On-farm Competitiveness of Rapeseed vs. Other Oilseeds in Hungary

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Hanse Agro – Private Consulting Company

Plant production
Own trials
Economics
Marketing

Germany
East Europe

Chile

Total
19 Advisors
500 Farms

Overview

1. Development of rapeseed and other oilseeds in the region
2. Overview of Typical Farms in the region
3. Competitiveness of rapeseed vs. other oilseeds
4. Other considerations rapeseed vs. other oilseeds
5. Conclusions and outlook

The Map of Hungary

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Share of Hungarian Area and Production of Grains and Oilseeds in the EU-28

2014	EU-28	Germany	France	Romania	Hungary	Share of Hungary in EU 28
	Area in Mio. ha					
Grains	57.2	6.5	9.4	5.3	2.8	5.0%
Oilseeds	11.5	1.4	1.5	1.0	0.6	5.3%
Total	68.8	7.9	10.9	6.4	3.5	5.0%
% Oilseeds	17%	18%	14%	16%	18%	
	Production in Mio. t					
Grains	324	52	71	21	16	5.1%
Oilseeds	35	6	7	3	2	6.6%

Source: Coceral 2015

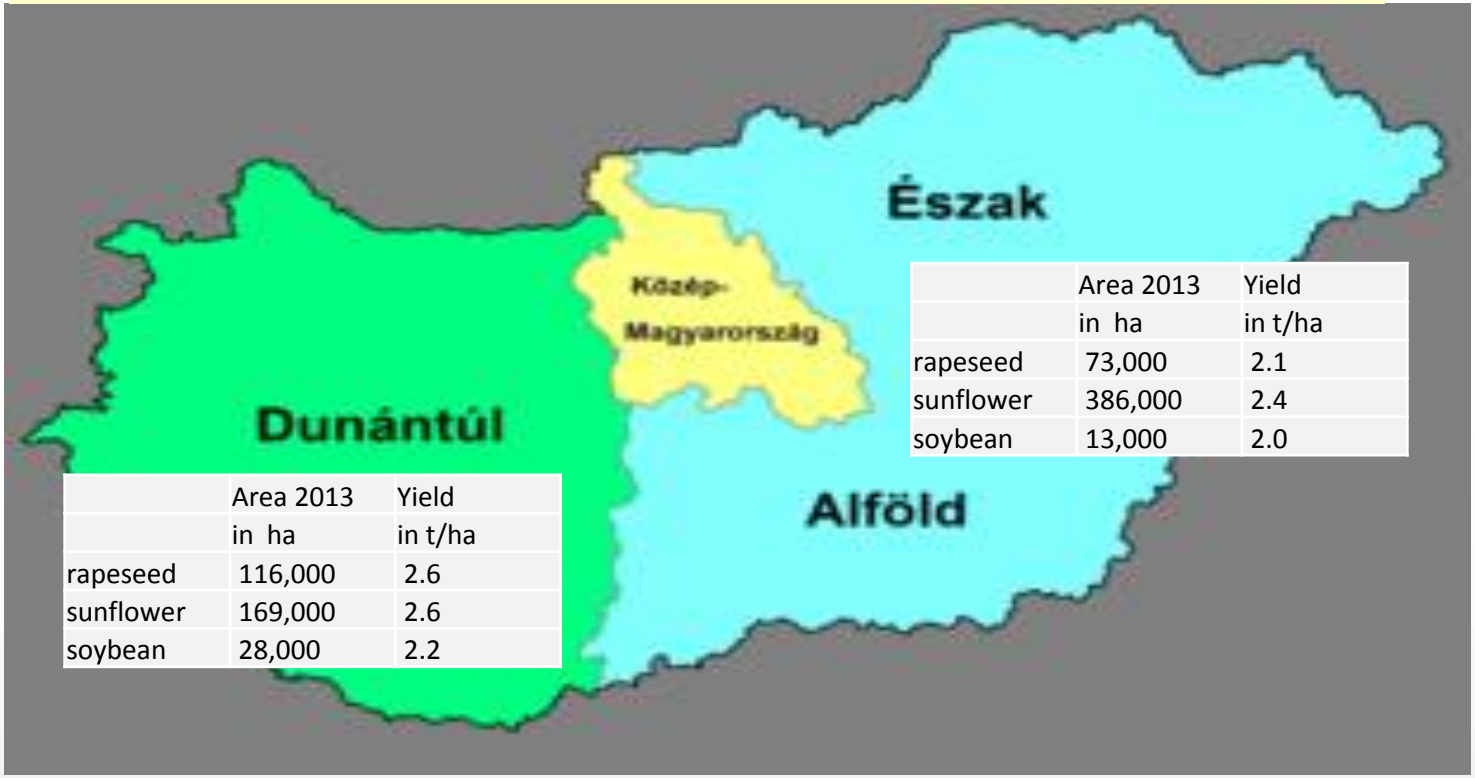
Share of Hungarian Area and Production of different Oilseeds in the EU-28

2014	EU-28	Germany	France	Romania	Hungary	Share of Hungary in EU 28
	Area in Mio. ha					
Rapeseed	6.70	1.40	1.50	0.38	0.22	3%
Sunflower	4.26	0.02	0.7	1.02	0.61	14%
Soybean	0.55		0.08	0.08	0.04	6%
	Yield in t/ha					
Rapeseed	3.6	4.5	3.7	2.9	2.7	
Sunflower	2.1	2.4	2.4	2.0	2.7	
Soybean	3.1		2.9	2.2	2.6	
	Production in Mio. t					
Rapeseed	24.1	6.3	5.5	1.1	0.6	2%
Sunflower	8.9	0.0	0.2	2.0	1.6	18%
Soybean	1.7	0.0	0.2	0.2	0.1	4%

Source: Coceral 2015

Hungary: NUTS-1-Regions
Area and Yield of Oilseeds (10-year-average)

NUTS-Region: Classification of the EU-28 by number of inhabitants



	Area 2013 in ha	Yield in t/ha
rapeseed	116,000	2.6
sunflower	169,000	2.6
soybean	28,000	2.2

	Area 2013 in ha	Yield in t/ha
rapeseed	73,000	2.1
sunflower	386,000	2.4
soybean	13,000	2.0

Reason: higher winterkilling in the East of Hungary, higher temperature and less rain in springtime
➔ higher risk for growing rapeseed

Source: EuroStat

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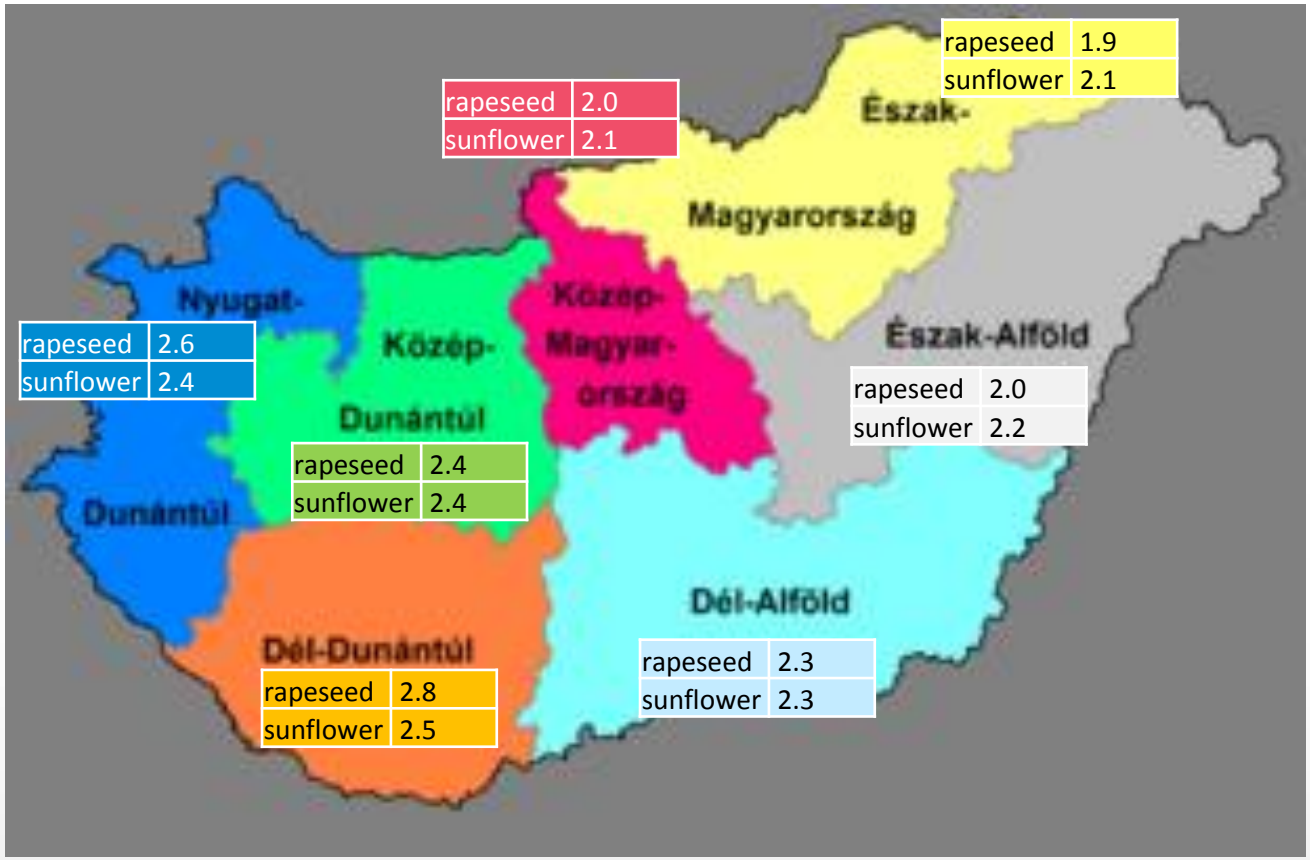
Nuts-2-Regions
Yields of Oilseeds (10-year-average)



Source: EuroStat

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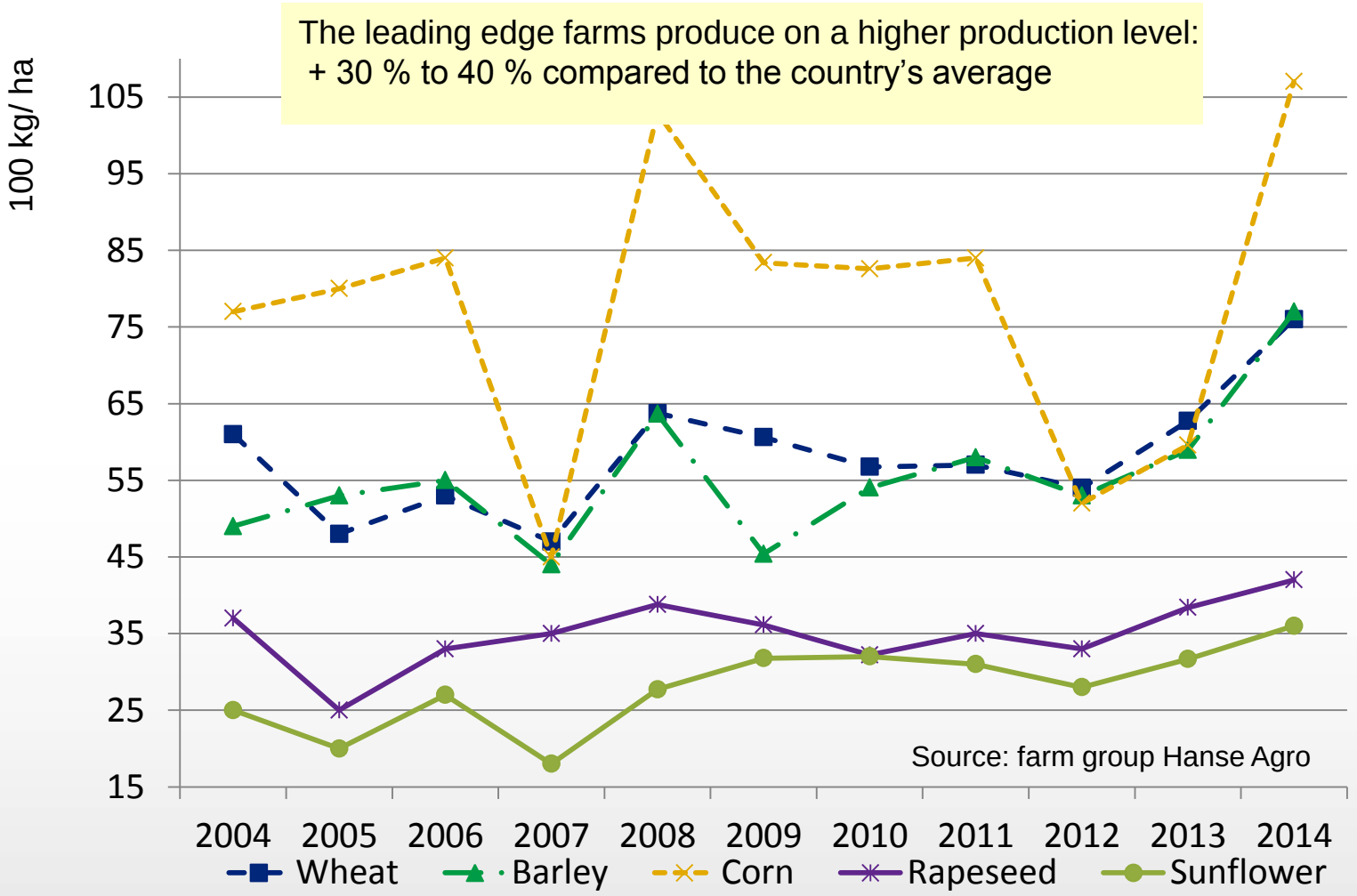
Hungary
Yields of Grains and Oilseeds 2004 -2014



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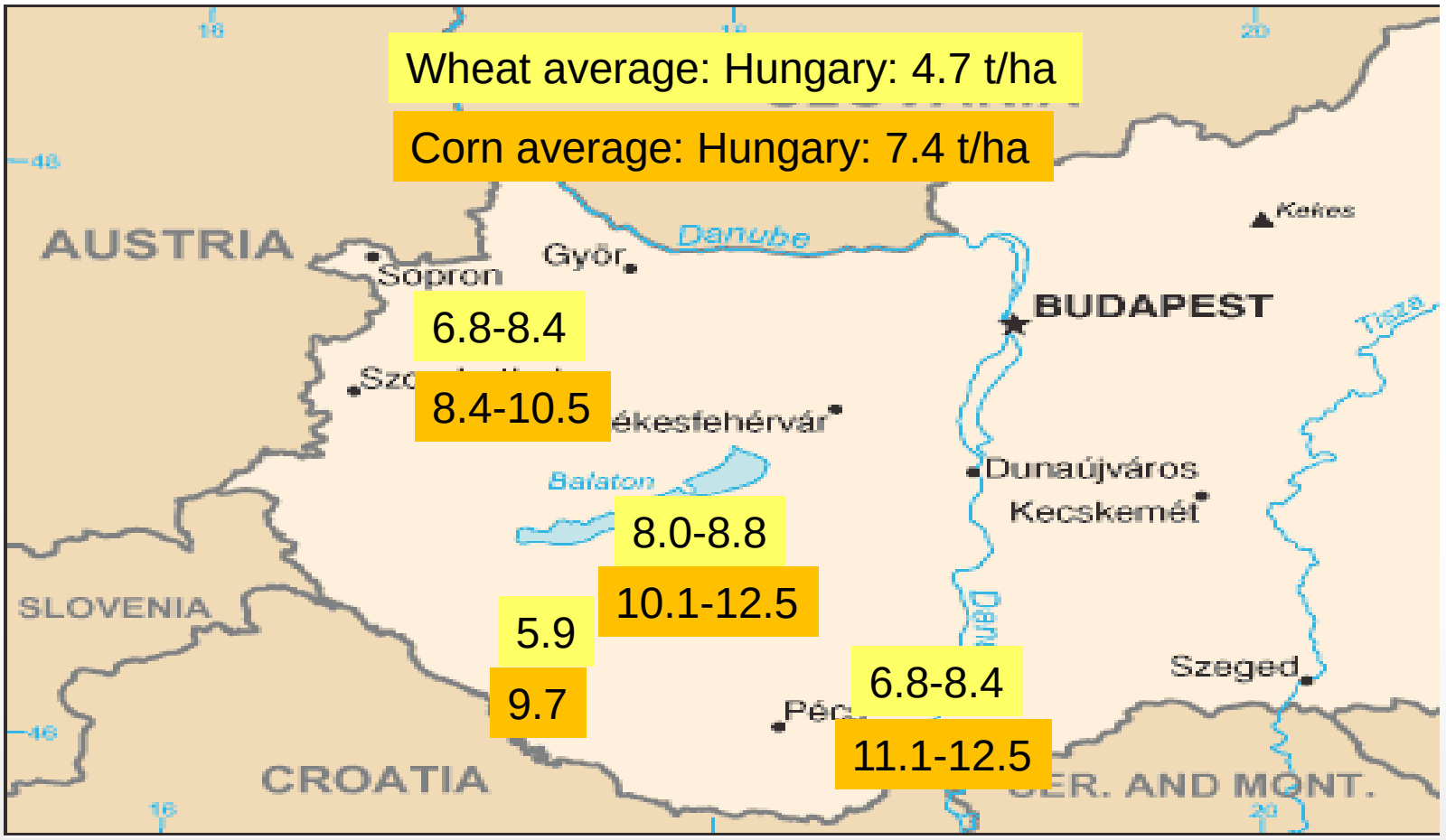
Hungary
Yields of Grains and Oilseeds

	2013 t/ha	5-year-average 2009-2013 t/ha	2014 Average t/ha
Wheat	6.3	5.8	7.6
Barley	5.9	5.4	7.7
Corn	6.0	7.2	10.7
Rapeseed	3.8	3.5	4.2
Sunflower (oil)	3.2	3.1	3.6

Source: farm group Hanse Agro

Regional Yield map 2014
Wheat and Corn in t/ha



Source: Hanse Agro

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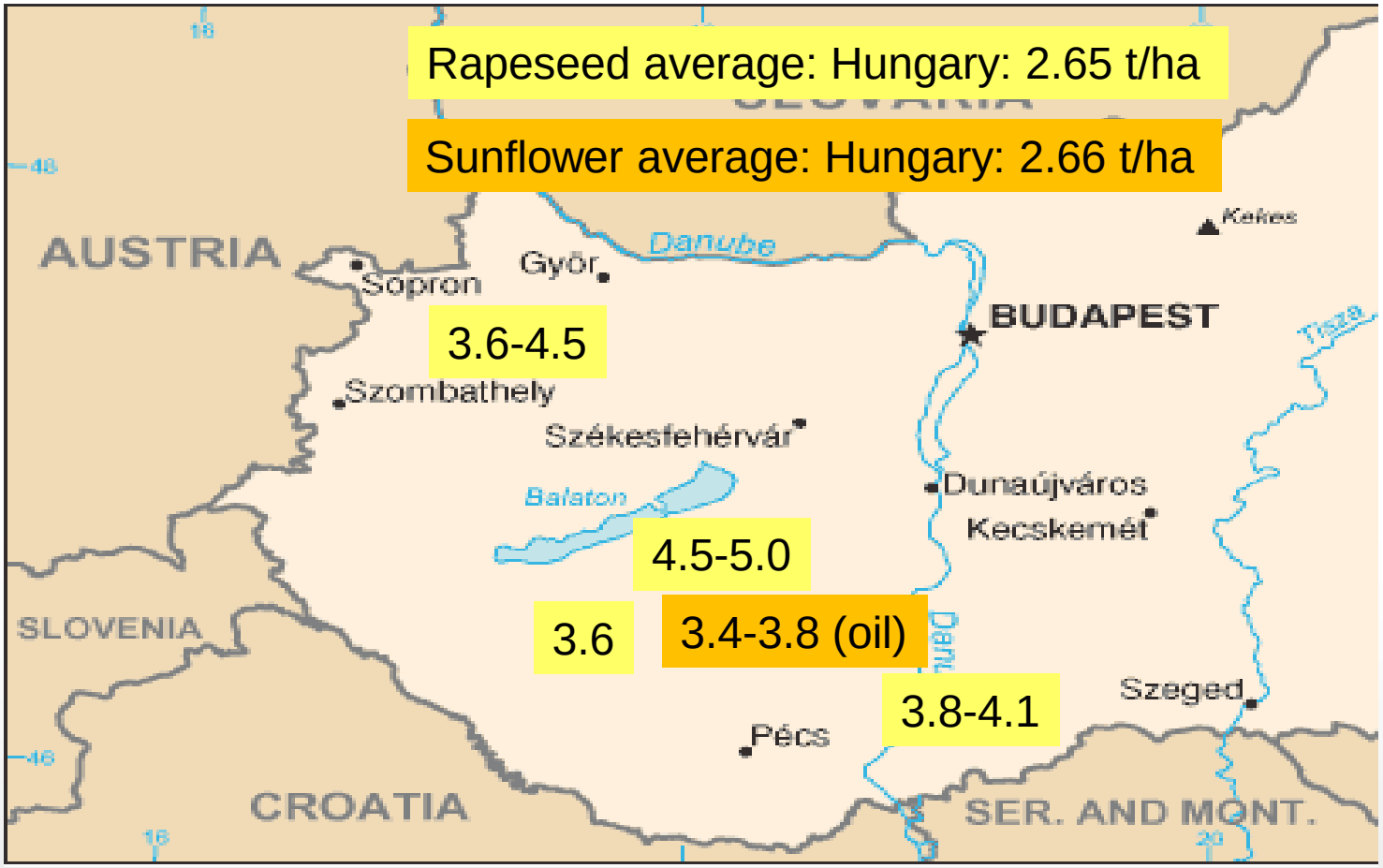
Regional Yield Map 2014
Rapeseed and Sunflower in t/ha



Source: Hanse Agro

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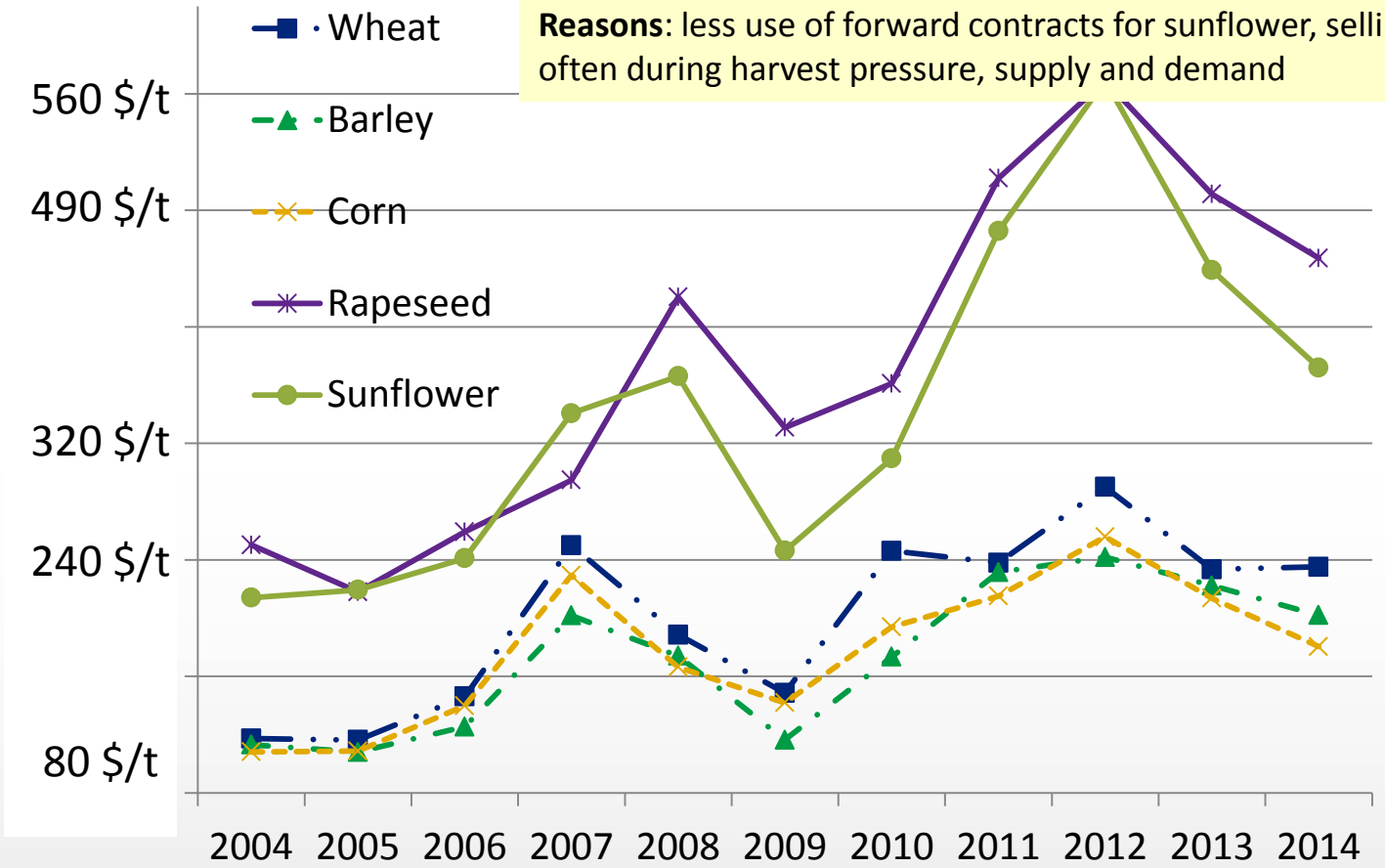
Hungary
Prices of Grains and Oilseeds 2004 -2014

Price differences between sunflower and rapeseed vary in different years
Reasons: less use of forward contracts for sunflower, selling of sunflower often during harvest pressure, supply and demand



Source: farm group Hanse Agro

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Hungary
Prices of Grains and Oilseeds

	2013	5-year-average 2009-2013	2014		
			Average	Min	Max
	US $/t	US $/t	US $/t	US $/t	US $/t
Wheat	235	243	199	177	215
Barley	222	204	169	149	178
Corn	213	212	150	141	163
Rapeseed	520	497	397	356	420
Sunflower (oil)	460	445	328	322	334

Source: farm group Hanse Agro

Technical Data of Farm Organization

	Hungary 2014			PL	East Ger.
	Min	Max	Average	Average	Average
Farm size in ha	800	5,400	2,200	1,300	650
Labor/100 ha	0.38	0.74	0.53	0.76	0.48
Tractors h/ha	2.1	4.1	2.9	4.4	3.7
Tractors/ 100 ha	0.21	0.43	0.32	0.51	0.55
hp/ 1000 t (yield-5-year-average)	90	151	115	187	160
Fuel use per ha in liters	67	99	79	101	94

Source: farm group Hanse Agro

Poland, Germany: 90 % winter crops, Hungary: 50 % winter/summer crops

➔ Good allocation of work during the year in Hungary,

➔ less machine capital and fewer tractor drivers in Hungary

➔ Seeding in fall**: rapeseed and wheat,** seeding in spring: **corn and sunflower**

Comparison of Gross Margin (long term)
Typical Hungarian Farm: 1500 ha Balaton-Region

	Nr.	Rapeseed	Sunflower	Soybean	Wheat	Barley	Corn
Yield	t/ha	**2,5**	**2,7**	**1,9**	**4,7**	**4,4**	**7,4**
price/t	price in $/t	**393**	**356**	**368**	**200**	**174**	**178**
markte revenue	$/ha	**982**	**962**	**699**	**942**	**767**	**1.318**
Seed	**in $/ha**	**50**	**71**	**82**	**63**	**63**	**145**
Plant protection	**in $/ha**	**208**	**171**	**184**	**122**	**111**	**100**
herbizide	in $/ha	85	126	110	26	26	63
fungizide	in $/ha	74	37	67	67	48	
insectizide	in $/ha	48	7	7	11	11	37
Growth regulation	in $/ha				19	26	
Fertilizer total	**in $/ha**	**241**	**190**	**119**	**227**	**201**	**246**
N	*kg/ha*	160	90	24	160	130	150
P_2O_5	*kg/ha*	40	50	40	40	40	60
K_2O	*kg/ha*	50	50	60	30	30	60
S	*kg/ha*	*20*	*20*		*20*	*20*	
Drying Cost variable			30				129
Direct Cost	**in $/ha**	***499***	***461***	***385***	***412***	***375***	***620***
Gross margin in $/ha	**in $/ha**	**483**	**500**	**314**	**529**	**392**	**698**

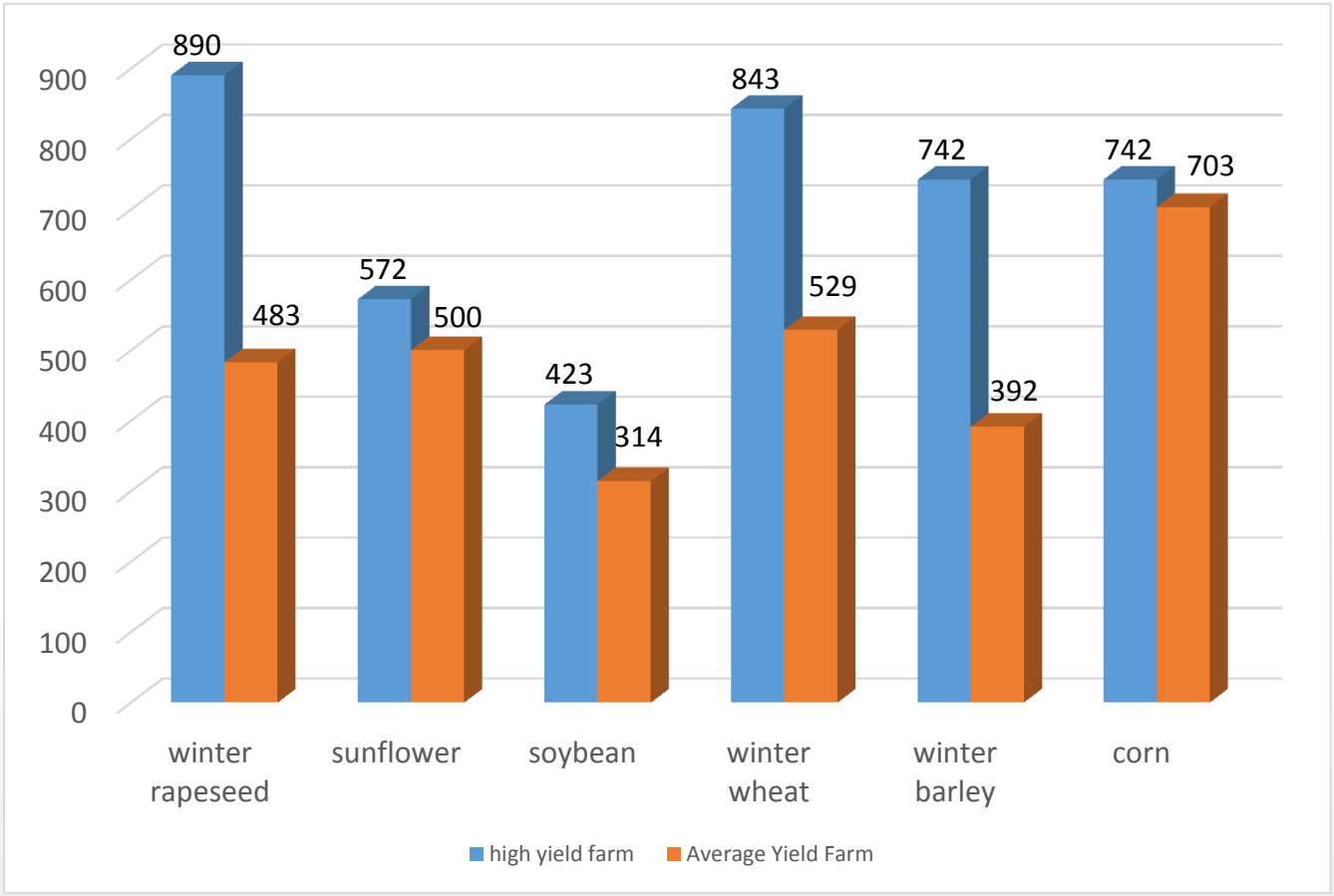
Comparison of Gross Margin (long term)
High Yield Farm: 1500 ha Balaton-Region

		Rapeseed	Sunflower	Soybean	Wheat	Barley	Corn
Yield	t/ha	**3,6**	**3,2**	**2,3**	**6,4**	**6,5**	**7,7**
price/t	price in $/t	**401**	**356**	**368**	**200**	**174**	**178**
market revenue	$/ha	**1.442**	**1.140**	**846**	**1.282**	**1.133**	**1.371**
Seed	**in $/ha**	**56**	**82**	**82**	**63**	**63**	**145**
Plant protection	**in $/ha**	**208**	**193**	**234**	**122**	**111**	**100**
herbicide	in $/ha	85	126	160	26	26	63
fungicide	in $/ha	74	59	67	67	48	
insecticide	in $/ha	48	7	7	11	11	37
Growth regulation	in $/ha				19	26	
Fertilizer total	**in $/ha**	**288**	**263**	**108**	**254**	**217**	**255**
N	*kg/ha*	180	150	24	170	140	160
P_2O_5	*kg/ha*	54	51	35	51	39	62
K_2O	*kg/ha*	66	87	59	48	49	66
S	*kg/ha*	*40*	*20*		*20*	*20*	
Drying Cost variable			30				129
Direct Cost	**in $/ha**	***552***	***567***	***424***	***439***	***391***	***629***
Gross margin in $/ha	**in $/ha**	**890**	**572**	**423**	**843**	**742**	**742**

Source: farm group Hanse Agro

Comparison of gross margin in different farm types

US$/ha



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Gross margin in $/ha of different rotations

Rotation	Hungarian Average	HA-Farms
Corn-Corn-Soybean -Wheat	551	693
Corn-Corn-Sunflower -Wheat	572	694
Corn-Wheat-Rapeseed -Wheat	530	808
Corn-Barley-Rapeseed -Wheat	513	817

Source: Hanse Agro (HA)

Gross margin of wheat after different previous crops

		Wheat after previous crop			
		Rapeseed	**Corn**	**Soybean**	**Sunflower**
Yield	t/ha	**6,4**	**5,8**	**6,4**	**6,0**
price/t	price in $/t	**200**	**200**	**200**	**200**
market revenue	$/ha	**1.282**	**1.162**	**1.282**	**1.202**
Seed	**in $**	**63**	**63**	**63**	**63**
Plant protection	**in $/ha**	**122**	**124**	**122**	**122**
herbicide	in $/ha	26	26	26	26
fungicide	in $/ha	67	68	67	67
insecticide	in $/ha	11	11	11	11
Growth regulation	in $/ha	19	19	19	19
Fertilizer total	**in $/ha**	**231**	**271**	**205**	**271**
N	*kg/ha*	170	190	140	190
P_2O_5	*kg/ha*	40	50	40	50
K_2O	*kg/ha*	30	50	30	50
S	*kg/ha*	*20*	*20*	*20*	*20*
Direct Cost	**in $/ha**	***416***	***458***	***390***	***456***
Gross margin in €/ha	**in $/ha**	**866**	**704**	**892**	**746**

Source: farm group Hanse Agro

Soybeans in Hungary

Rotations with soybeans are profitable on paper - but

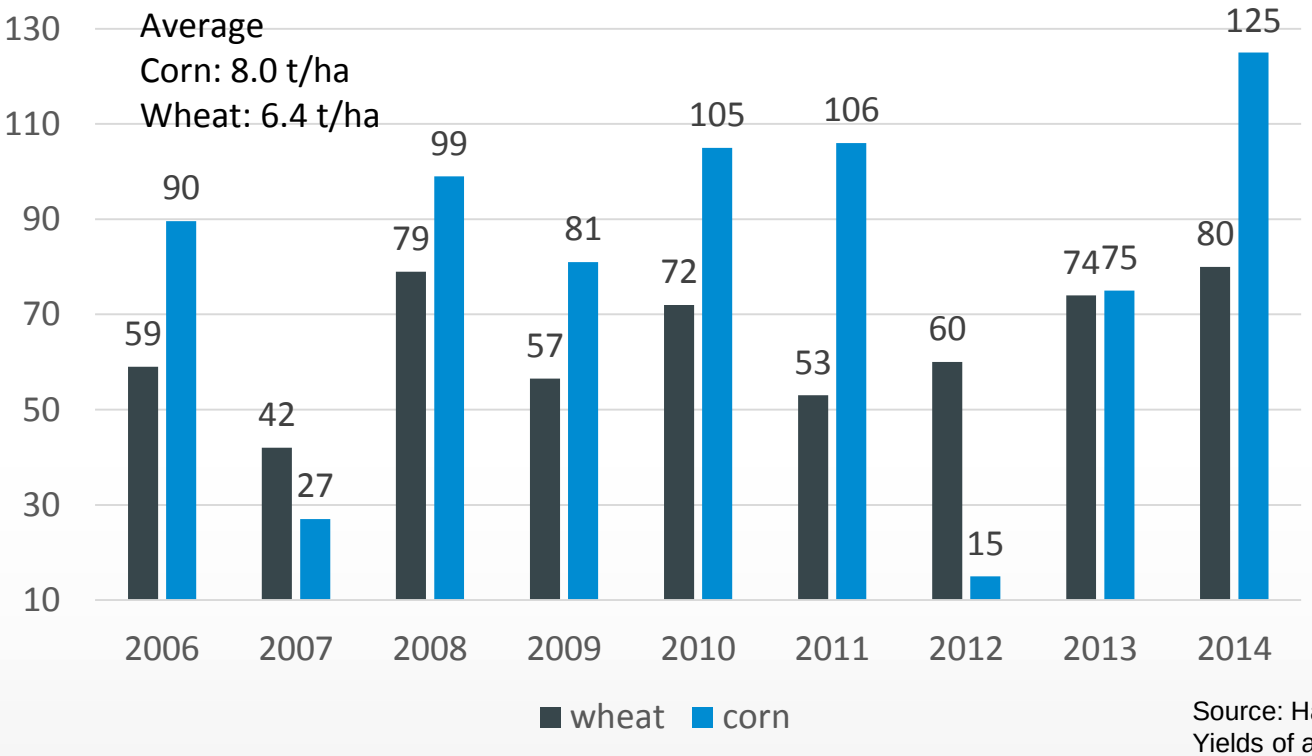
1. high weather risk – in many years it is too dry
2. ➔ high variation of yields
3. in years with low yield ➔ weed problems, low N-production, ➔ the positive effect as previous crop is missing

➔ It is easier and less risky to grow sunflowers

➔ On good soils in South Hungary near Pecs and Mohacs soybeans are an option for the rotation

➔ EU / Hungarian government to stimulate growing soybeans with an additional subsidy of 120-200 $/ha (starting in 2015) ➔ soybean area to increase in the next years – total subsidy capped

Yield Variation from 2006-2014 Balaton Region



Source: Hanse Agro
Yields of a single farm

High risk of growing corn

➔ Preference for winter grain production

➔ Long term effect: more area for rapeseed in the Balaton region

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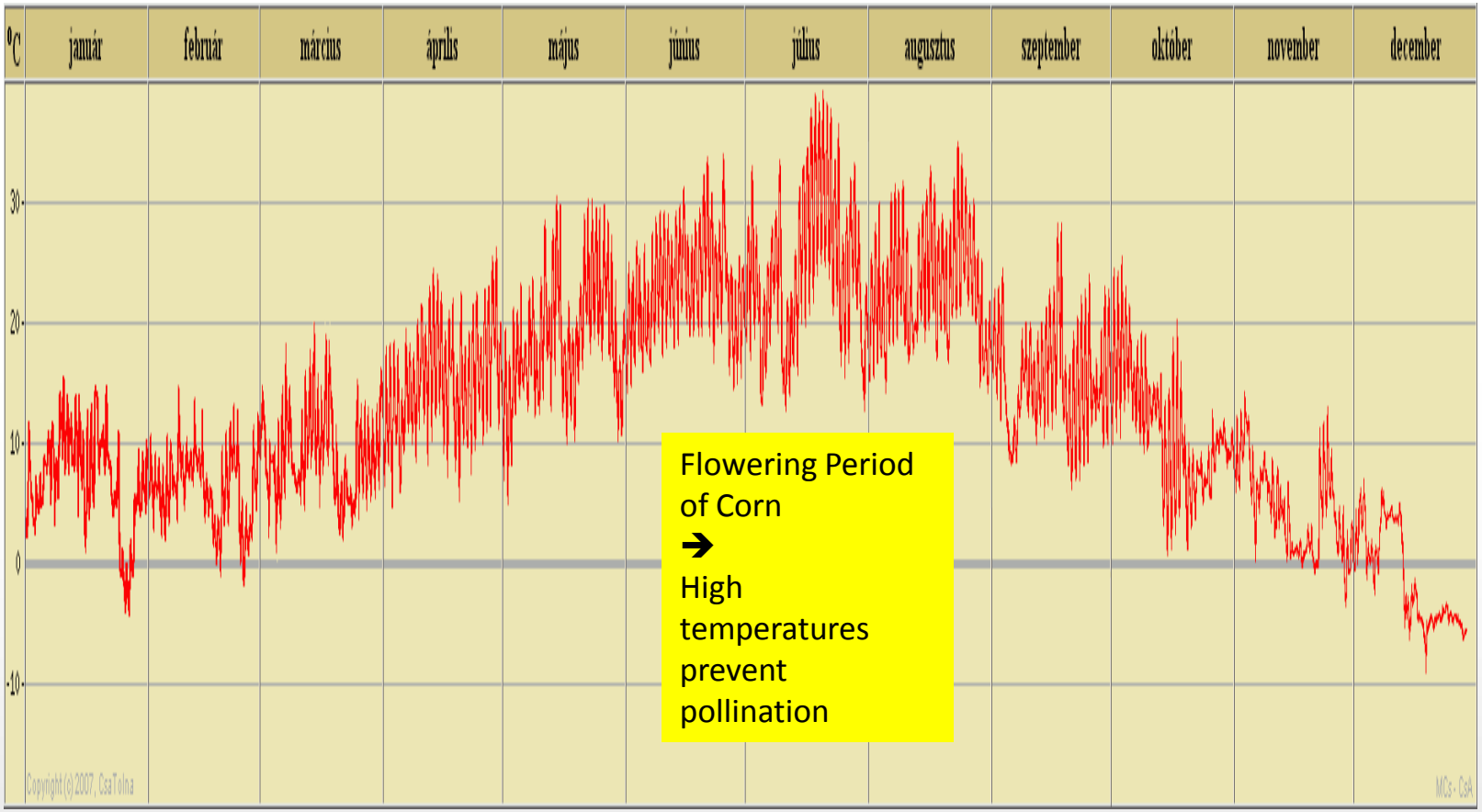
Temperatures in Hungary 2007



40 °C

30 °C

20 °C

Flowering Period of Corn
➔
High temperatures prevent pollination

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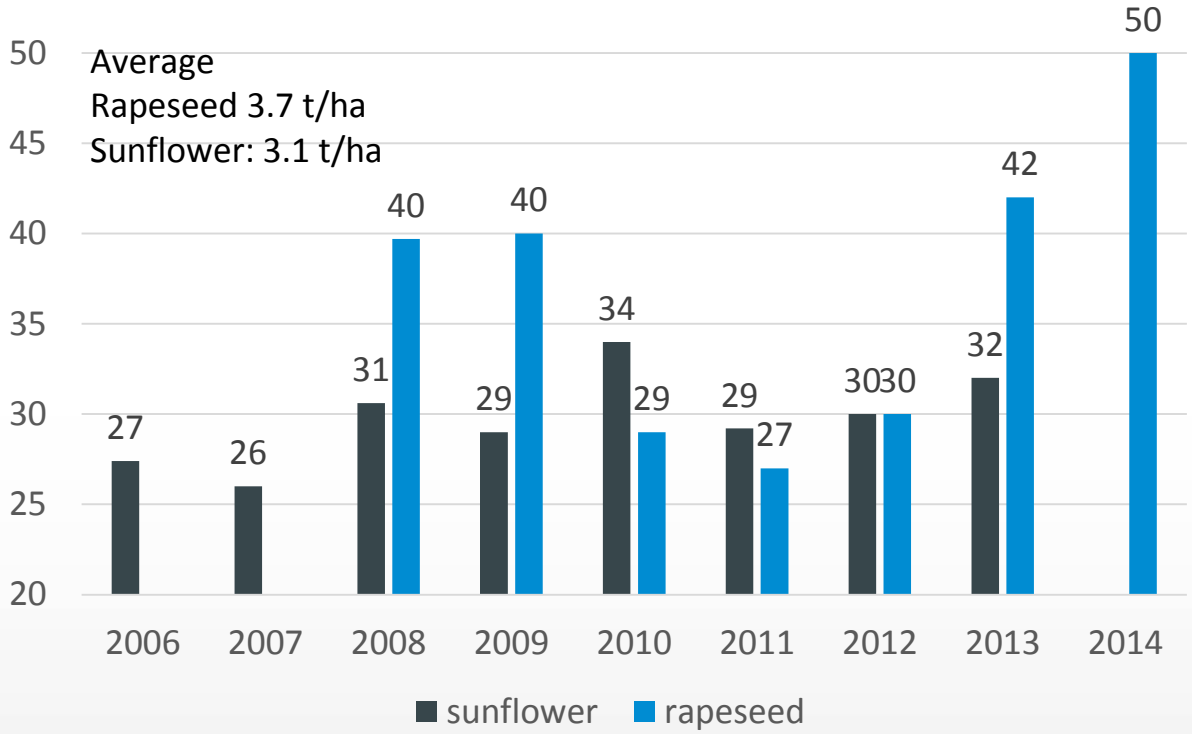
Yield Variation 2006-2014
Balaton Region



Increasing yield advantage for rapeseed on leading farms

Source: Hanse Agro
Yields of a single farm

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Conclusions

1. Climate: East-Hungary sunflower and West-Hungary rapeseed
2. Yield difference rapeseed / sunflower > 0,5 t/ha ➔ rapeseed
3. Rapeseed benefit through high price difference > 30 $/t over sunflower
4. In corn-based rotation: following crop (preferably) sunflower
5. Soybean area will increase through high subsidies by Hungarian/EU policy (total amount of money limited)
6. Traditional Hungarian farmers have good knowledge of corn and sunflower production and a lack of knowledge in growing wheat and rapeseed
7. Good allocation of work and machinery over the year in Hungary in rotations with summer and winter crops
8. The combination of winter and summer crops is the key to risk reduction
9. Potential for more rapeseed in Hungary