22nd -23rd May 2017
Saint Malo, Emili Conference

Inclusion of olive cake in fattening pig diets: effects on ammonia and methane emissions

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

ivia instituto valenciano de investigaciones agrarias

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Hypothesis

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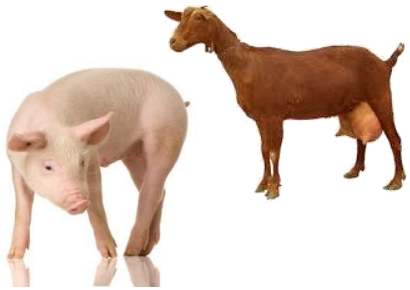
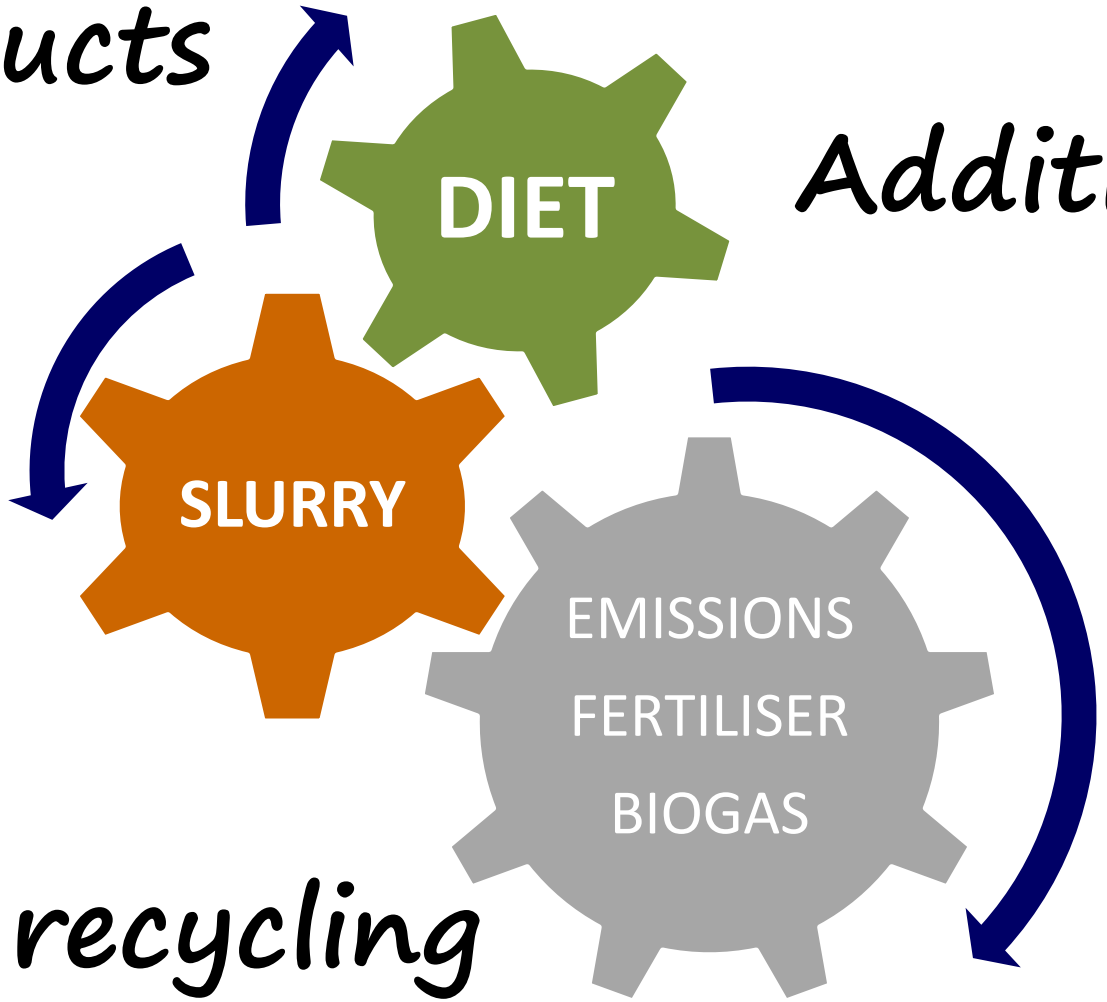
By-products





Additives

Nutrient recycling
Improved efficiency

Why olive cake

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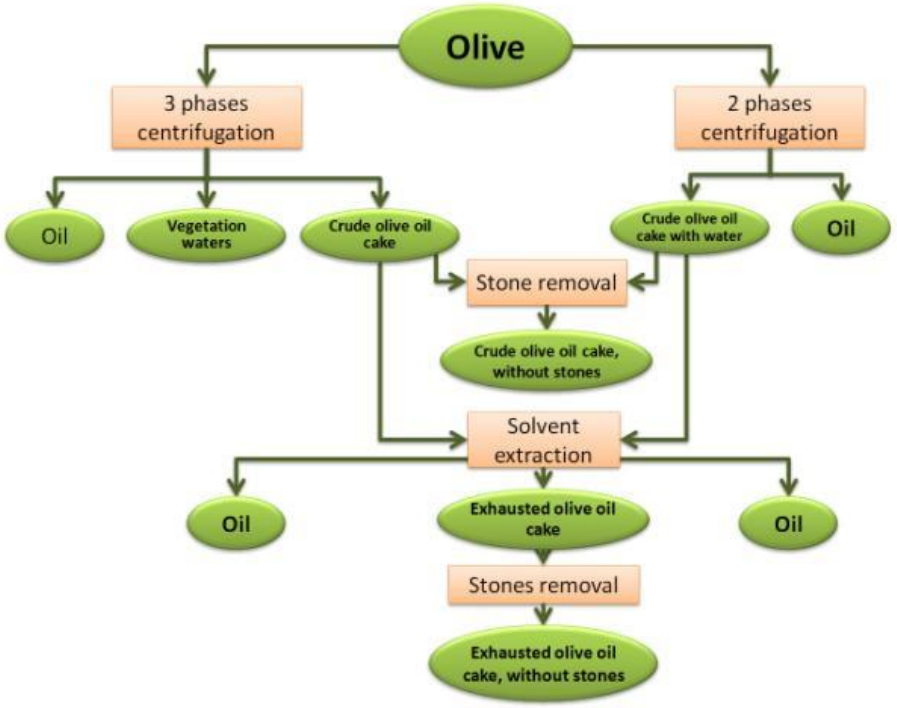
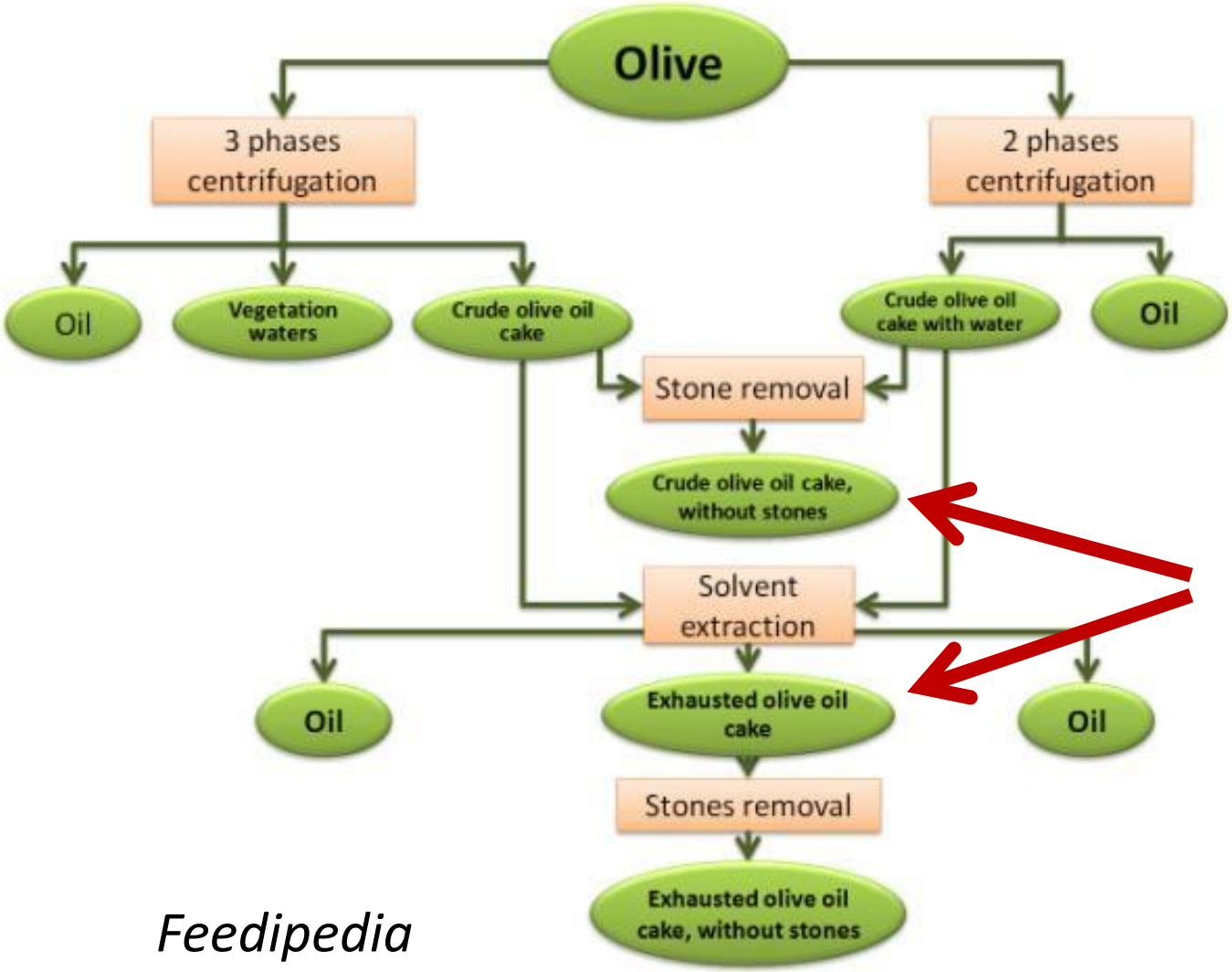
Olive cake



2,400,000 ha

Feedipedia

Objectives



Nutritional value

Slurry properties

Gas emissions

Feedipedia

Material and methods

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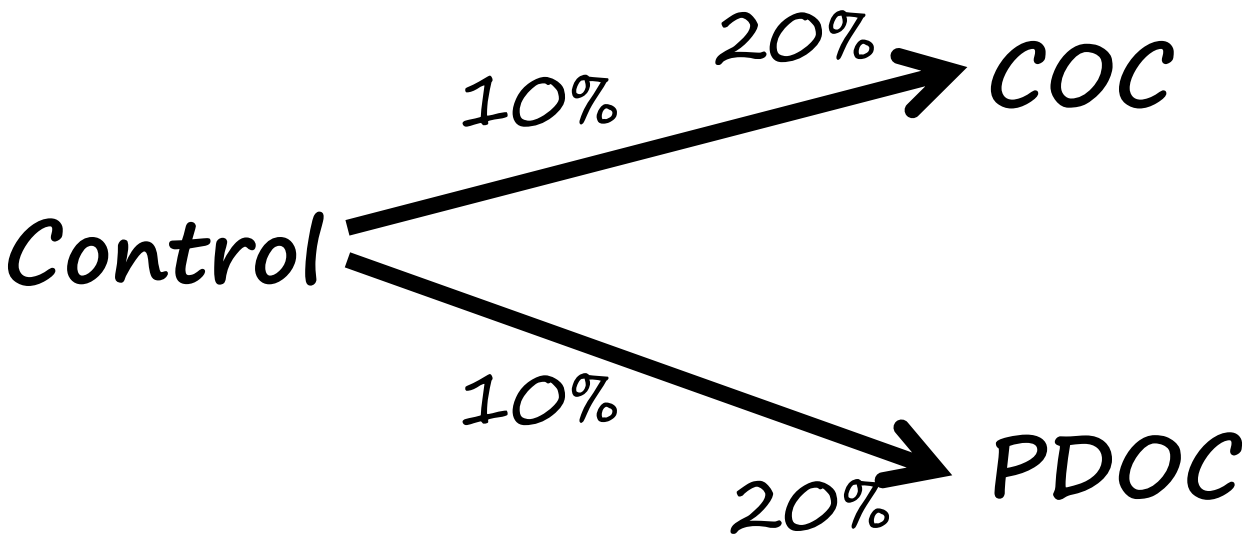
Animals and diets

30 animals (76.1±4.2 kg LW)

5 diets including 2 olive cakes:

Crude (COC) vs. Partially defatted (PDOC)



Material and methods

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(g/kg)	Basal	10% COC	20% COC	10% PDOC	20% PDOC
Dry matter	104	103	102	105	102
Ash	50.4	56.4	61.0	54.8	59.2
Crude protein	176	169	161	172	156
Ether extract	16.2	28.4	39.7	26.7	34.9
NDF	110	130	155	139	164
Total polyphenols	0.36	1.44	3.15	1.41	3.11
Starch	434	408	350	383	361
Sugars	72.5	66.9	63.5	73.8	73.5
Gross energy (MJ/kg)	16.4	16.7	17.2	16.7	17.1

Material and methods

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Procedure

Adaptation to feed														Experimental period						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Colective pens									Individually					Digestibility				**Emissions**		

Material and methods

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Determination of BMP

120 mL vials by triplicate
Slurry to inoculum relation 1:1

Inoculum from a mesophilic anaerobic digestor

Incubation at 35 °C for 100 days.

Potential NH_3 emissions

1L containers by duplicate

25° for 12 days, ventilated 1L/min

NH^3 measured by acid trapping

Results

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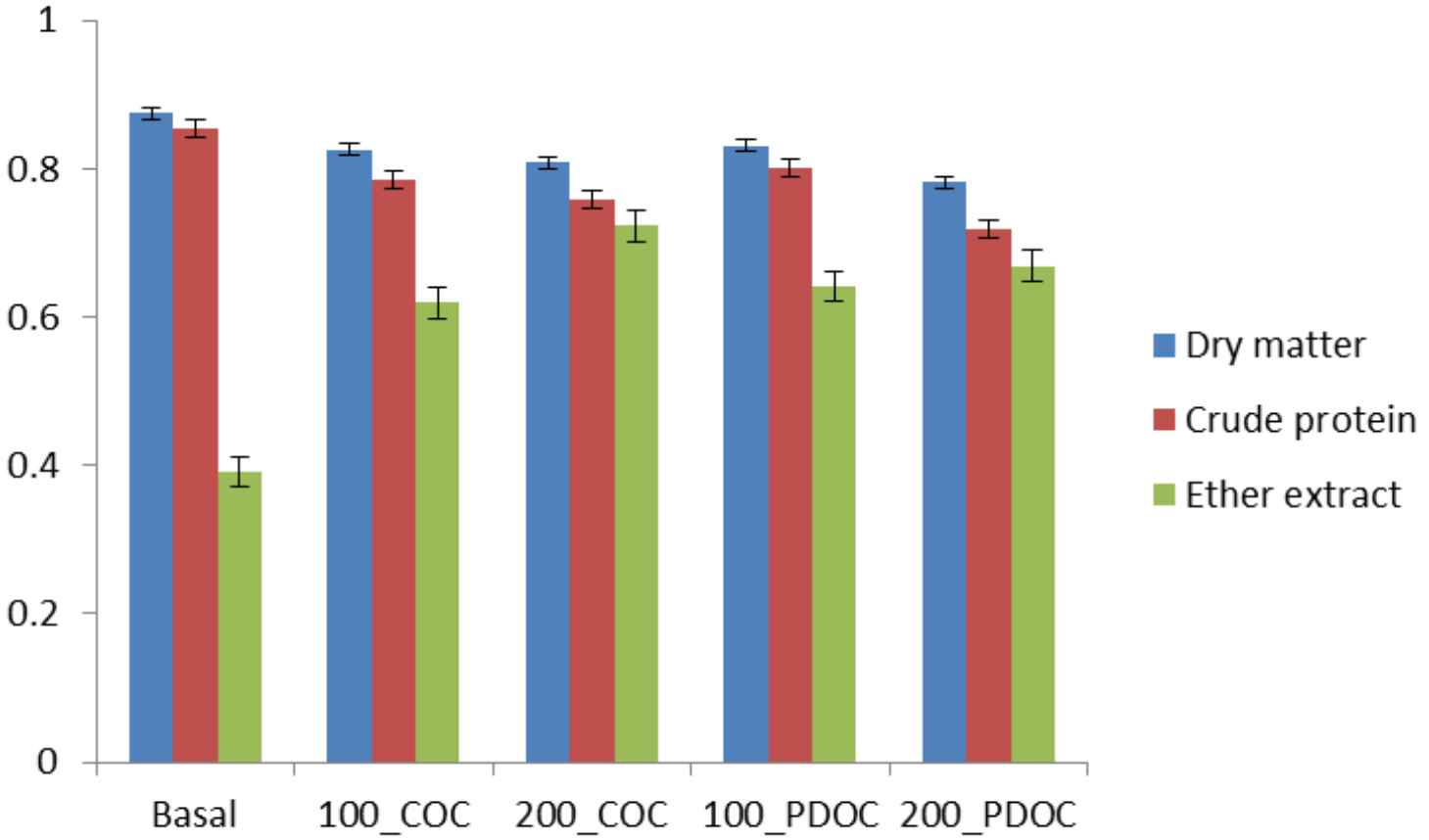
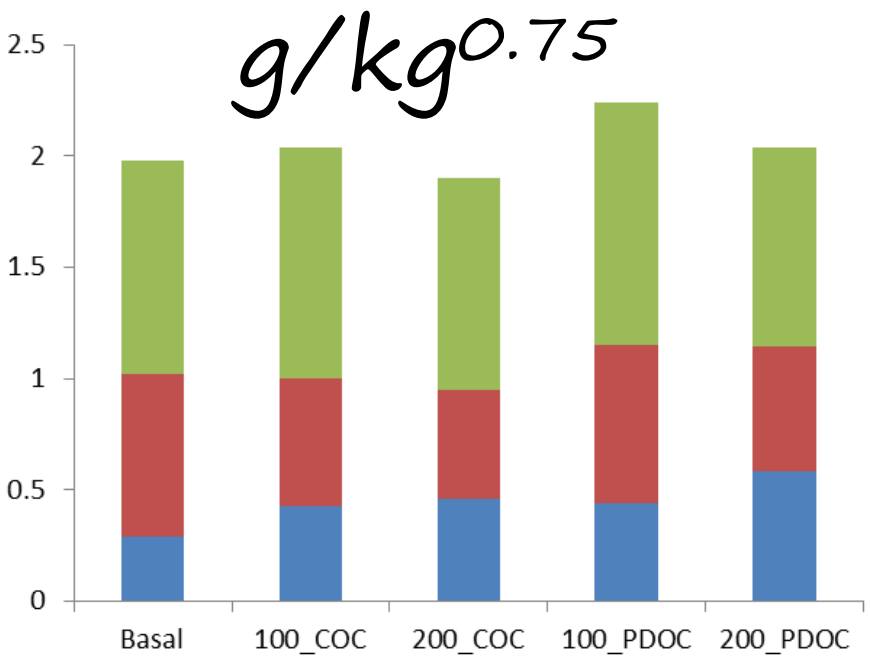
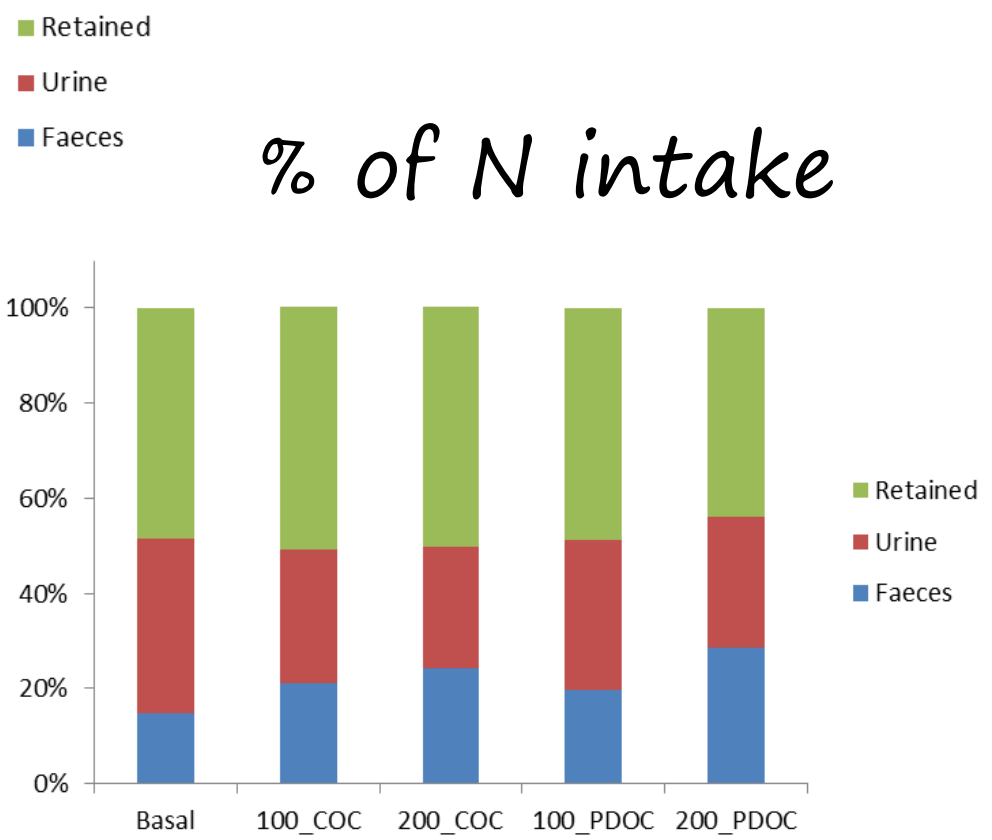
Apparent total tract digestibility coefficients



Results





N balance

Results

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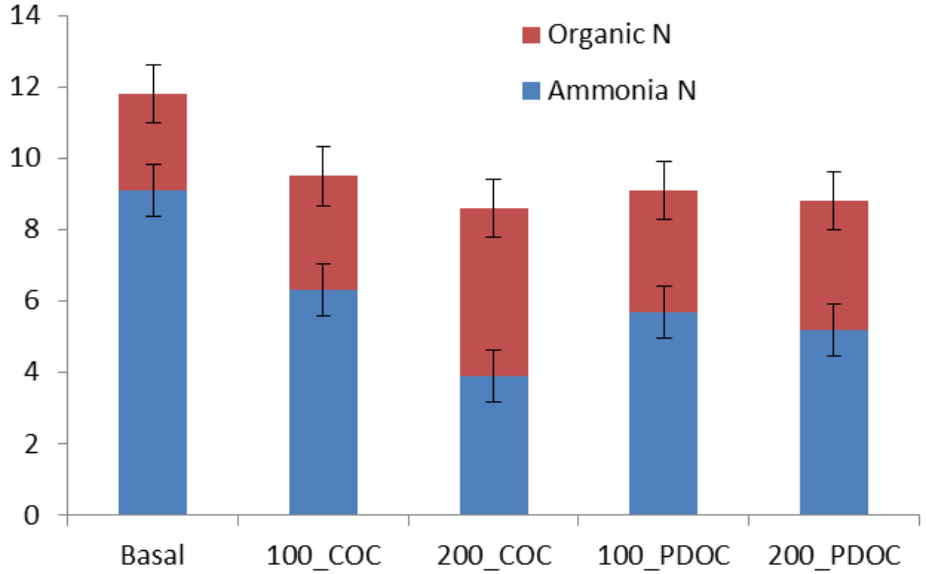
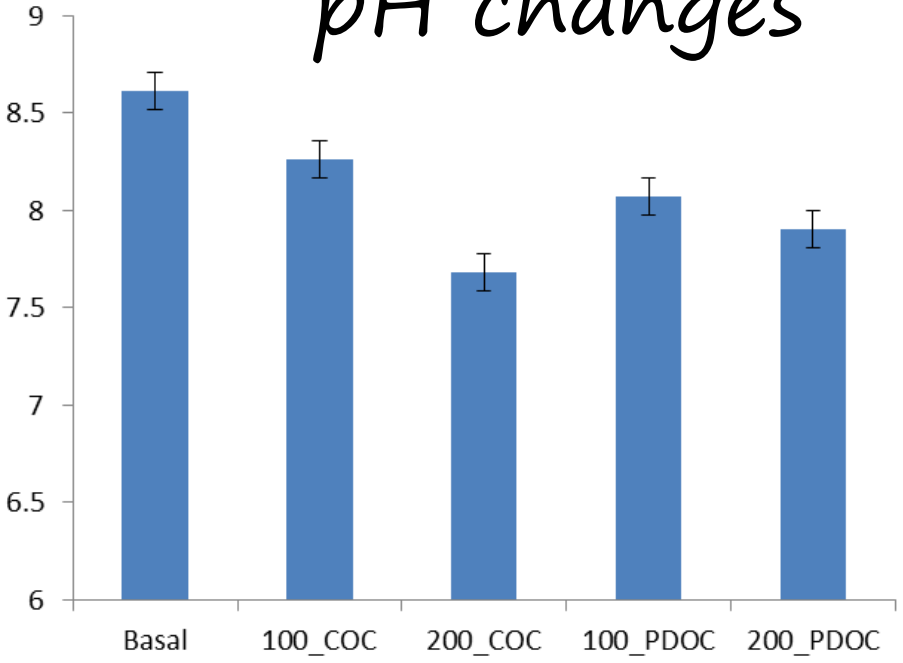
N (g/L)



pH changes



Slurry

Results

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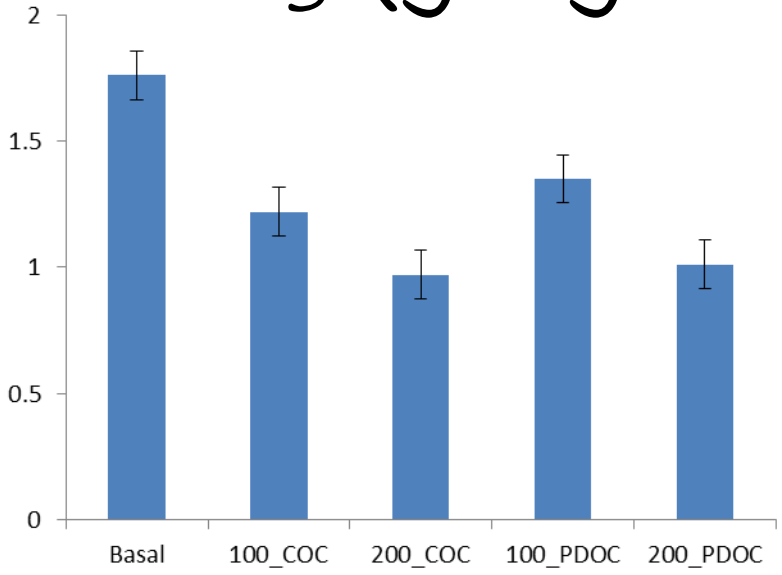
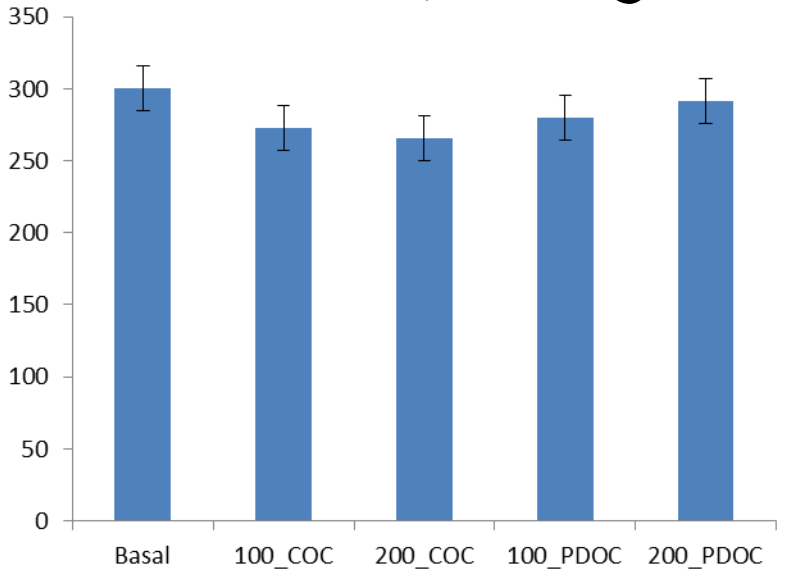
NH_3 (g/kg slurry)



BMP
(L CH_4 / kg VS)



Potential emissions

In conclusion

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Inclusion of olive cake:

- Changed nutrient digestibility
- Modified the N balance
- ↓N content and ↑ pH of slurry
- Reduced NH_3 emissions
- Did not affect BMP

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