



Driving competitiveness in dairying

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Competitiveness

- Popular term, but various meanings
- Subjective
- 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



Competitiveness in dairying

- Many producers on **one market** for milk, consumed by many. In between lot of chain actors
- **Market price** as communication between groups
- Producers are **price takers**, and suppliers of an “intermediate” product that is an input for the processing industry who supplies innovative milk products to the consumers
- Inelastic supply and demand: **volatile market** prices
- Technological progress: increasing supply



Driving competitiveness in dairying

- Cost minimizing, cost leadership
- Product differentiation, price premium
- Niche products
- Diversification
- LI and ORG dairy farming: what is their unique position (or, selling proposition?)



ORG
organic

LI
Low input



I

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is obligatory)

REGULATIONS

Council Regulation (EC) No 834/2007

of 28 June 2007

on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 37 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Whereas

fair competition and a proper functioning of the internal market in organic products, and of maintaining and justifying consumer confidence in products labelled as organic. It should further aim at providing conditions under which this sector can progress in line with production and market developments.

⁽¹⁾ The Communication from the Commission to the Council and the European Parliament on a European Action Plan for Organic Food and Farming proposes to improve and reinforce the Community's organic farming standards and control and inspection requirements. In its conclusions of

ORG and LI

- Organic farming, is a way of farming without some important inputs such as chemical fertilizers and pesticides. Most things are regulated, see EC Regulation 834/2007.
- Low-input farming also try to substitute some of these external inputs, but not at the legal engagement level of organic.
- Given this lack of steering rules, LI is a more fuzzy concept.



LI = more fuzzy concept

- Relying less on external resources and more on locally generated resources (Parr et al, 1990)
- Alternative to intensive production systems (Pretty and Howes, 1993)
- Would be more sustainable as they rely less on non-renewable resources (Webster, 1997)
- Beaufoy et al. (1994) link LI to high nature value
- LI are necessary to maintain this high nature conservation value (Bignal, 1996)
- SOLID approach (see also further): we consider LI as a relative notion: without a given context (country, region) we compare the quartile of lowest input users with the quartile of highest input users (Moakes et al., 2012)



Imagine a farm

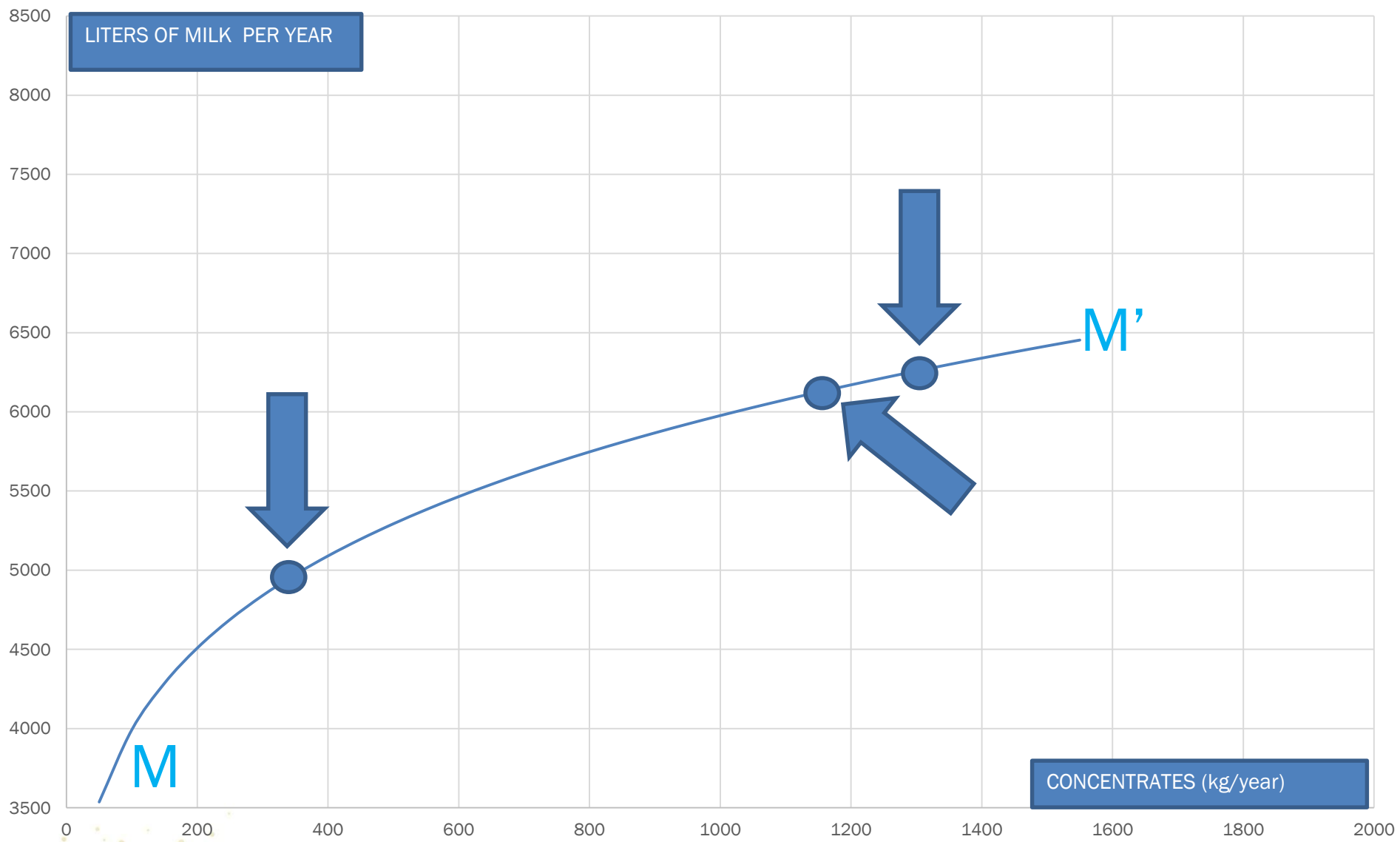
- **40 dairy cows**, producing 6137 liters milk per cow per year (à 0.30 euro/liter = 73658 euro per year) and meat for 10500 euro per year
- **28 ha of land** (of which 10 ha is rented)
- **One family working unit**, 8 hours a day
- On the land we produce forage with 500 euro crop protection costs 4,000 euro fertilizer costs, 700 euro seed costs and 5,000 euro contract work costs and 700 euro other specific costs for forage production. Next, we bought 2,000 euro of forage.
- **With a given technology (race, feeding and culling strategy ...) we need 1165 kg to produce 6137 liters per cow per year (in total 11,650 euro of concentrates)**
- Other variable costs are veterinary products and services (4,000 euro), fuels (3,500 euro) and 'other' (2,000 euro).
- Next, we have still non-specific costs (12,800 euro). These include costs like insurance, water and electricity and upkeep for machinery and buildings.
- We depreciate our buildings and materials with about 17,300 euro per year.
- The farmer has 7,200 euro external factor costs and 26,930 euro imputed factor costs

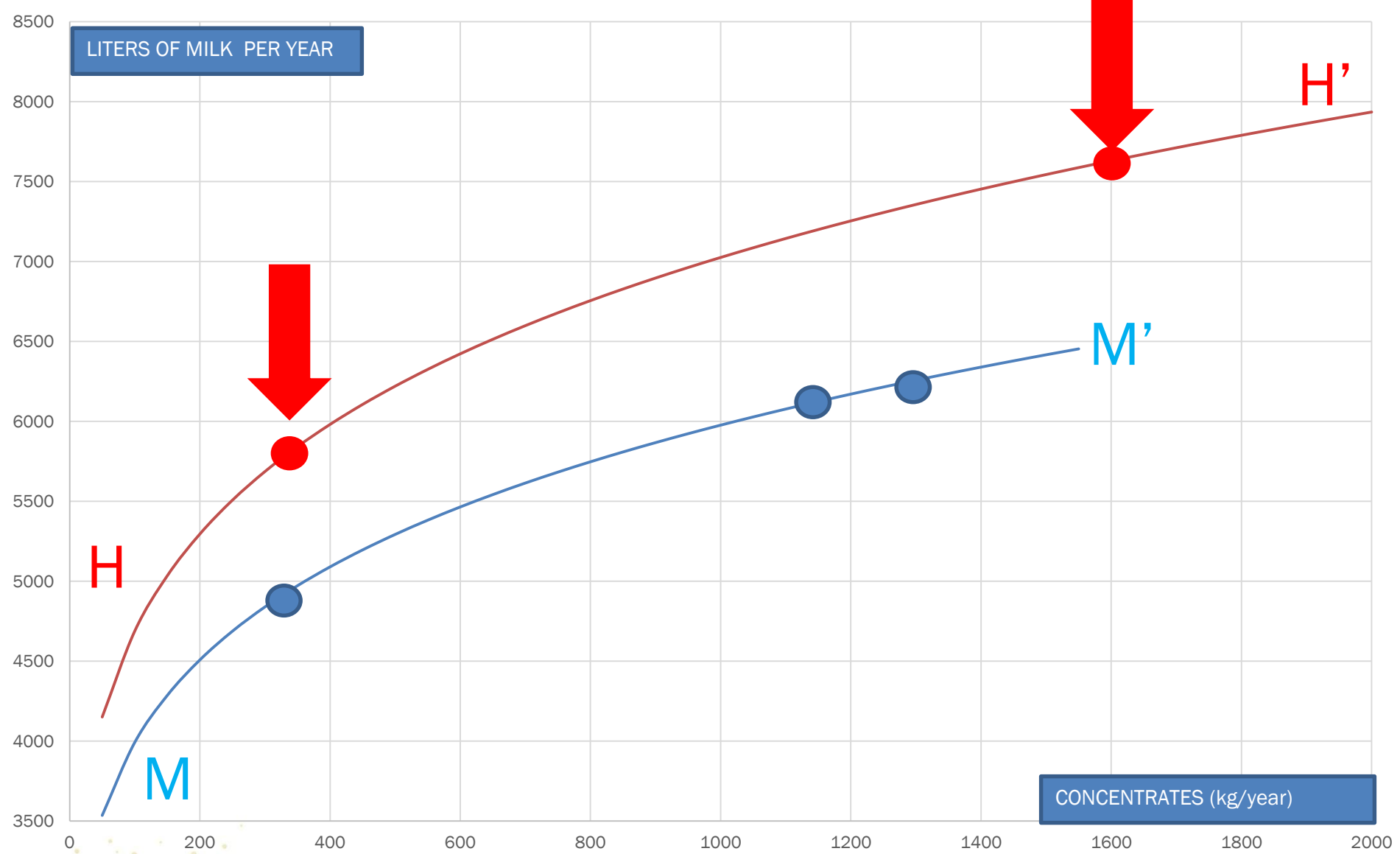


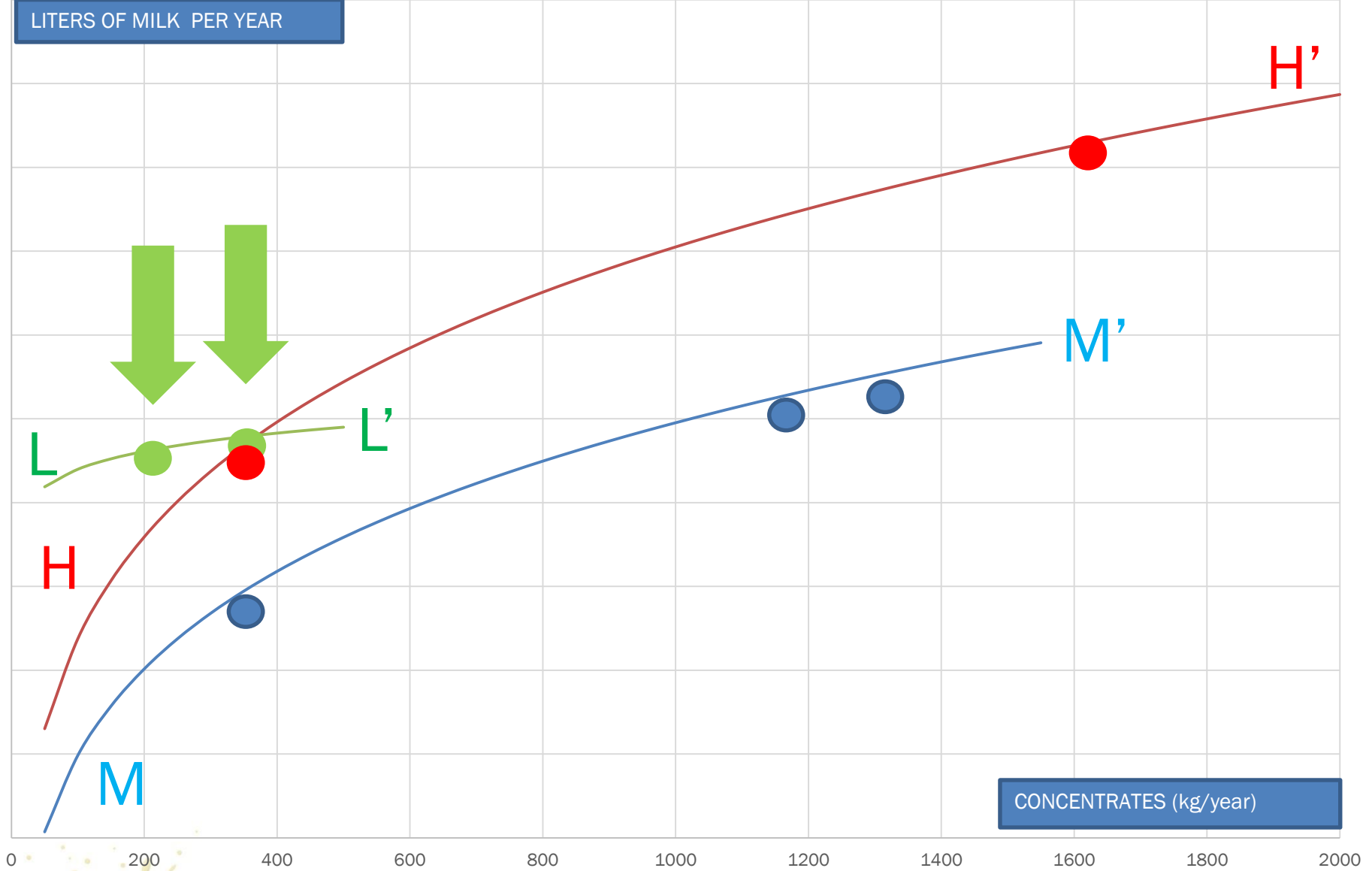
LI – HI ?

- 1165 kg concentrates -> 6137 litres of milk
- HI : more output with more inputs
- LI: moderate output with (much) lower input level



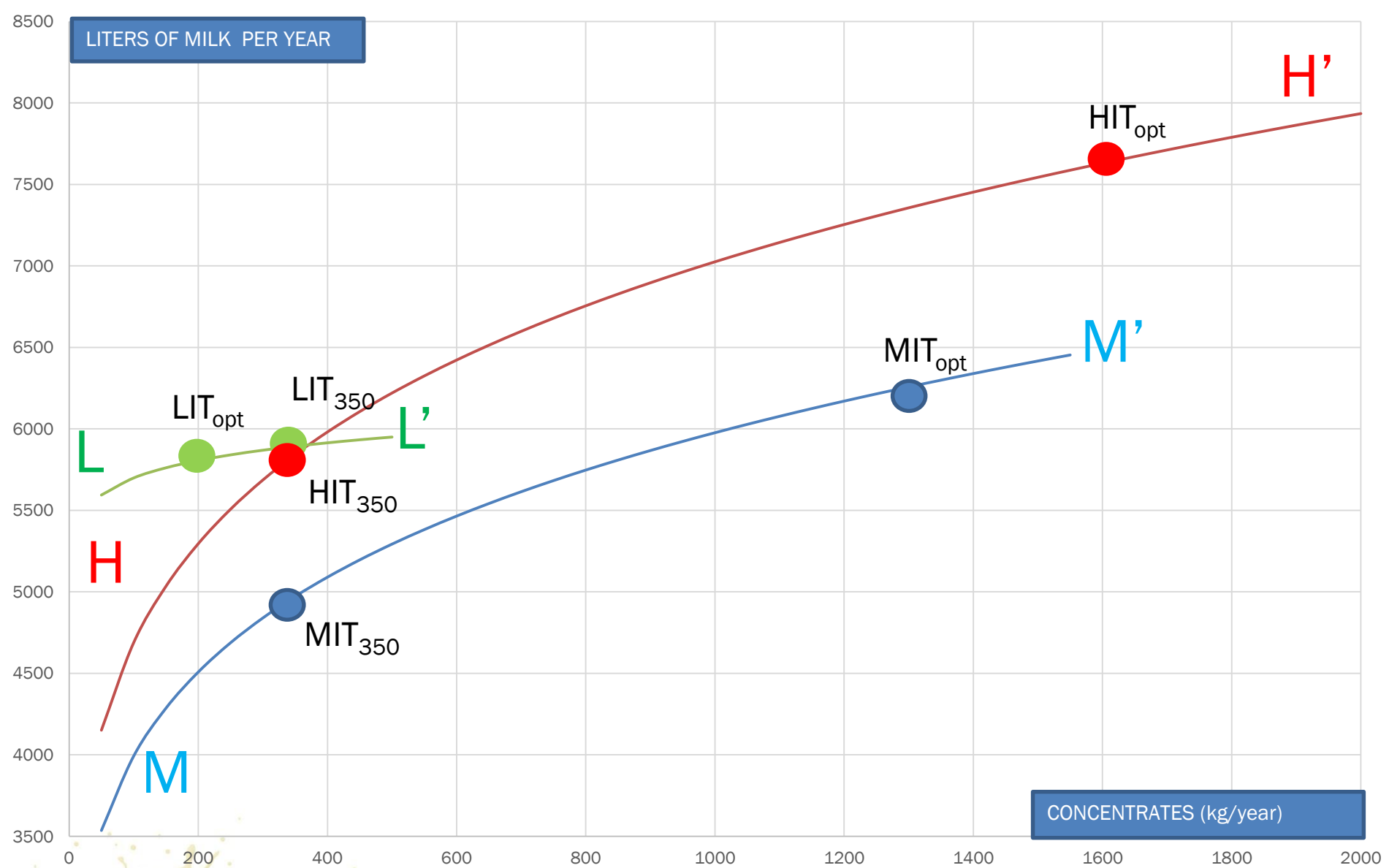






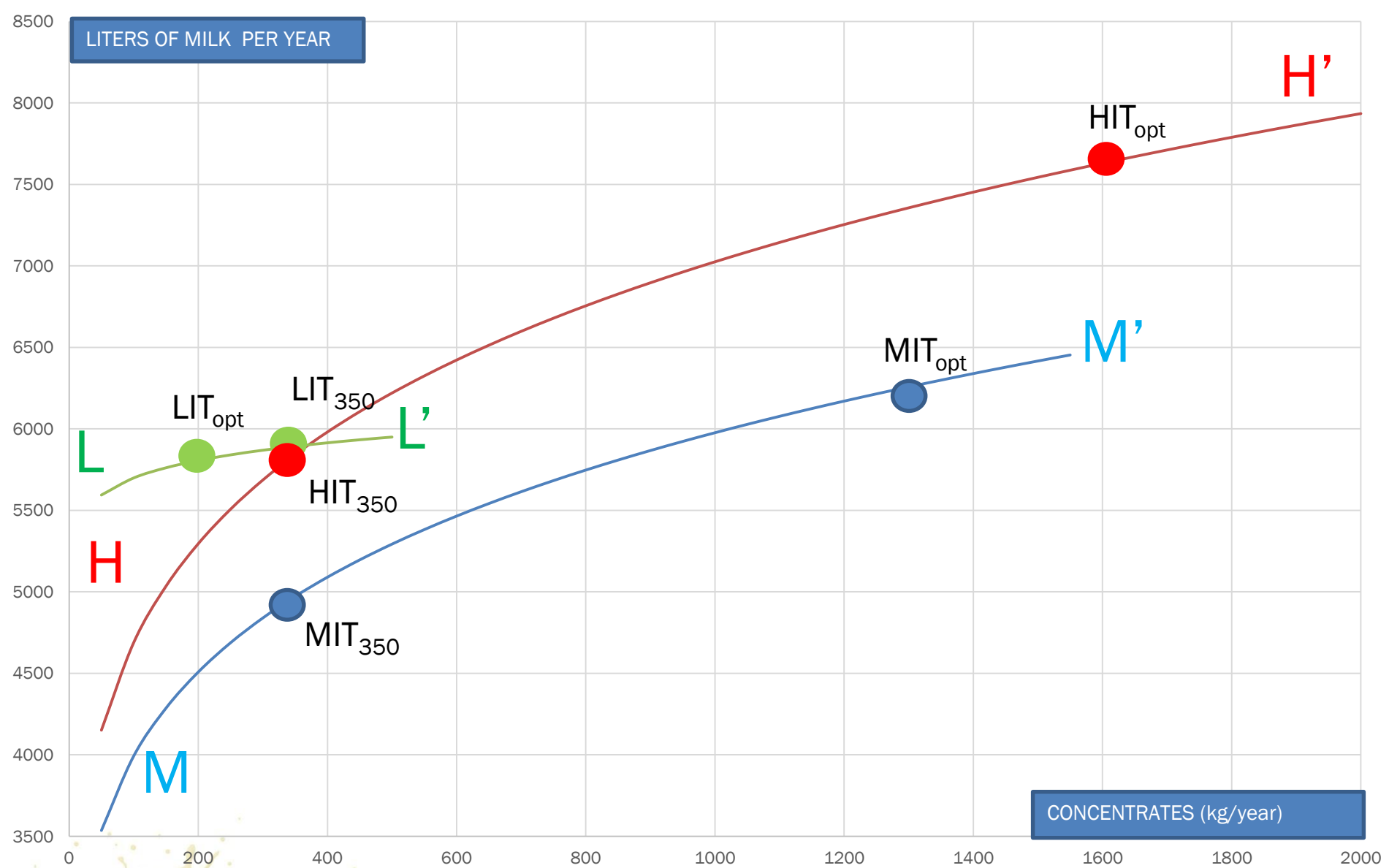
SOLID | Sustainable Organic and Low Input Dairying





Who is now the best ?



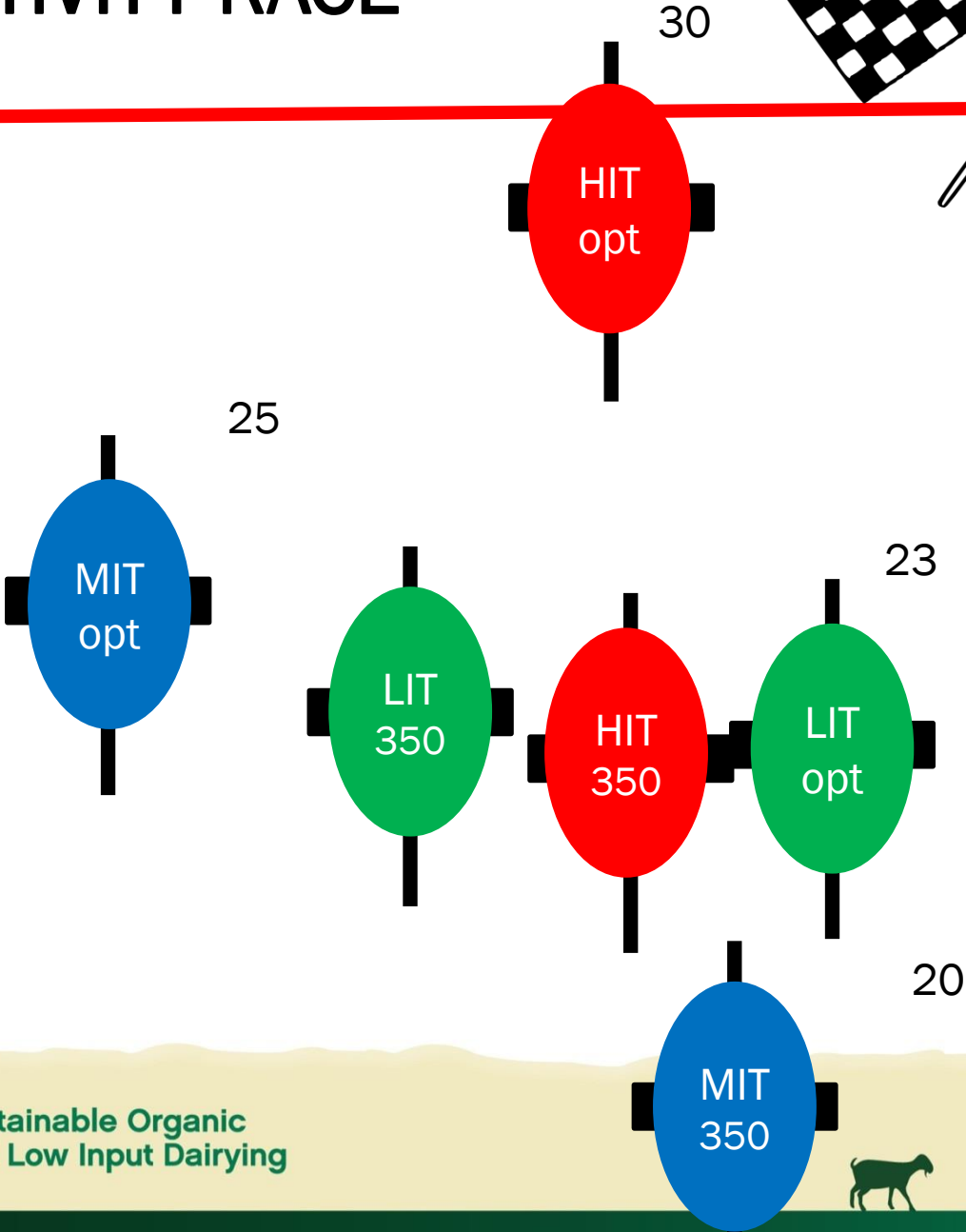
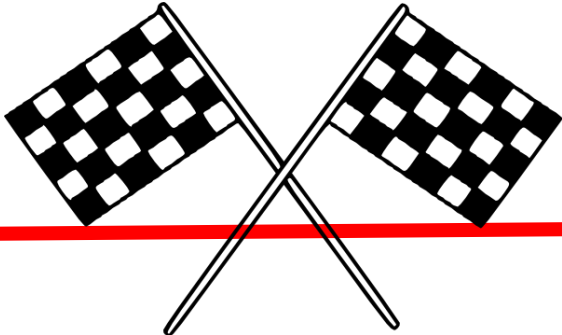


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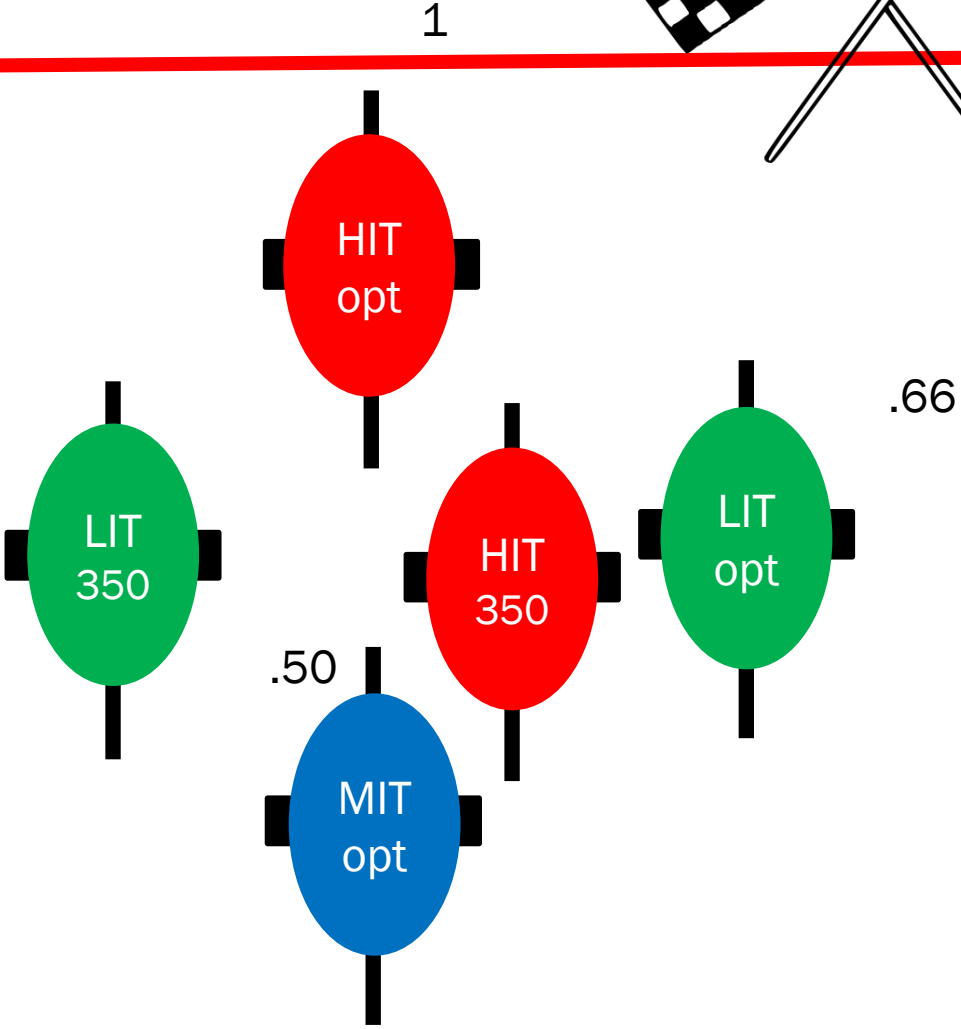
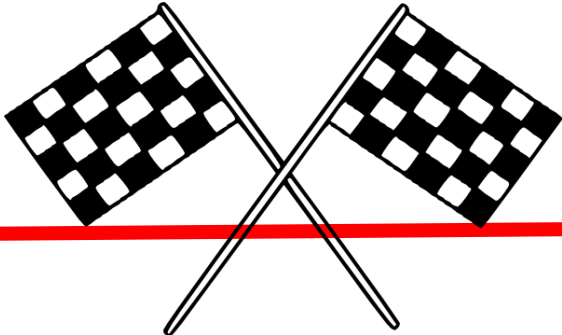
- Partial productivity
 - Milk per unit animal
 - Milk per unit land
 - Milk per unit capital
 - Milk per kg concentrates
- Profitability ratio
 - Net farm income / imputed own factor costs
- Resilience to price shock
- Having a price premium



PRODUCTIVITY RACE

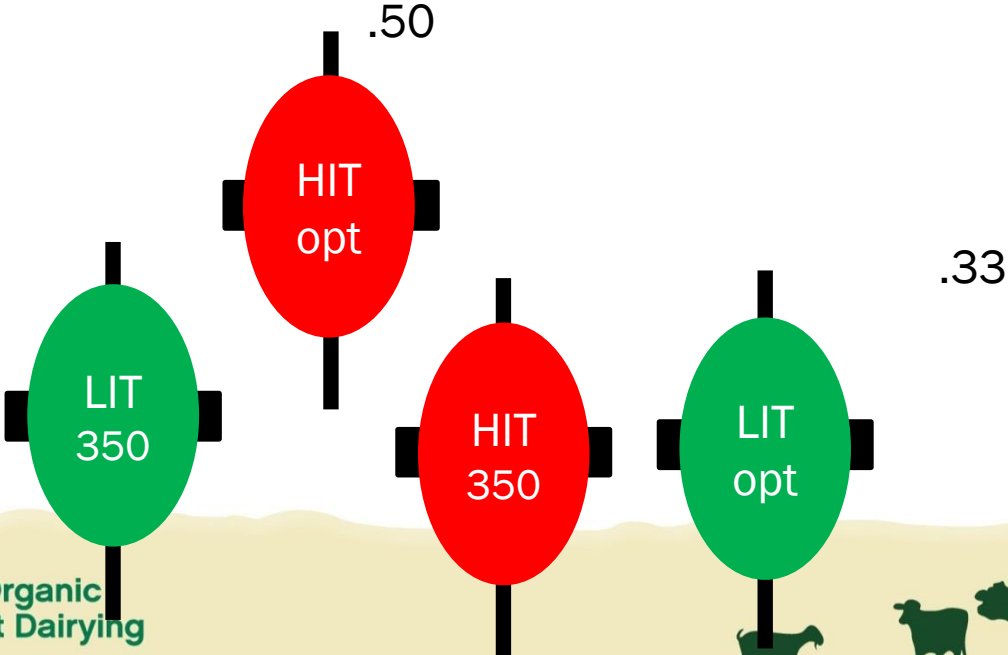
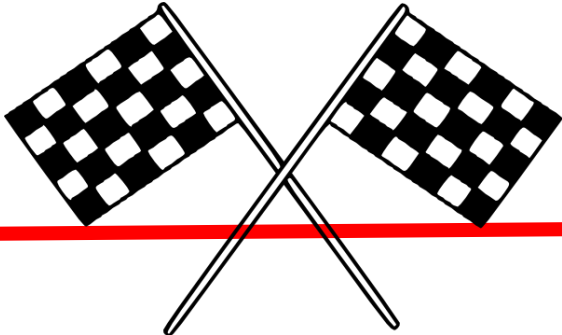


PROFITABILITY RACE

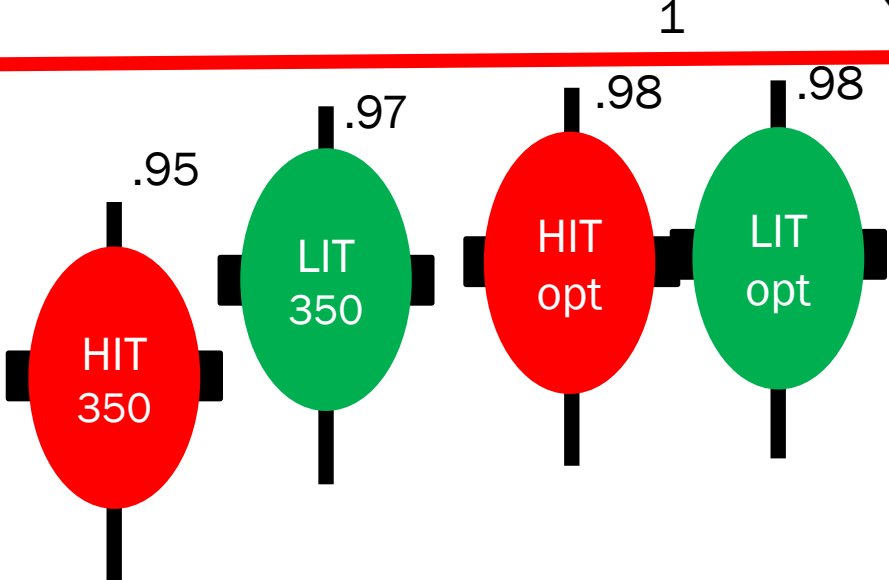
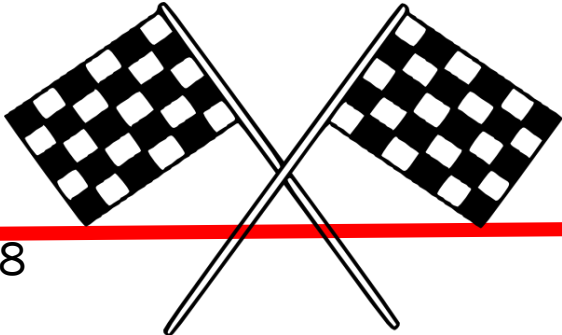


RESILIENCE RACE

1

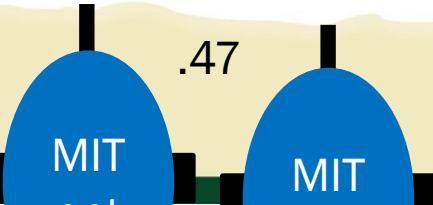


PRICE PREMIUM RACE 1

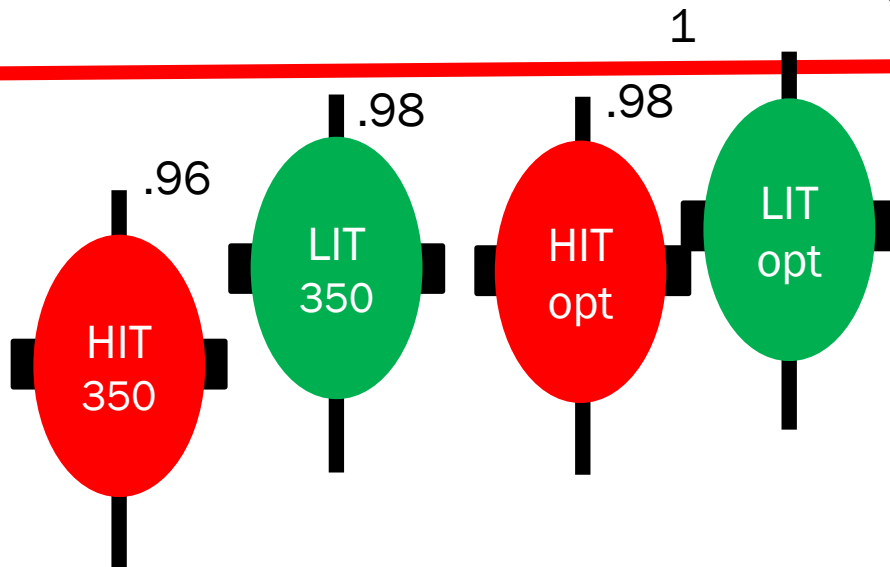


SOLID

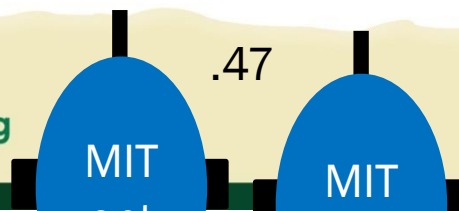
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PRICE PREMIUM RACE 2

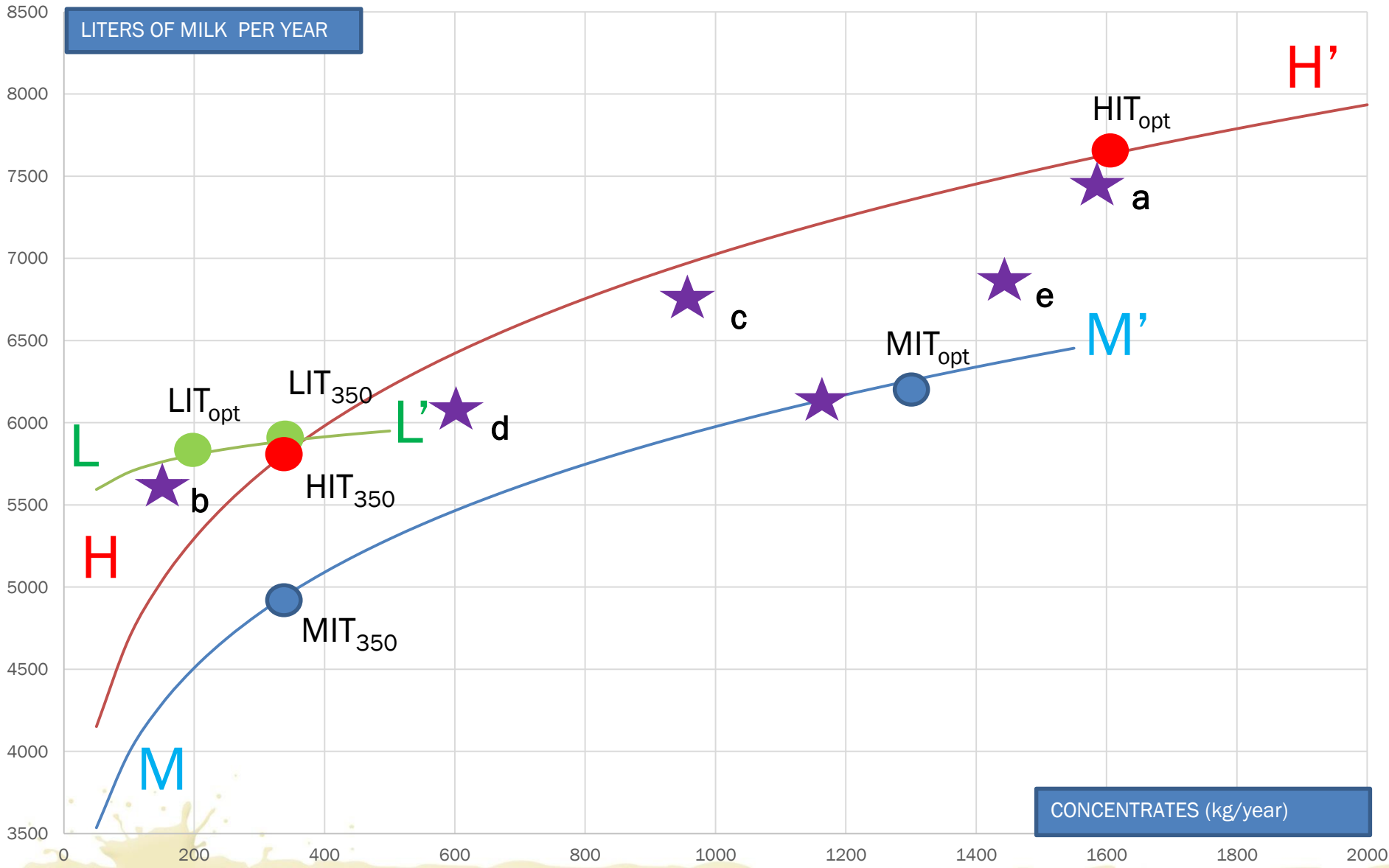


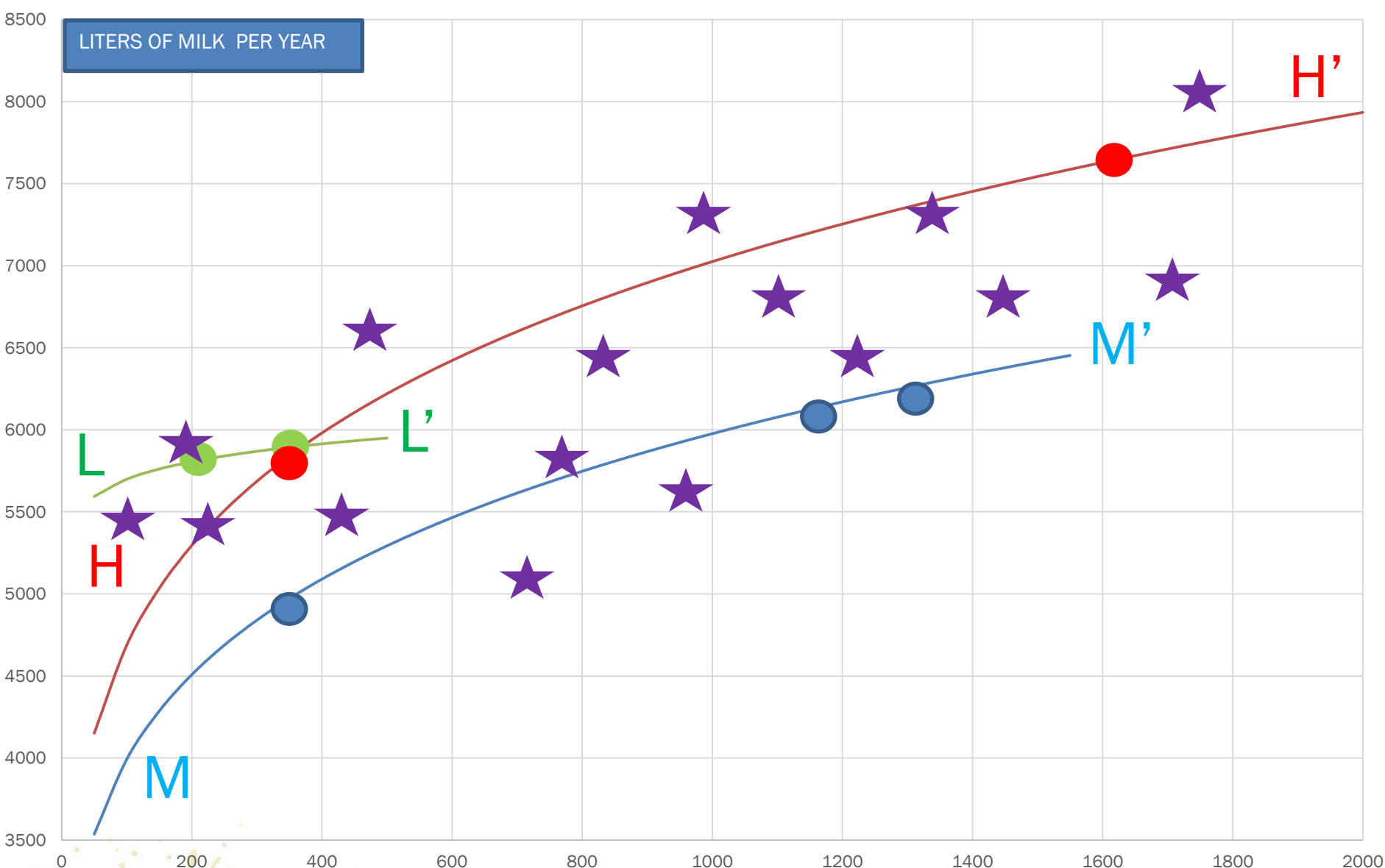
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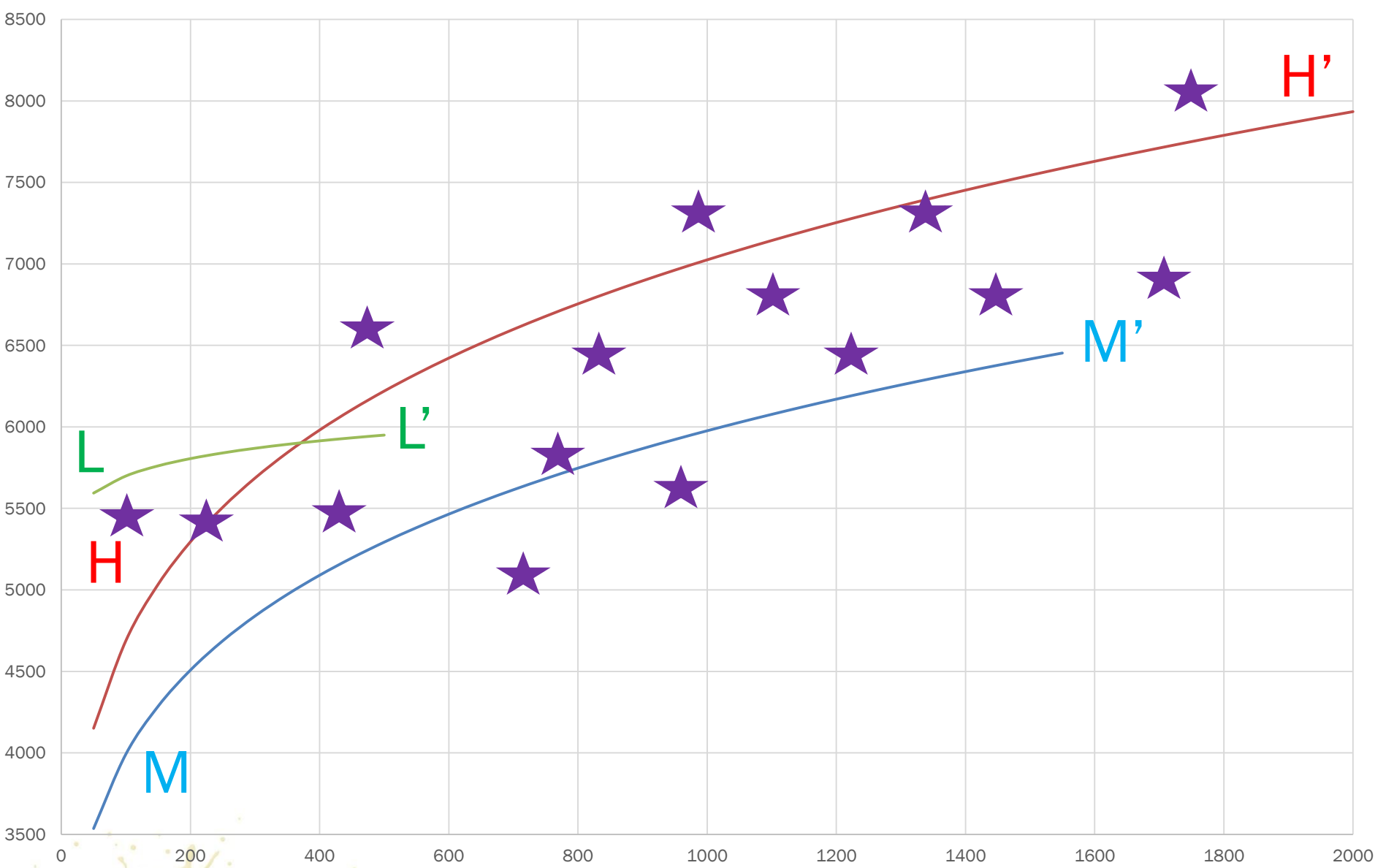


From theory to practice









SOLID approach

- Quartiles-based classification with EIC/GLU as discriminator
- Per country
- LI description of variation behind the “*ceteris paribus*”:
 - Structural indicators
 - Intensity indicators
 - Partial productivity indicators



Who is now the best ?

- Partial productivity
- Profitability ratio
 - Net farm income / imputed own factor costs
- Output – costs equilibrium
 - Outputs/ (cash costs + imputed costs)
- Resilience indicators
 - Imputed costs/ total costs
 - EIC/ total costs



Results LI-HI (20 countries)

Indicator	LI		HI	EU-wide	# countries
EIC /GLU		<		S	20
EIC / UAA		<		S	20
Capital /GLU		<		S	19
Milk 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



Country	EIC /GLU	Cut-off LI	Cut-off HI
Romania	176	109	288
Lithuania	324	230	440
Ireland	367	303	461
Poland	374	266	505
Austria	480	355	639
Belgium	498	393	622
France	556	410	755
.....			
.....			
Netherlands	699	577	805
Portugal	734	529	935
Danmark	738	647	859
Sweden	833	696	968
Spain	833	598	1097
Finland	965	778	1142



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GLU / UAA		?		NS	6 > ; 3 <
% of family labor		>		S	7
Milk production / UAA		<		S	15



Comparison LI-ORG (14 countries)

Indicator	LI		ORG	EU-wide	# countries
Stocking density (GLU/UAA)		>		S	12
EIC / UAA		>		S	11
Capital /GLU		<		S	11
AWU /GLU		>		S	4
% forage maize /forage		>		S	8
% grass / UAA		?		NS	9 < ; 2 >
.....					
Milk production / capital		>		S	8
Milk production / AWU		>		S	7
Milk production / UAA		?		NS	3 > ; 2 <



**And the winner of the
PRODUCTIVITY race is**

HI technology



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



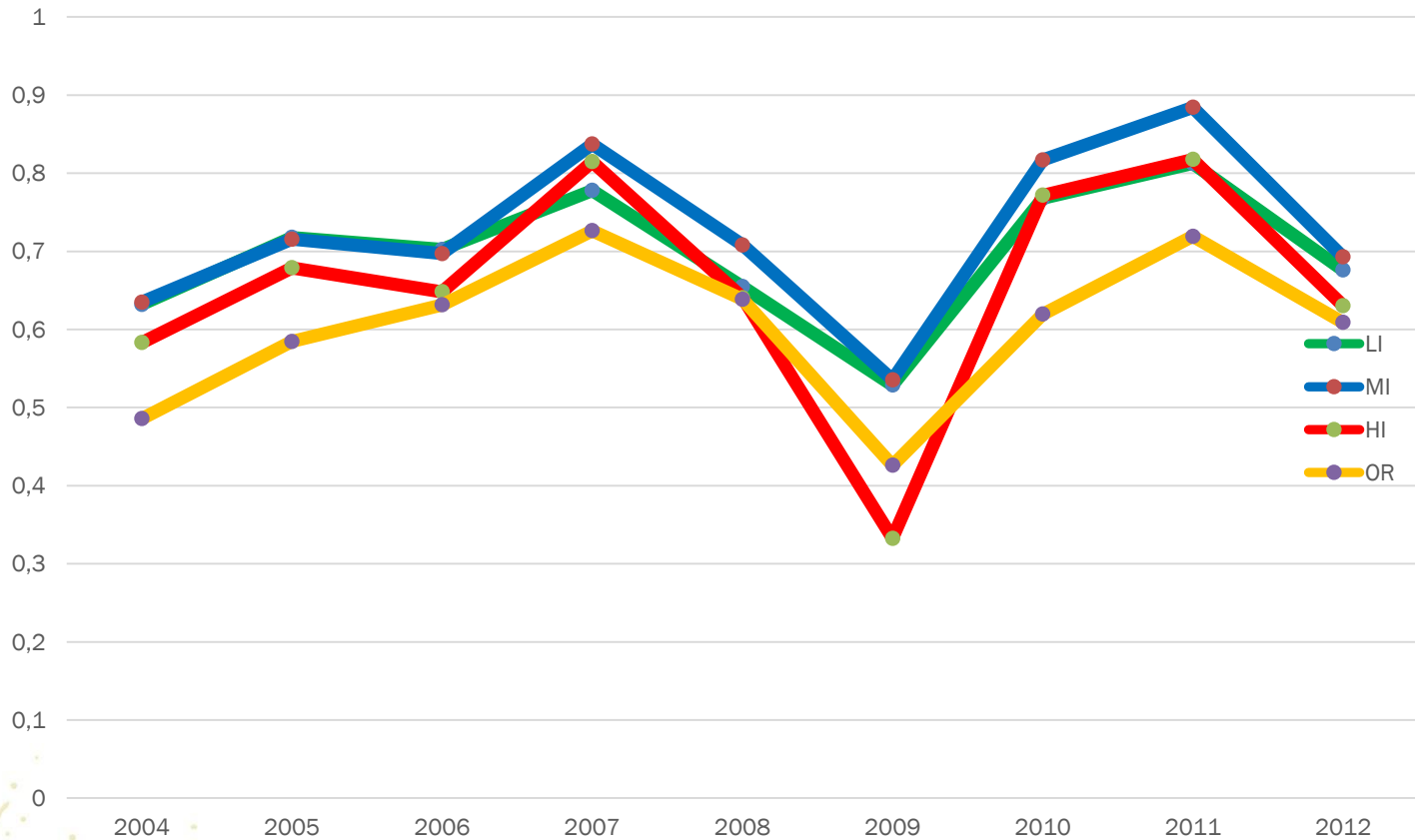
Who is now the best ?

- *Partial productivity*
- Profitability ratio
 - Net farm income / imputed own factor costs
- Output – costs equilibrium
 - Outputs / (cash costs + imputed costs)



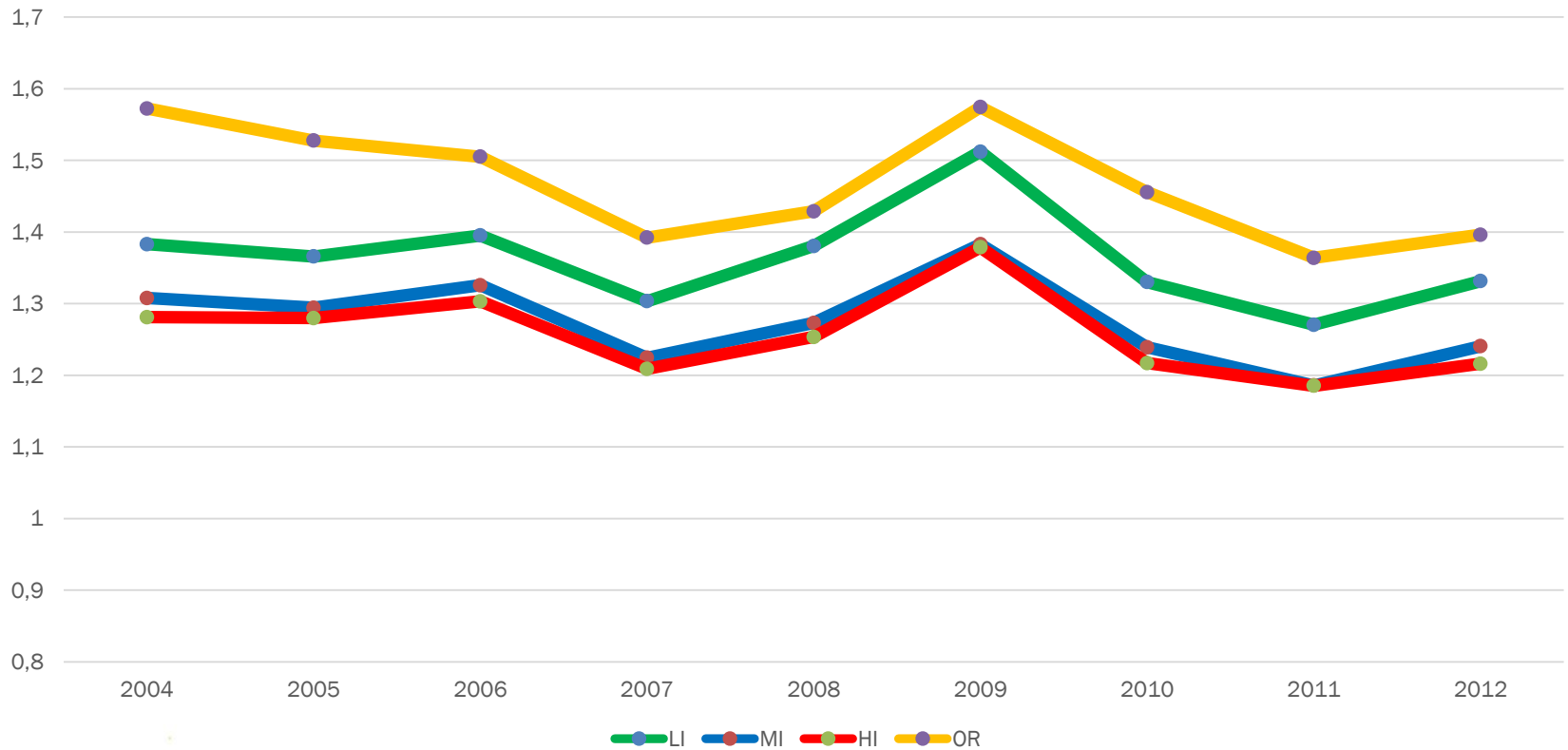
Results EU wide

Farm net income/imputed costs



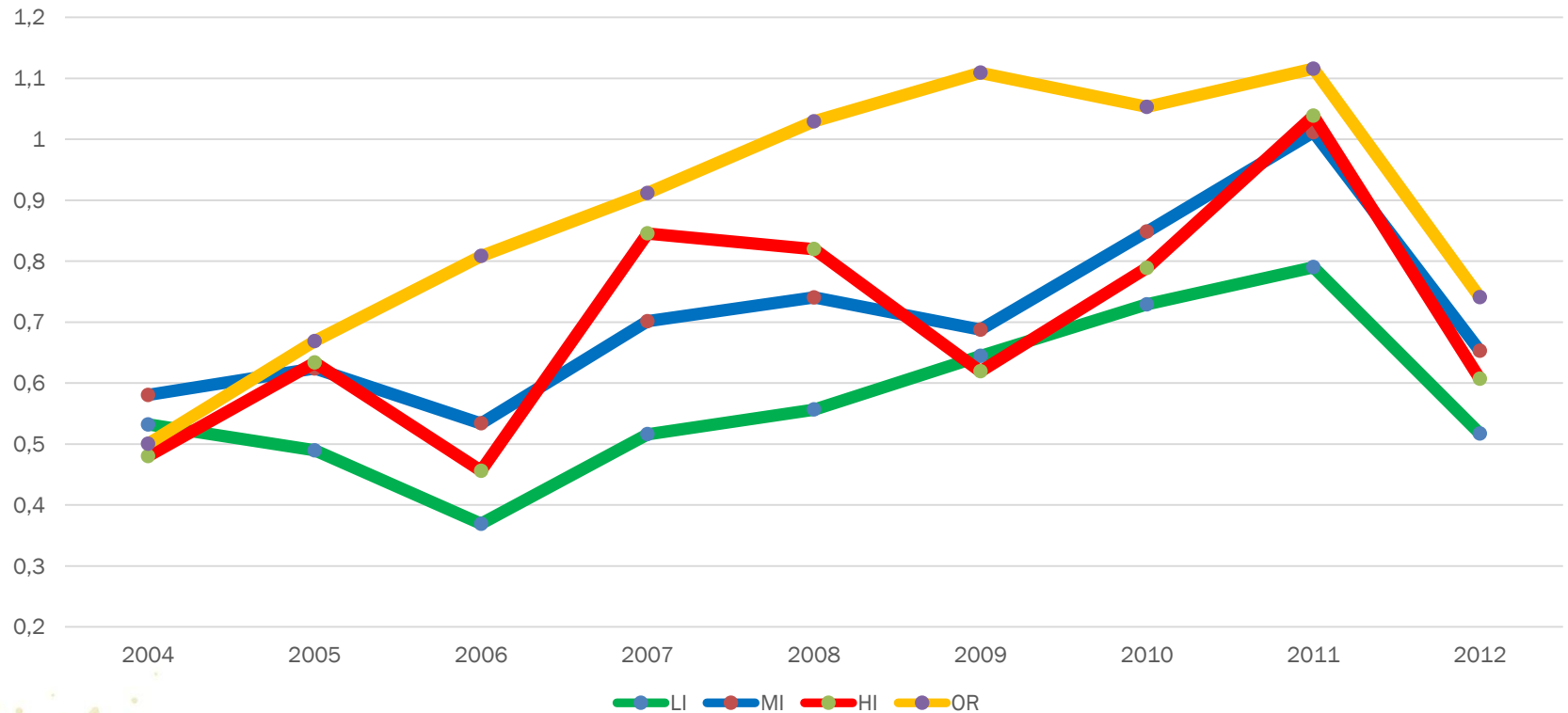
Results EU wide

Total costs/total outputs



Results United Kingdom

United Kingdom: FNI/imputed costs



**And the winner of the
PROFITABILITY race is**

**Undecided, look at country
level**



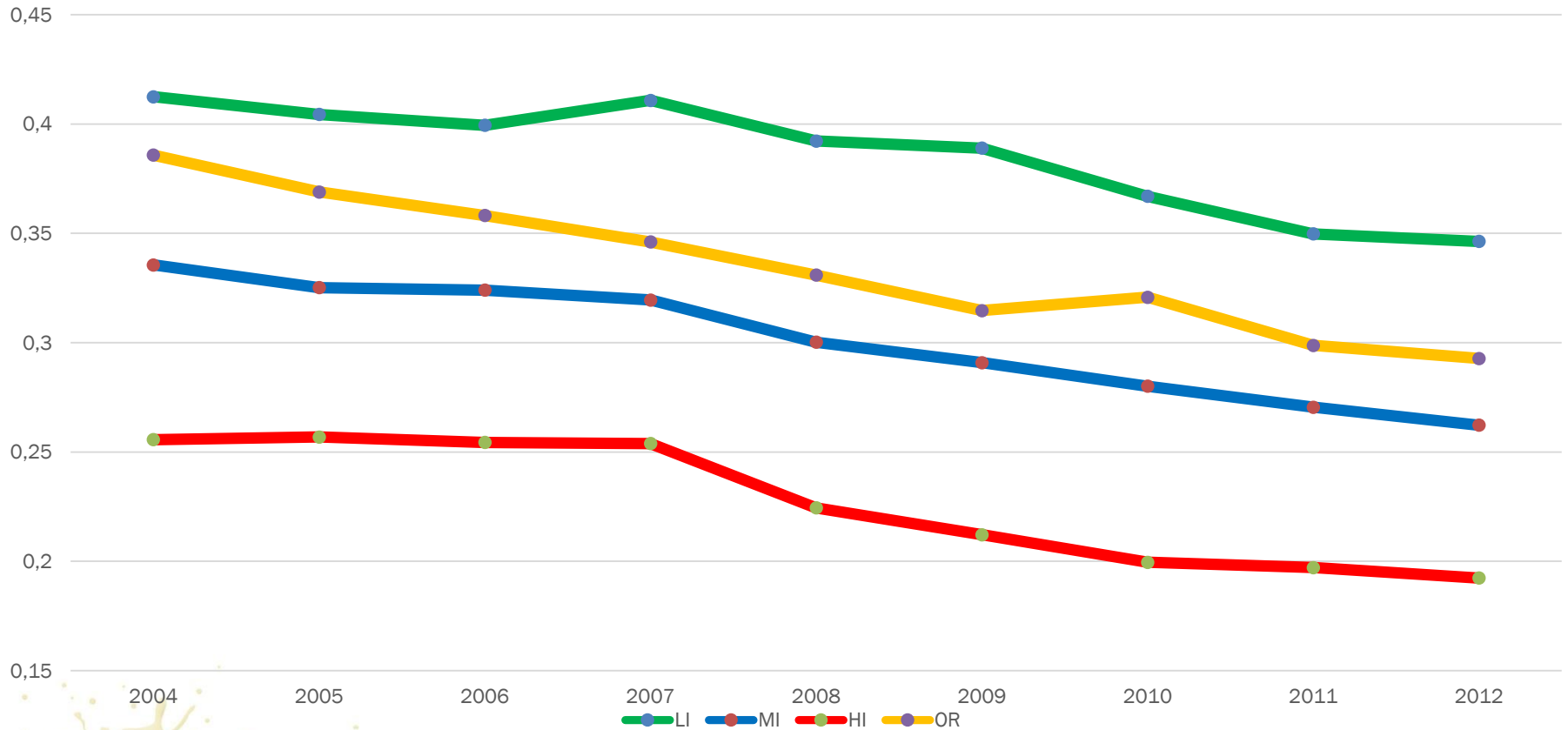
Who is now the best ?

- *Partial productivity*
- *Viability*
- Resilience
 - % of imputed costs on total costs
 - % of EIC on total costs?



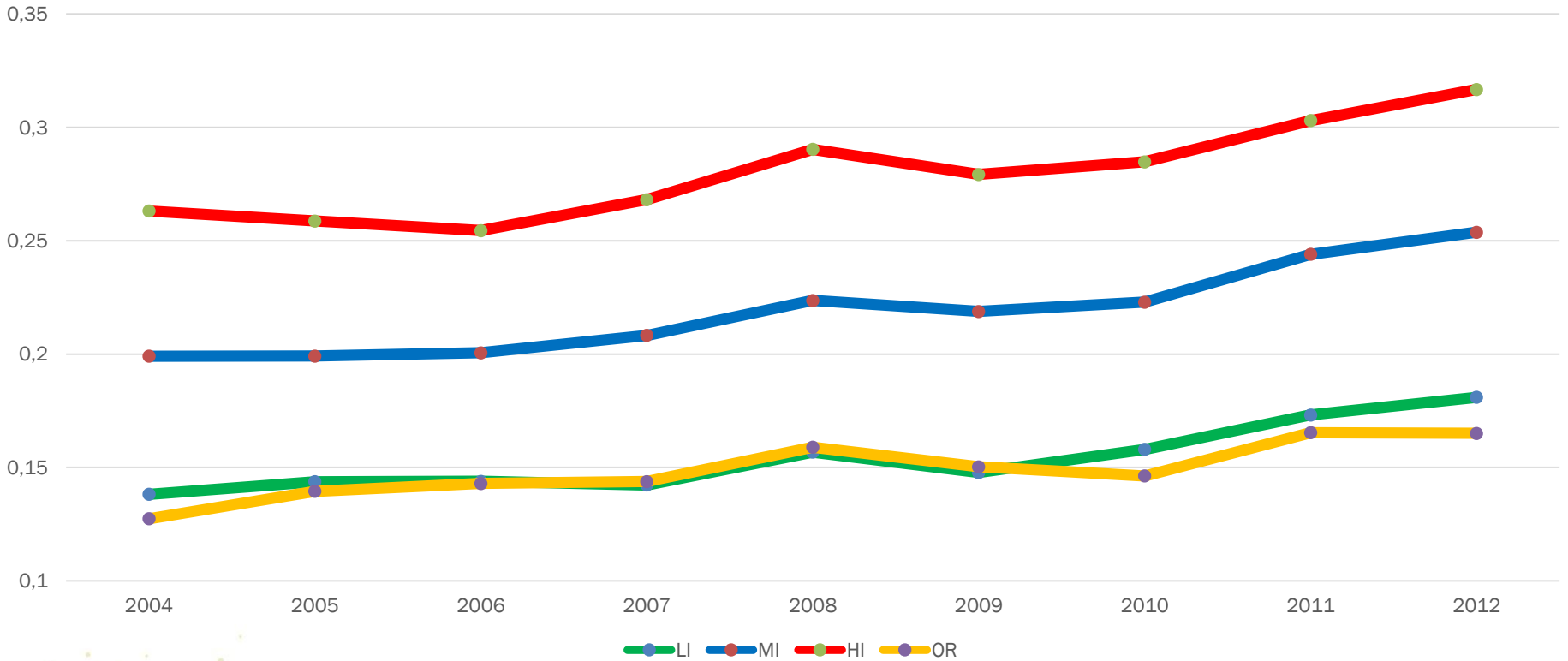
Results EU wide

Imputed costs on total costs

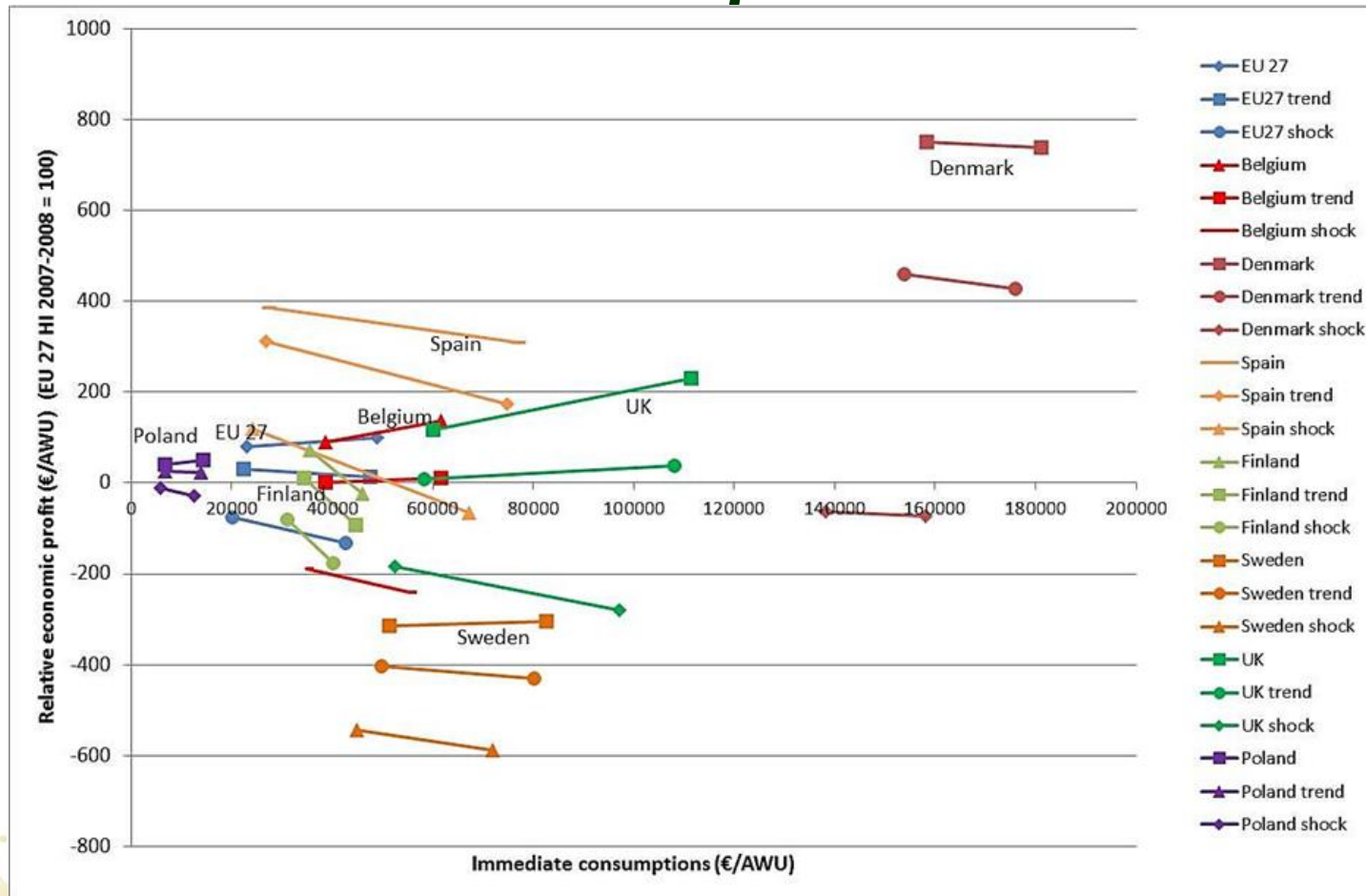


Results EU wide

EIC/total costs



Resilience as a strength wrt the volatility and resource depletion threats?



And the winner of the
RESILIENCE race is



LI technology



SOLID



What about future?

PRODUCTIVITY issues

ECOLOGICAL & SOCIAL
competitiveness

NOVEL
STRATEGIES

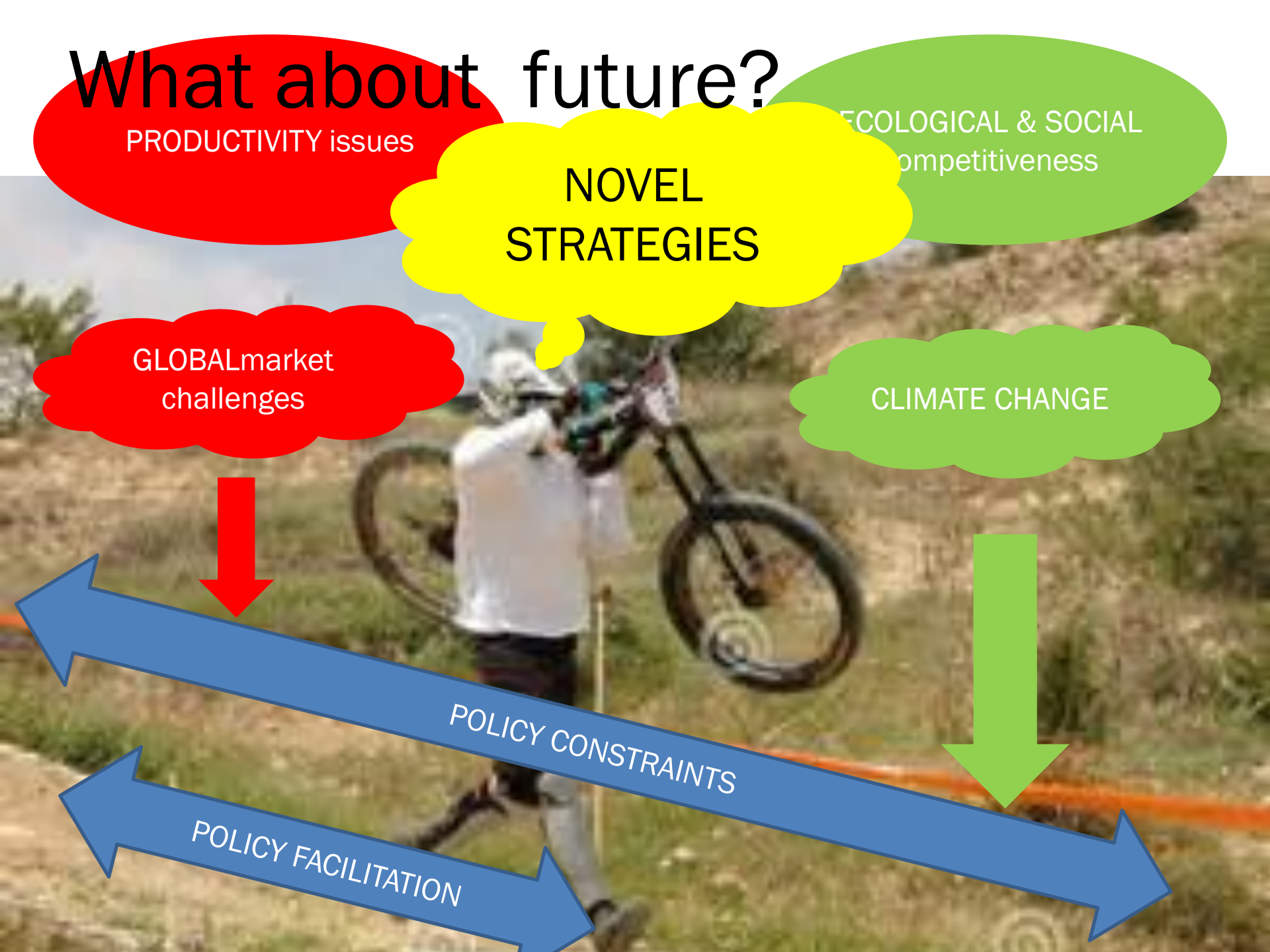
GLOBAL market
challenges

CLIMATE CHANGE



POLICY CONSTRAINTS

POLICY FACILITATION



Novel strategies

- See also participatory research & innovation: no one fits all
- But, some generic conclusions with respect to competitiveness
 - Watch not only EIC, but all cash costs
 - Try to differentiate yourself from the bulk: market LI attributes
 - Manage volatility: PR must >1 in good years



Thank you for your attention!



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