AARHUS
UNIVERSITY

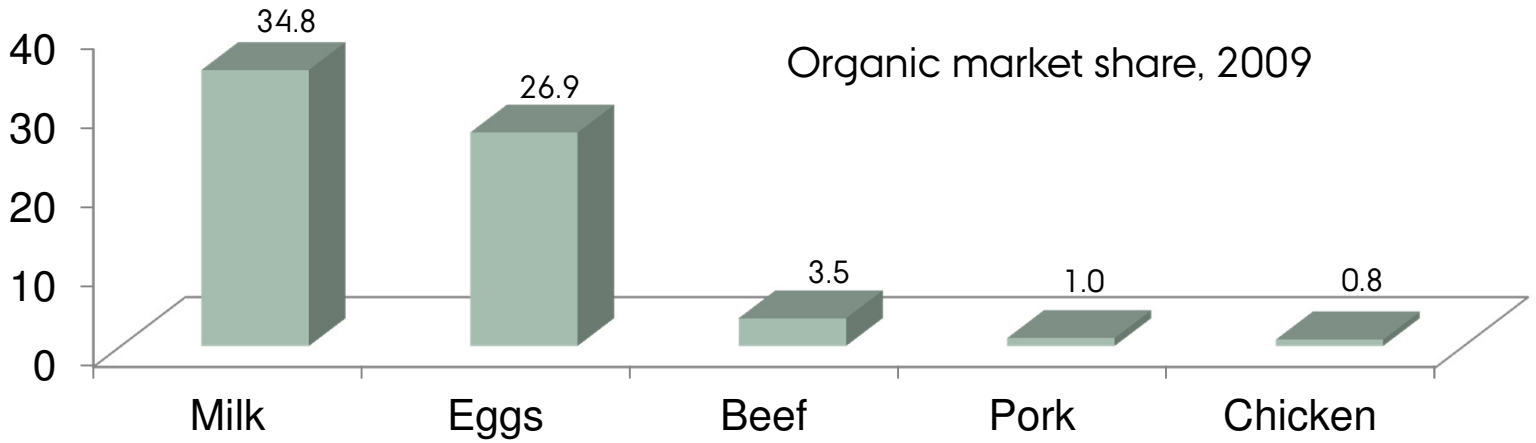
11. OCTOBER 2012

PROJECT

SUPERB AND MARKETABLE MEAT FROM EFFICIENT AND ROBUST ANIMALS (SUMMER)

BACKGROUND

- The market for organic meat is much less developed compared with the market for organic food in general
- The higher premium price (in DKr and %) for organic meat than for other organic food products might be a reason



Kilde: Gfk

PROJECT HYPOTHESIS

Development of organic meat products that are markedly differentiated from conventional products in terms of

- Physical and sensory eating quality
- Immateriel quality

In such a way that the cusomers find a substandial premium price justified.

PROJECT AIM

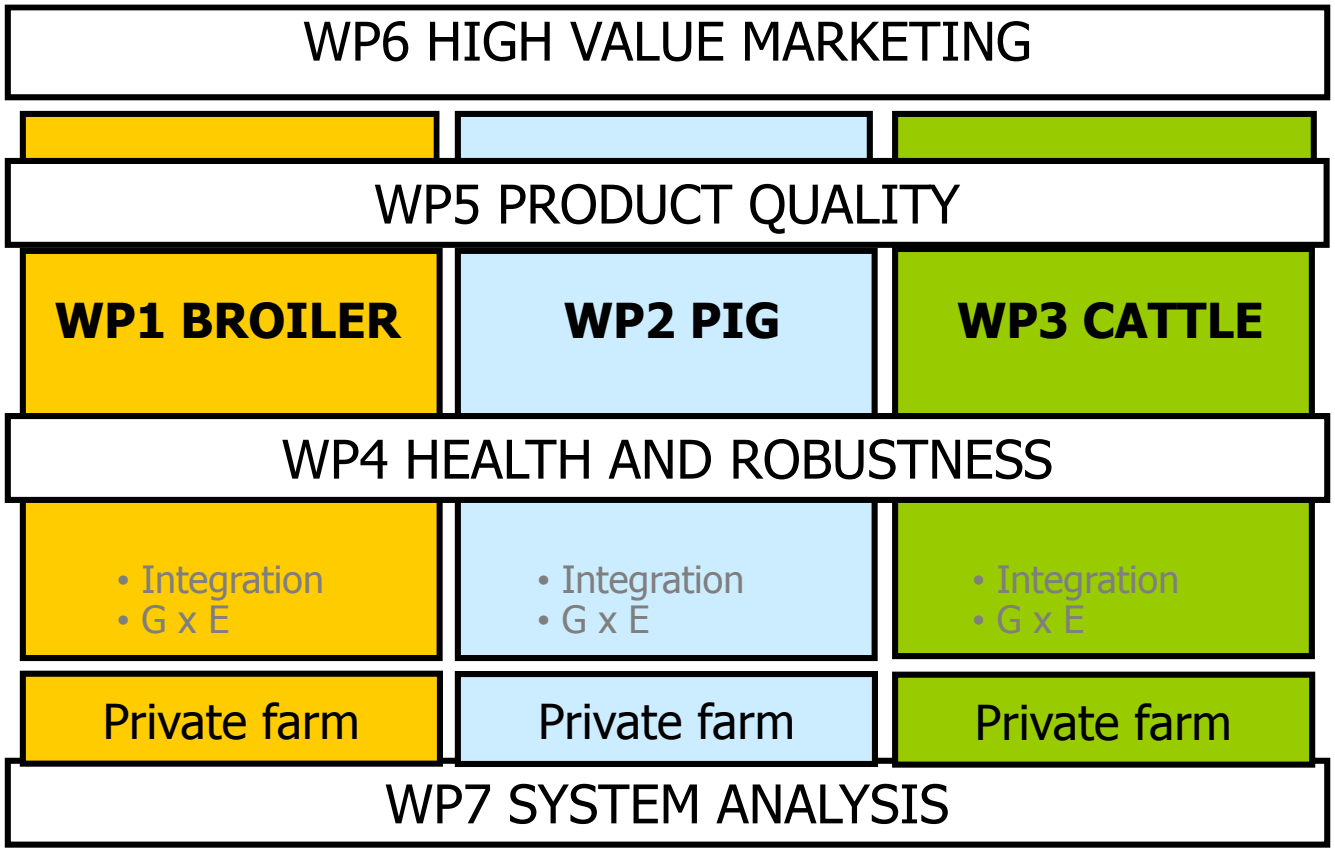
To investigate and develop organic meat production from pork, chickens and young beef in way that it becomes attractive for the

- consumers
- producers

THE PROJECT INCLUDES

- Chicken
- Pork
- Beef

PROJECT ORGANISATION



PARTNERS

- Aarhus UniversitY
  - Department of Agroecology and Environment
  - Department of Animal Science
  - Department of Food Science
  - MAPP Centre
- Knowledge Center for Agriculture
  - Cattle
  - Poultry
- Center of Development for Outdoor Livestock Production
- Organic pig producers

FURTHER COLLABORATION WITH

- Friland
- Top-æg
- Sødams økologiske Fjerkræslagteri
- Uddanelsescenter Holstebro
- Organic producers

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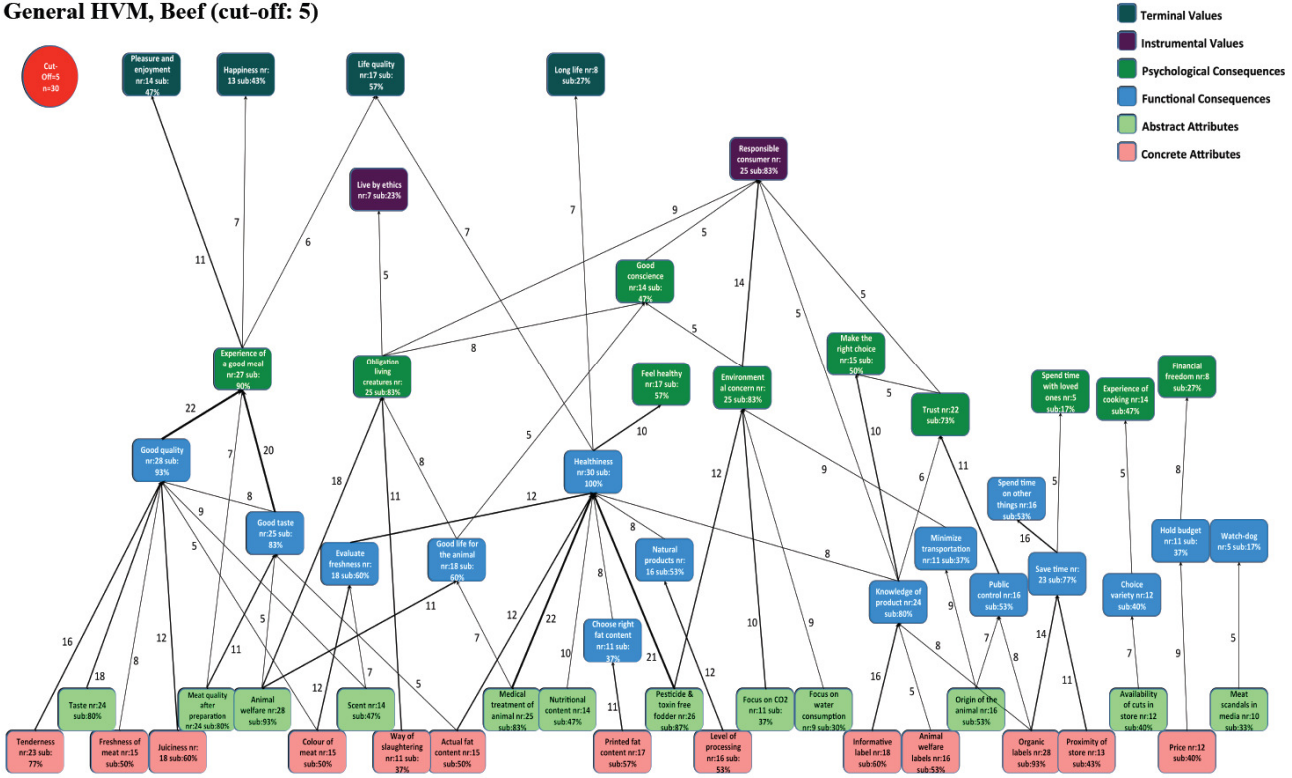
LMC Muscle Food Network Symposium
11. October 2012

The purchasing motives and values for heavy organic buyers in Denmark when buying meat

An exploratory study using Means-End Chain analysis

Enclosure 5.3

General HVM, Beef (cut-off: 5)



Master of Science in Marketing

Master Thesis

By: Mads Elbrønd & Martin Bjerg

Supervisor: Athanasios Krystallis

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RESULTS OF THE EXPERT INTERVIEWS

OPINIONS ON QUALITY OF MEAT FROM PROFESSIONAL BUYERS AND CHEFS

LIVIA MARIAN PHD STUDENT
AARHUS UNIVERSITY BUSINESS AND SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
MAPP CENTRE

Scope of research:

To understand **professional buyers**' and **chefs**':

- Perceptions concerning quality of meat
- Perceptions regarding organic meat
- Ideas regarding an ideal organic meat product

EXPERIMENT WITH BROILERS

Genotype		JA757			T851			SU51	
Feeding		HP	LP (Danish prot.)		HP	LP (Danish prot.)		HP	LP (Danish prot.)
Slaughter age, d	69								
	90								
	118		+ 4 wk HP	+ 2 wk HP		+ 4 wk HP	+ 2 wk HP		+ 4 wk HP

EKSPERIMENT WITH BROILERS

Effect of protein source!

JA757 fed either HP or LP, slaughtered at 69 days

EKSPERIMENT WITH BROILERS

Measurement of

- Colour, drip loss, fatty acid composition, T-bars, shear force, eating quality,
- Product development

EXPERIMENT WITH PIGS

Genotype	DLY			TAMWORTH X LY		
Feeding	Norm	Restrictive (80-60%)		Norm	Restrictive (80-60%)	
Vitamins/Minerals	+	+	-	+	+	-
# of female pigs	12	12	12	12	12	12

EXPERIMENT WITH PIGS

› Measurement of
- Colour, drip loss, fatty acid composition, T-bars, shear force, eating quality,
- Product development

EXPERIMENTS WITH CATTLE
1. EXPERIMENT

Grass

Herbs

MATERIAL AND METHODS

- Twelve Holstein bull calves raised on a concentrate-corn silage-based TMR until the age of 8 months
- From 8 to 10 mo. of age bulls were fed either purely:
  - grass (Grass, n=6)
  - herb-based green feed (Herbs, n=5)
- The experimental period lasted for the final 6 weeks
- At the day of slaughter six carcasses from traditionally 9-10 months old rosé veal calves (Holstein bull calves) were identified at the slaughter house and included as a control group (Con)
- Analyses of FA and vitamins in two muscles
- Sensory evaluation on two muscles (LD as steak) and SM as roast (both prepared to 63°C internal temperatu

Grass and herbs swards as fed to the calves

Danish name	English name	Latin name	Grass	Herbs
			% in sward	
Lancet-vejbred	English plantain	*Plantago lanceolata*		56.4
Bibernelle	Salad burnet	*Sanguisorba minor*		4.6
Esparsette	Sainfoin	*Onobrychis viciifolia*		6.1
Hvid stenkløver	White melilot	*Melilotus alba*		5.7
Alm. røllike	Yarrow	*Achillea millefolium*		3.9
'Ukrudt'	'Weeds'		14.0	18.4
Hvidkløver	White clover	*Trifolium repens*	2.4	4.3
Almindelig rajgræs	Perennial ryegrass	*Lolium perenne*	83.6	0.7

NB: The proportion of white melilot and 'weeds' increased in the orts from Herbs, indicating less dietary preferences for these.

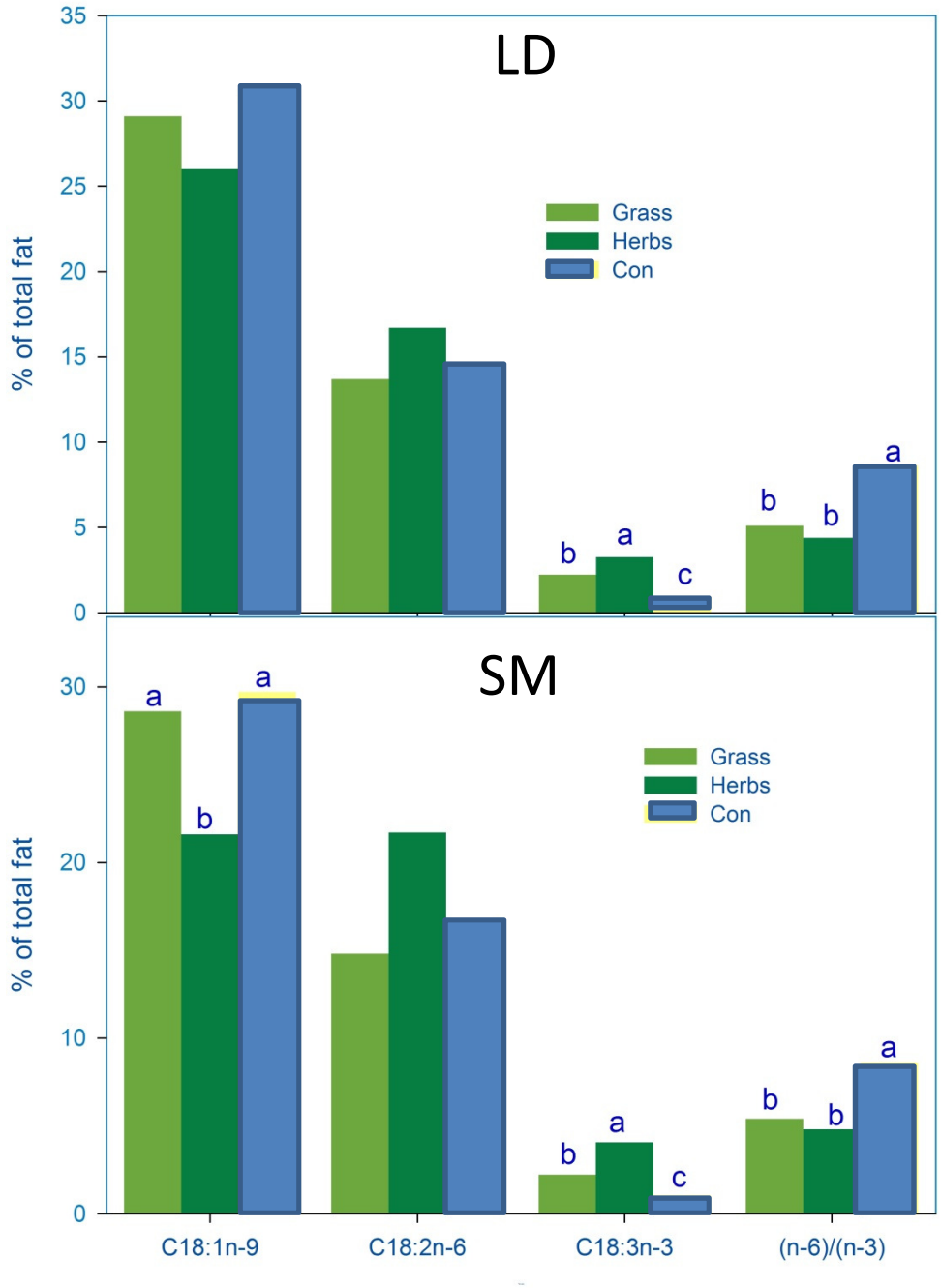
Eating quality (*M. Longissimus dorsi*)

Feeding	Grass	Herbs	Con	P-value
M. longissimus dorsi				
Odour				
Meat	6.3	7.6	6.5	0.16
Acidic	5.2	5.2	5.3	0.82
Sweet	3.5	3.5	3.5	0.99
Metal	4.8	5.0	4.5	0.29
Flavour				
Meat	**7.1^{a}**	**8.2^{b}**	**7.2^{a}**	**0.03**
Acidic	**6.2**	**6.4**	**5.8**	**0.08**
Sweet	4.3	4.2	4.2	0.97
Metal	4.6	4.9	4.5	0.48
Texture				
Hardness at 1st bite	6.0	5.3	7.0	0.19
Juiciness	**7.7^{a}**	**8.3^{b}**	**7.5^{a}**	**0.014**
Tenderness	6.6	7.5	5.6	0.29

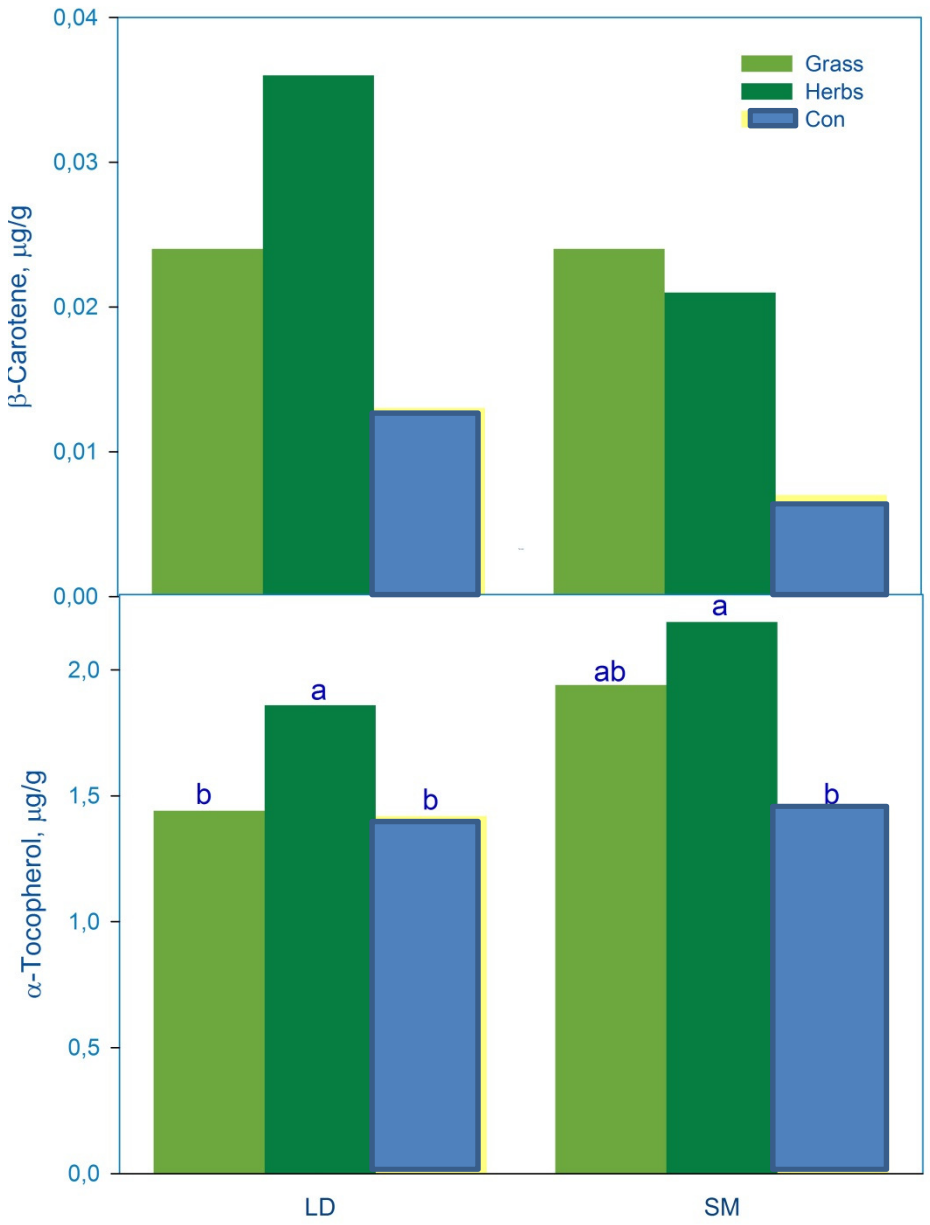
Eating quality (*M. semimembranosus*)

Feeding	Grass	Herbs	Con	P-value
M. semimembranosus				
Odour				
Meat	4.6	4.8	4.4	0.13
Acidic	4.2	3.9	4.0	0.42
Sweet	3.5	2.9	3.2	0.21
Metal	2.5	2.5	2.1	0.16
Flavour				
Meat	**6.1**	**5.8**	**5.5**	**0.07**
Acidic	5.9	6.0	6.5	0.30
Sweet	3.4	3.2	3.0	0.19
Metal	4.1	4.2	4.5	0.70
Texture				
Juiciness	5.9	6.5	6.9	0.40
Tenderness	8.0	7.8	7.5	0.84

Fatty acids in two muscles (LD and SM)



β-carotene and α-tocopherol in two muscles (LD and SM)



CONCLUSION
1. EXPERIMENT

› The present experiment shows that there are no drawbacks in finishing young bull calves for 6 weeks on purely grass sward or purely herb-based sward in comparison with concentrates when it comes to meat and eating quality

› The meat of grass- and herbs-fed calves has similar colour and sensory profile

› Herbs has a positive effect on the 'health-related' quality as herbs increase the content of vitamins A and E, linoleic and α-linolenic acid and improves the n-6 :n-3 ratio

EXPERIMENTS WITH CATTLE 2. EXPERIMENT

Genotype	Danish Holstein (DH)	Limousine x DH	
Sex	Bulls	Heifers	Bulls
Feeding – summer	Grass (grazing)	Grass (grazing)	Grass (grazing)
Feeding – winter	Hay (housed)	Hay (housed)	Hay (housed)
Feeding - summer	Grass (grazing)	Grass (grazing)	Grass (grazing)

EXPERIMENTS WITH CATTLE 2. EXPERIMENT

RESULTS IN 2013!

Thanks to all SUMMER project partners