



Feeds and environment

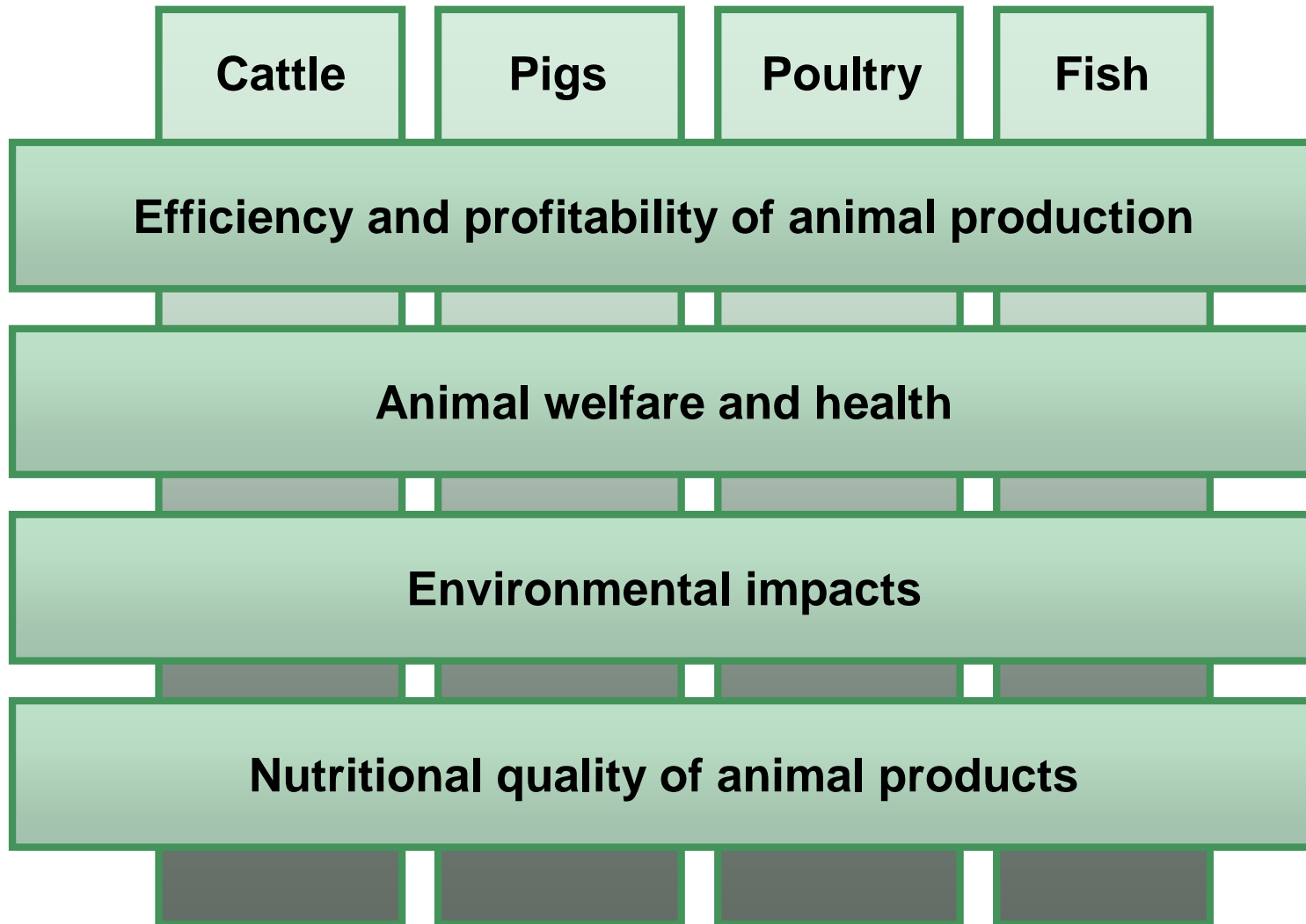
IFAJ visit to Raisio

Ilmo Aronen

14.8.2012

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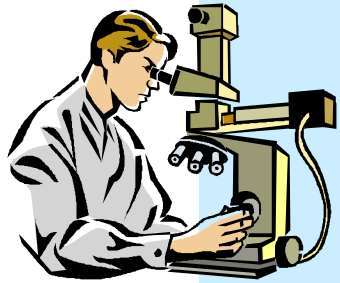
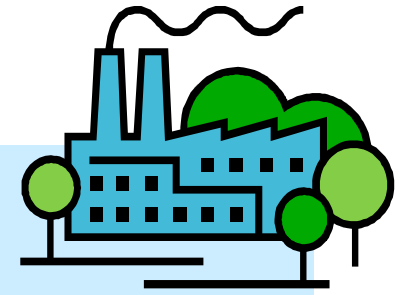
Key issues in R & D



Raisioagro has reliable research partners

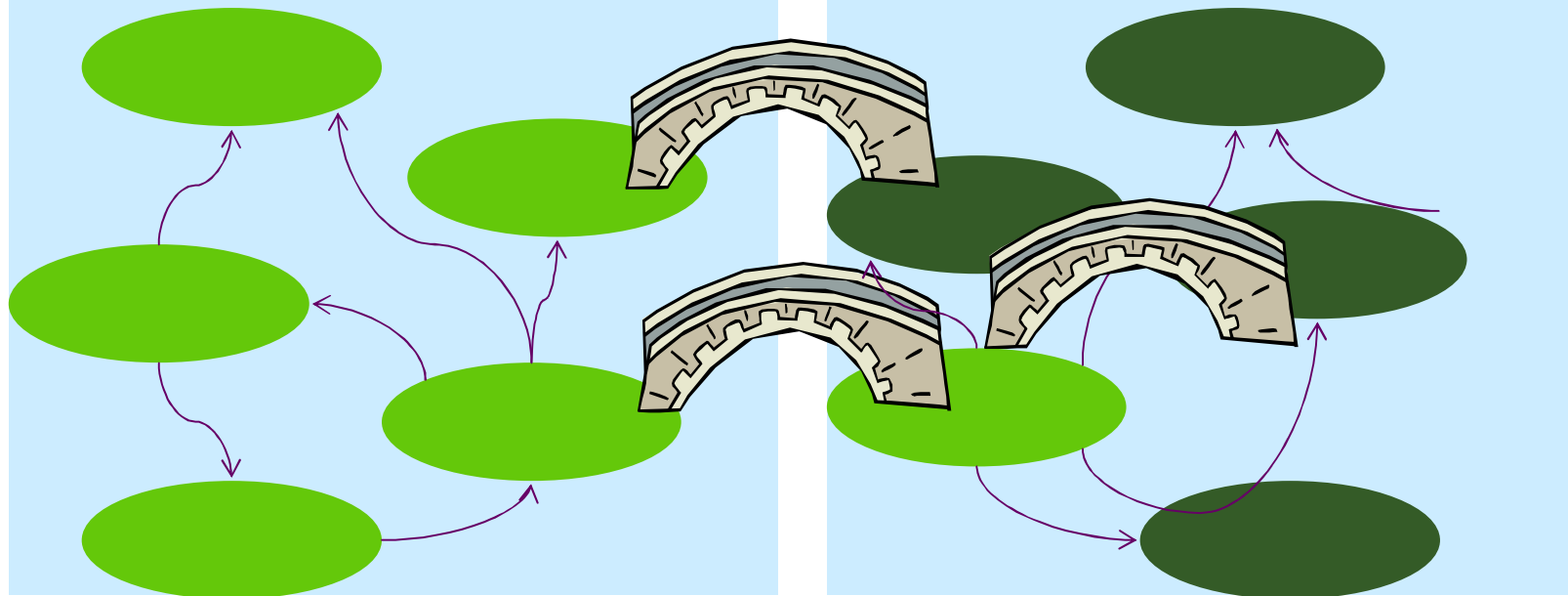
- Agrifood Research Finland (MTT)
 - University of Helsinki
 - Finnish Game and Fisheries Research Institute (RKTL)
 - Valio
 - Yara
 - Boreal Plant Breeding
 - Farmers
 - International companies, universities and research stations
 - EFT-network
 - Schothorst in Netherlands
 - Swedish Agricultural University (SLU)
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Interaction is needed

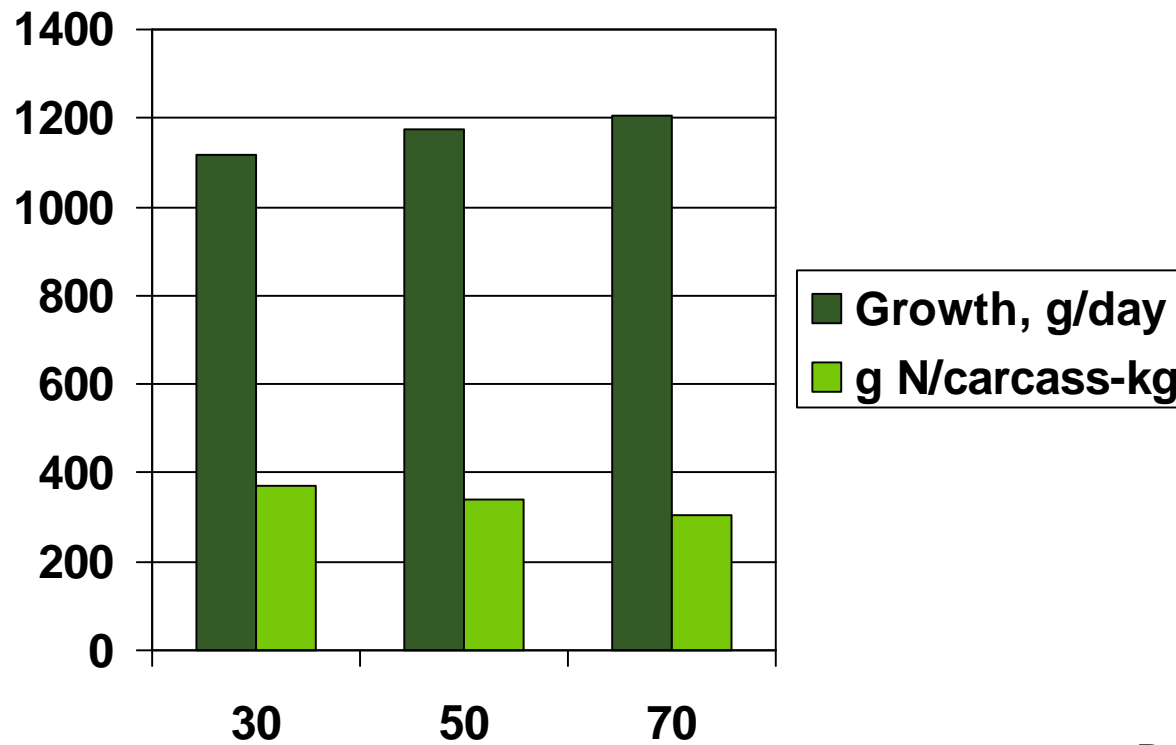


SCIENCE

INDUSTRY



Concentrate improves the nitrogen utilization in growin cattle



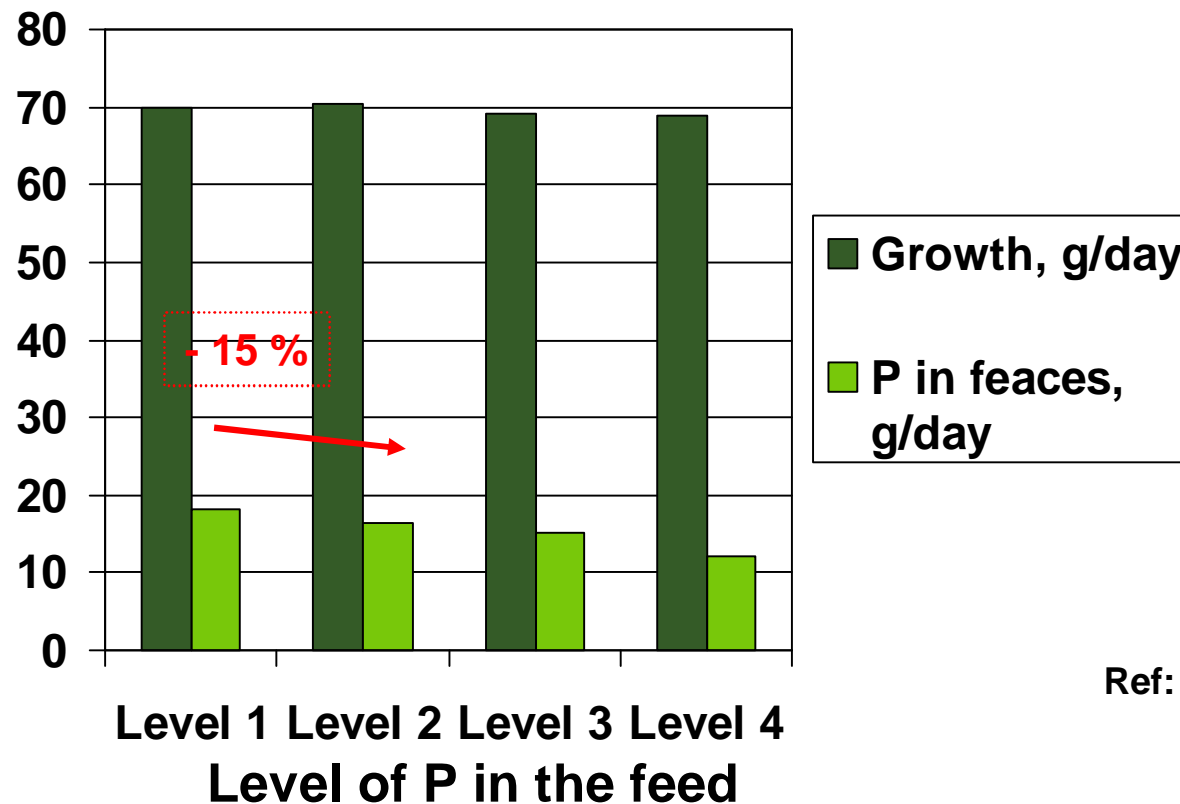
Proportion of concentrates in the ration, %

Ref: Huuskonen, 2009

Is it possible to decrease the P content in broiler feeds?

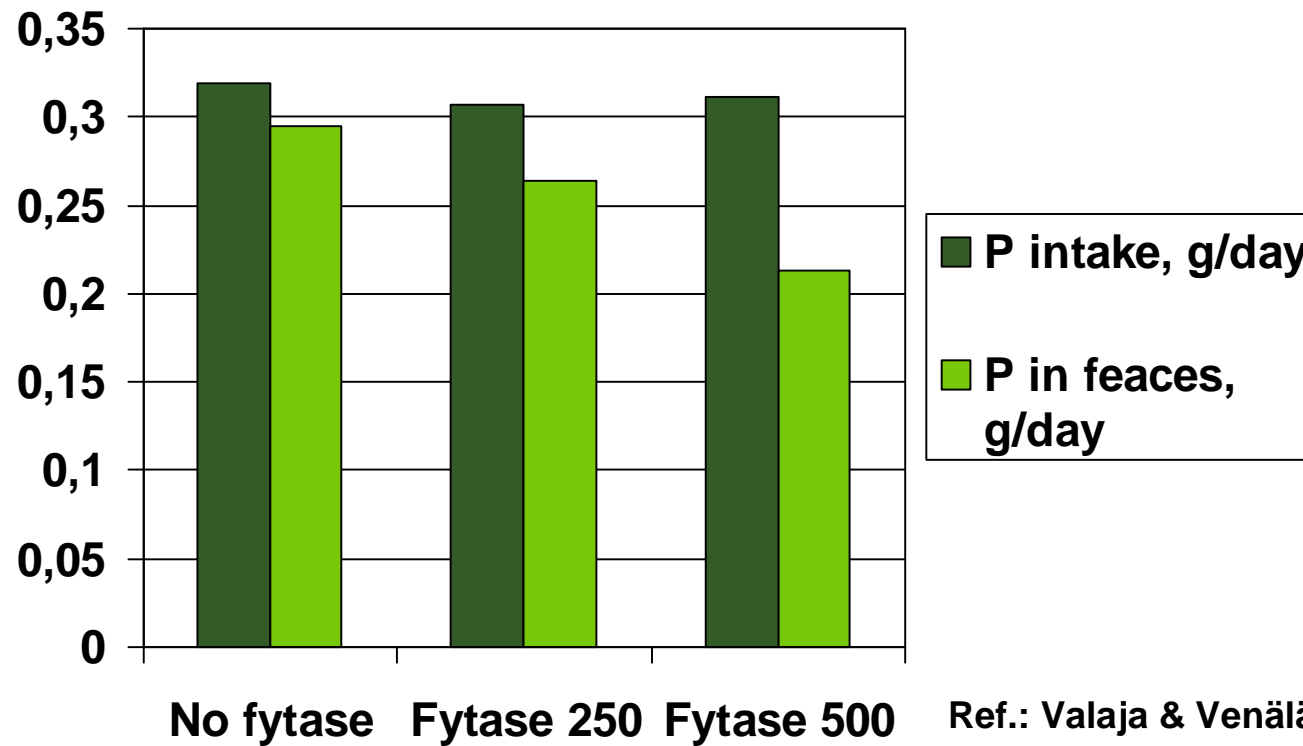
	Level 1 g P/kg DM	Level 2 g P/kg DM	Level 3 g P/kg DM	Level 4 g P/kg DM
Period 1-7 d	6,4	5,9	5,4	5,0
Period 8-21 d	5,8	5,5	5,1	4,8
Period 22-35 d	5,9	5,4	4,9	4,3
Period 36-40 d	5,6	5,2	4,7	4,3

It was possible to decrease the P in feeds (and feaces) without an impact on growth or animal welfare

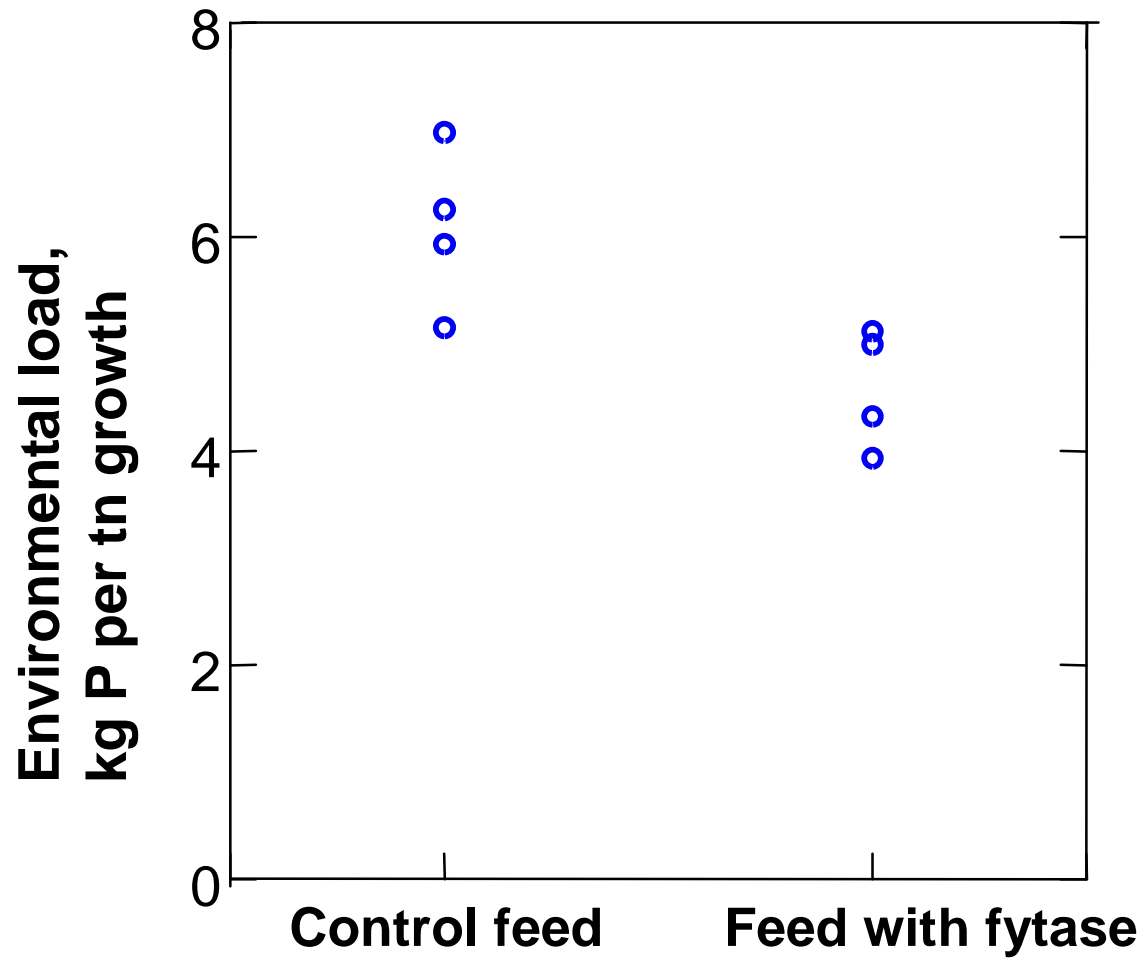


Ref: Valaja et al., 2009

Also in laying hens fytase improves the P utilization



Fytase is successfully used in fish feeds




Vielma et al., 2009



With the application of amino acids **RAISIO** agro^o the protein content in the pig feeds can be decreased

	Protein 179 g/FU	Protein 160 g/FU *)	Protein 140 g/FU *)	Protein 122 g/FU *)
N intake, kg	6,01	5,37	4,74	4,33
N retention, kg	1,65	1,65	1,64	1,64
N excretion, kg	4,36	3,72	3,10	2,69



*) Pure lysine and threonine was added to the feed mixture

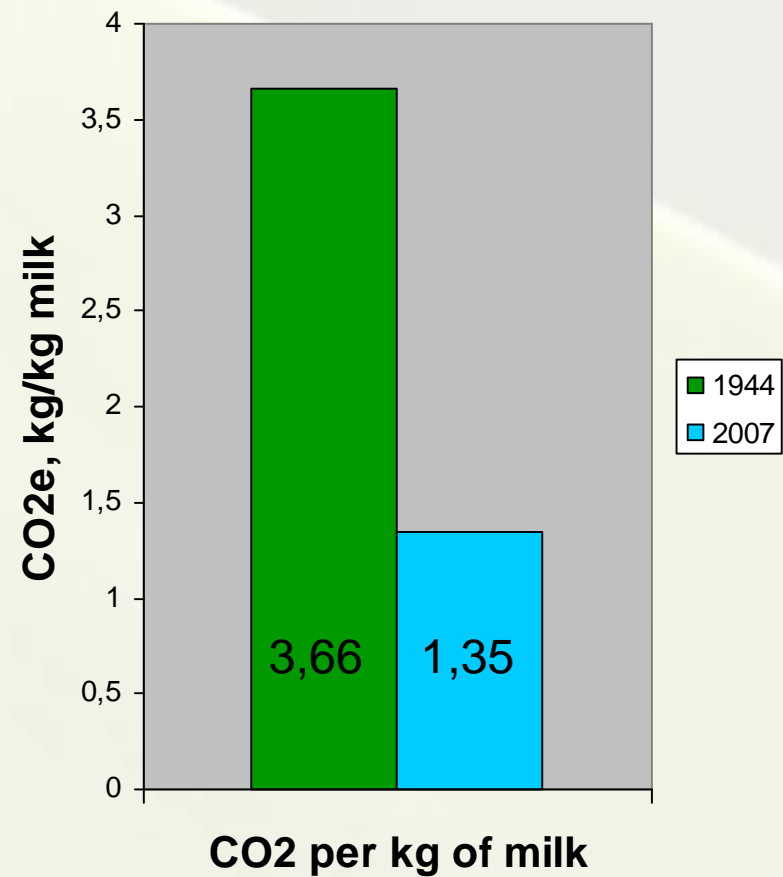
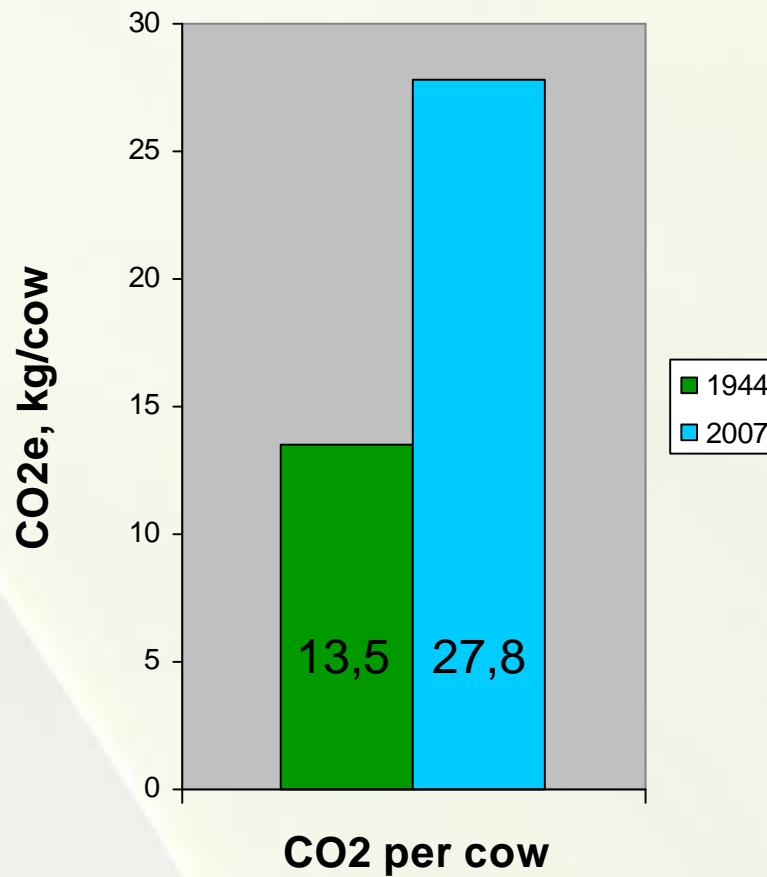
Ref.: Valaja et al., 1993



Health and environmental impacts in the same package

- Raisioagro has developed a pig feeding concept for HK Scan to produce healthier pork
 - The fatty acid composition of the pork is in line with recommendations for human nutrition
 - The proportion of saturated fatty acids has decreased and the proportion of unsaturated fatty acids has increased in all parts of carcass
 - The proportion of Omega-3 fatty acids increased significantly
 - Good for the environment
 - The pigs fed according to this novel concept consumed 10 % less feed.
 - The nitrogen utilization was improved by more than 7 %.
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Carbon footprint per cow or per produced kg of milk in 1944 and 2007

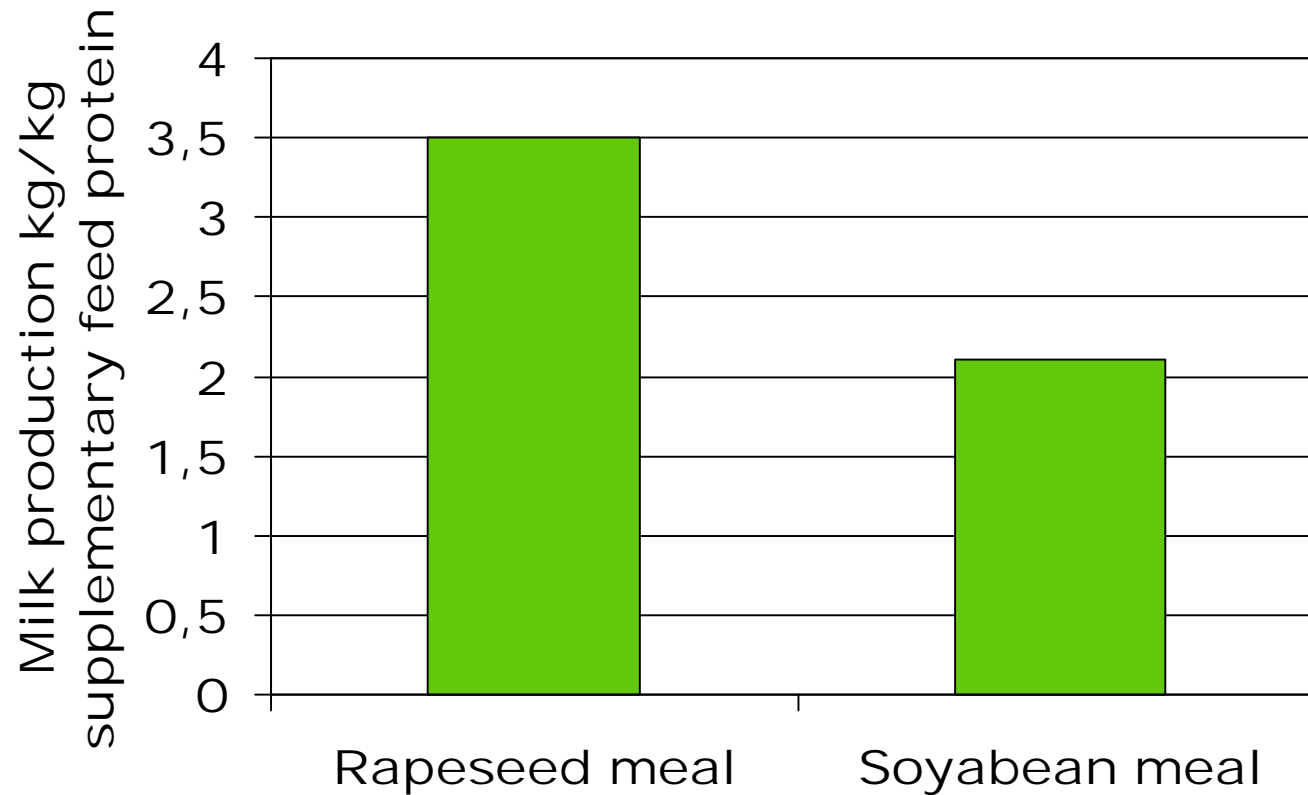


Source: Bauman ym. 2010, ref. Capper et al., 2009

EU-27 balance sheet for protein rich feed materials in 2007/2008

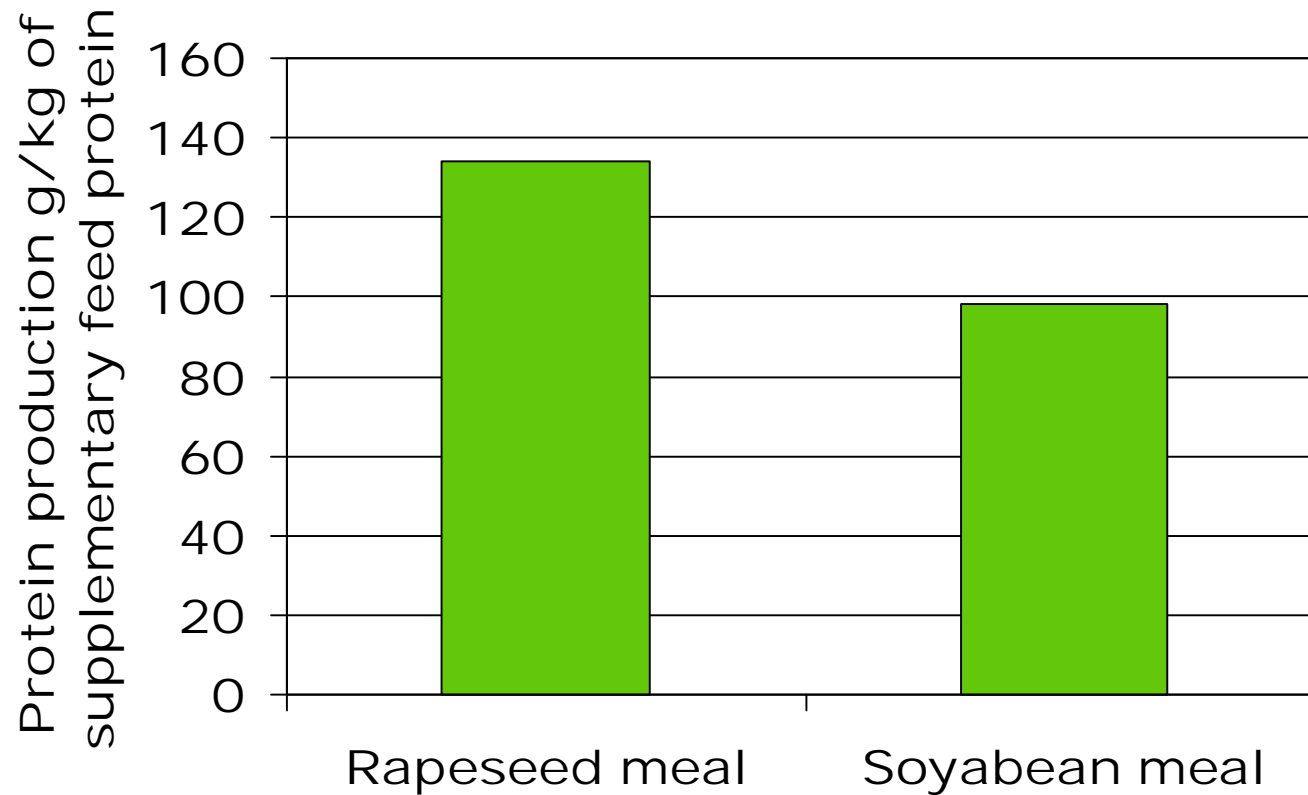
	EU production (1000 t of protein)	EU consumption (1000 t of protein)	Self-sufficiency, %
Soybean meal	303	17823	2
Sunflower meal	789	1246	63
Rapeseed meal	3672	3932	93
Cottonseed meal	183	105	174
Copra-Palm meal	0	506	0
Pulses	429	413	104
Dried forage	847	798	106
Corn gluten feed	497	611	81
Miscellaneous	62	217	29
Sub-Total	6782	25651	26
Fishmeal	307	559	55
Total	5319	26210	27

Rapeseed meal is superior to soyabean meal in milk production



Source: Huhtanen, Hetta & Swensson, 2011

Rapeseed meal produces more milk protein than soyabean meal

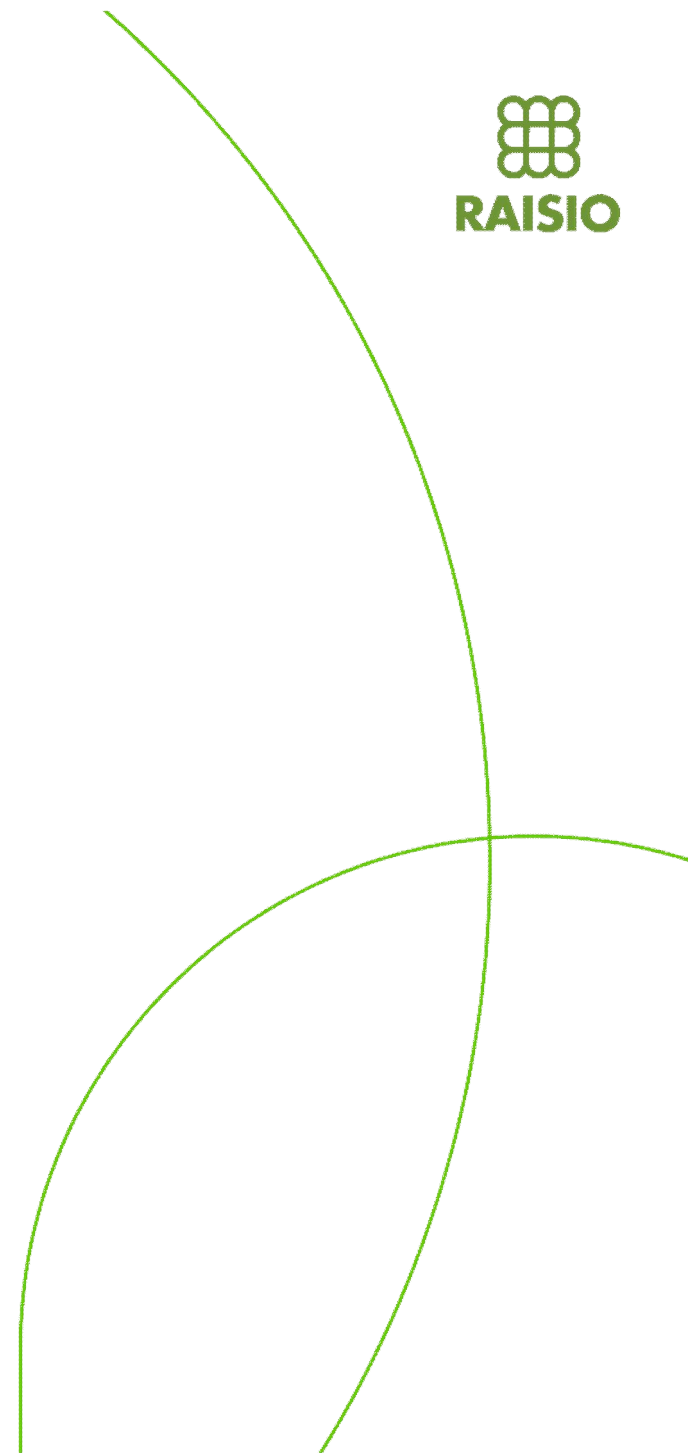


Source: Huhtanen, Hetta & Swensson, 2011

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Thank You!





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