
Digestibility of organic matter and NDF in concentrates accessed with enzymes methods using Daisy

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FEED EVALUATION

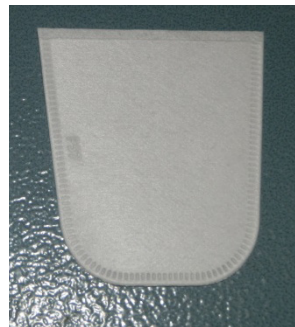
- ▶ iNDF and OM digestibility important for energy value
- ▶ Feed evaluation for concentrates in Denmark, reference methods
 - › iNDF: 12 days incubation in the rumen
 - › OM digestibility: EFOS method

EFOS METHOD

- ▶ Pepsin-HCl solution, 40°C 24h
- ▶ Heating, 80°C 45min
- ▶ Fibre degrading enzyme-acetate buffer, 40°C 24h
- ▶ Incubation, 60°C 18h

OBJECTIVE

- ▶ Estimate iNDF content and OM digestibility in concentrates using a commercial laboratory enzyme in Daisy incubator



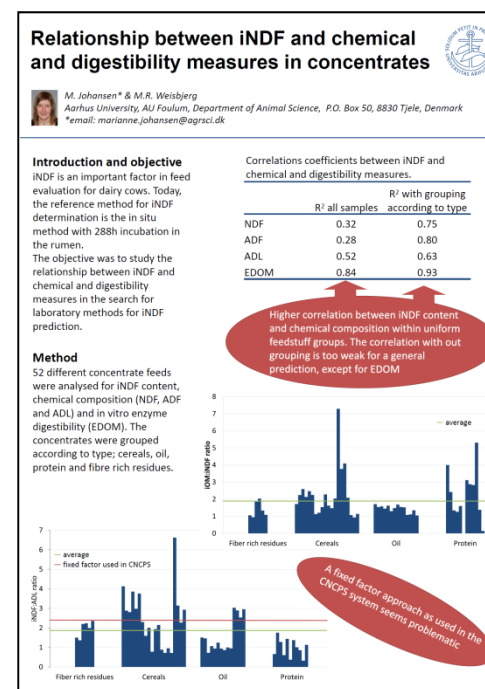
METHOD

- ▶ 69 different concentrate feeds
 - › 52 from Denmark and 17 from Sweden
- ▶ iNDF: 0.0 to 30.8 % of DM
- ▶ OM digestibility: 45.9 to 100 %

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Poster, session 45
Thursday 8:30-11:30



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- Pre-extraction with acetone
- NDF boiling (filter bag ANKOM procedure)
- Drying to determine NDF content
- Incubation in Daisy, 40°C 24h
 - › Trichoderma Viride enzyme
- Washing and drying

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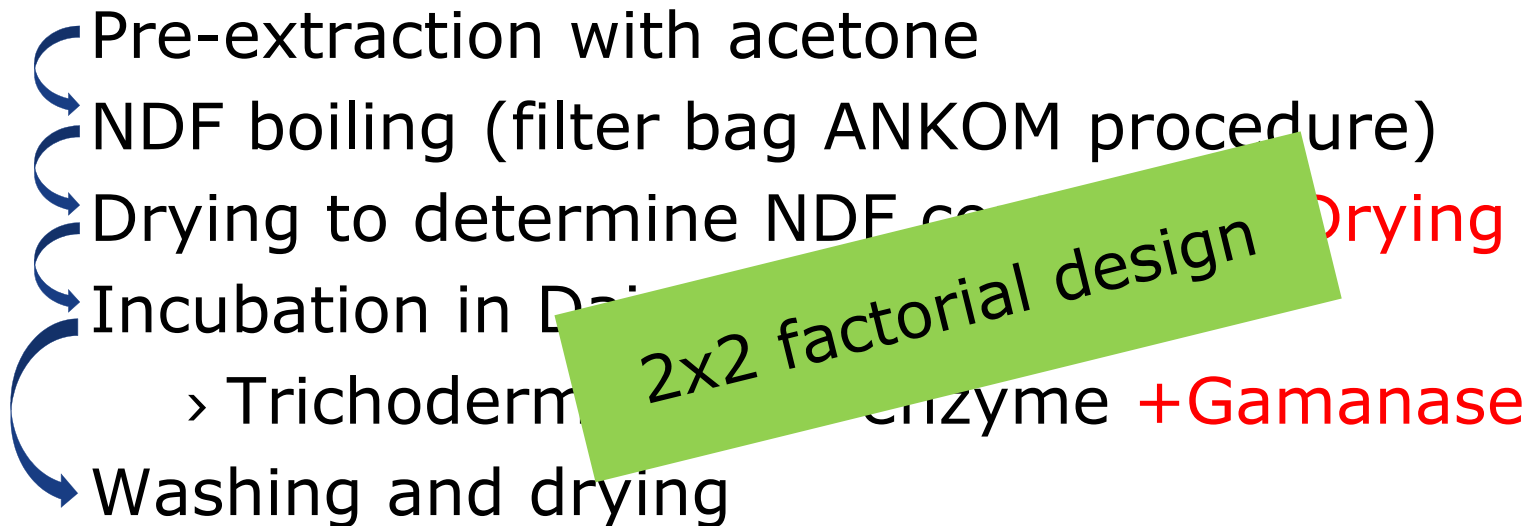
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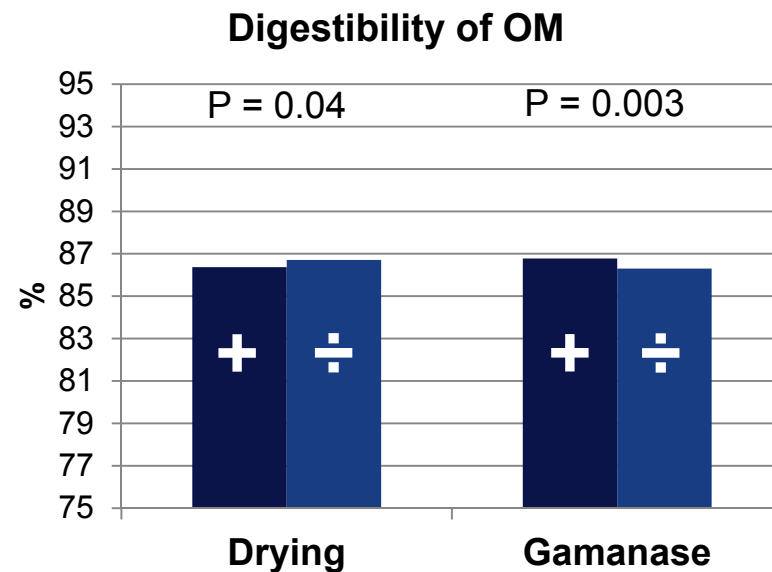
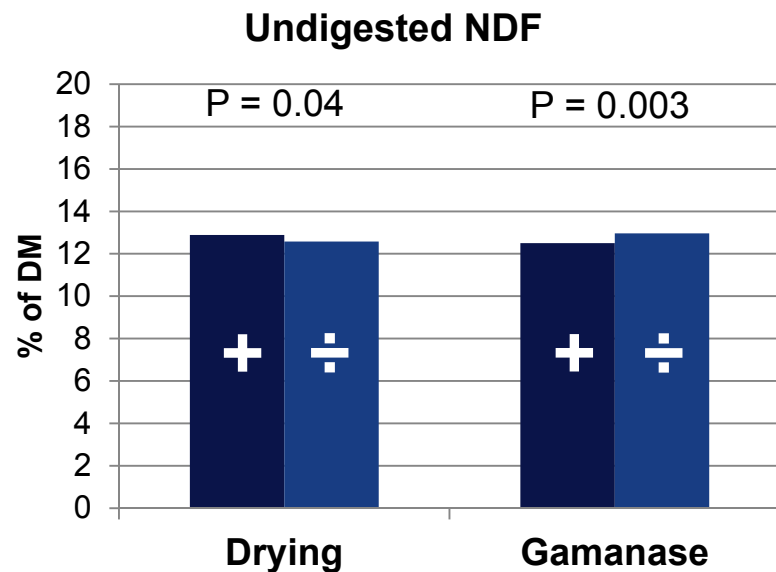
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 - › Trichoderma Viride enzyme **+Gamanase**
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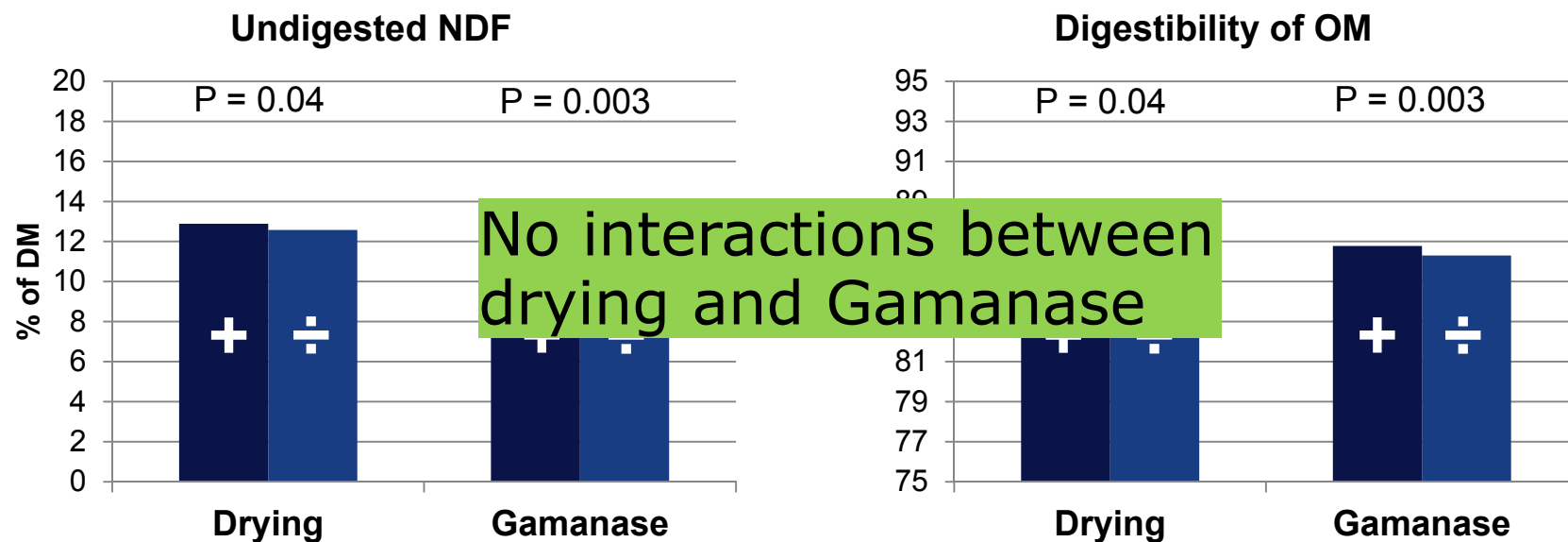


RESULTS



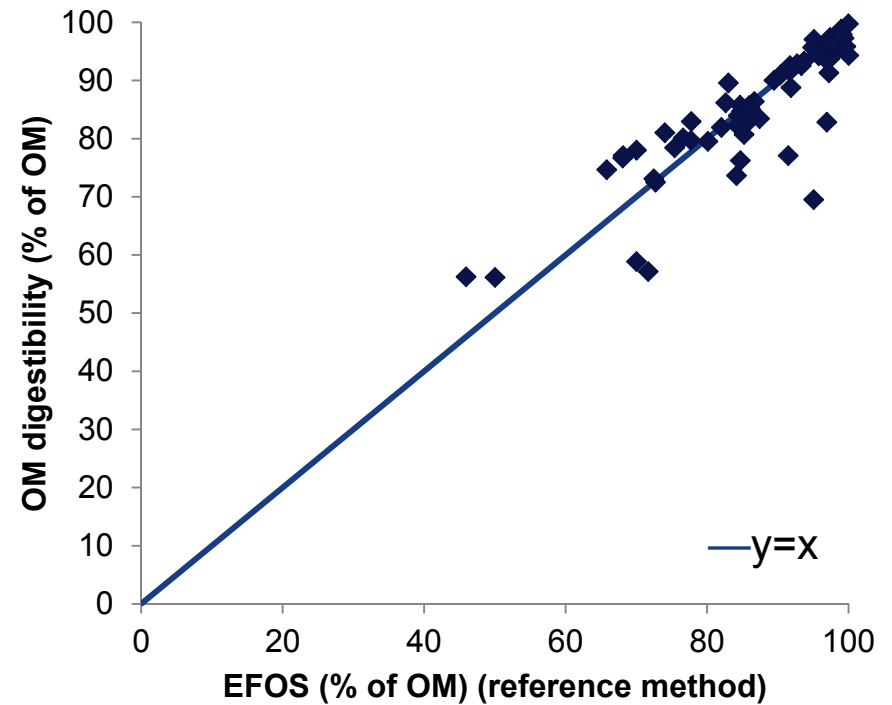
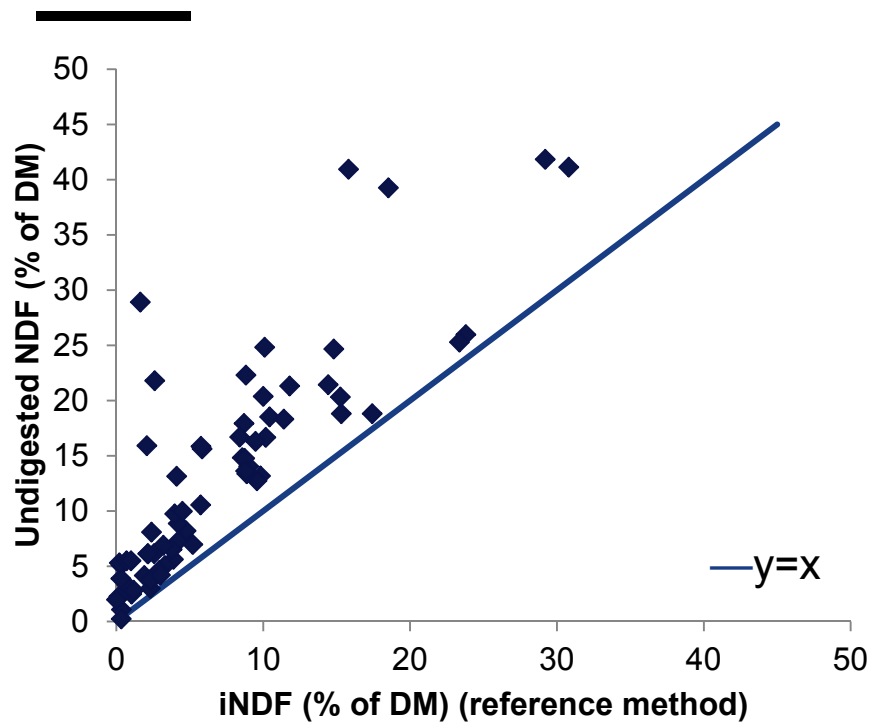
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RESULTS



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RESULTS (+ DRYING - GAMANASE)

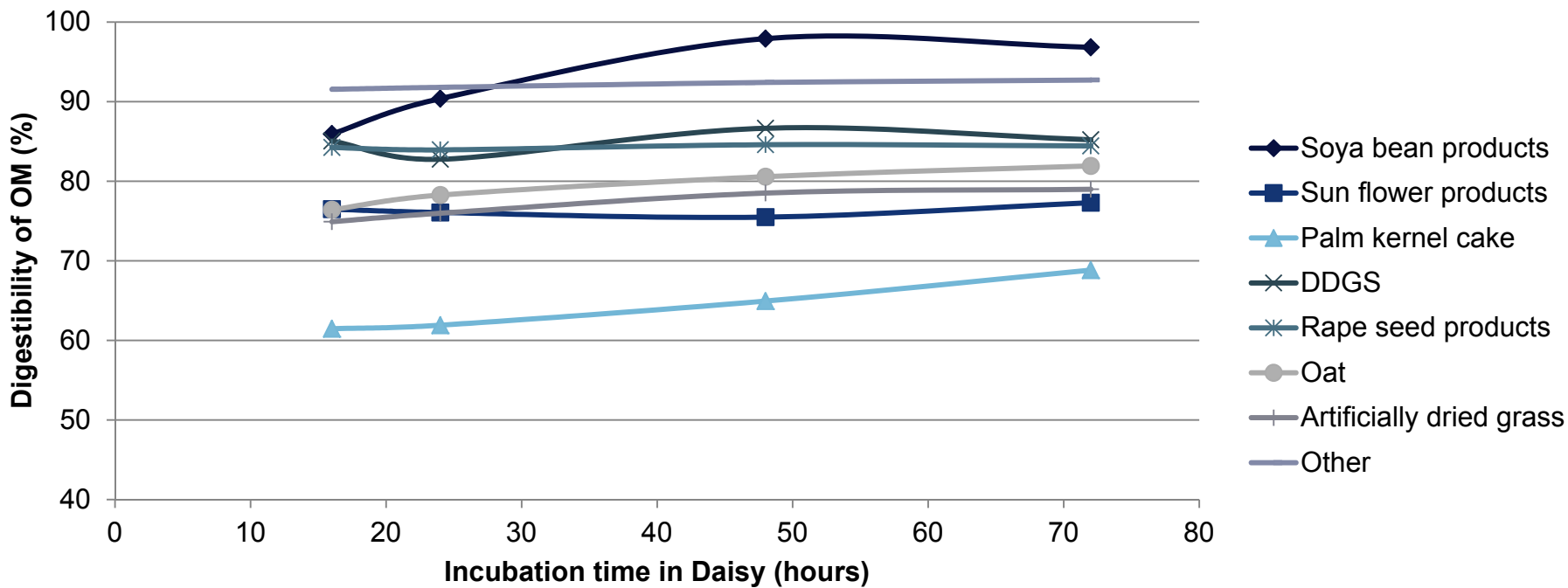


TIME PROFILES

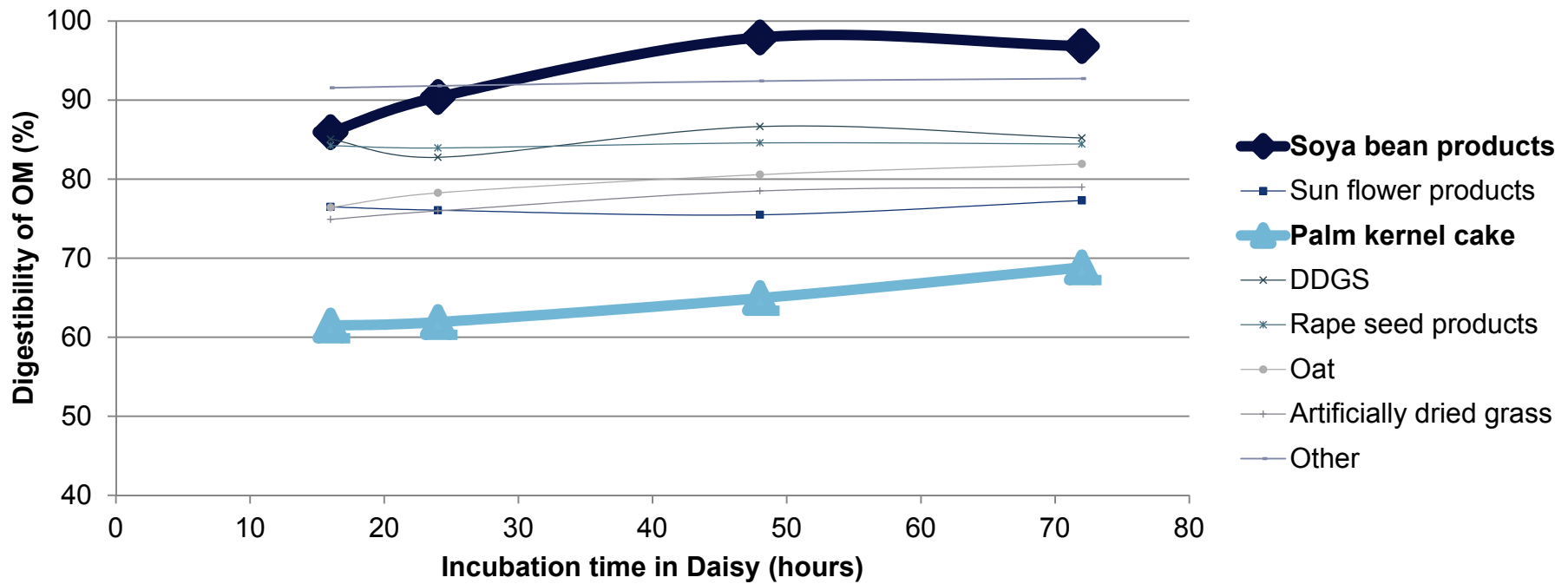
TIME PROFILES

- ▶ Some samples showed large variation
- ▶ Is 24h incubation enough?
 - › 24h is most used (De Boever et al. 1985, Aufrère et al. 2007)
- ▶ Test incubation time
 - › 20 (representative) samples incubated in 16, 24, 48 and 72h
- ▶ New correlation to iNDF and EFOS
 - › 52 (Danish) samples incubated in 72h

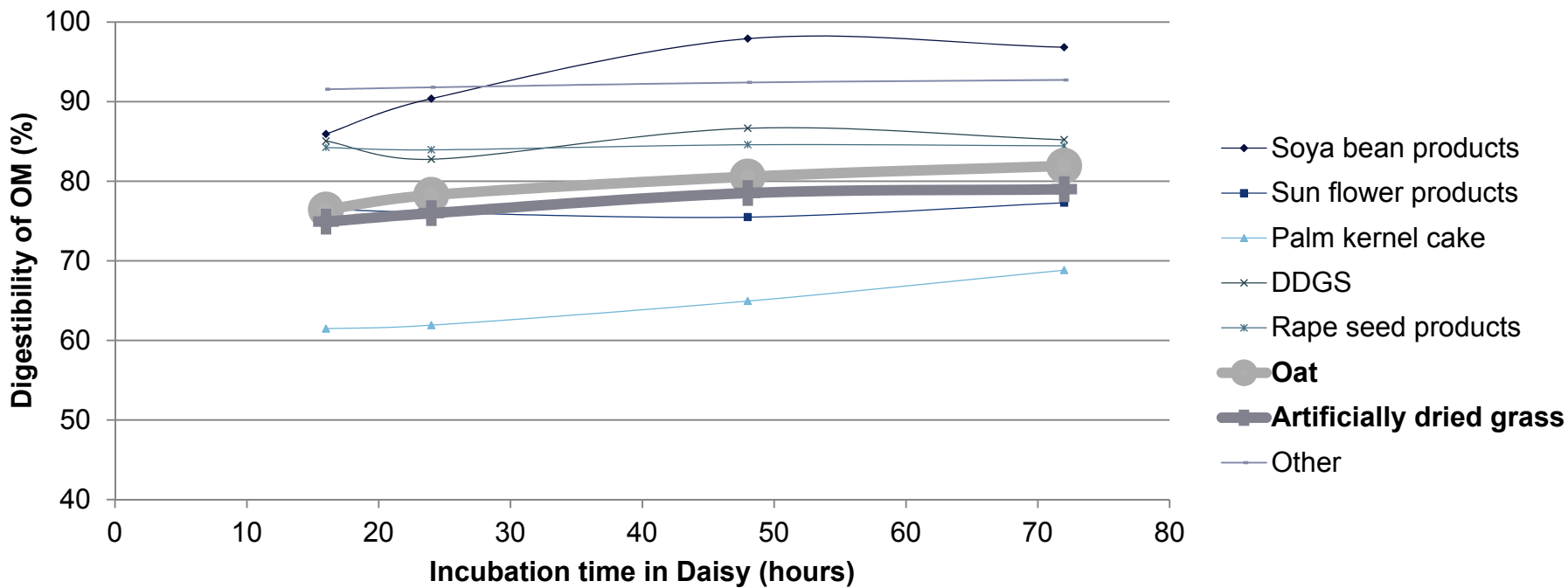
RESULTS TIME PROFILES



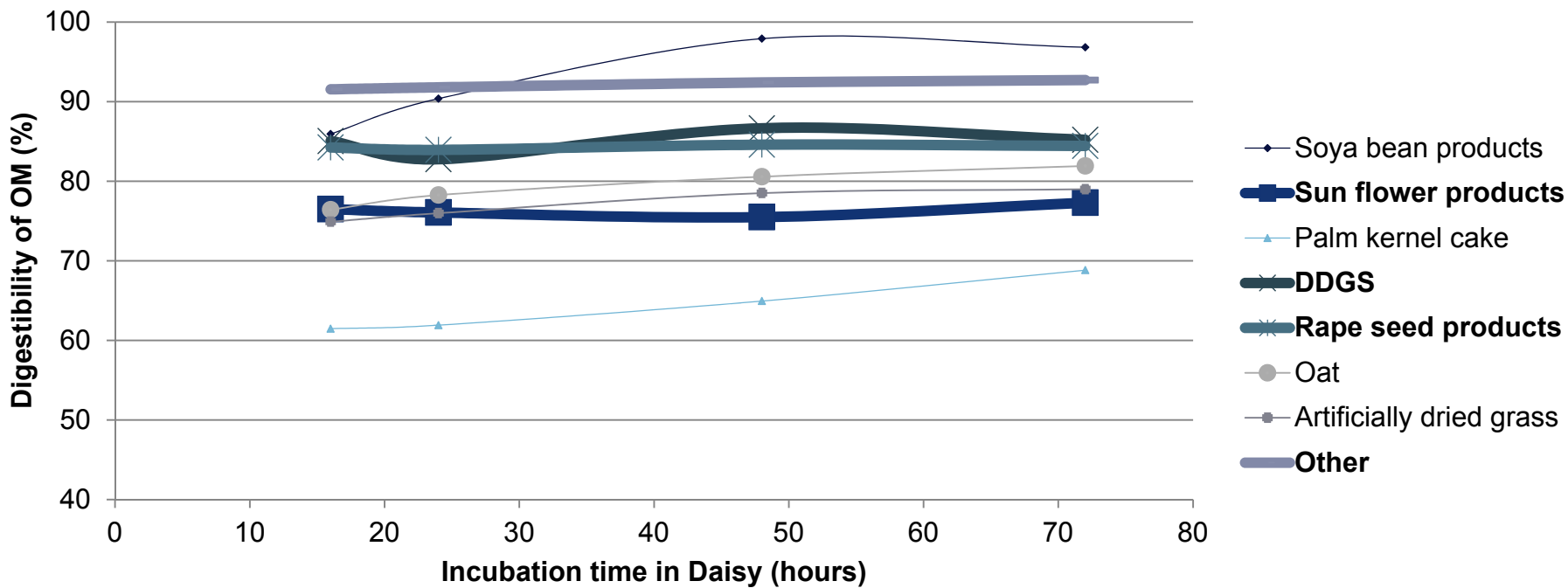
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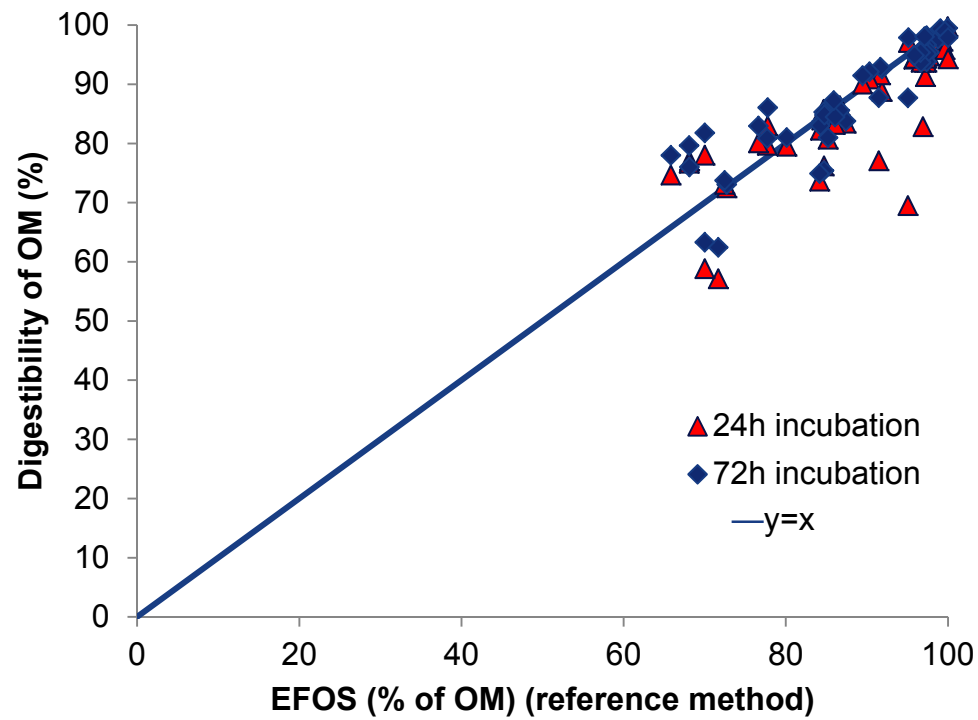
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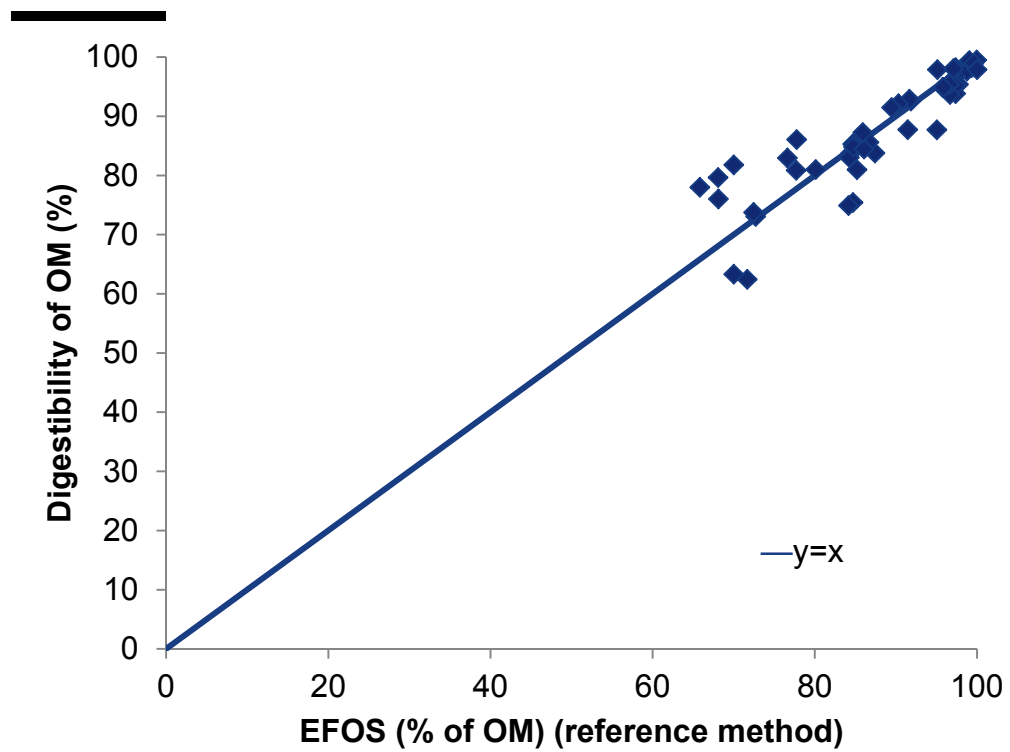


RESULTS – 72H INCUBATION

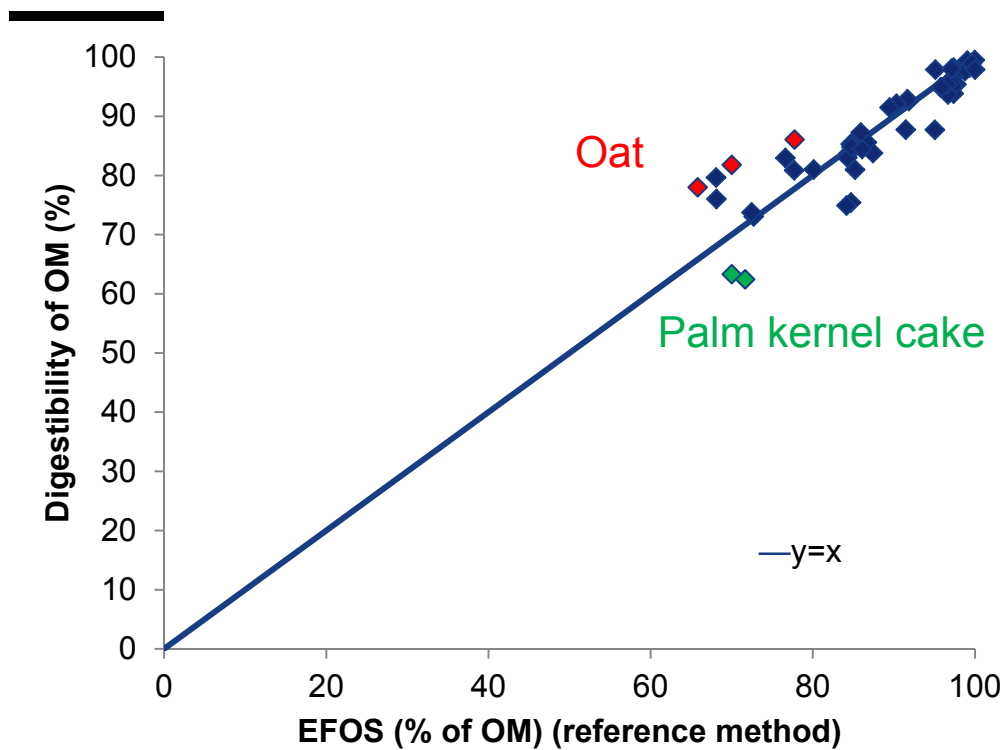


Hours	R ²
24	0.67
72	0.80

RESULTS – 72H INCUBATION



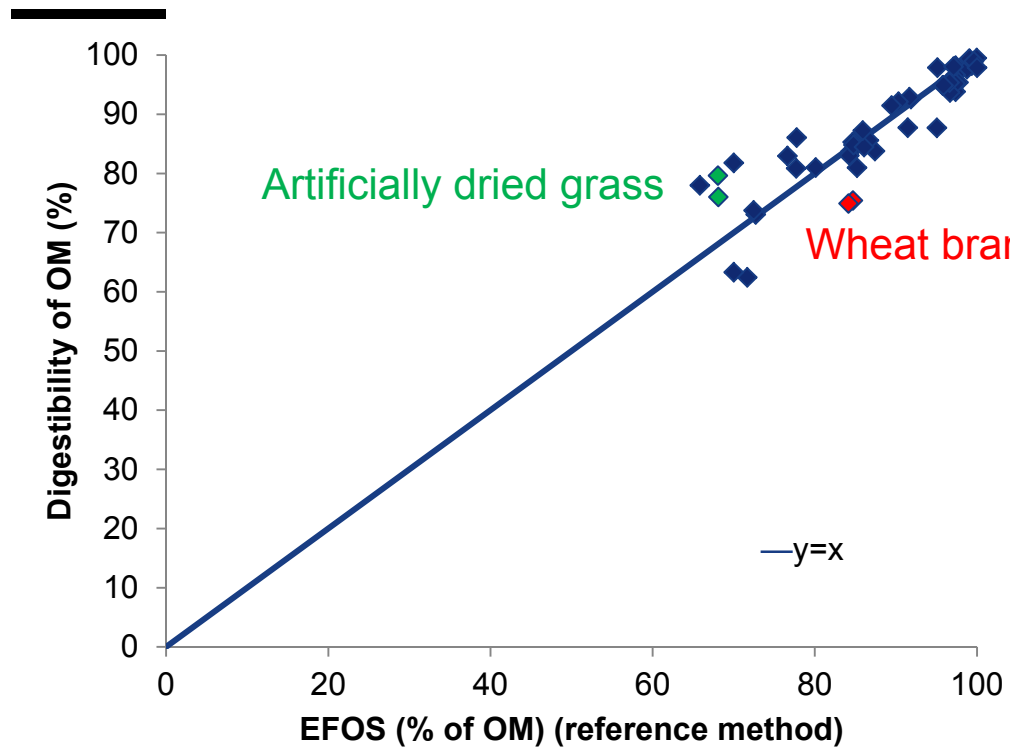
RESULTS – 72H INCUBATION



Feedstuff	In vivo OMD	EFOS
Oat	81.3	78.2
Palm kernel cake	58.3	62.6

(Weisbjerg and Hvelplund, 1993)

RESULTS – 72H INCUBATION



CONCLUSION

- ▶ Incubation in Daisy with *Trichoderma Viride* enzyme can be used for estimation of OM digestibility, but not iNDF content, in concentrate feeds
- ▶ 24h enzyme incubation is not enough for all feedstuffs
- ▶ NDF can be determined in the same process

Thank You