

The economic costs of production diseases in pigs

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Background

- Pig production diseases usually originate from a complex interaction of pathogens, animal genetics and environment.
- Although production diseases can have a substantial impact on farm economics, their overall impacts are not very well known.
- Changes in animal health can have wider societal consequences for instance due to their contribution to animal welfare and antimicrobial resistance
- The aim of this presentation is to share information about the costs and financial impacts of production diseases in pigs

The economic impacts of diseases fall into four areas

Revenues and production foregone

Extra production costs

Saved production costs

Additional revenues

- The incidence, severity and costs of disease can vary by case
- The costs of preventive measures are incurred before potential benefits are observed
 - ➔ Incentives to reduce disease risks may change as the risk of disease changes

How have we arrived at our estimates?

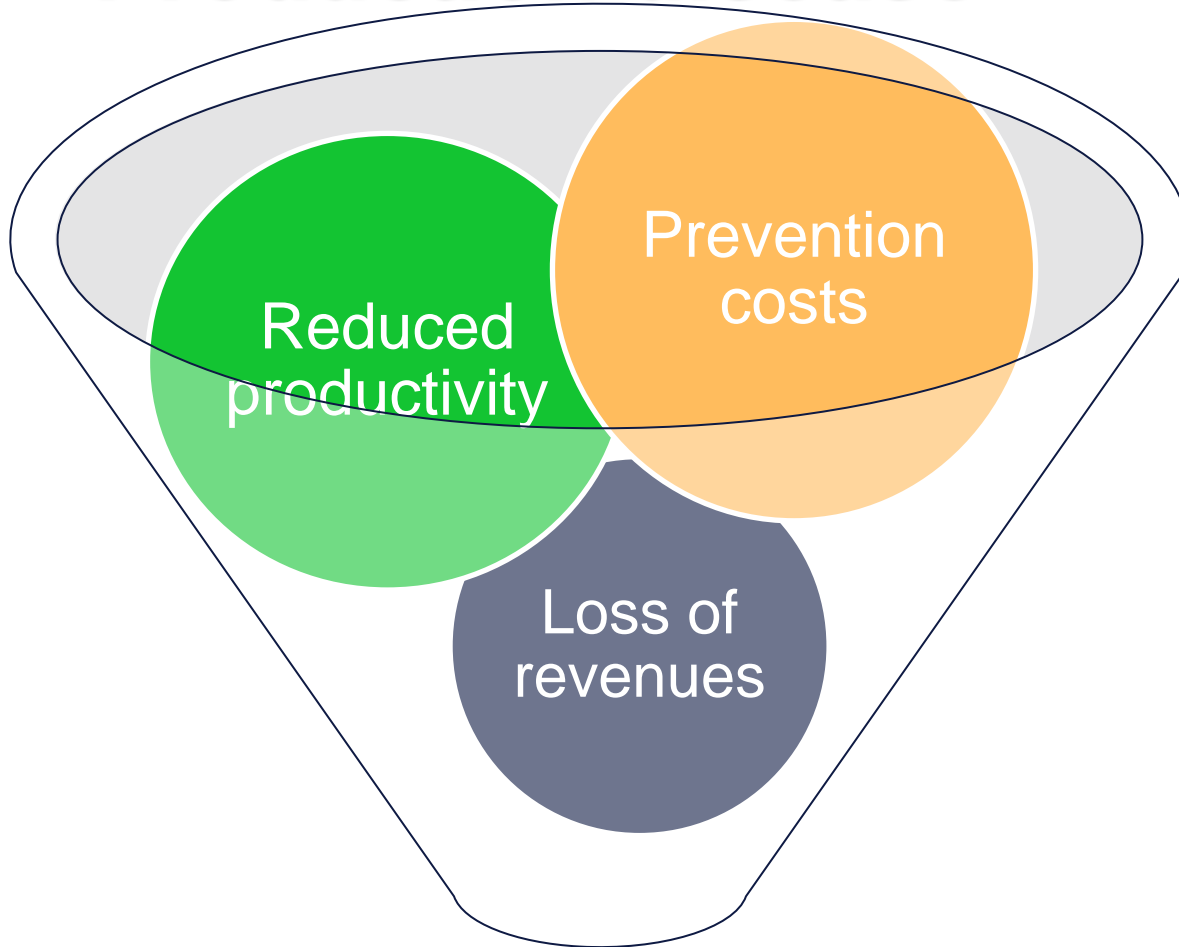
- A systematic review of 130 studies published in the period 1995-2015 and dealing with financial impacts of production diseases
- Consultation of altogether 55 stakeholders in five countries (DE, ES, FI, PL, UK) who were asked about the validity of cost estimates generated by the review and about financial significance of these diseases in pigs
- Modelling specific interventions by using data originating from PROHEALTH experiments

Why bother about production diseases?

Production disease



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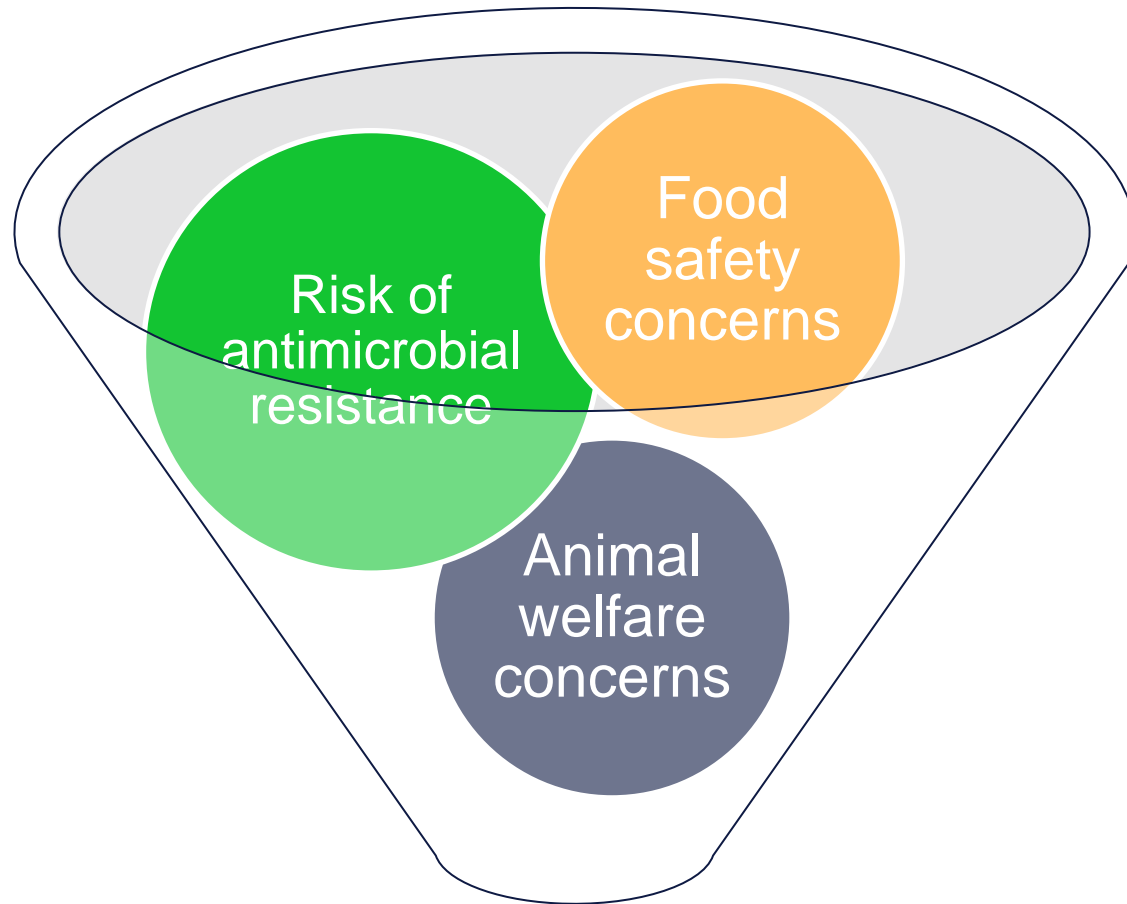
Risk is also a cost!

Increase in production costs per unit of output



Need to receive a higher price to break-even

Production disease



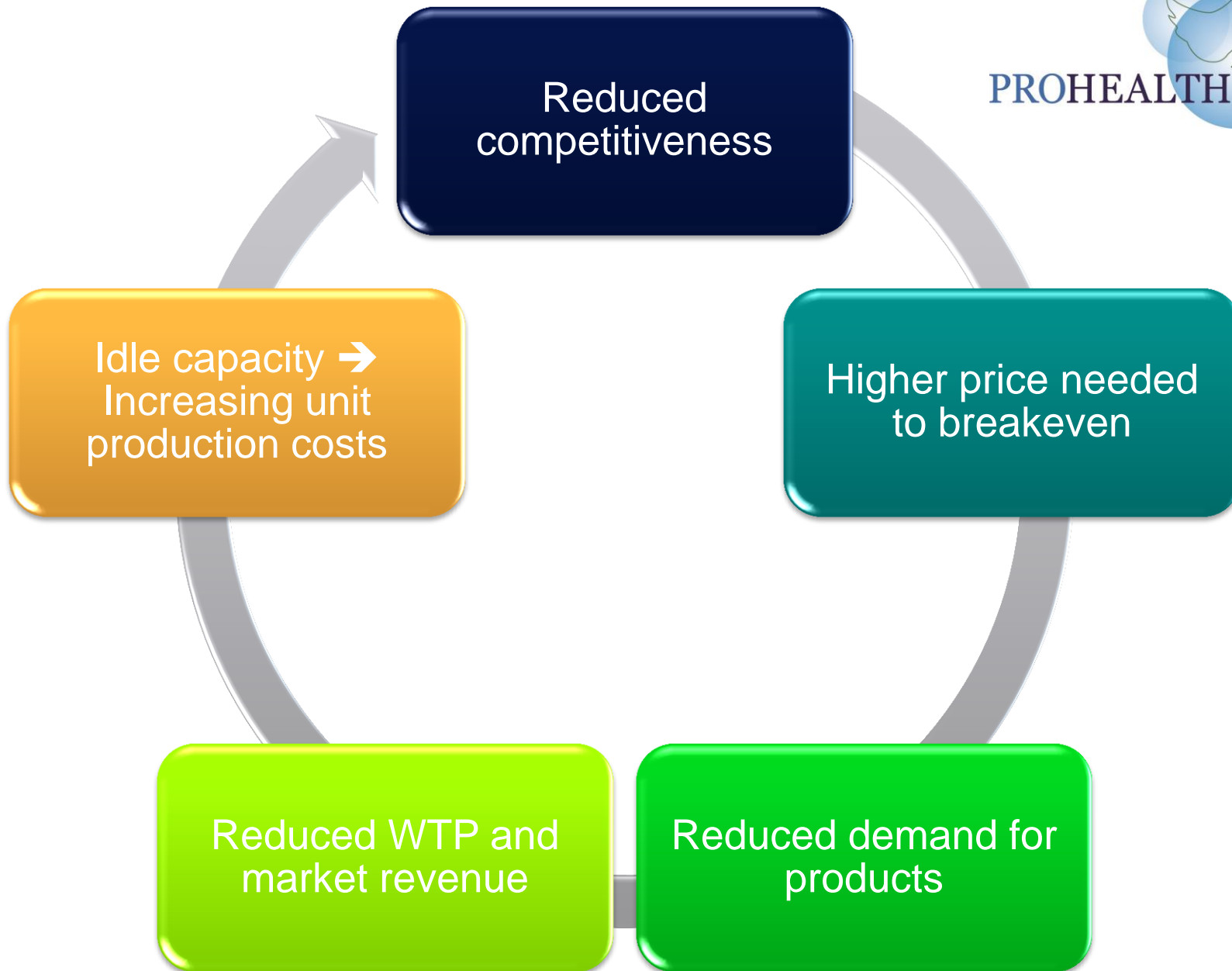
Reduced WTP
for animal-based food



Less revenue
available from
the markets



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Three principal economic reasons why an intervention can be adopted

- It reduces production costs per unit of output leading to economic gains, without affecting demand for the product at a given price.
- It increases demand for the product, which associated with consumers' willing to pay a premium for the product because the intervention
- Policy measures or coordinated actions provide additional incentives which encourage farmers to adopt the measure.



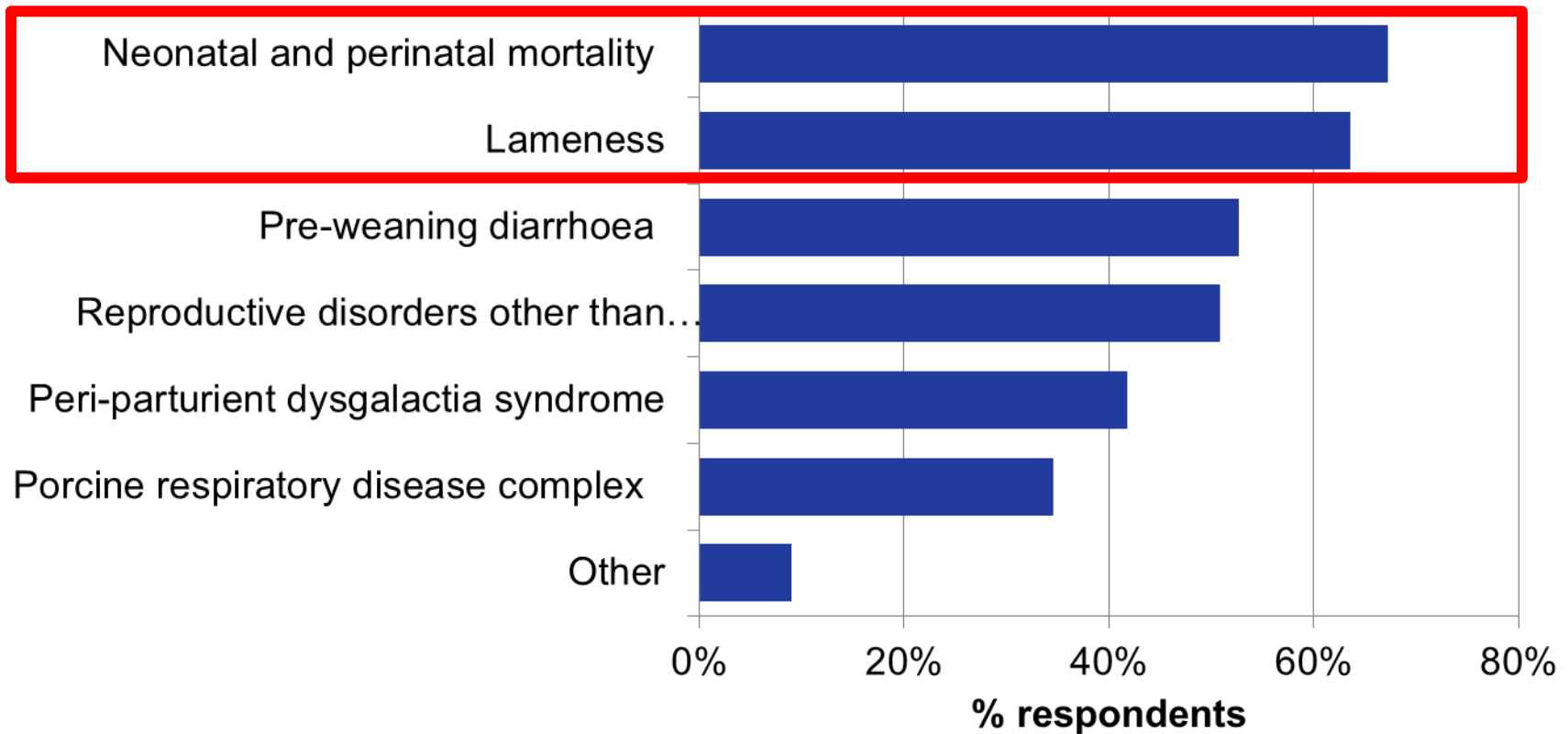
Production diseases can cost up to €30-40 per pig

The most important production disease categories economically according to stakeholders

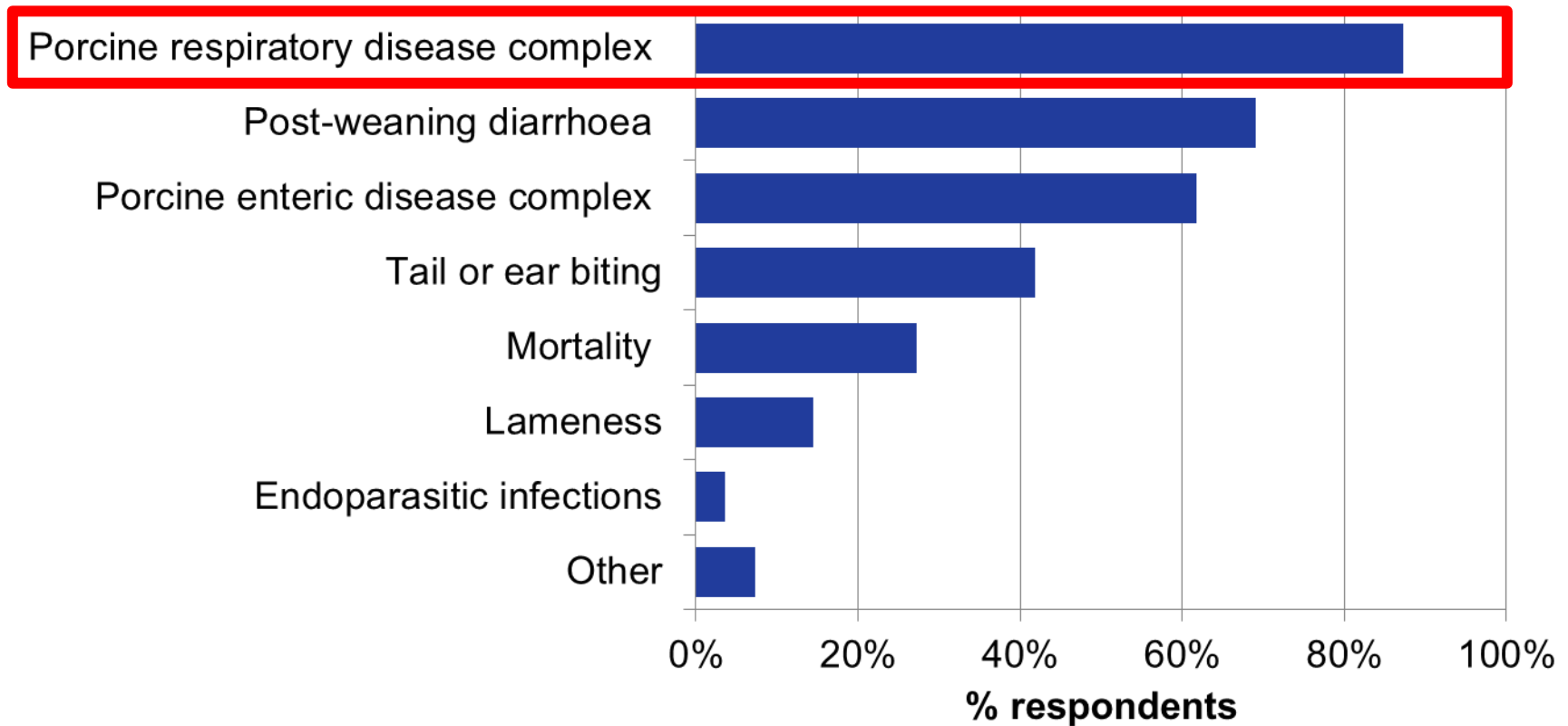
- In sows
 1. Reproductive disorders
 2. Locomotory disorders
 3. Gastrointestinal disorders

- In weaners, grower and fattening pigs
 1. Respiratory disorders
 2. Gastrointestinal disorders
 3. Locomotory disorders

Stakeholder views whether a specific disease was among the top three disorders economically in sows



Stakeholder views whether a specific disease was among the top three disorders economically in growers and fatteners



Respiratory disorders

- Respiratory diseases are common in pigs in Europe and economically an important issue!
- Financial losses due to porcine respiratory disease complex were estimated at about €6.8 per fattening pig averaged over the affected herd.
- Depending on pathogen and case, the losses ranged from €2 to €19 per fattening pig produced.

Mortality

- Overall, mortality was estimated to cost €3-€9 per marketed pig
- The costs of pre-weaning mortality, including also mortality combined with diarrhea, were *at least* between €2 and €5 per sold piglet.

Enteric disorders

- Diarrhea is an important and common health problem in piglets
- The cost of post-weaning enteric diseases were typically €3-4 per finished pig (range up to €12.7 per piglet)
- The costs of ileitis were €7.1 per affected pig (range up to €25),
 - Some stakeholders considered the costs to be higher, but studies have also reported higher costs in the past than more recently.

Other disorders

- The costs of tail biting in fattening pigs were €2 per produced pig, although some stakeholders considered the costs to be higher
- The costs of non-treated parasite *Ascaris suum* in pigs were on average €6.9 per pig



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Porcine
respiratory
disease
complex

Mortality
(overall)

Pre-
weaning
mortality

Post-
wean
enteric
disease

Tail
biting

Untreated
Ascaris
suum

Locomotory disorders

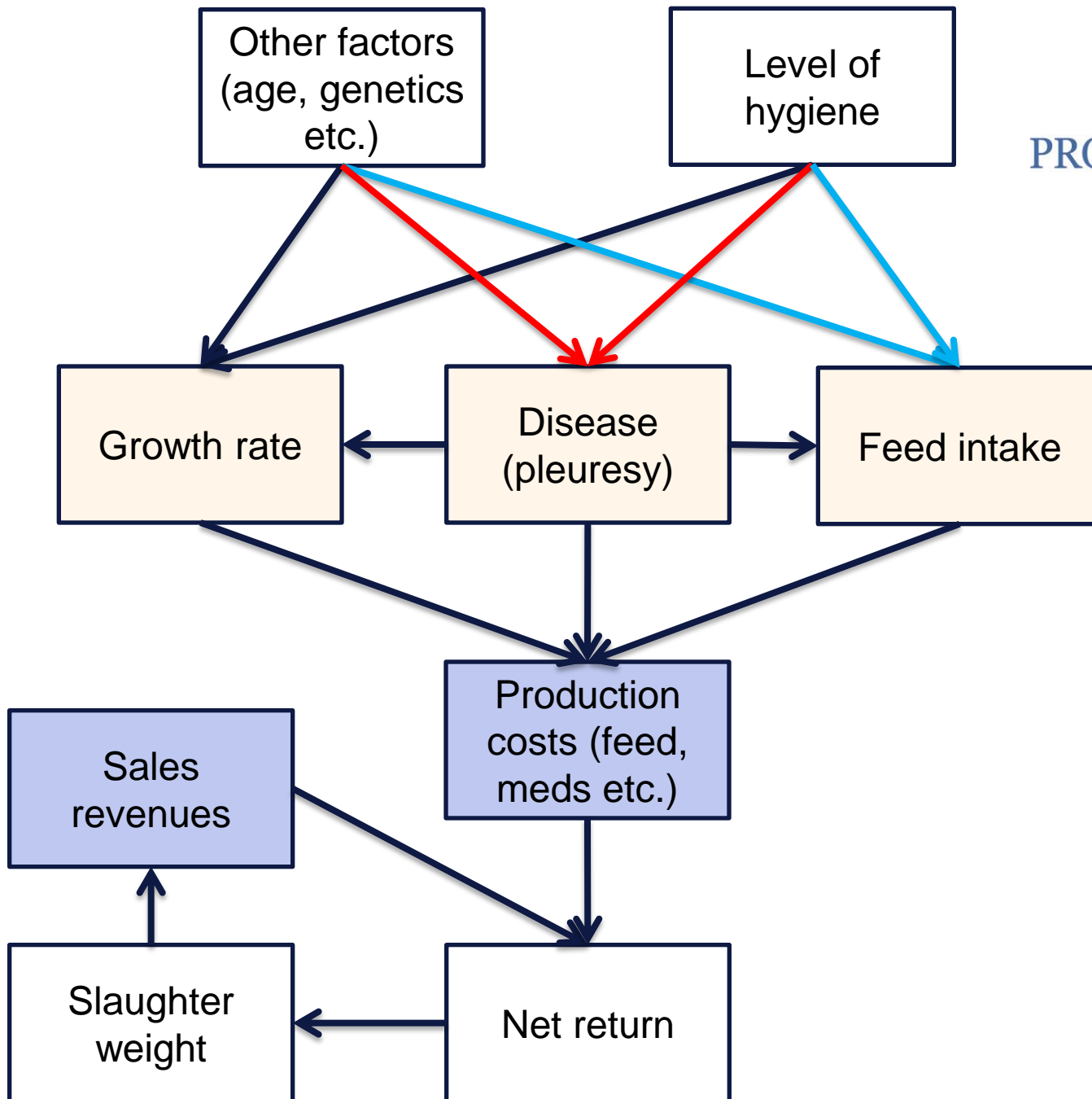
- **Lameness in finishing pigs** was estimated to cost €12 to €67 per lame finishing pig, depending on the cause of lameness. This was based on small number of studies only
- **Lameness in sows**
 - Typically 9-15% of sows, or even more, are removed due to locomotory disorders
 - The costs of lameness ranged from €145 to €330 per lame sow.
- Some stakeholders considered these cost high

Reproductive disorders

- The costs of the complex syndrome ‘Mastitis, Metritis and Agalactia’ were estimated to range at least up to €95 per affected sow, although in the most severe cases the losses could range up to €470 per diseased sow.
- Typically 21-35% of sows are removed due to reproductive failures, and the costs of premature replacement due to disorders in reproduction were €148-€167 per replaced sow

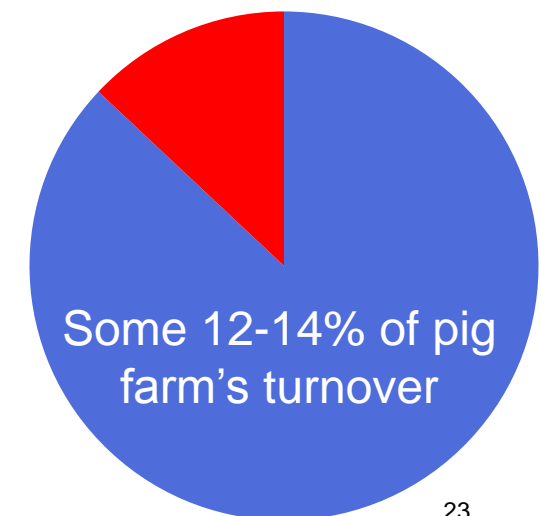
**To which extent interventions can
recover the costs?**



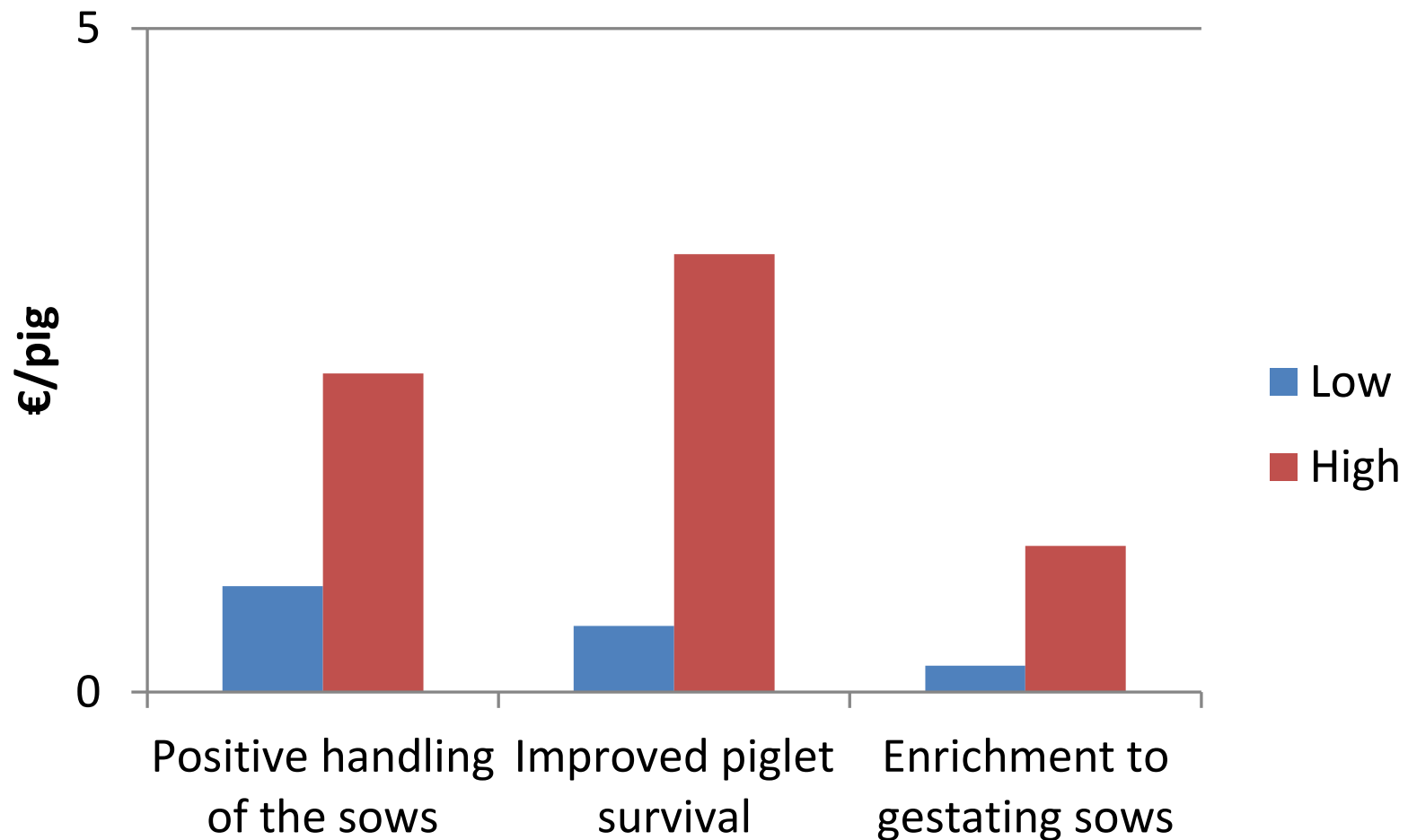


Case study: disease associated with poor hygiene in pig fattening

- Lower growth rate
- Altered feed consumption
- Elevated incidence of respiratory lesions
- Annually, up to 18% less pigmeat per pig space
- Substantial financial losses, up to €15-23 per pig, which reduce farm income
- Disease costs correspond to 3-5% of consumer price



Examples on net benefits which can be obtained by an intervention



What about societal costs?

- The public acknowledges some of the **benefits** of intensive production, relating mainly to benefits to themselves, such as lower food price and improved availability
- However, they also have **worries** which are related to naturalness, animal welfare and food safety concerns, antimicrobial usage and risk of increased animal disease incidence
- Consumers associate animal friendly products with improved product quality, safety and healthiness (Clark et al. 2016)

What about societal costs?

- The public appear to have **little knowledge** of production diseases and their mitigation strategies (Clark et al. 2016)
- ➔ More proactive provision of information is needed
- Literature shows a willingness to pay (WTP) more for animal-friendly products, but WTP varies by region.
- Tendency to prefer **natural and proactive interventions** to control for production diseases — reactive and “treatment-based” interventions are viewed as less acceptable
- ➔ Preventive interventions related to housing, biosecurity, nutrition and other management are likely to be perceived positively
- ➔ Potential for **business benefits** through quality assurance schemes

Production diseases can cost up to €30 - €40 per pig

- Overall, respiratory, reproductive and gastrointestinal diseases and mortality were the most important production diseases economically.
- Production diseases cost money - even when the diseases are controlled
 - Biosecurity and hygiene are important!
 - Interventions are *not* economically viable *per se* - the financial effects of both disease and disease prevention vary case by case.
 - Stakeholders and consumers prefer preventive interventions
 - Production systems tend to be vertically integrated, which provides opportunities to adopt interventions and to look at animal health from the system's perspective.
- Effective control of production diseases can benefit the consumer!

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