

Wageningen *IMARES*

Economical feasibility of pikeperch
rearing and presentation of an
economical model for percid culture
Edward Schram



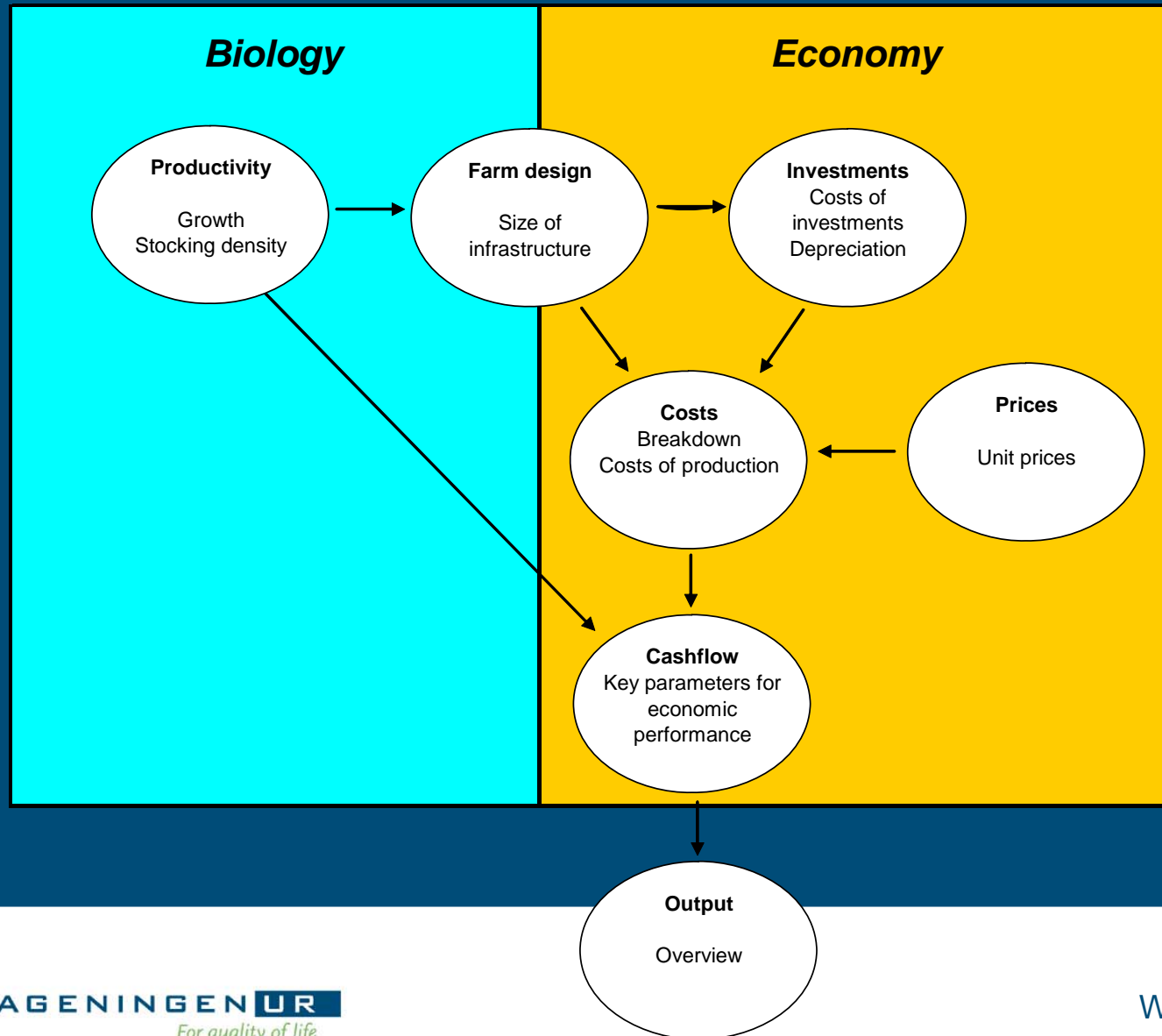
Contents: Bio-economic modeling

- Intensive production of pikeperch in RAS
 - “Ongrowing model”
 - CRAFT Lucioperca (2001-2003)
- Hatchery production of perch juveniles
 - “Hatchery model”
 - CRAFT Percatech (2004-2006)
- Models developed in coop with Wageningen LEI
- Model input & validation by project industry partners

Ongrowing model for pikeperch production

- Goal: estimate the economic feasibility of intensive pikeperch production for different scenarios.

Ongrowing model for pikeperch production



Model output

- Total investment (€)
- Production costs (€/kg) + breakdown
- Internal Rate of Return (IRR) (%)
- Break even (years until positive cum. cash flow)
- GO / NO GO: $IRR > \text{opportunity costs}$
- Opportunity costs (%) (=Input) (next best alternative for the investment)

Case study: Input

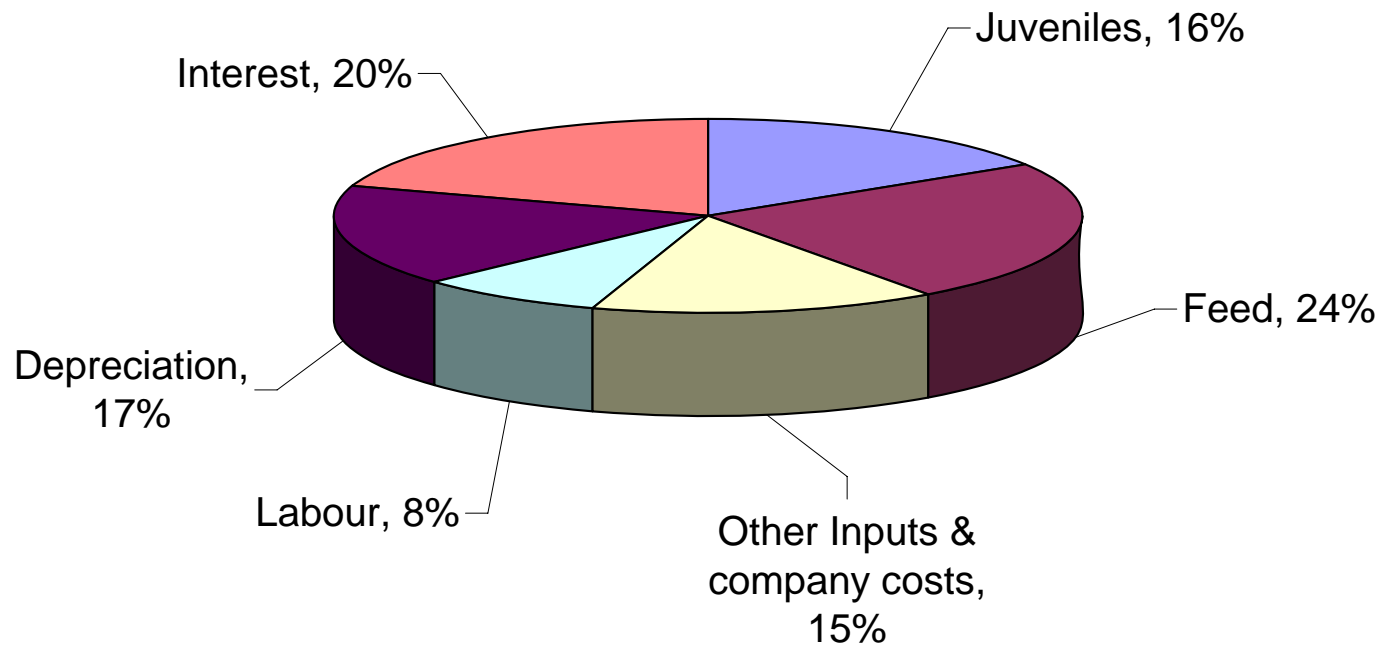
- Intensive production in RAS
- Annual production of 75 MT
- Growth based on experience
- Prices based on experience
- Market price € 7.75/kg
- Market size 1500g

Case study: output

- Total investment: € 1.1 million
- Max. negative cash flow: € 1,4 million
- Production costs: € 6.80 / kg
- IRR: 8 %
- Break even: 14 years

Conclusion: GO, but marginally profitable & long term investment

Case study: Breakdown of production costs



Scenario analysis:

What if...?

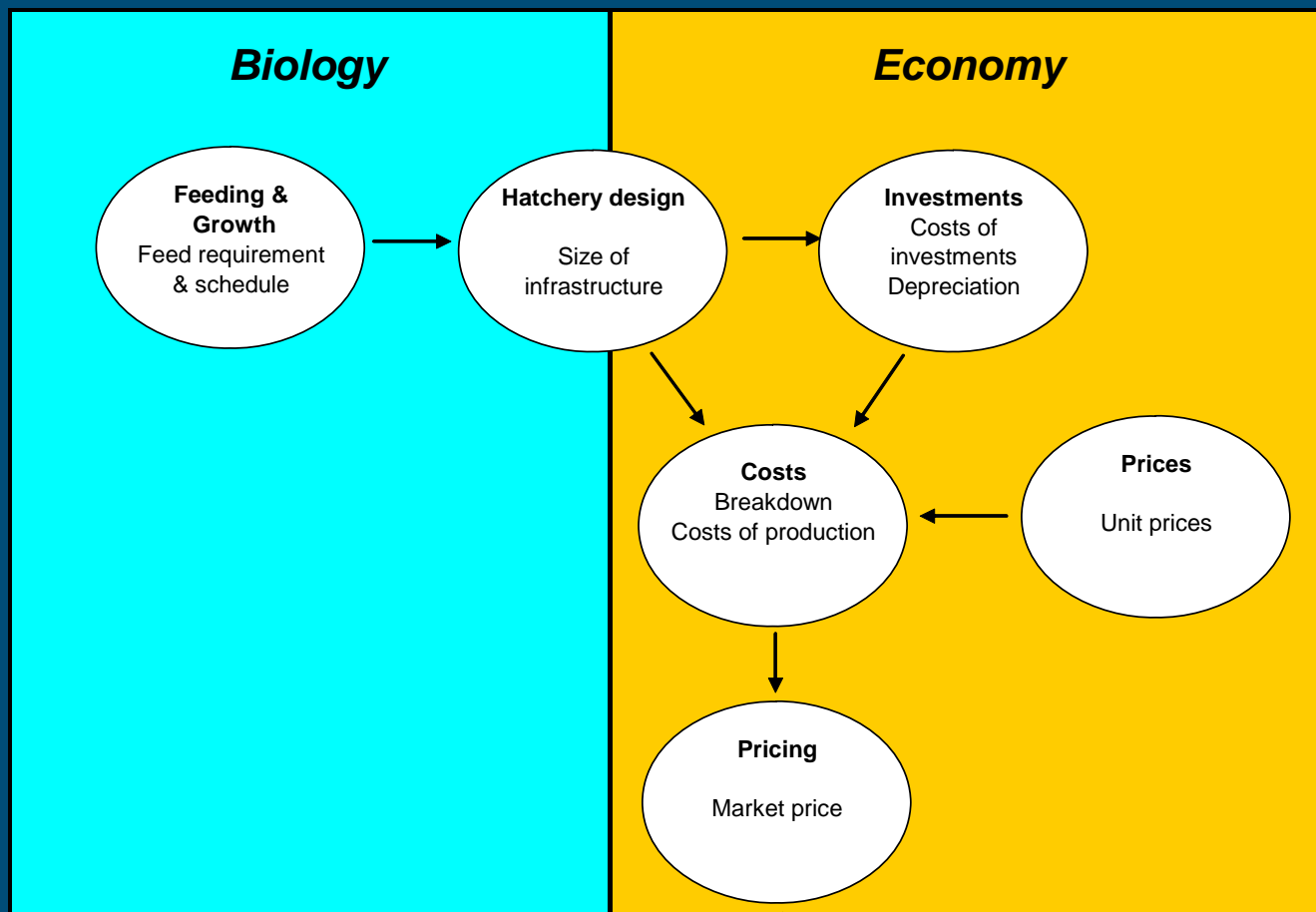
GO / NO GO is very sensitive for

- Scale (ton/year)
- Productivity (kg/m³.year)
- Market price (€/kg)

Hatchery model for the production costs of perch juveniles

- Goal: calculate the production costs for perch juveniles
 - Determine market price
 - Evaluate economic feasibility
 - Scenario analysis

Hatchery model for the production costs of perch juveniles



Cost price perch juveniles

Large variation between individual projected and existing hatcheries: € 0.20 - € 1.00

- Scale
- Labor cost
- System (indoor – ponds)
- Live food production
- Size

=> No generic cost price, careful evaluation from case to case

Projected market price

Tool to evaluate cost price:

- Market weight consumption sized perch
- Mortality during ongrowing

=> # juveniles /kg

- Market price consumption sized perch
- Profit margin

=> Cost price consumption sized perch

- Costs juveniles (% of cost price)

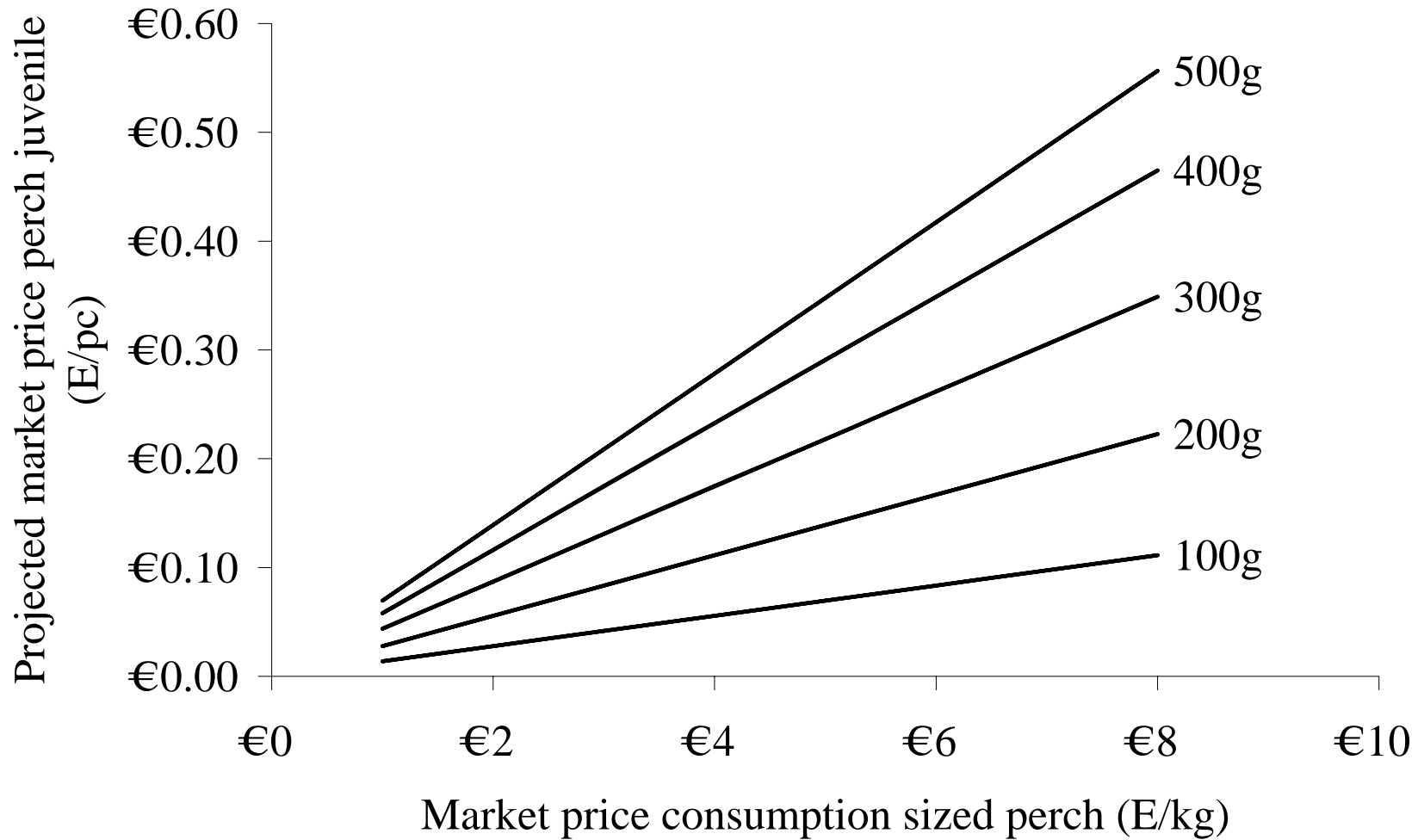
=> Projected market price juveniles

Projected market price perch juveniles

Item	Unit	Intensive	Extensive
Market weight consumption sized fish	(g)	200	100
Mortality during ongrowing	(%)	15	40
# Juveniles	(#/ kg)	5.8	14
Market price consumption sized fish	(€/ kg)	7.20	1.50
Profit margin	(%)	20	20
Cost price	(€/ kg)	5.76	1.20
Costs juveniles	(% of cost price)	20	20
Projected market price juveniles	(€/ pc)	0.20	0.02

Challenge: high number of juveniles per kg final product requires juvenile production at low costs

Market price juveniles vs. Market price of



Constraints and pitfalls

- Modeling = Projection of current knowledge into the future
- Quality of input determines quality of output
- Evaluation of individual cases, no generic conclusions
- Overestimation of growth / productivity + overestimation of market price = overestimation of economic feasibility.
- Market demand is not considered

Wageningen Thank you for your **IMARES** attention

© Wageningen UR

