

Low input dairy farming: potentially competitive?

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(based on EU funded SOLID research)

*166th EAAE Seminar on Sustainability in the Agri-Food Sector
August 30-31th 2018, National University of Galway
Galway, Ireland*

ILVO

High input, HI
= chemical
fertilizers,
concentrates, ... ↗



Negative
externalities



Low input, LI
=> Positive
externalities



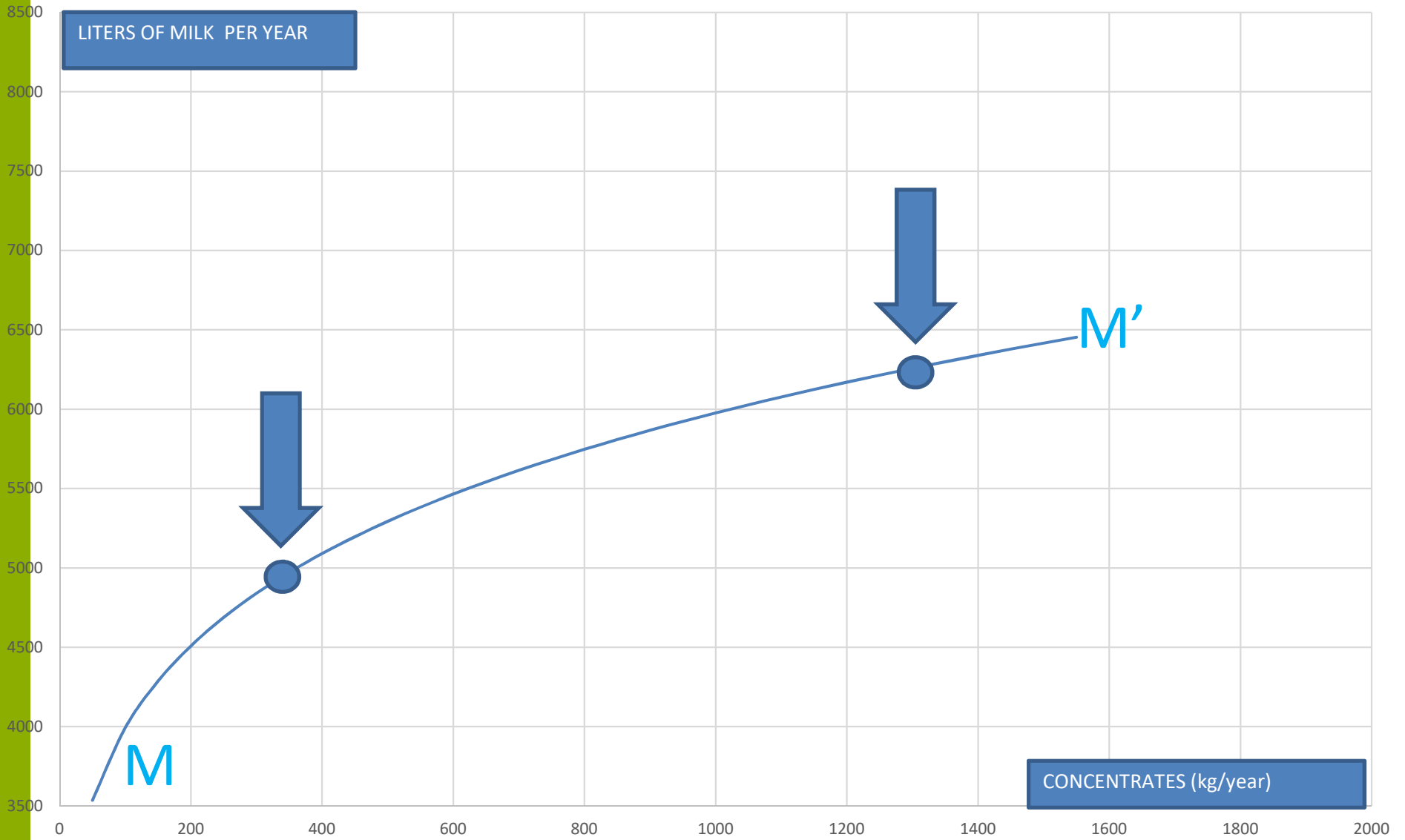
Competitive?

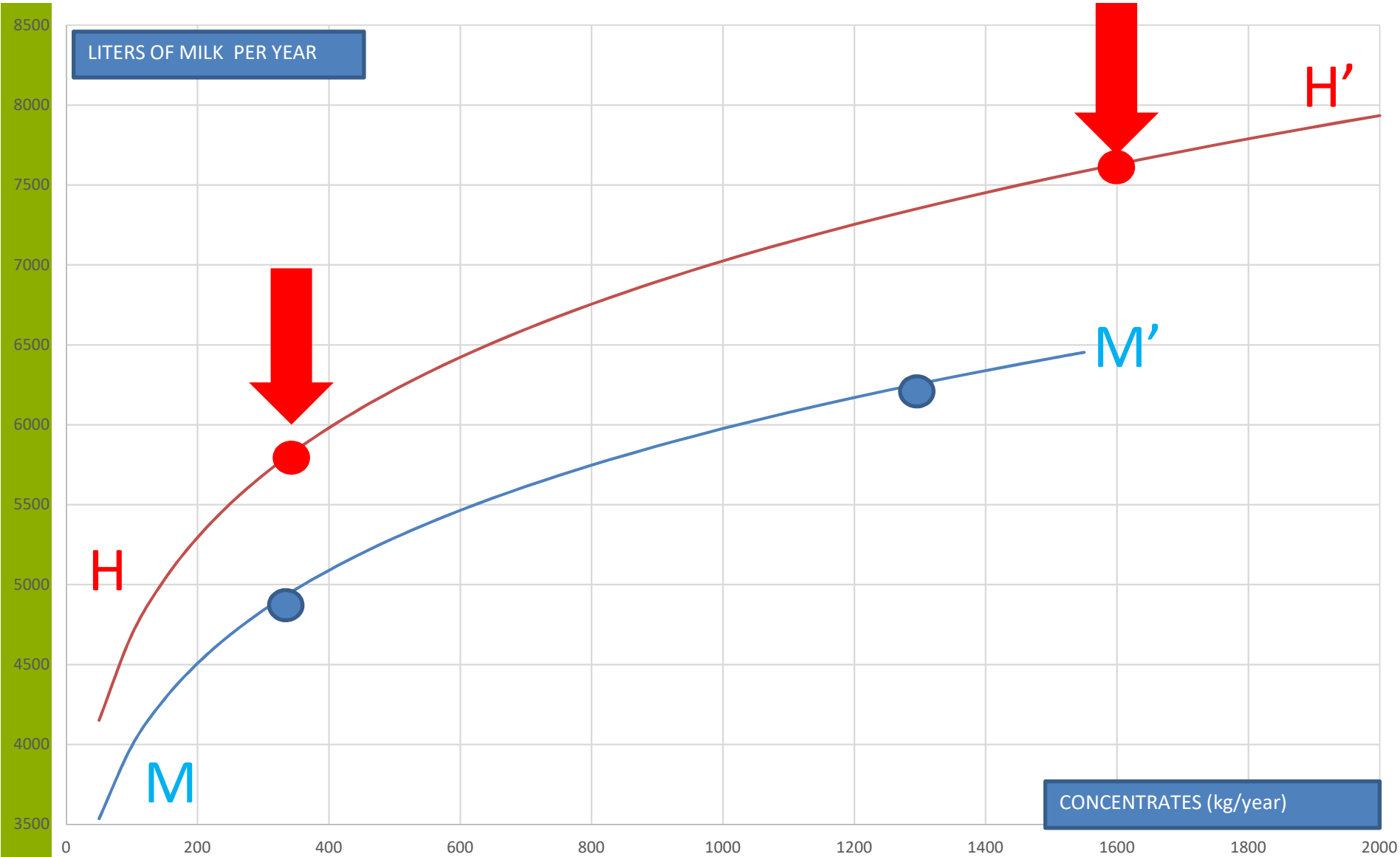
Competitiveness

- Popular term, but various meanings
- Subjective and relative
- Farm level, businesses – national level, economies?
- *“growth, at the expense of other competitors”*
- *“success of the firm, survival in severe cases”*
- *“...high factor incomeon a sustainable basis...”*
OECD
- *“level of productivity of a country ...”* WEF
- Viability of dairy farming (Donnellan et al., 2009)

Winners & losers

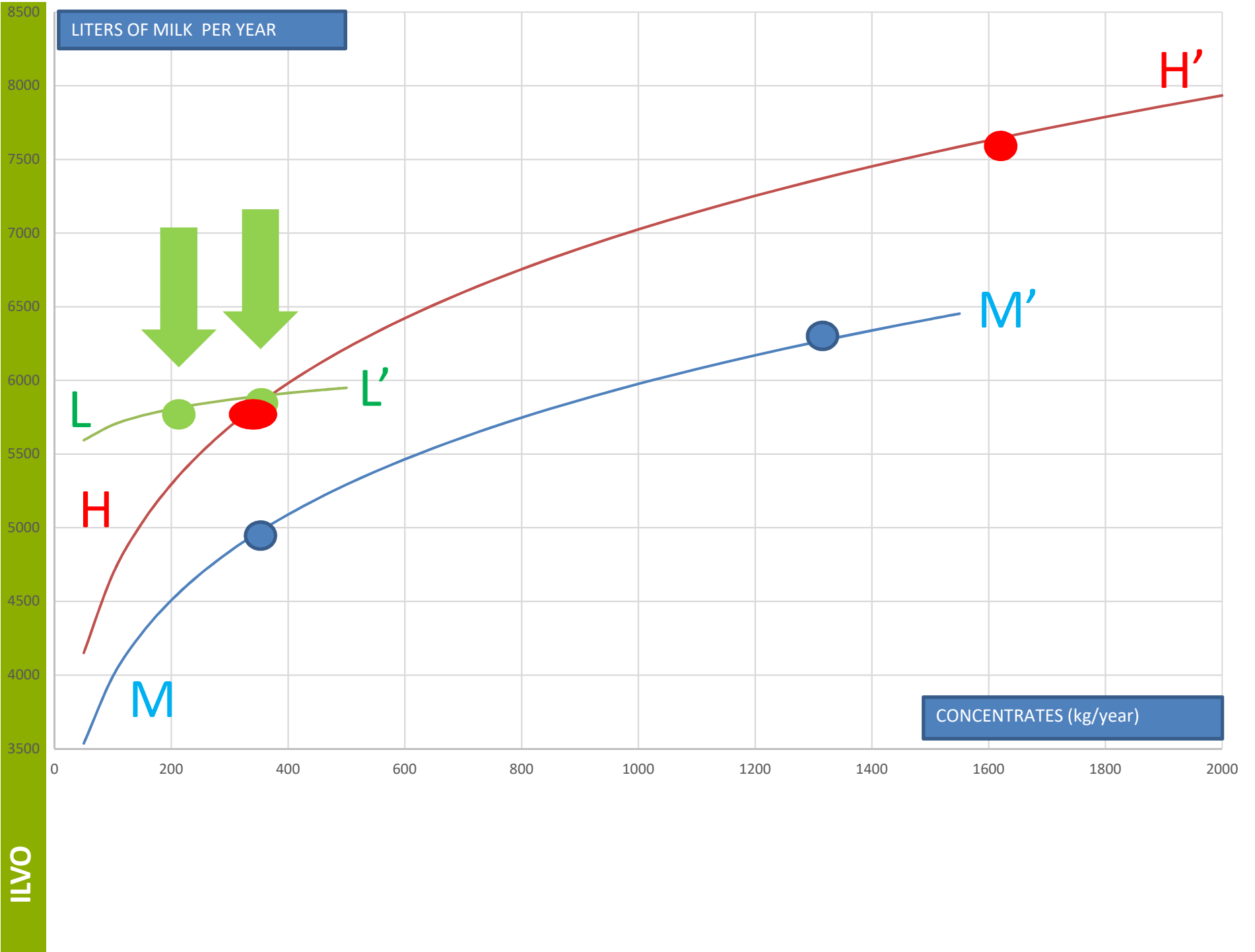


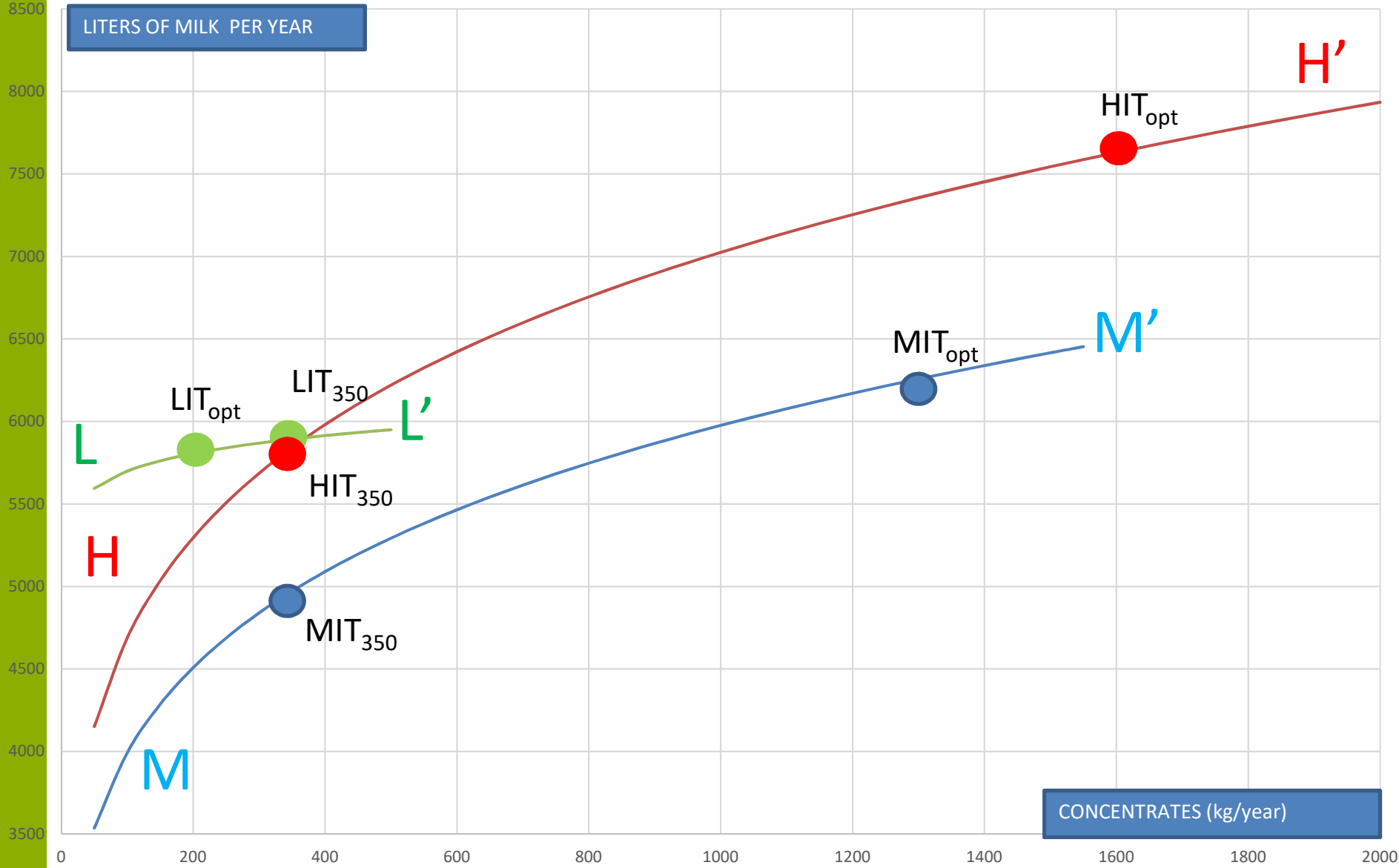




LITERS OF MILK PER YEAR

CONCENTRATES (kg/year)



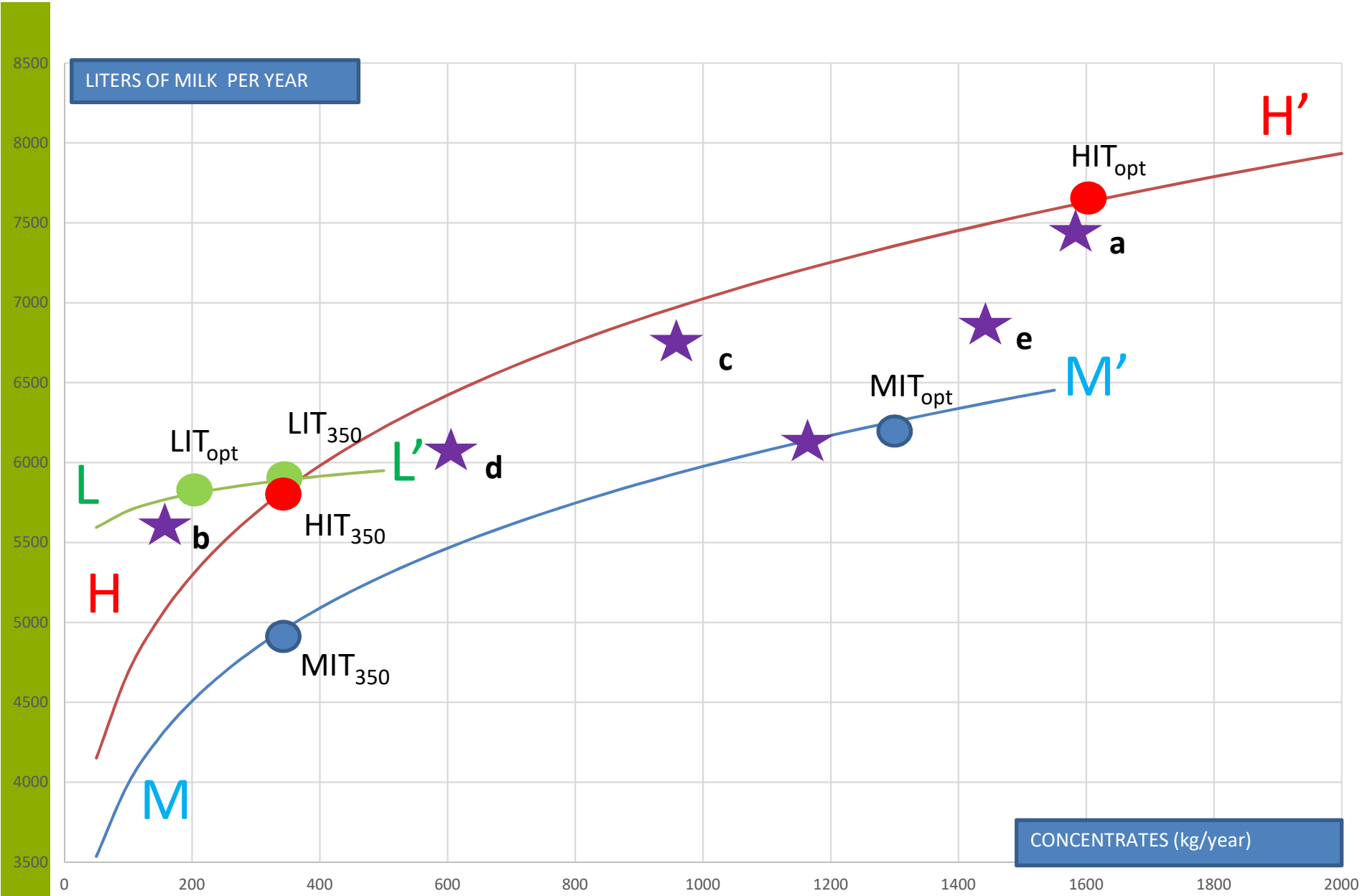


Who is now the best ?



Based on some normative typical farm data

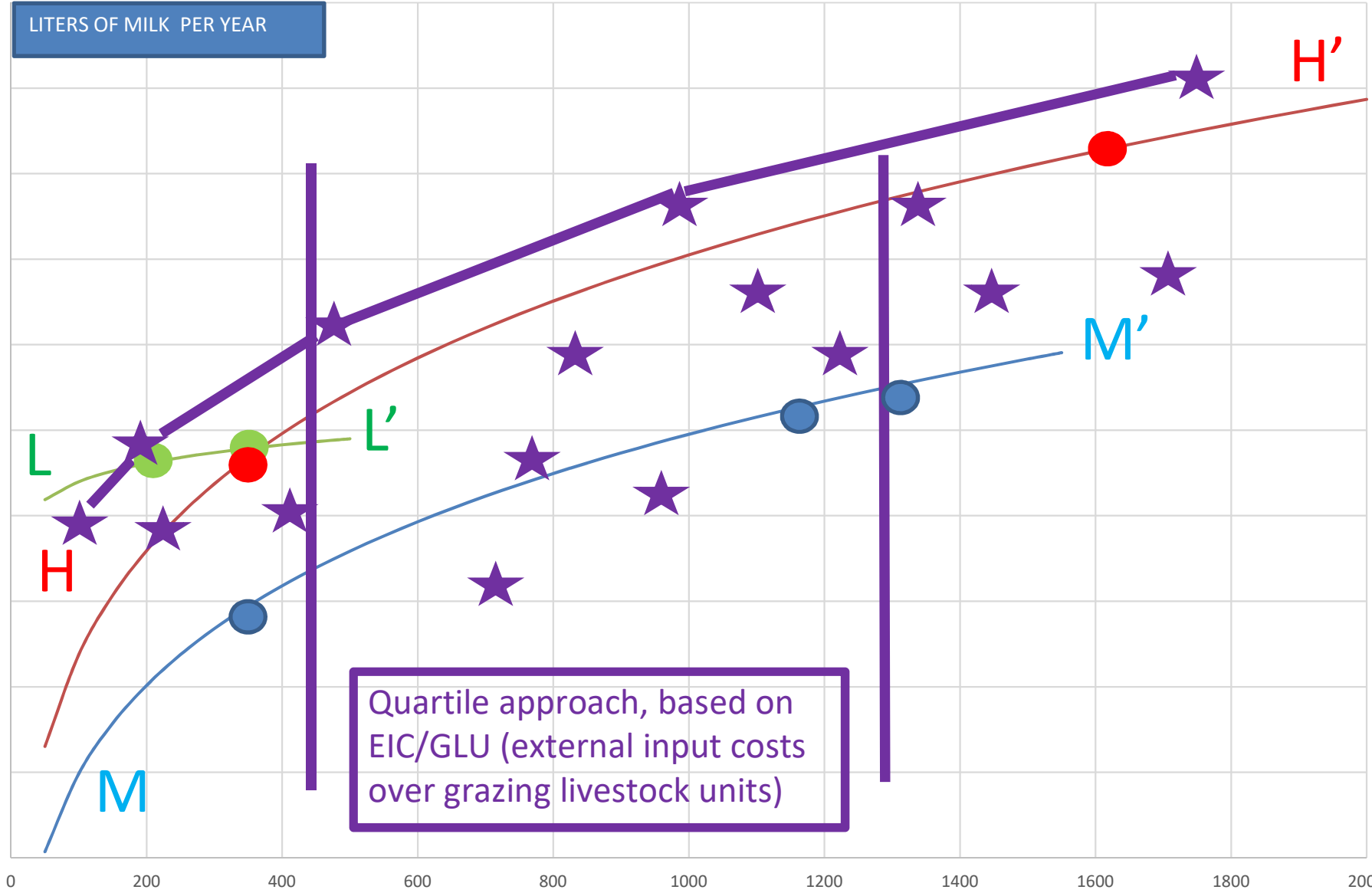
- Productivity : HI far most the best
- Profitability: HI still the best, but less difference
- Resilience to price shocks: differences hardly observable, but still in favour of HI
- Product differentiation, price premium: LI
- BUT: from theory to practice



LITERS OF MILK PER YEAR

CONCENTRATES (kg/year)

LITERS OF MILK PER YEAR



CONCENTRATES (kg/year)

Results LI-HI (20 countries)

Indicator	LI		HI	EU-wide	# countries
EIC /GLU		<		S	20
EIC / UAA		<		S	20
Capital /GLU		<		S	19
Mik production per cow		<		S	20
Farm size, farm capital		<		S	18
% grass / UAA		>		S	16
.....					
GLU / UAA		?		NS	6 > ; 3 <
% of family labor		>		S	7
Milk production / UAA		<		S	15

Bijttebier, J., Hamerlinck, J., Moakes, S., Scollan, N., Van Meensel, J. & Lauwers, L. (2017). Low-input dairy farming in Europe: Exploring a context-specific notion. *Agricultural Systems*, 156, 43–51

Productivity per cow (% of median)

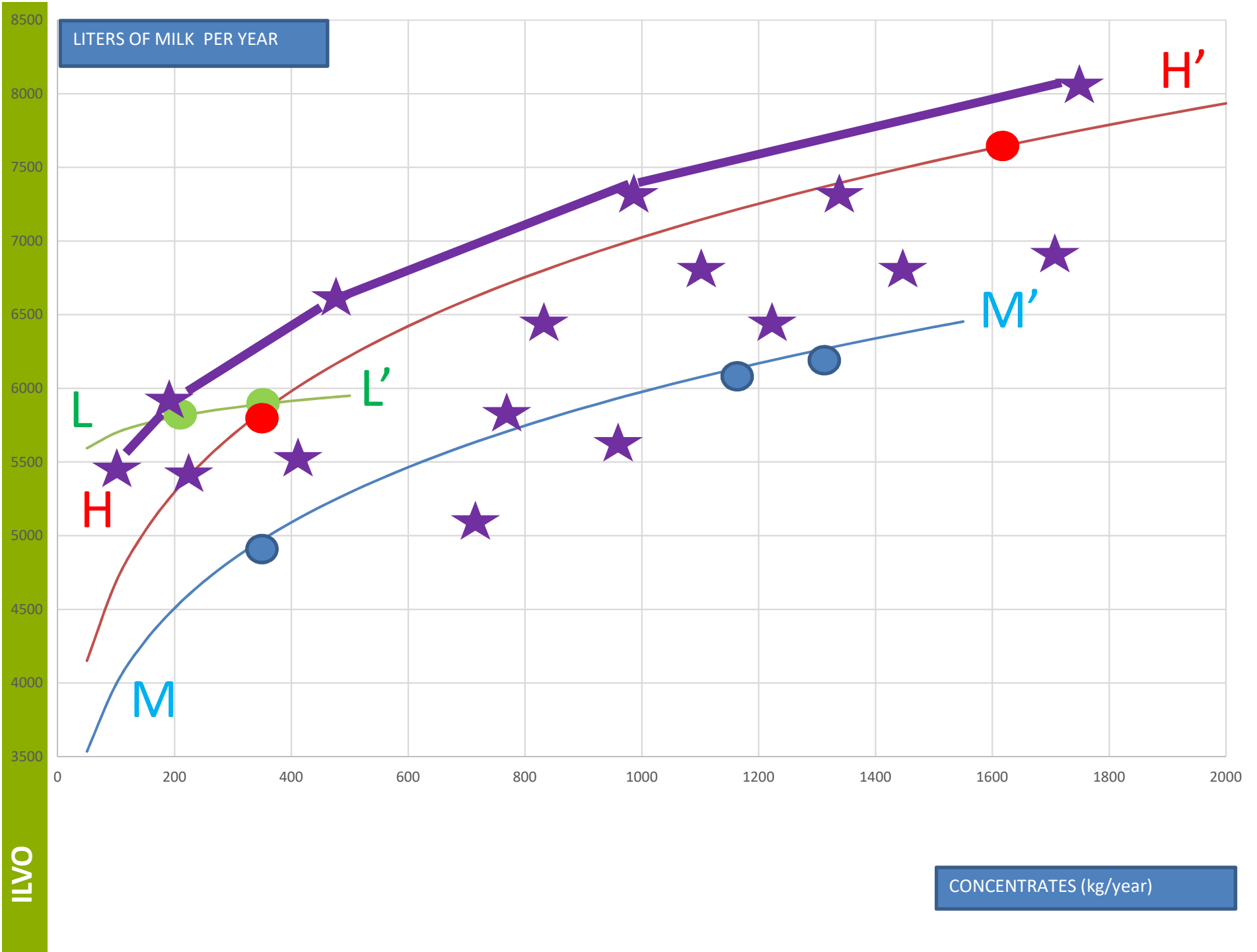
COUNTRY	LI		HI		ORG	
Finland	8101	93	9414	109	8187	94
Sweden	7875	94	9074	108	7741	92
Danmark	8071	94	9132	107	7845	92
Netherlands	7159	88	9001	110	6401	79
Italy	3660	60	7659	126	5058	83
Poland	3820	77	6527	131	3363	68
Latvia	4500	86	6861	131	4880	93
Belgium	5593	78	8336	117	5616	79
United Kingdom	5820	80	8606	119	6842	94

Productivity per ha (% of median)

Country	LI		HI		ORG	
ITALY	4693	51	13869	149	5774	62
UNITED KINGDOM	5601	67	11718	141	5878	71
BELGIUM	5312	74	9658	135	3743	52
POLAND	2733	77	4864	138	2212	63
NETHERLANDS	10923	81	18043	134	6721	50
CZECH REPUBLIC	2064	96	2166	101	1688	79
FINLAND	4258	93	4749	103	3444	75
GERMANY	4844	94	4277	83	3809	74
LITHUANIA	1994	106	1774	94	1125	60
DENMARK	8160	96	9673	114	5769	68

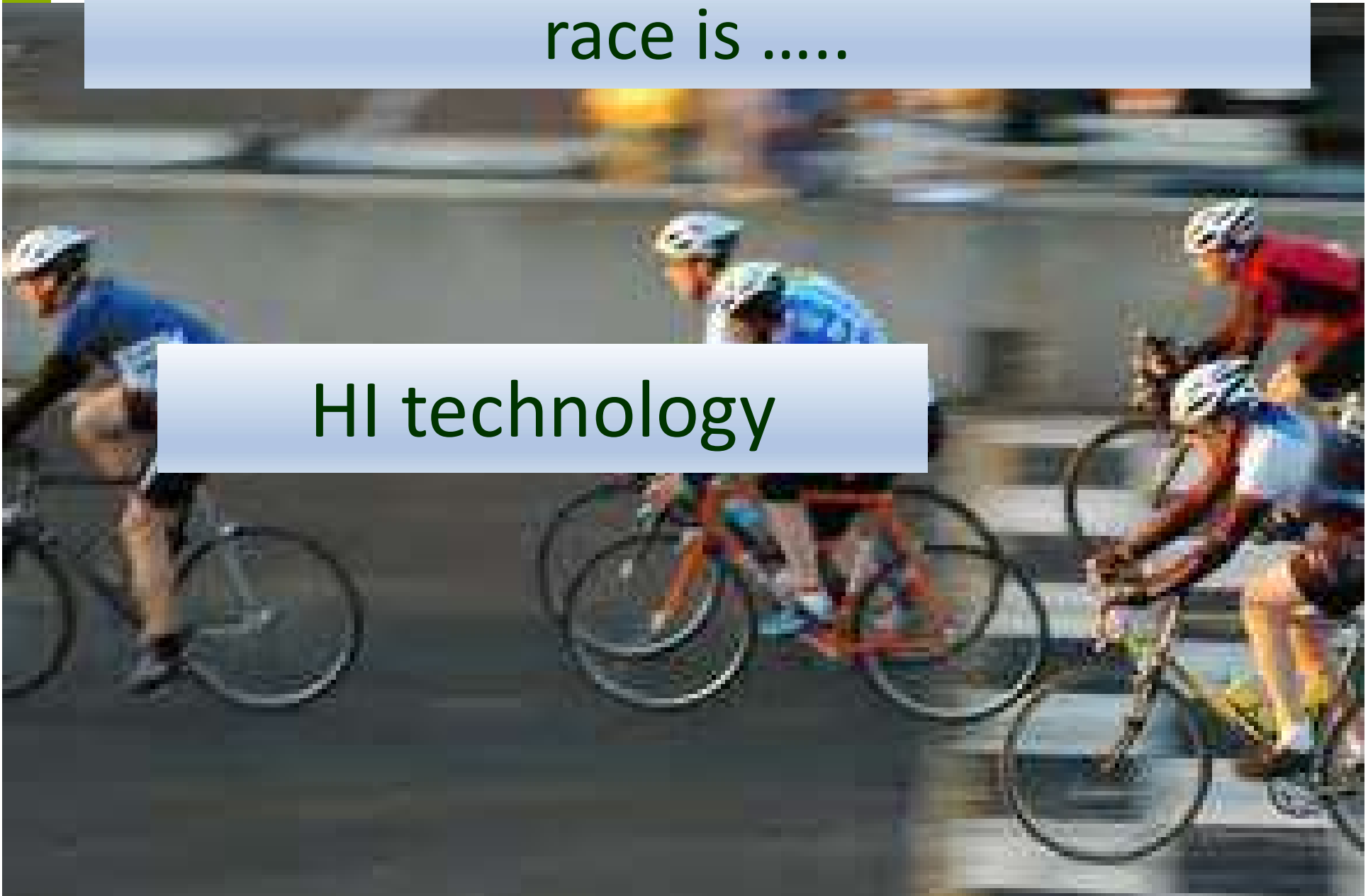
Efficiency analysis

Variable	LI	MI	HI
TE	0.689 ^{ab}	0.677 ^a	0.700 ^b
CAE	0.450 ^a	0.509 ^b	0.536 ^c
CE	0.309 ^a	0.351 ^b	0.382 ^c



And the winner of the PRODUCTIVITY
race is

HI technology



In euro per farm	LI	MI	HI
Total output	56,807	88,903	135,205
- total intermediate consumptions	32,677	55,781	93,353
+ Balance subsidies and taxes	11,274	14,666	20,895
Gross farm income	35,403	47,787	62,748
- Depreciation	8,812	13,070	18,192
Farm net value added	26,591	34,717	44,556

In euro per farm	LI	MI	HI
Farm net value added	26,591	34,717	44,556
- Wages paid	1,578	3,298	9,477
- Rent paid	2,374	3,637	5,413
- Interest paid	2,032	3,324	4,979
+ Balance investment subsidies and taxes	119	100	503
Family farm Income	20,727	24,558	25,191

In euro per farm	LI	MI	HI	
Family farm Income	20,727	24,558	25,191	
- Imputed labour cost	17,177	19,239	20,184	
- Imputed land cost	2,695	2,931	3,301	
- Imputed capital cost	6,873	8,627	11,324	
Net economic profit	-6,018	-6,239	-9,619	

Who is now the best ?

- *Partial productivity*
- *Efficiency analysis*
- Profitability

PROFITABILITY RATIO

= Net farm income / imputed own factor costs

In euro per farm	LI	MI	HI
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Profitability ratio

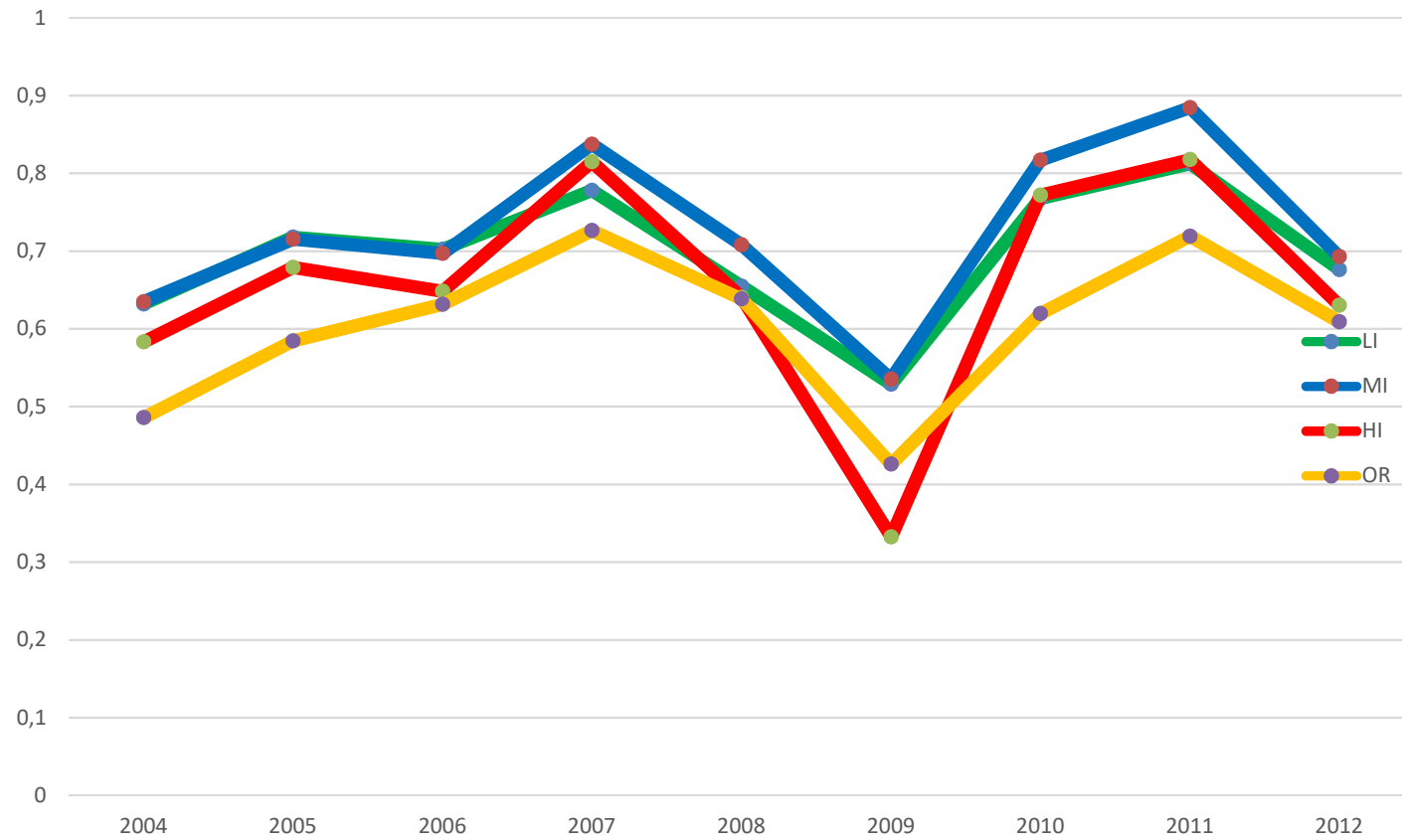
0.77

0.80

0.72

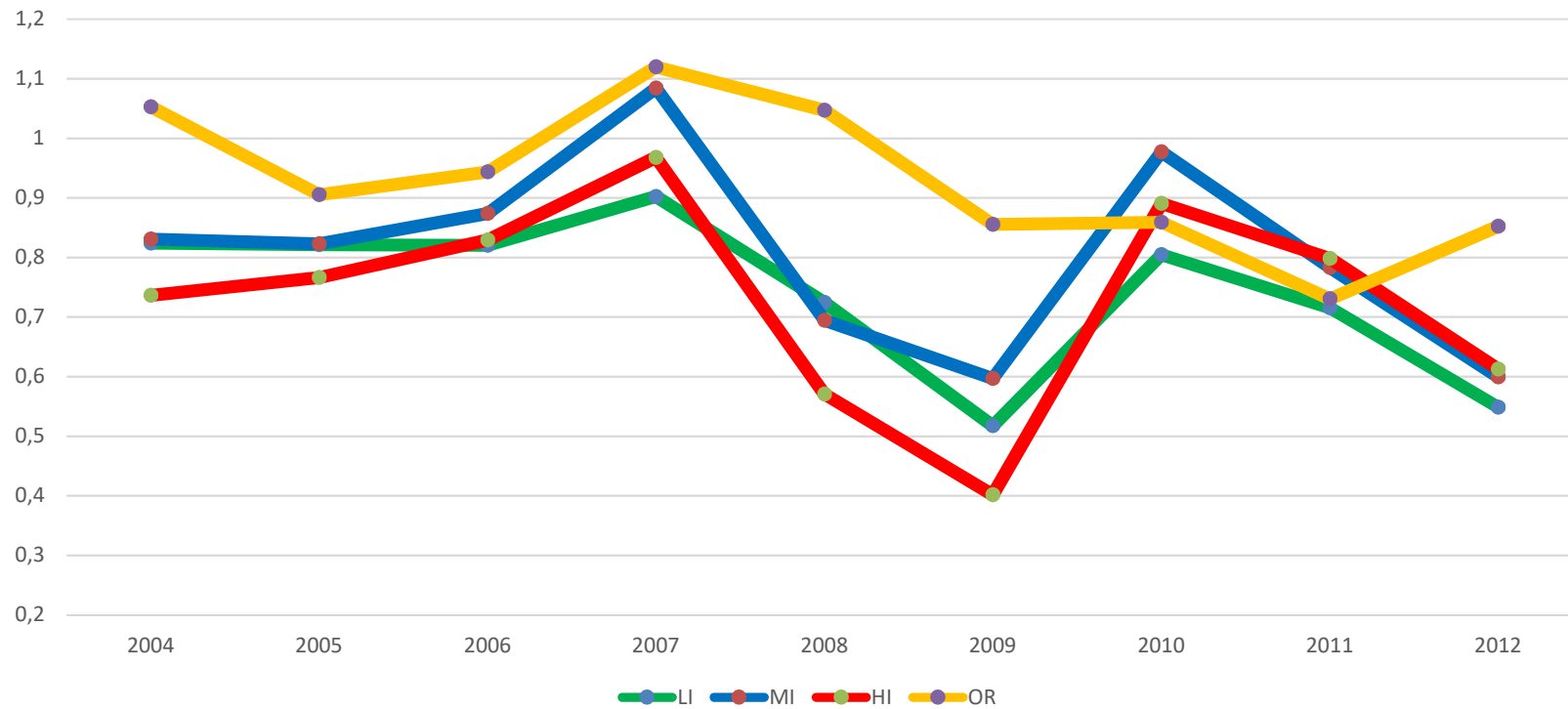
Results EU wide

Farm net income/imputed costs



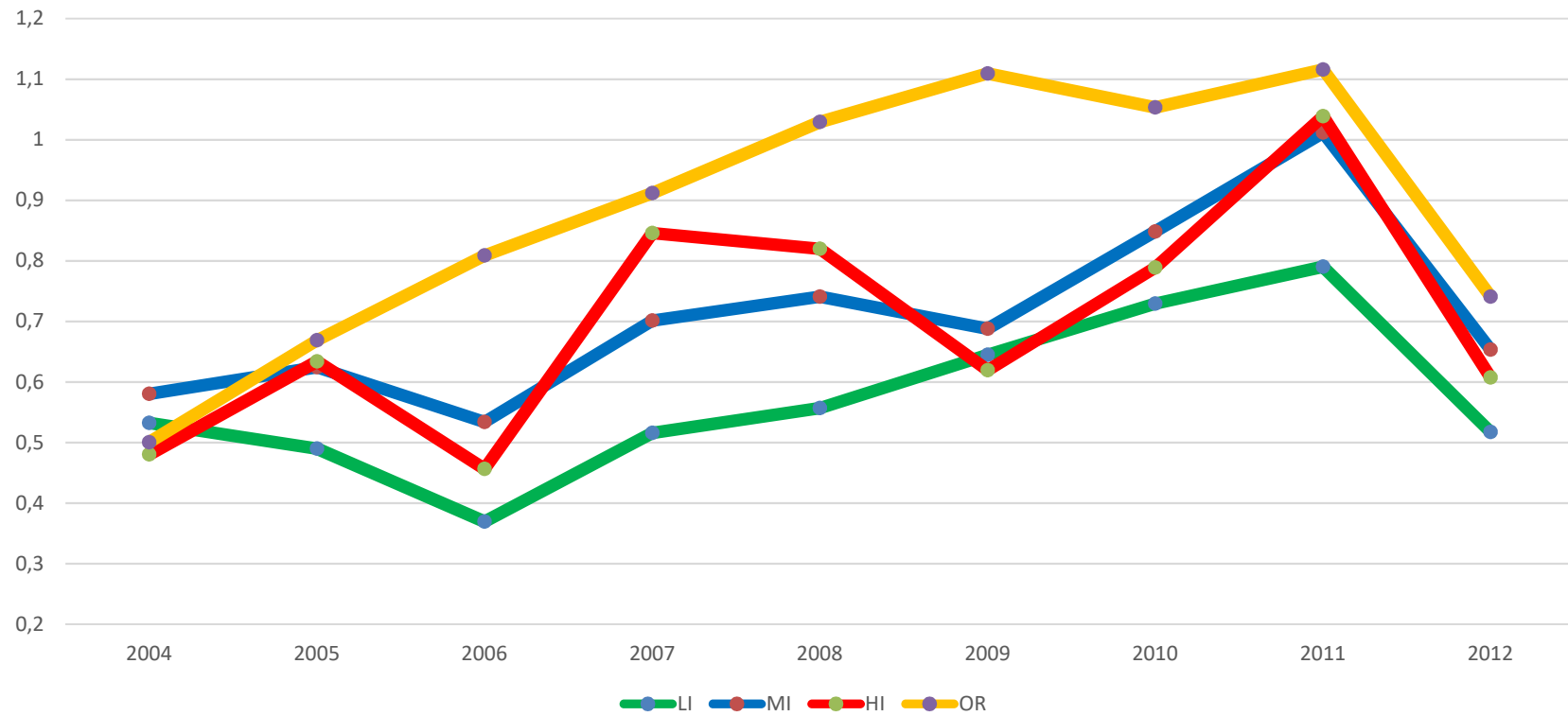
Results Belgium

Belgium: FNI/imputed costs



Results United Kingdom

United Kingdom: FNI/imputed costs



And the winner of the PROFITABILITY
race is

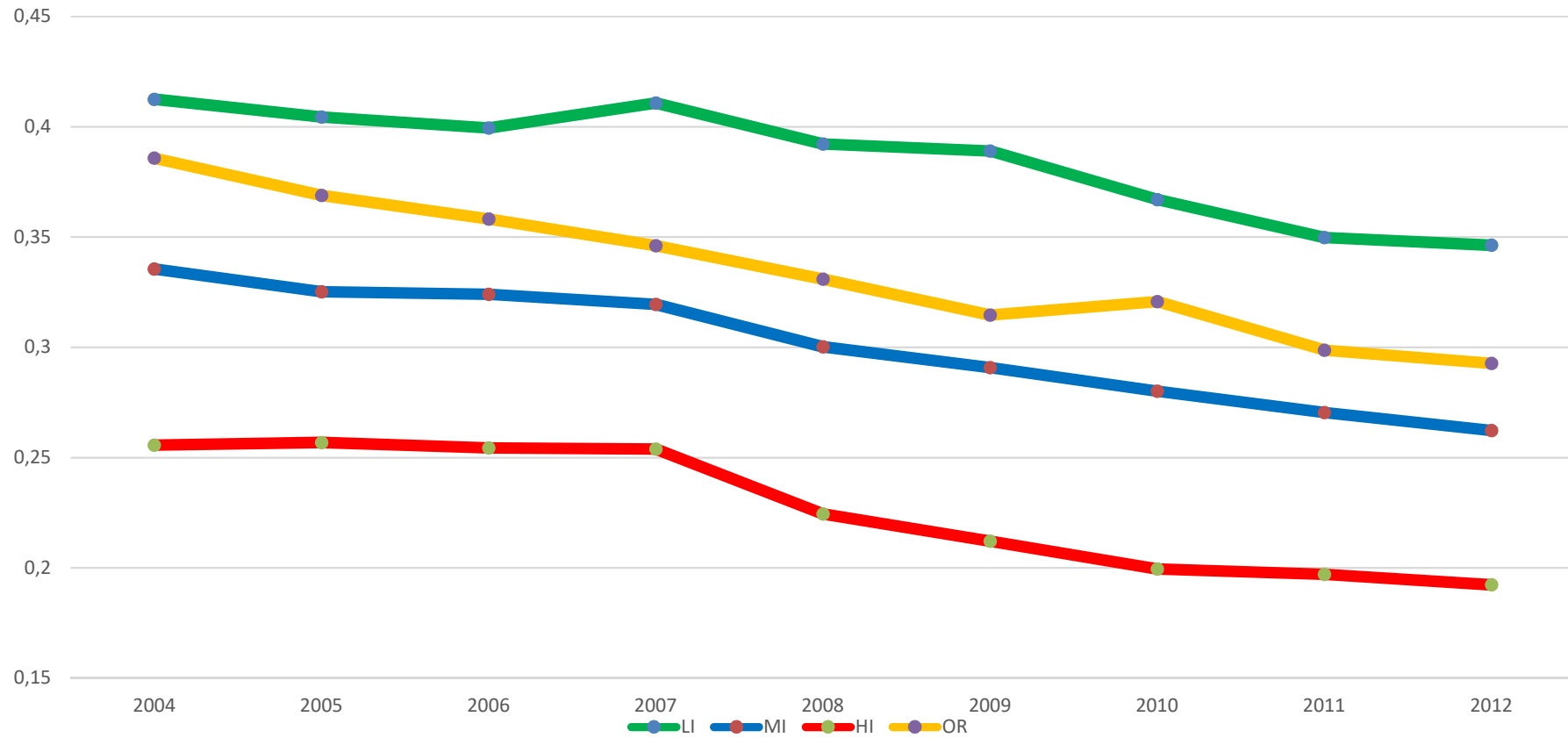
Undecided, look at country
level

Who is now the best ?

- *Partial productivity*
- *Efficiency*
- *Profitability*
- Resilience: % of imputed costs on total costs
 - % of EIC on total costs?

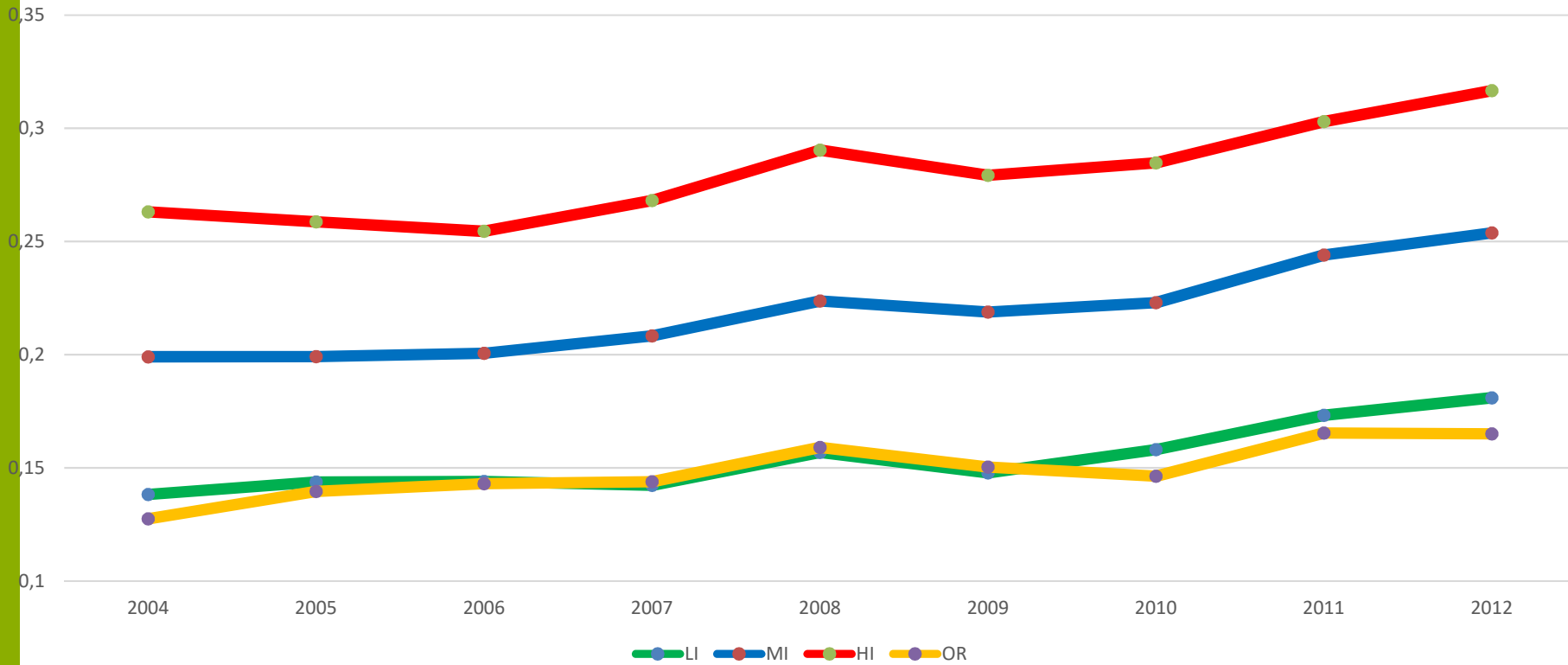
Results EU wide

Imputed costs on total costs



Results EU wide

EIC/total costs



And the winner of the
RESILIENCE race is



LI technology

DISCUSSION

- Interpretation of results in terms of firm competitiveness, viability and survival
- Performance indicators for the triple input of **own** PF : integrated via profitability ratio
- Quartile delimitation= very very pragmatic
- Firm competitiveness: element of chain performance: are firms the weakest element?

conclusions

- LI not necessarily less competitive than HI
- Matter of doing the things right instead of right things
- But, when environmental externalities become driver for “doing right things”, then we need to choose and improve LI
- Unsufficient remuneration of PF and high public support in both LI and HI

Thanks for your attention!

Further Reading:

Bijttebier, J., Hamerlinck, J., Moakes, S., Scollan, N., Van Meensel, J. & Lauwers, L. (2017). Low-input dairy farming in Europe: Exploring a context-specific notion. *Agricultural Systems*, 156, 43–51.

Scollan, N., Padel, S., Halberg, N., Hermansen, J., Nicholas, P., Rinne, M., Zanolli, R., Zollitsch, W. & Lauwers, L. (2017). Organic and Low-Input Dairy Farming: Avenues to Enhance Sustainability and Competitiveness in the EU. *Eurochoices*, 16(3), 39-44.

This work was supported by the European Commission project Sustainable Organic and LI Dairying (SOLID) funded Framework 7 Contract no. 266367

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