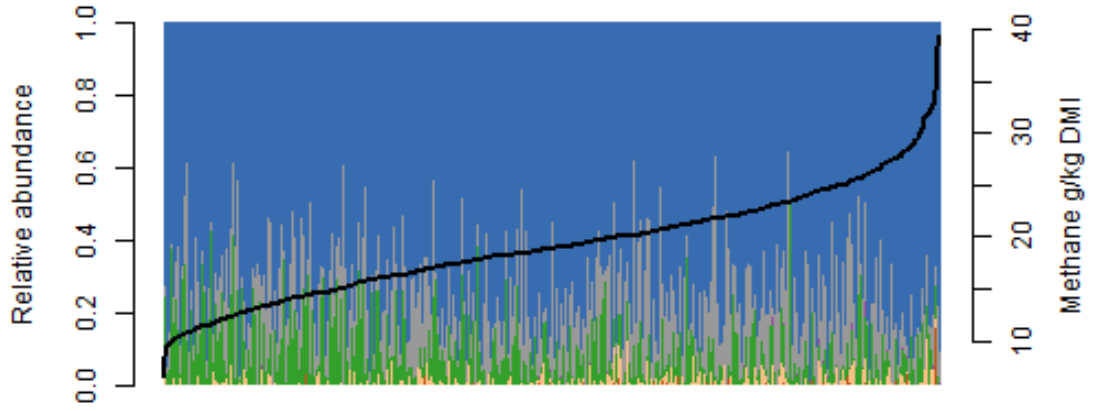
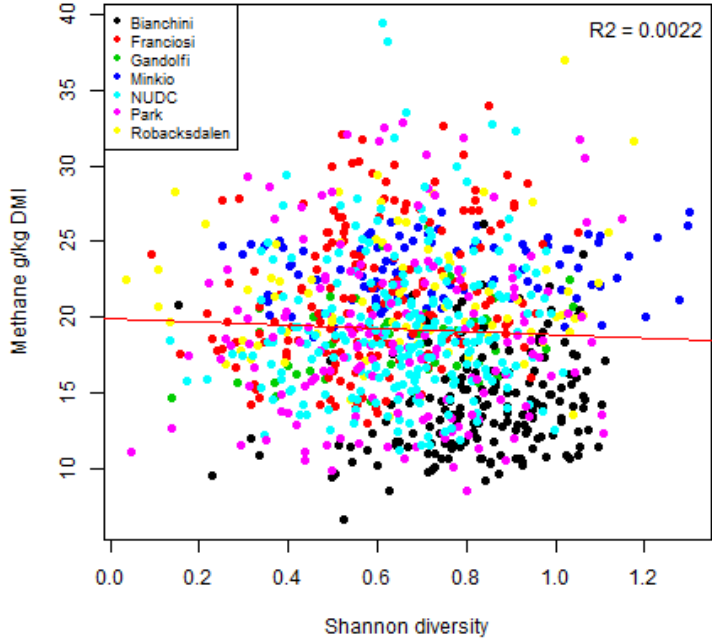
Ciliate by farm



Ciliate methane g/kg DMI high (1), medium (2), low (3)



Rumen ciliate protozoa



Concluding remarks

- Strong farm subdivision
- No clear microbial community composition correlation with methane output in the total set
- Within farm analysis needed

Thank you!

RuminOmis consortium
Miika Tapio for help with R