Feed taste variety within days in nursery pigs: effect on animal's preferences and performance

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Sensory Specific Satiety (SSS)

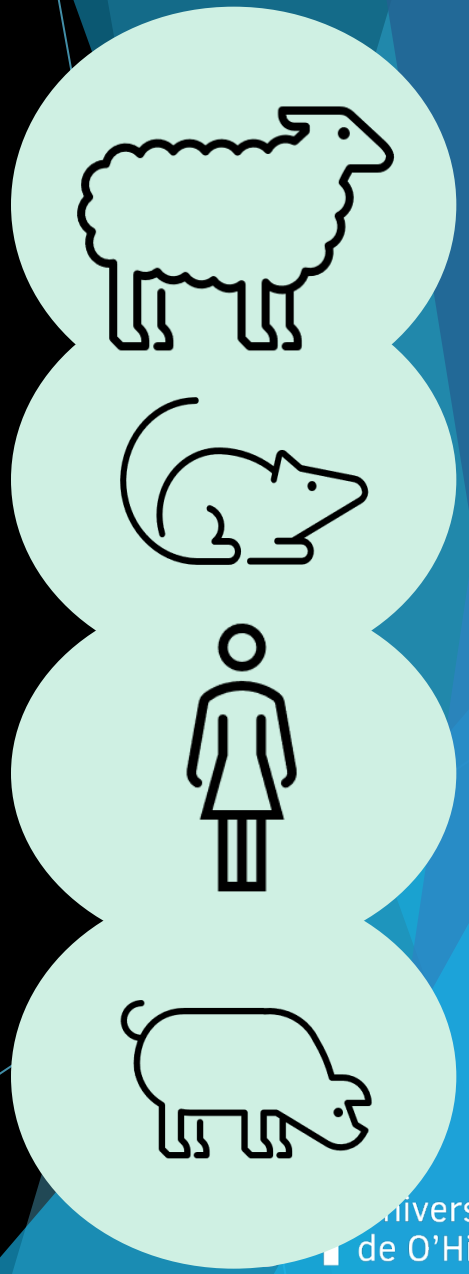
"Physiological phenomenon associated with the decrease in perceived pleasure of foods consumed compared to others not eaten"

Rolls et al., 1981

Day 1

Day 2

Day 3



Dietary diversity affects feeding behaviour of suckling piglets

Anouschka Middelkoop[a,*], Raka Choudhury[b], Walter J.J. Gerrits[c], Bas Kemp[a], Michiel Kleerebezem[b], J. Elizabeth Bolhuis[a]

Effects of flavour variety on the intake and palatability of commercial feed in nursery pigs

Elizabeth Huenul[1], Laura Salazar[2], Daniela Frias[3], Milivoy Videka[4], Daniela Luna[4], Dominic M. Dwyer[5] and Jaime Figueroa[6]*

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1: Nutrition

Restrictions on:	*Opportunities to:*
Water intake	Drink enough water
Food intake	Eat enough food
Food quality	Eat a balanced diet
Food variety	Eat a variety of foods
Voluntary overeating	Eating correct quantities
Force-feeding	

Mellor et al., 2020

Negative	*Positive*
Thirst	Wetting/quenching pleasures of drinking
Hunger (general)	Pleasures of different tastes/smells/textures
Hunger (salt)	Pleasure of salt taste
	Masticatory pleasures
Malnutrition malaise	Postprandial satiety
Bloated, over full	Gastrointestinal comfort
Gastrointestinal pain	

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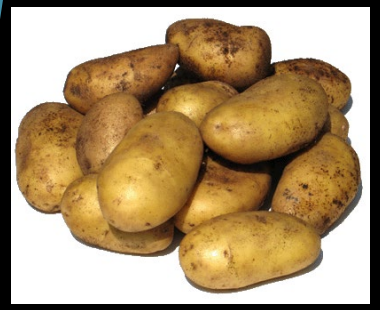
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Snitz et al., 2011

White flavour

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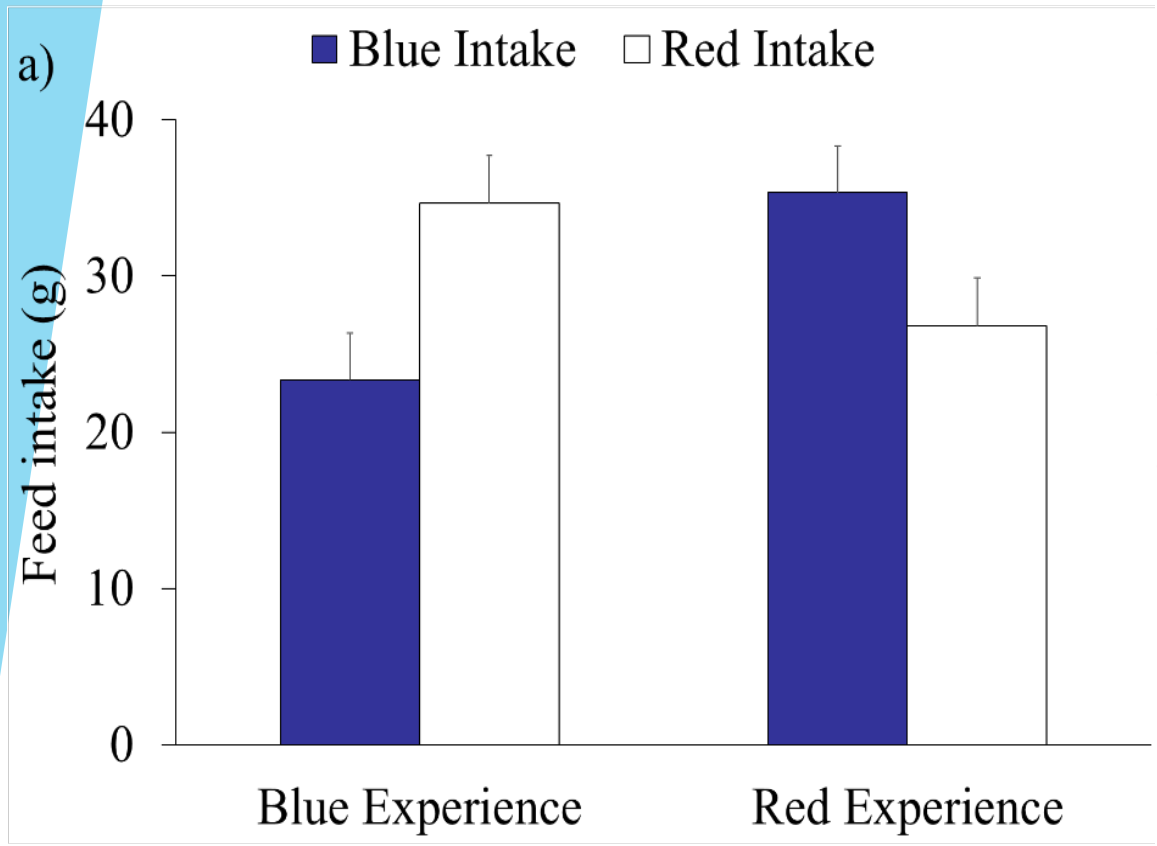
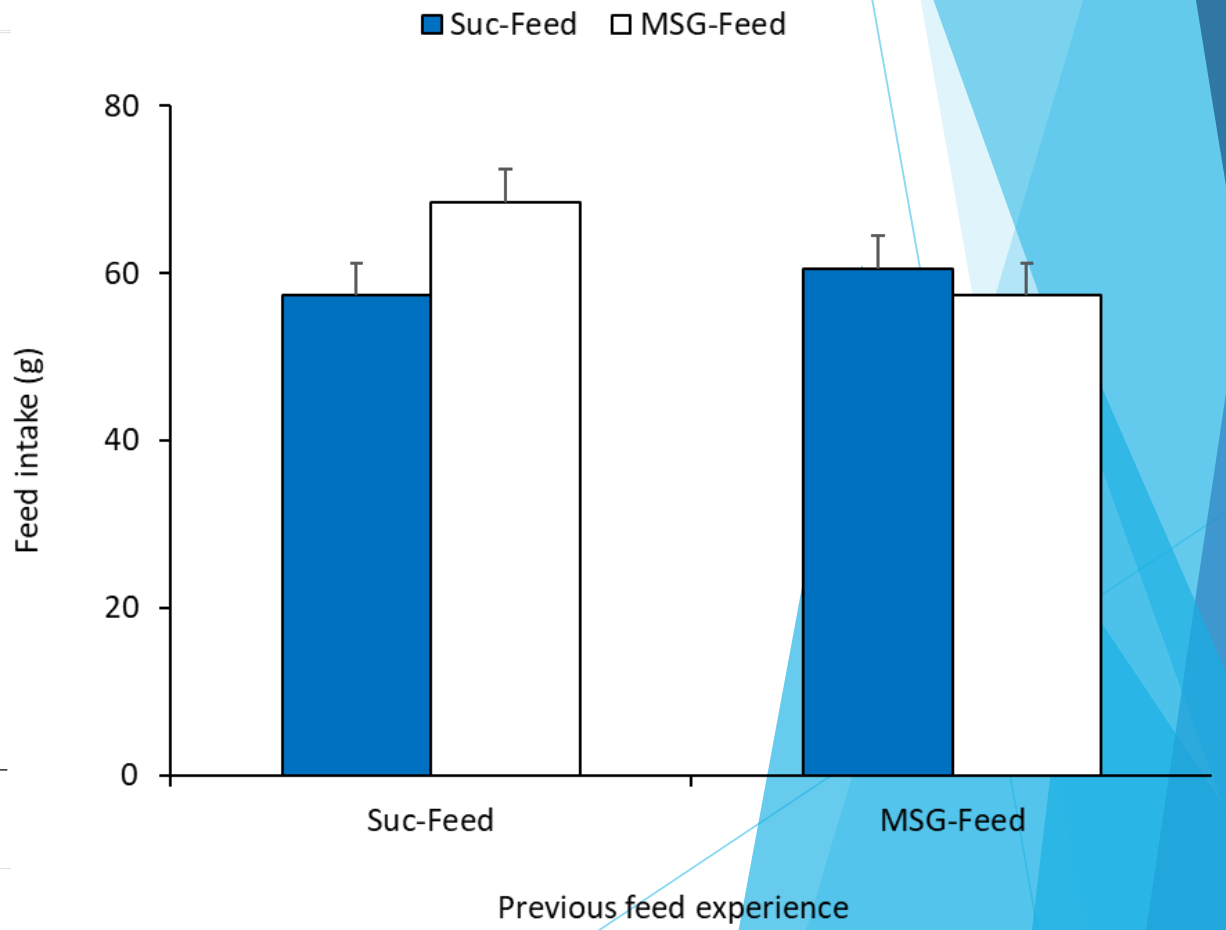
SSS: color and taste





Figueroa et al. Unpublished data

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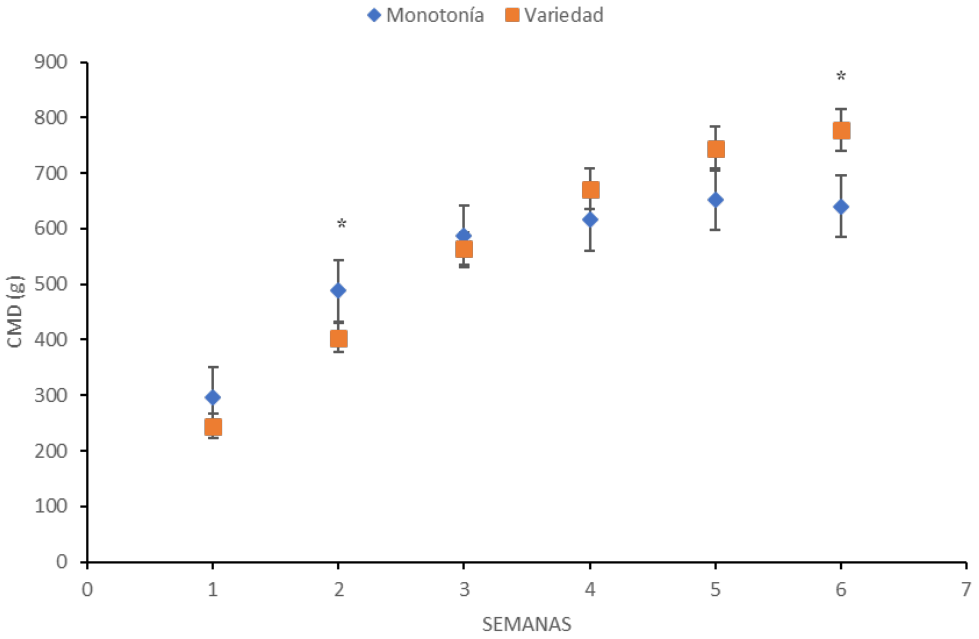
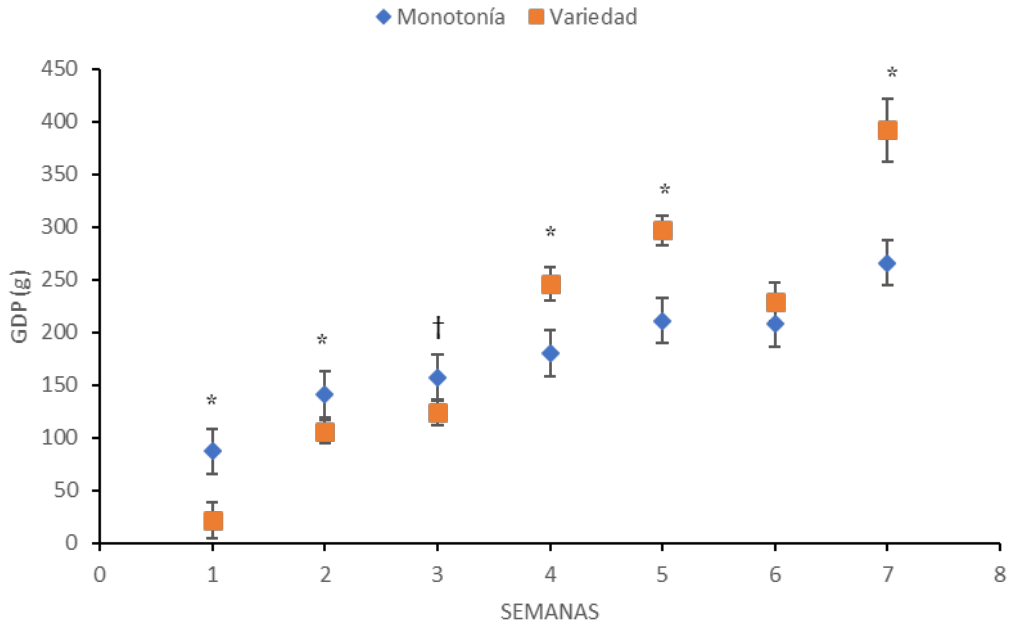
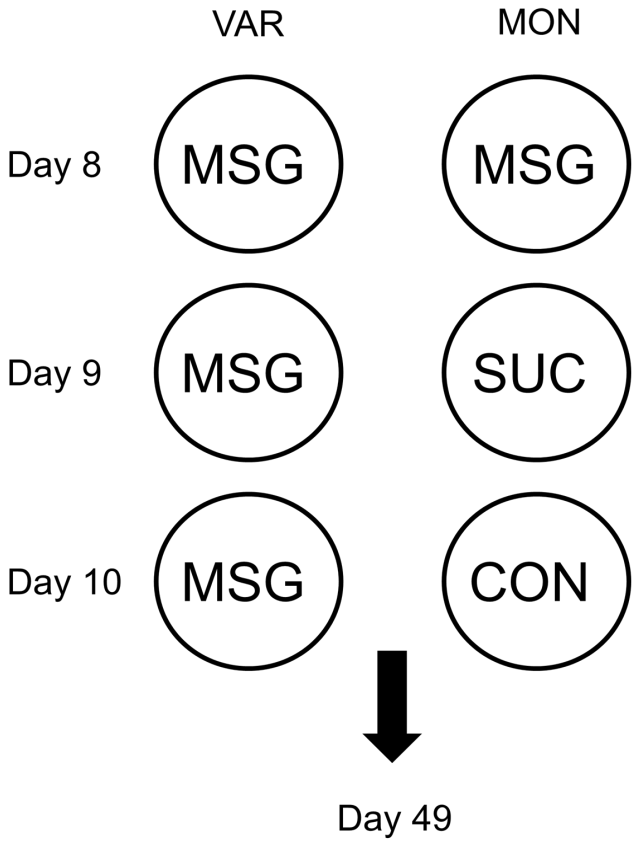
Taste variety between days







Figueroa et al. EAAP, Lyon 2023

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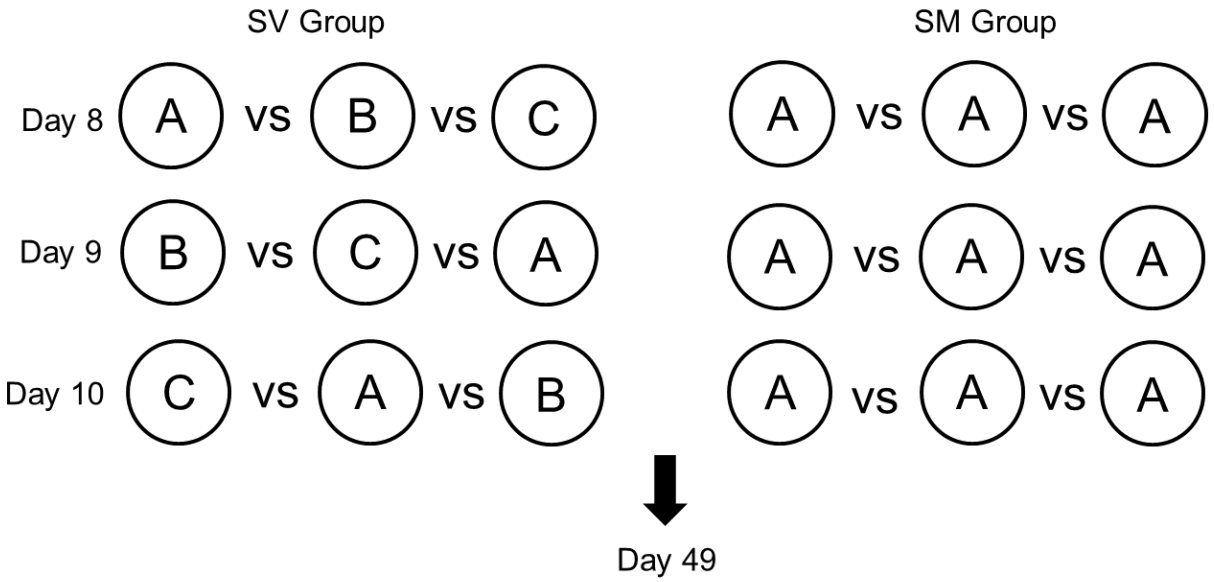
Experiment
Taste variety within days

b)



Animals

32 nursery pigs (2 per pen)
21 d/old at weaning
28 d/old, beggining of the experiment
28-70 d/old, Experimental diets

Experimental groups

Sensory monotony: SM
Sensory variety: SV

Experimental diets

A. MSG: 300mM
B. Sucrose: 8%
C. Control

Statistics

SAS: ANOVA

Results

Weight	SM	SV	EE	P-Value
0	6.8	6.7	0.14	0.937
7	7.0	7.0	0.19	0.972
14	7.8	7.8	0.26	0.956
21	8.9	9.0	0.30	0.690
28	10.0	10.5	0.32	0.357
35	12.0	12.4	0.45	0.524
42	13.6	14.3	0.48	0.326
ADG	**SM**	**SV**	**EE**	**P-Value**
7 14	0.111	0.115	0.015	0.8218
14-21	0.152	0.174	0.013	0.2633
21-28	0.167	0.203	0.012	0.0556
28-35	0.286	0.284	0.023	0.9636
35-42	0.226	0.266	0.020	0.1839
Total	0.189	0.200	0.009	0.4033
ADFI	**SM**	**SV**	**EE**	**P-Value**
7 14	0.311	0.312	0.029	0.971
14-21	0.488	0.474	0.032	0.748
21-28	0.532	0.580	0.028	0.250
28-35	0.685	0.680	0.035	0.920
35-42	0.718	0.733	0.038	0.779
Total	0.575	0.589	0.024	0.671
FGR	**SM**	**SV**	**EE**	**P-Value**
7 14	2.9	2.9	0.20	0.888
14-21	3.3	2.9	0.31	0.304
21-28	3.3	2.9	0.21	0.196
28-35	2.4	2.4	0.09	0.900
35-42	3.2	2.9	0.19	0.180
Total	3.0	2.8	0.3	0.440

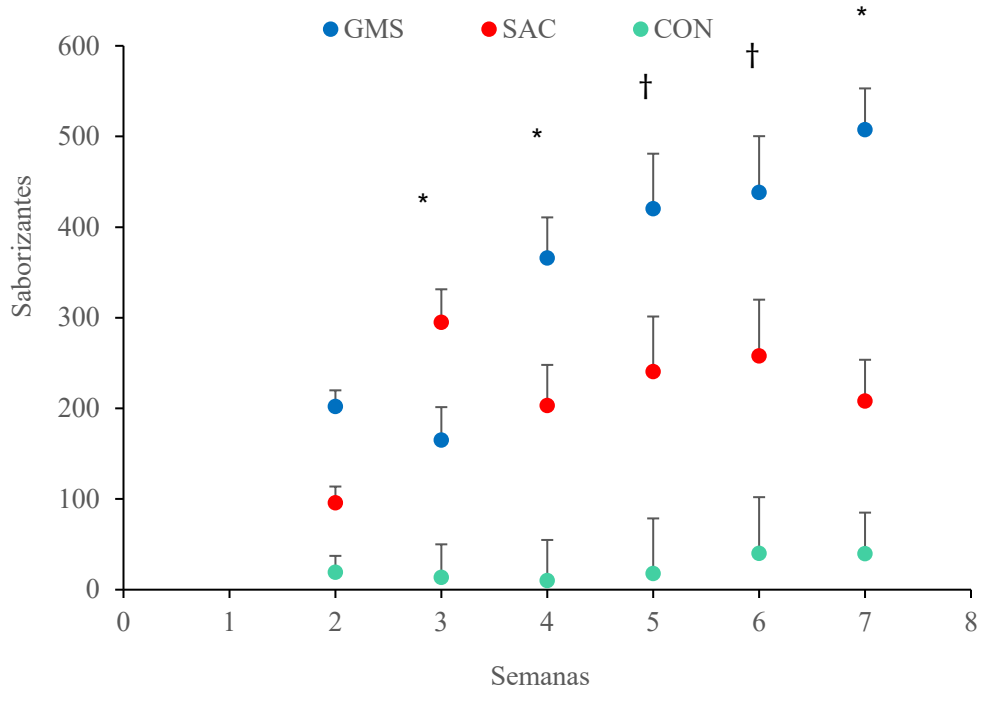
Experimental farm

Data variability

ADG and Body weight

ADFI and FGR?

Previous experiments and means



Discussion

Between days vs Within days
Cabello 2023
MSG palatability
Continue exposure of flavour cues

ADFI and FGR
Taste monotony and feed waste
Experimental farm

Future in Comercial farms?
Cabello 2023 and Vasquez 2024
Taste but also……Colours, texture, odours
Weekly or adjusted commercial feeds

Discussion

Sensory variety (taste) could be innovative feed strategy to improve performance in pigs

Taste variety between days seems to be a better strategy than within days (habituation)

Feed intake, as in previous experiment in nursery is not affected by taste variety (Feed waste)

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