Berlin, November 4th 2016

Erik Fog

PRODUCTION AND USE OF LEGUMES IN DENMARK – CHALLENGES AND PROSPECTS.

CAN CHANGED USE OF LEGUMES PROMOTE A MORE SUSTAINABLE / MORE ORGANIC AGRICULTURE?

European Agricultural Fund for Rural Development:
Denmark and Europe invest in rural development

Ministry of Food, Agriculture and Fisheries of Denmark

European Agricultural Fund for Rural Development

LDP 2020

See European Agricultural Fund for Rural Development

OUTLINE

- Background
- Changes in the role of legumes
- Soy dominance – actual status
- Other legumes
- Legumes in organic farming
- Bio-refined protein from clover – a game-changer?

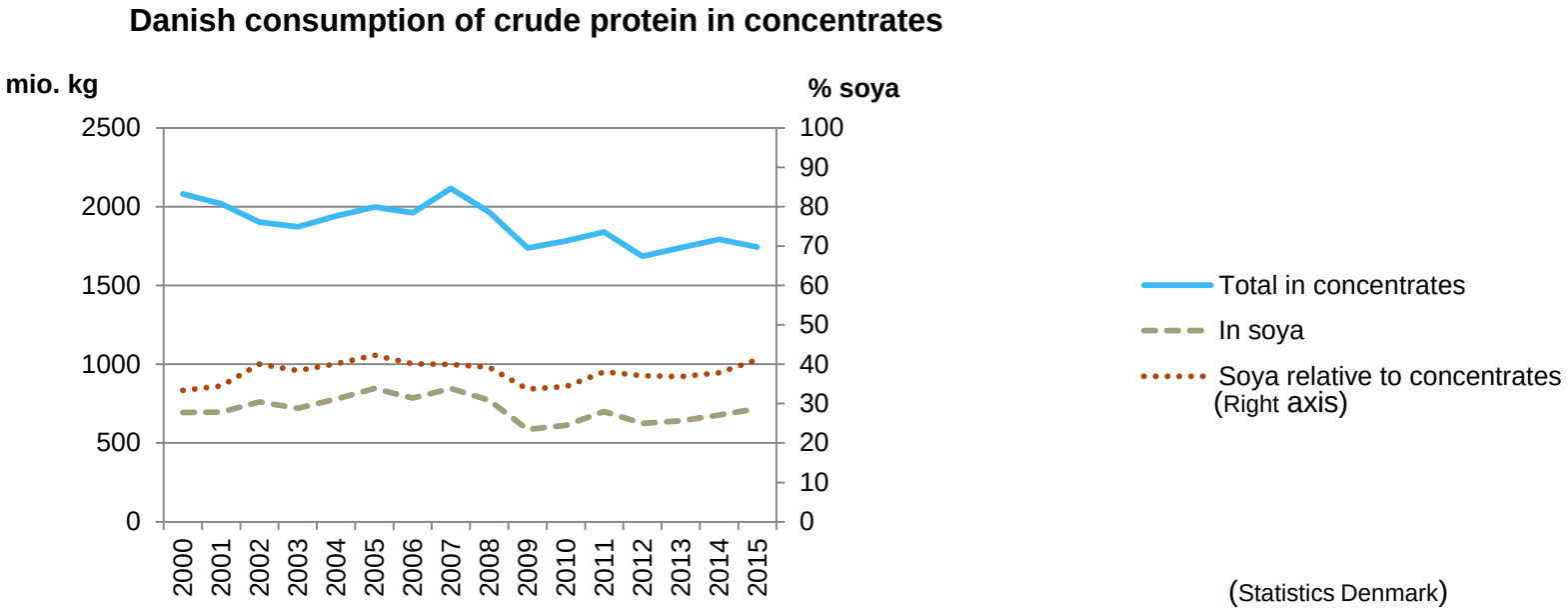
BACKGROUND

- SEGES the national innovation, business and service center for Danish agriculture .
- Part of The Danish Agriculture and Food Council
- Erik Fog, senior advisor on organic farming since 1987.
- Projects: Eco-Protein and OrganoFinery

THE ROLE OF LEGUMES

- First of all a protein source for animal feed
- Other positive characteristics: Nitrogen fixation, improvement of rotations.
- New interests in domestic production of proteins:
  - Minimizing the carbon footprint from animal feed
  - Avoiding GM-products in the feed
  - Less vulnerable to prize fluctuations in the world market

THE DOMINANCE OF SOYA PROTEIN



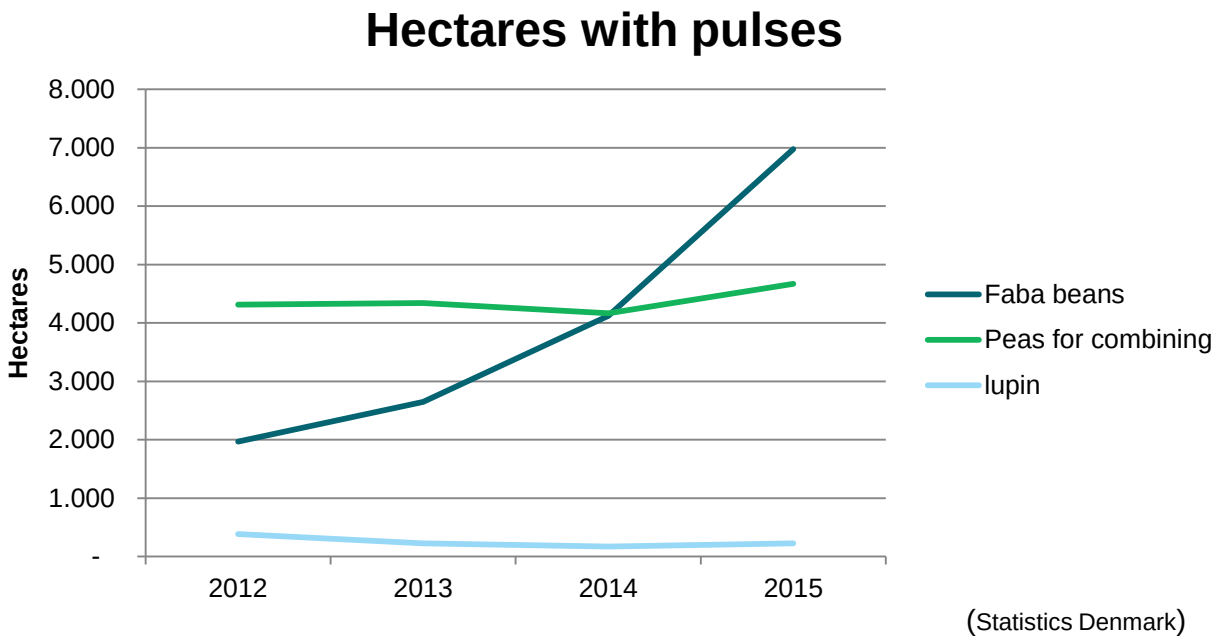
(Statistics Denmark)

THE DOMINANCE OF SOYA PROTEIN

Feed source	% of total crude protein consumption
Soya	39
Fish products	9
Rape cakes	7
Sunflower cakes	5
Pulses + dried Lucerne, Grass	2
Cereals	35

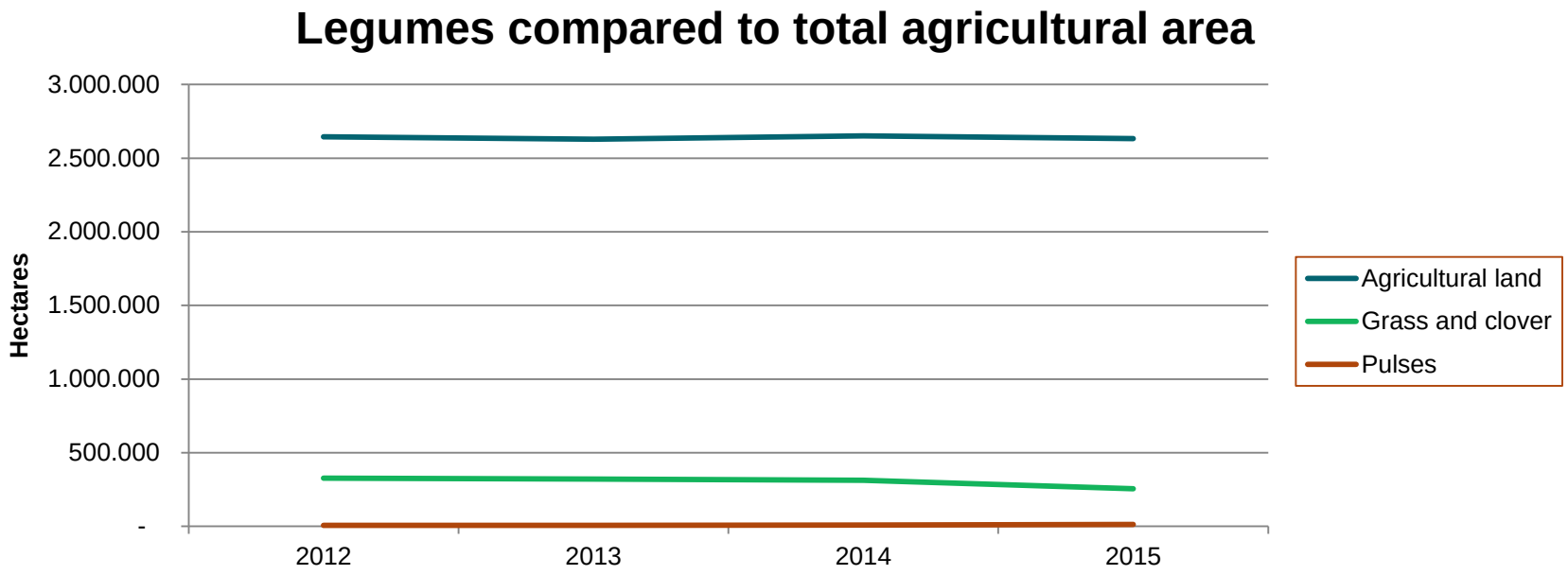
(Statistics Denmark)

CULTIVATION OF PULSES IN DENMARK



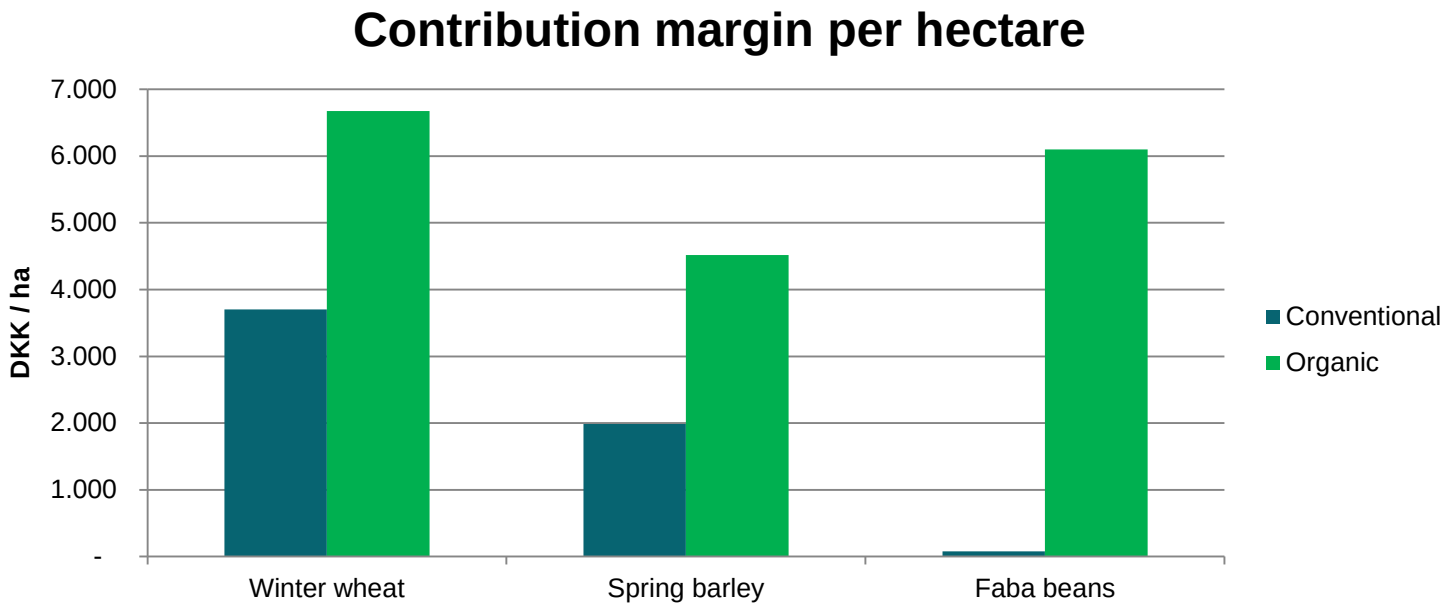
(Statistics Denmark)

LEGUMES ARE STILL MINOR CROPS



(Statistics Denmark)

ECONOMIC VALUE OF FABA BEANS



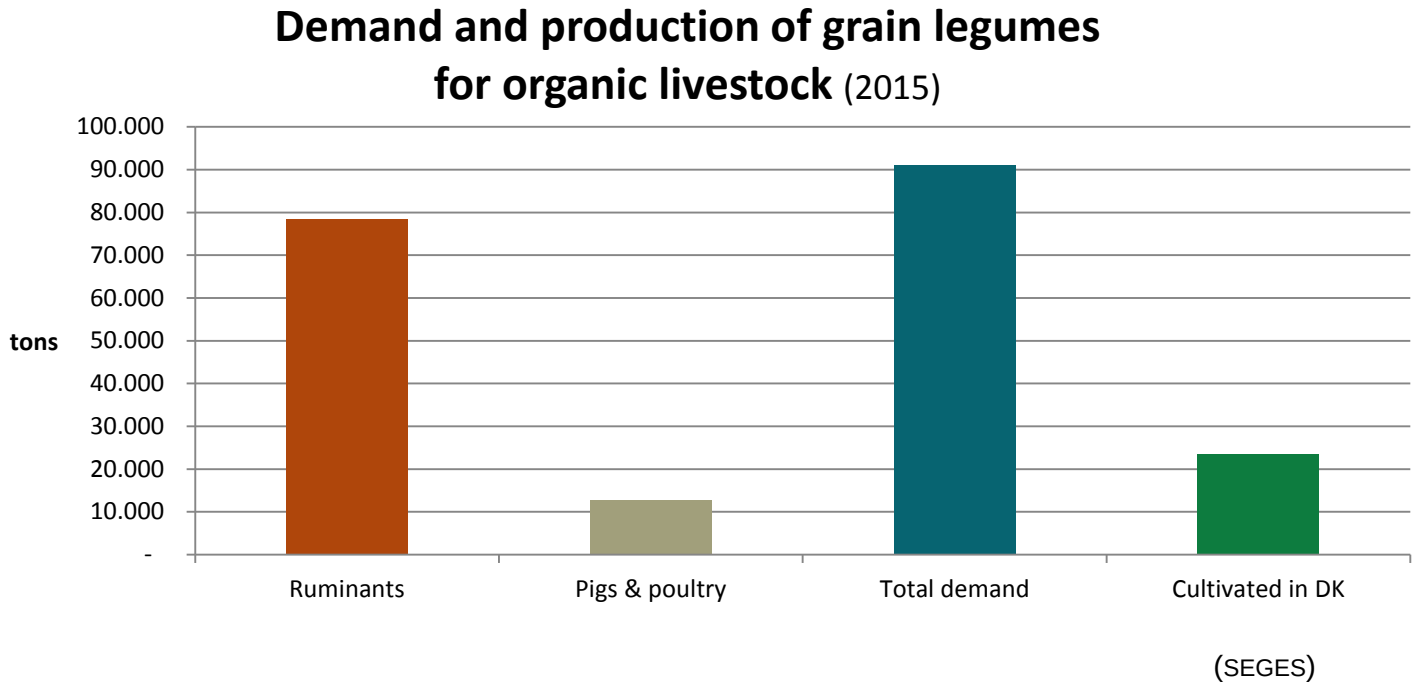
(Farmtal Online, SEGES)

ORGANIC FARMING IS PROMOTING LEGUME CULTIVATION

2012-15	Organic (% of total area)
Agricultural land	5,8
Grass and clover	36,6
Faba beans	62,4
Peas	28,5
Lupins	85,3

(Statistics Denmark)

MORE PRODUCTION NEEDED TO MEET THE DEMAND



GRASS PROTEIN FOR MONOGASTRIC ANIMALS

	Field pea	Faba beans	Lupin	GC conc.	Soya
Protein, % of dry matter					
	24	29	34	40	40
Amino acids, % of protein					
Cystine	1,4	1,2	1,5	0,6	1,5
Lysine	7,2	6,3	4,7	5,9	6,2
Methionine	1,0	0,8	0,7	2,0	1,4

(SEGES)

HIGH PROTEIN PRODUCTION IN GRASS CLOVER

	Grass clover	Faba beans
Yield (Dry matter per ha)	14,0 tons	5,5 tons
Crude protein per ha	2,0 tons	1,5 tons

(SEGES)

- Plus extra value from grass clover in:
  - Nitrogen for the succeeding crops
  - Carbon sequestration in the soil
  - Feed for cattle or biogas production

GRASS CLOVER– THE NEW PROTEIN SOURCE

DEVELOPMENT OF BIO-REFINED GRASS PROTEIN

- Danish projects working on the production of protein from grass clover (cultivation, bio-refining techniques, feed value):
- OrganoFinery
- BioValue
- MultiPlant