



IS DAIRY CROSSBREEDING A PROFITABLE WAY FOR HOLSTEIN FARMS?

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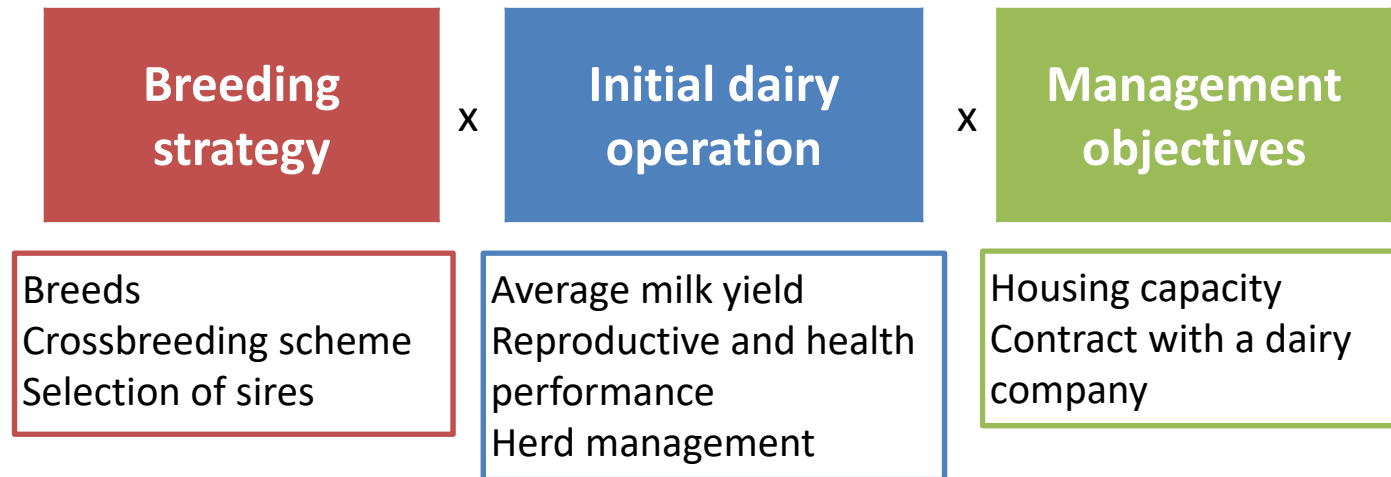
EAAP 2016, Belfast, UK

Context

- ❑ Dairy crossbreeding remains very marginal in France (Dezetter et al., 2014)
- ❑ F1 crossbreds could compete with Holstein cows for milk production while having a better fertility (Heins et al., 2012; Dezetter et al., 2015)
- ❑ Few information available about profitability of dairy crossbreeding (Lopez-Villalobos et al., 2000; Heins et al., 2012)
- ❑ The long transition phase from pure Holstein herd to steady equilibrium has not been studied yet

Research question and hypothesis

- ❑ Is implementing dairy crossbreeding in Holstein herds more profitable than staying with pure Holstein?
- ❑ At short and long term?
- ❑ Depending on:



Study objective

**ASSESSING THE EFFECT OF
INTRODUCING DAIRY CROSSBREEDING
IN HOLSTEIN DAIRY OPERATIONS ON
FARM PROFITABILITY**



Comparison of operations where crossbreeding was implemented with operations staying with pure Holstein at short, medium and long term

Utility criteria chosen for this comparison

Margin over variable costs :

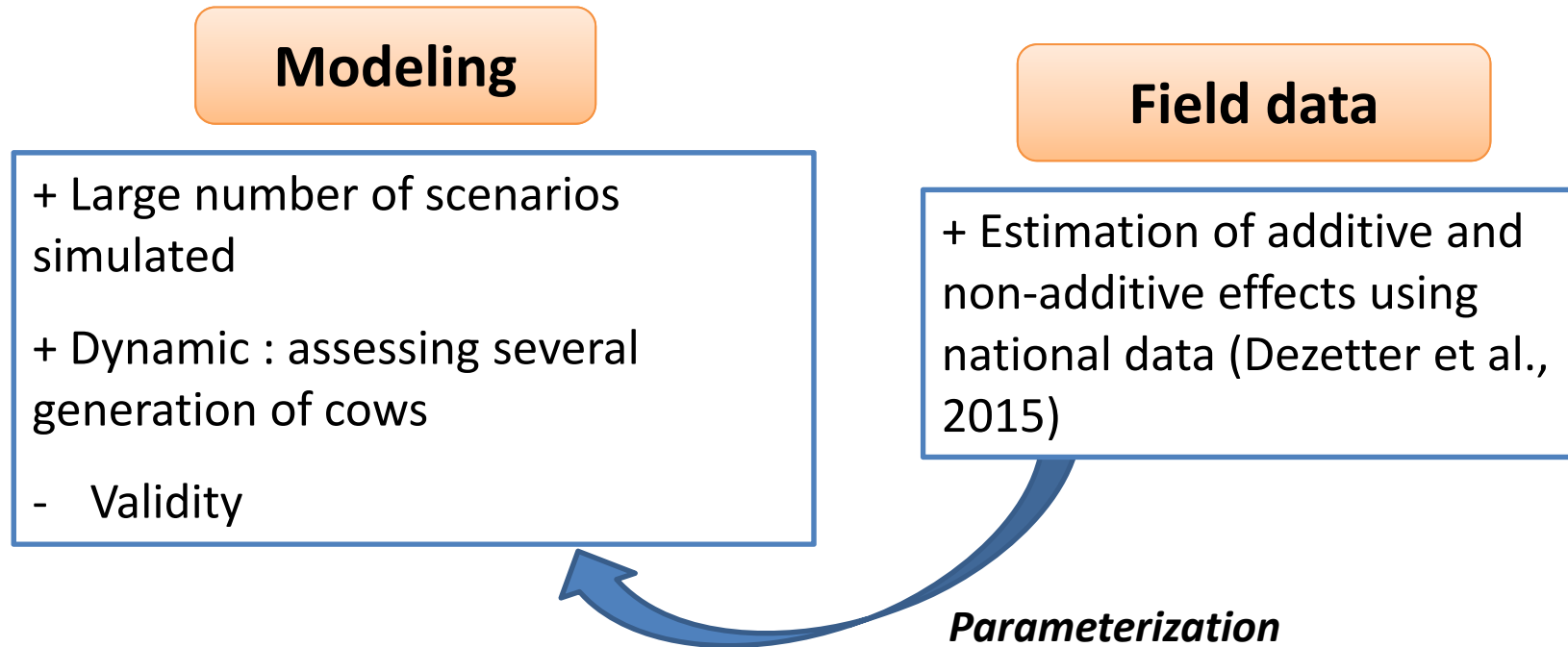
$$\sum_{i=1}^n [(Revenues_n - Variable\ costs_n) \times (1 + \underbrace{0.03}_{\text{Annual discounting}})^{-n}]$$

Annual discounting

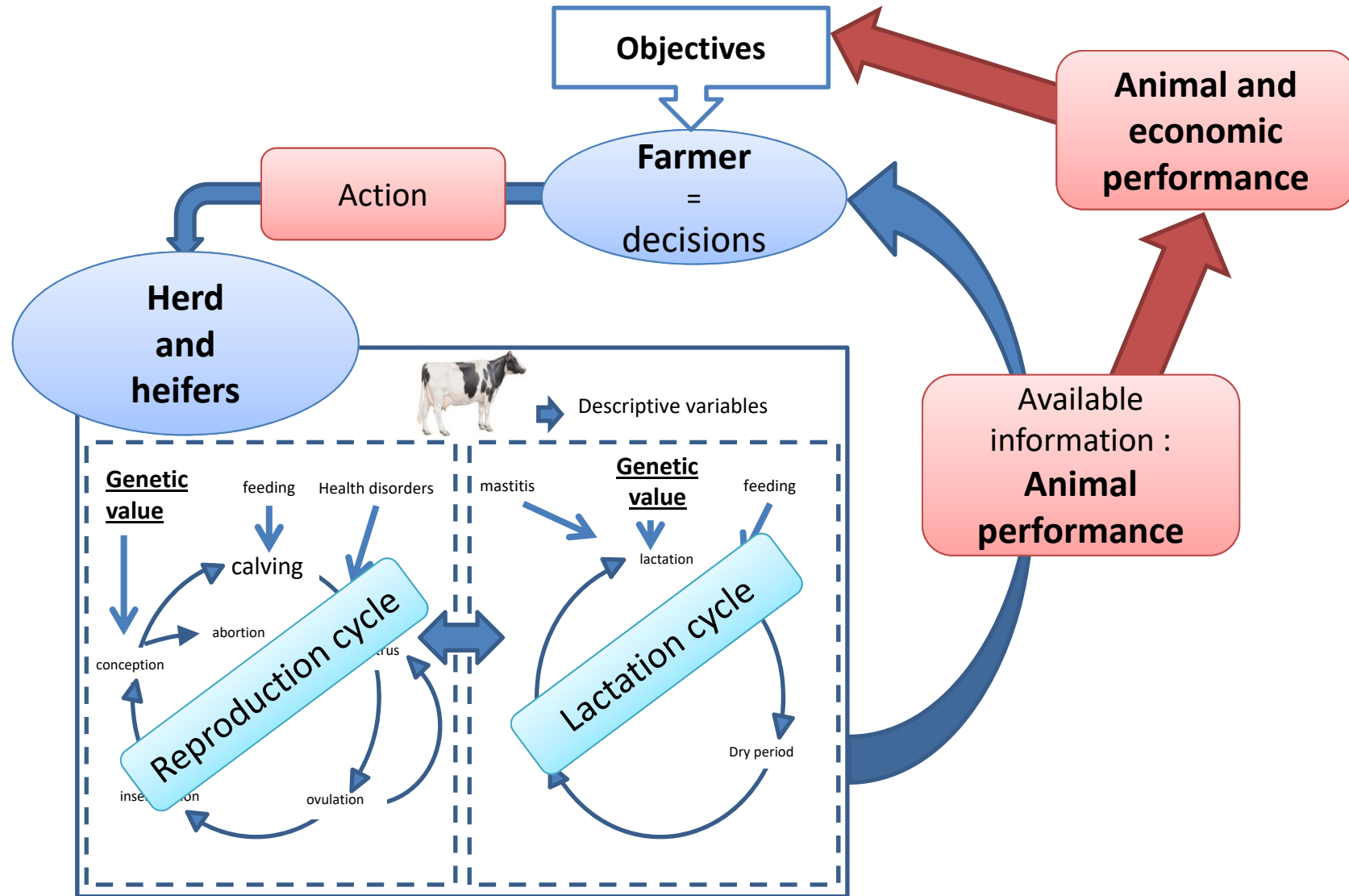


A difference of margin will correspond to a difference of net profit

Modeling to assess these criteria



Modeling dairy operation

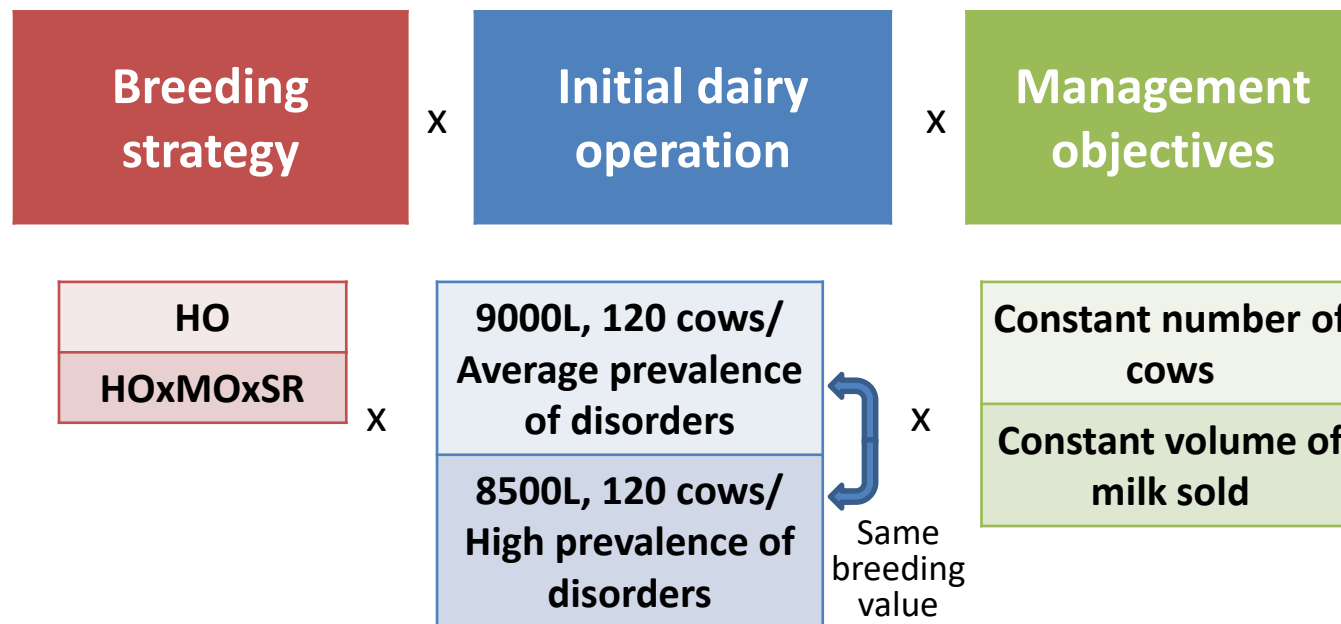


Scenarios tested with a time horizon of 15 years and 250 replications

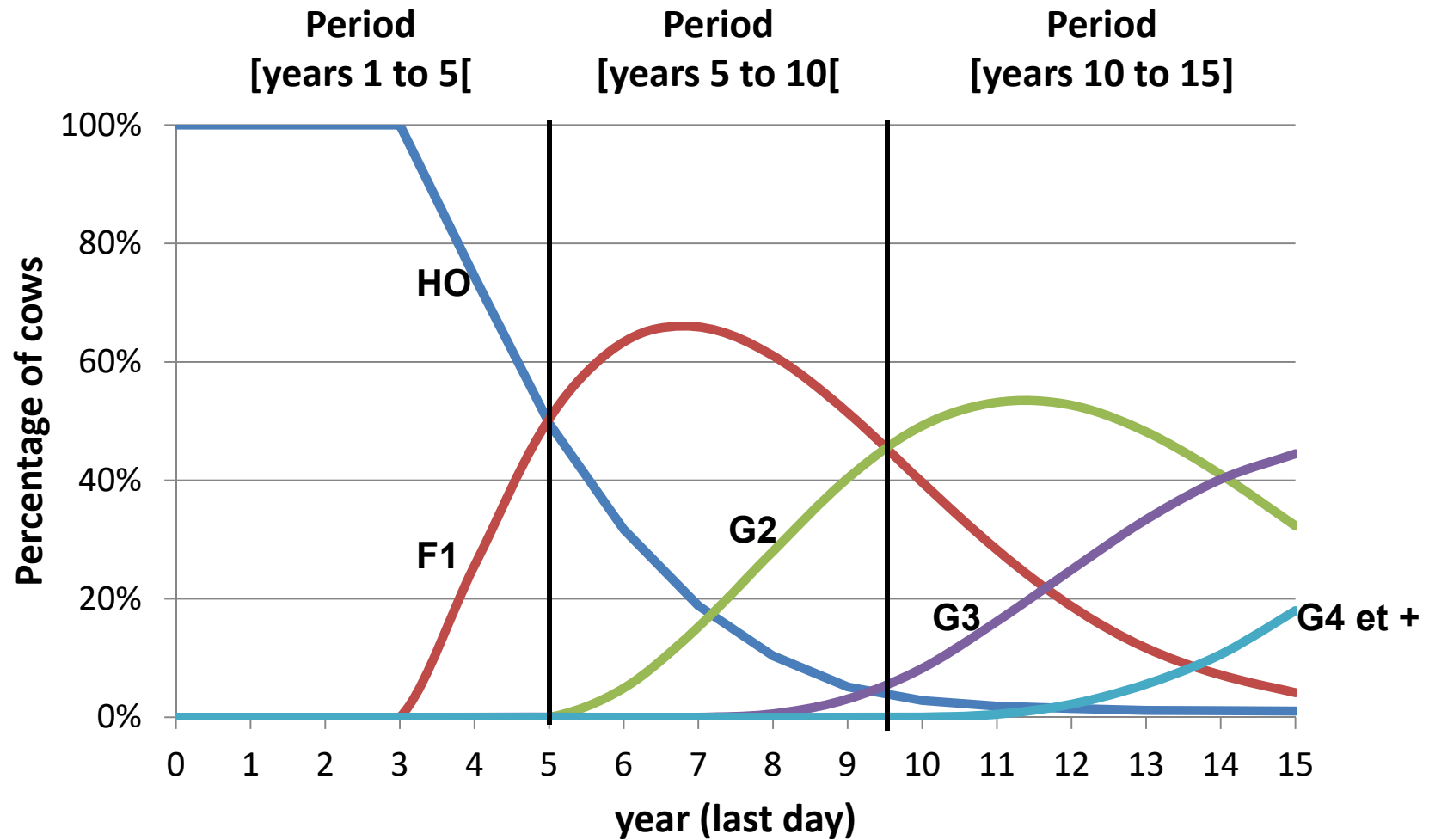
250 replications to stabilize the standard error between replications

Milk and feed prices computed from year 2014

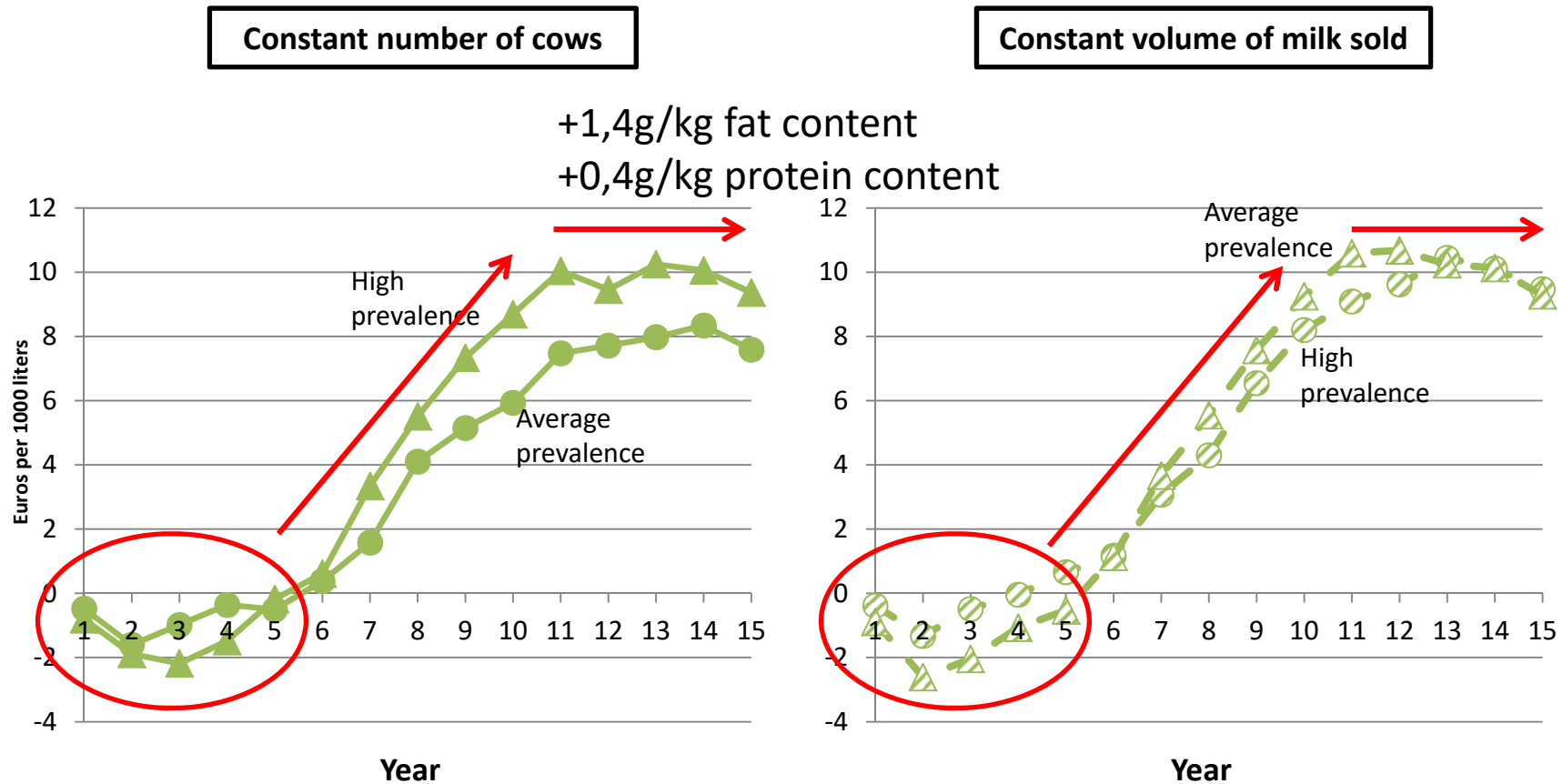
Scenarios depending on:



A slow evolution of genotypes of cows in the herd

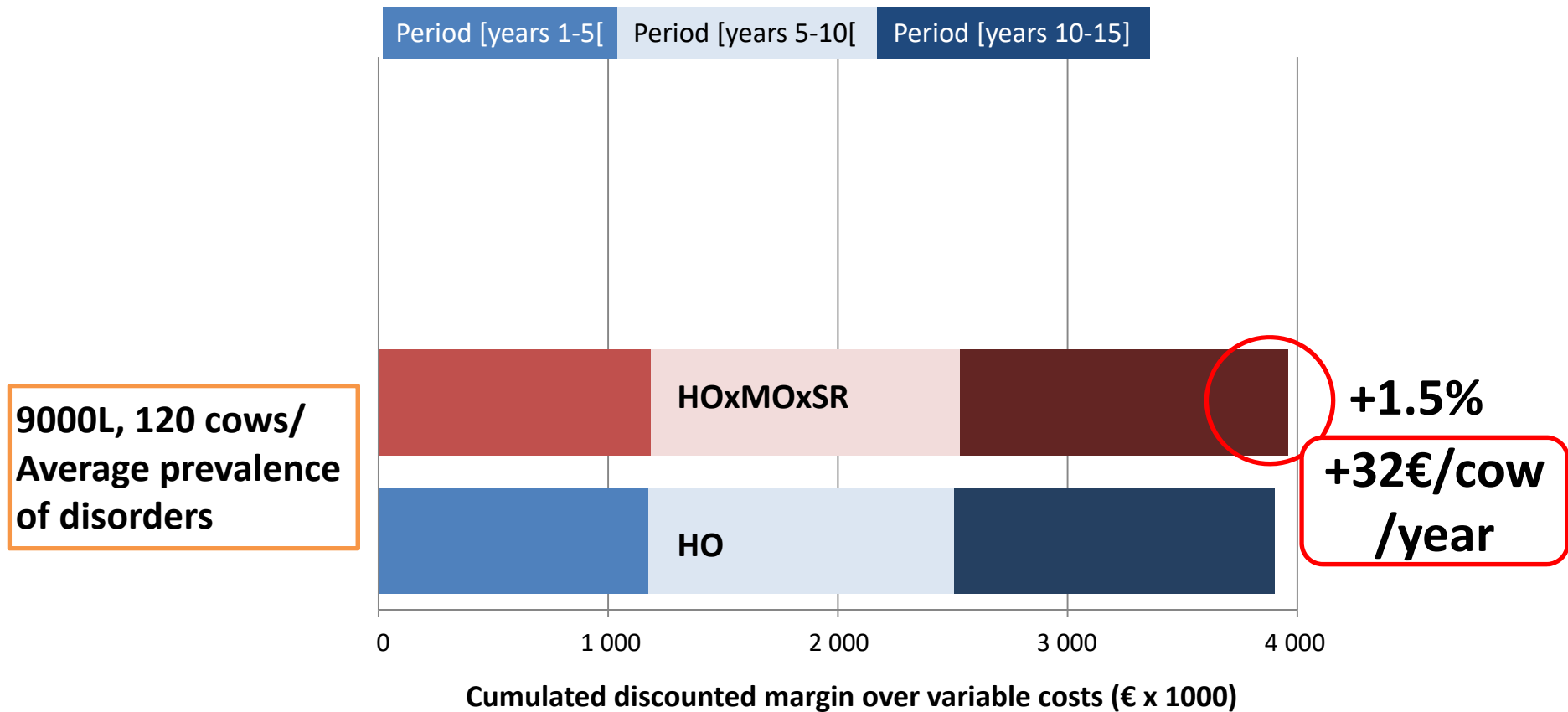


Crossbreeding increased milk price due to increased fat and protein contents



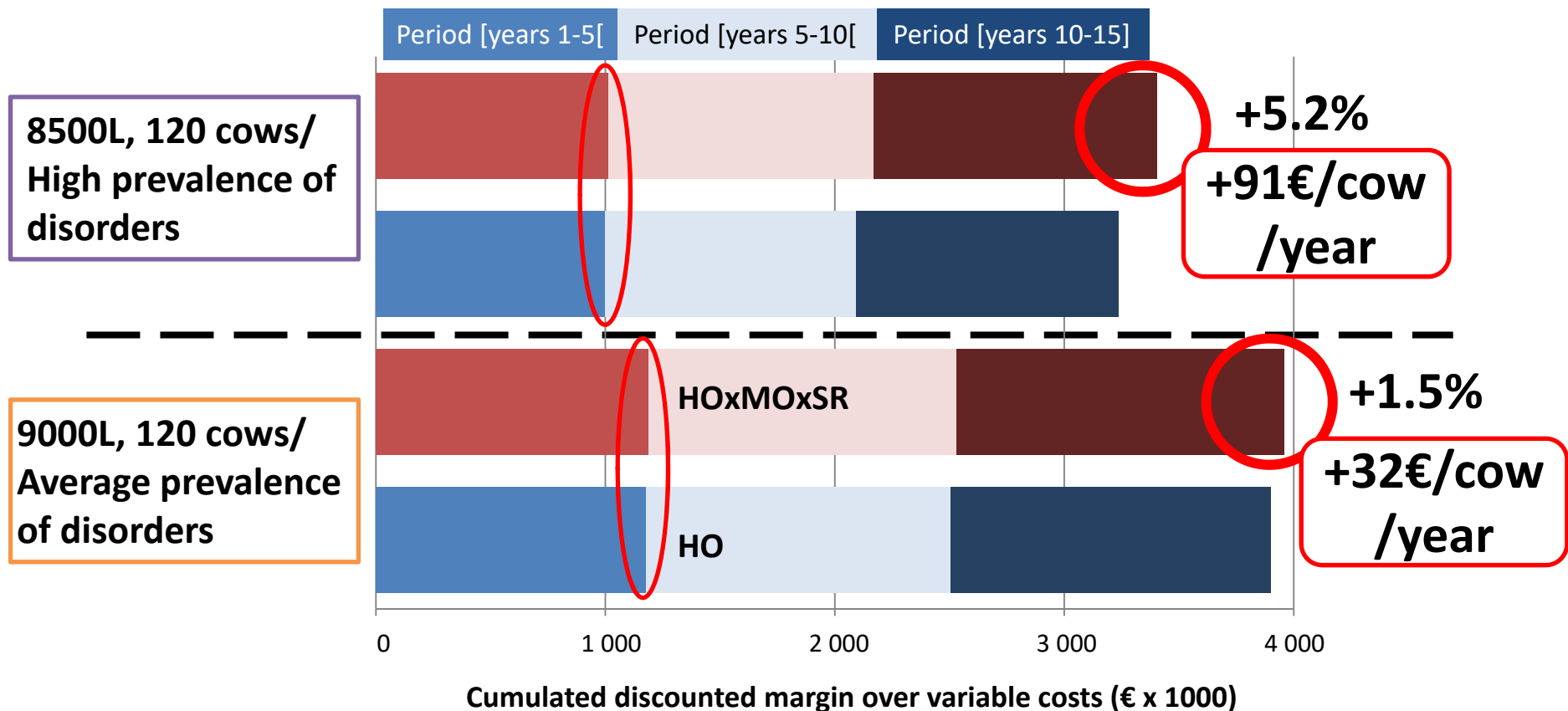
Deviation of average milk selling price (€/1000 L) of HOxMOxSR scheme compared to pure Holstein breeding

An increase of margin with average prevalence of disorders and constant number of cows



➔ ↗ fertility, udder health and contents of milk
↘ ↘ volume of milk sold when the number of cows remains constant

A larger increase of margin with high prevalence of disorders and constant number of cows



➤ volume of milk sold
↗ milk price and cows culled prices

Effect of crossbreeding for constant volume of milk compared to constant number of cows

Atelier initial	Margin
9000L/ Average prevalence	↗↗
8500L/ High prevalence	↗

To summarize:

- ❑ Differences of fat and protein contents impacted even more the margin in operation with average prevalence of disorders
 - ❑ +4 % (+9€/1000L/year)
- ❑ Differences of 5 cows between HOxMOxSR and HO to produce the same volume

In conclusion



- Crossbreeding improved profitability of operation while reducing number of events

→ +30 to +90€/cow/year or +6 to 9€/1000L/year

- Differences of margins appeared after year 5
- Crossbreeding seemed to be an interesting solution
 - Especially in operations with high prevalence of reproductive and health disorders