



# Poultry production: Using dual-purpose genotypes and in-ovo sexing to reduce the culling of day-old male chicks?

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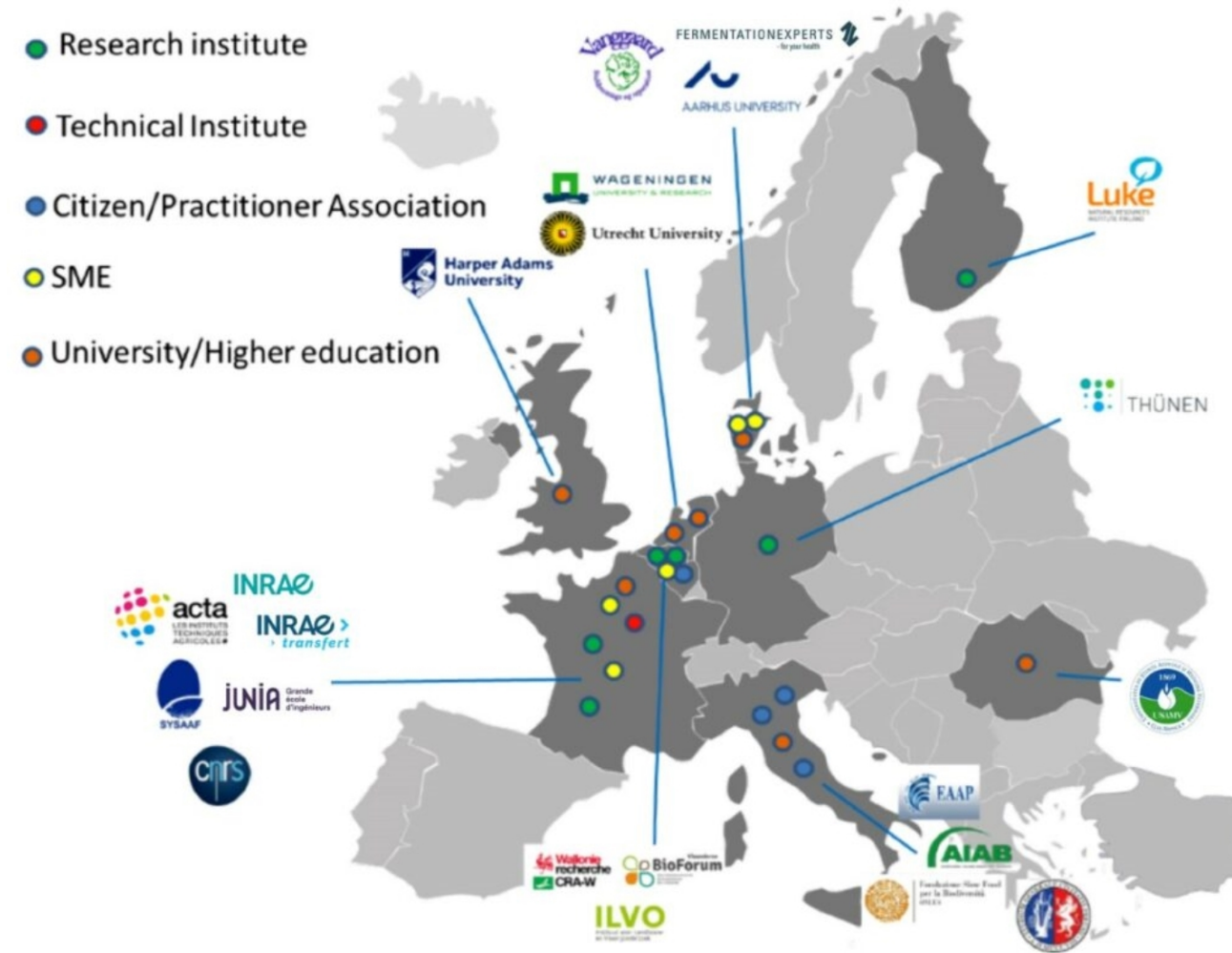
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- An ethical rather than an animal welfare issue: one day old male chicks of egg laying breeds are typically killed as they are not needed in egg production.
- Increasing societal pressures towards poultry production to develop higher animal welfare and ethical standards
- Some countries in the EU have already banned the killing of one day old male chicks.
- Poultry production is highly cost and price-driven: Costs incurred from adopting welfare practices are of great importance and need to be compensated by identifying new market revenues.
- How much value dual-purpose genotypes can add and how economic it is?

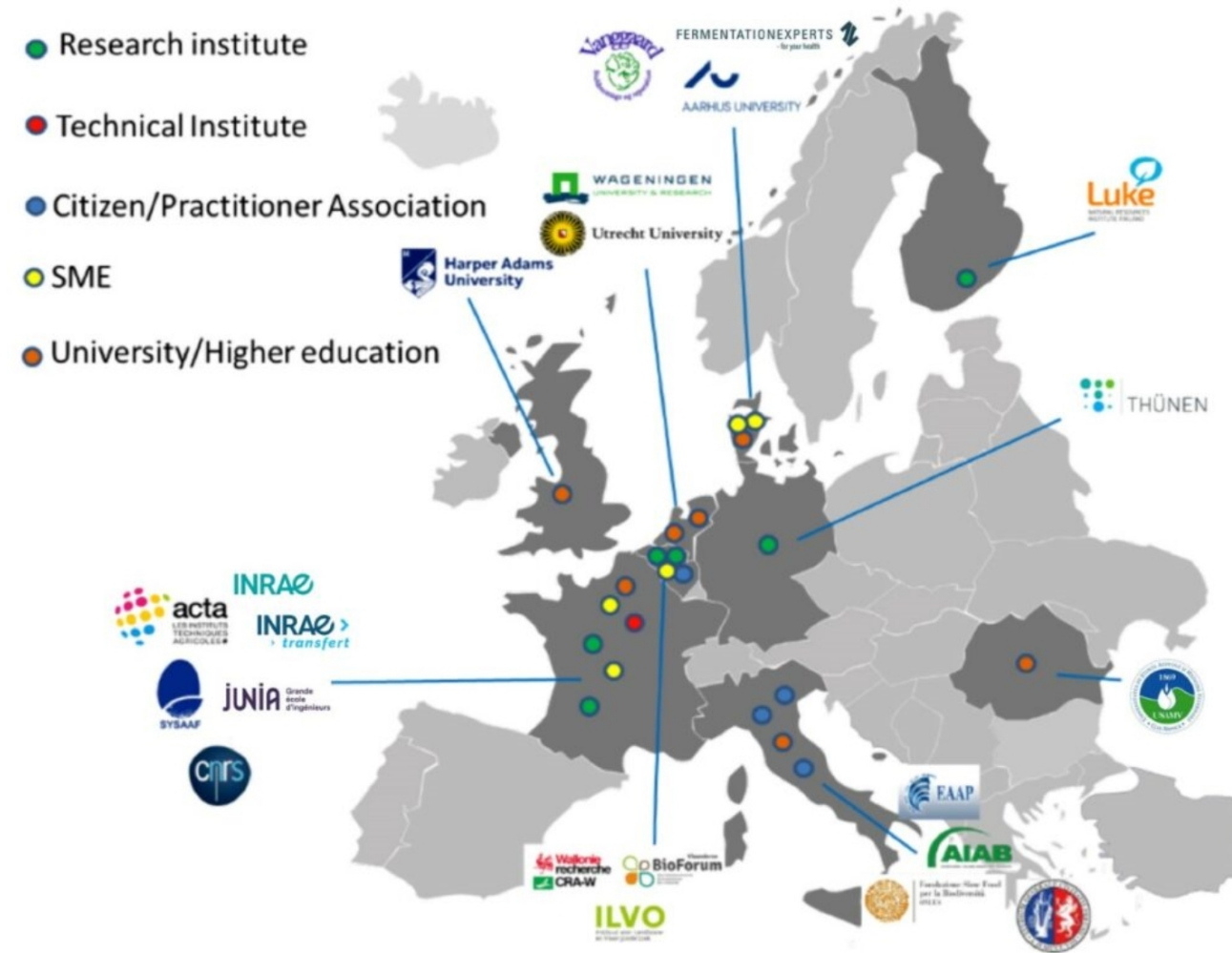
## PPILOW – Methods I: Consumer survey

- A quantitative survey instrument was developed and implemented in nine European countries in February 2021.
- Altogether 3601 responses
- The sample was representative of each country's adult population (18-70 yr), gender, income distribution and geographical distribution of respondents within each country
- Statistical analyses → Factor analysis & ANOVA

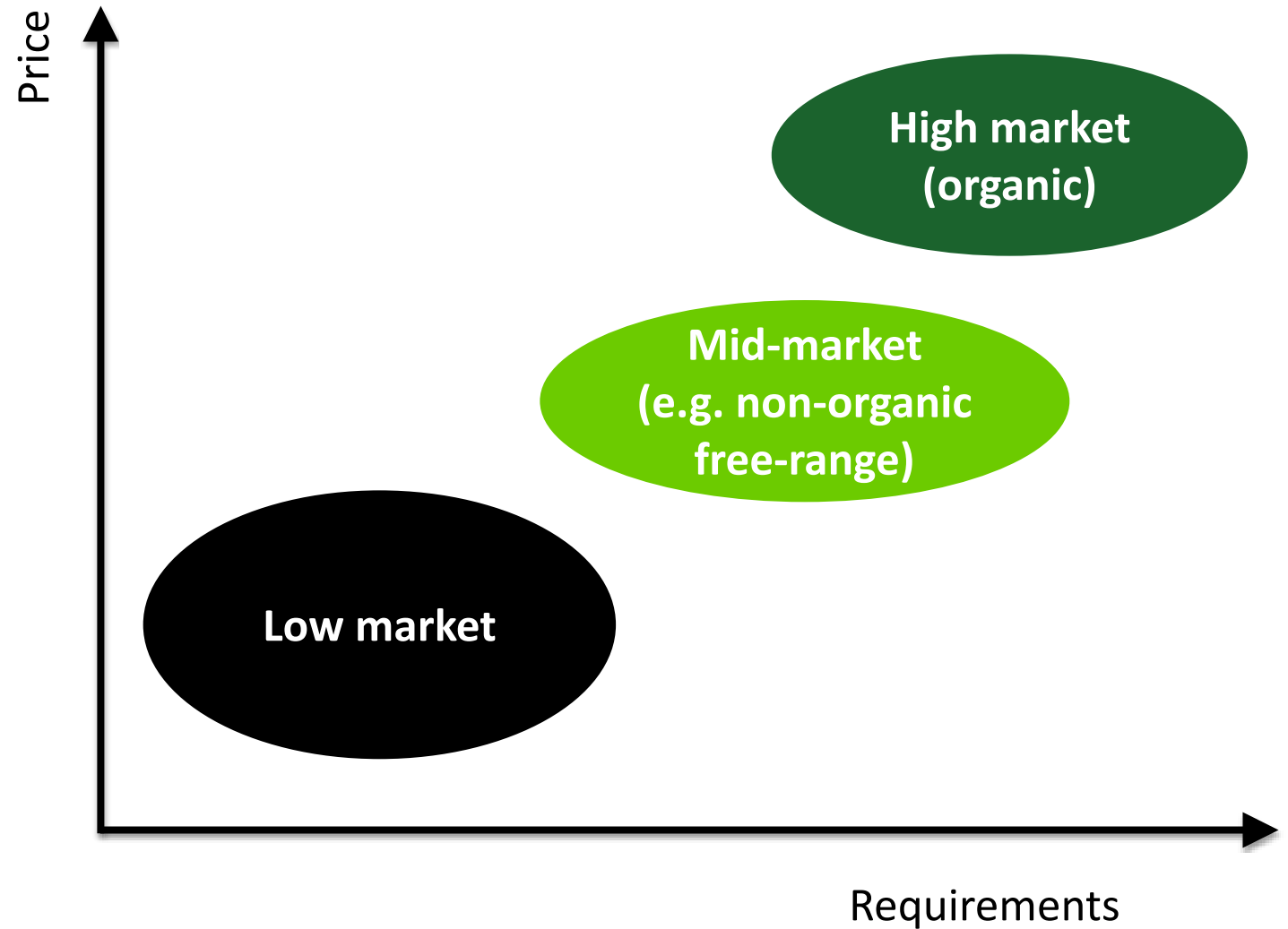


## PPILOW – Methods II: Value-adding potential & supply side survey

- An online survey targeting farmers and poultry and pig supply chain experts to test the implement ability of practices under different contexts among stakeholders in June-July 2021.
- The data included close to 250 responses, including responses from both poultry and pig production experts.
- Financial and productivity implications of dual-purpose breeds were examined through already existing information.



1. Value Proposition
2. Customer Segments
3. Channels
4. Customer Relationships
5. Key Partnerships
6. Key Activities
7. Key Resources
8. Cost Structure
9. Revenue Streams

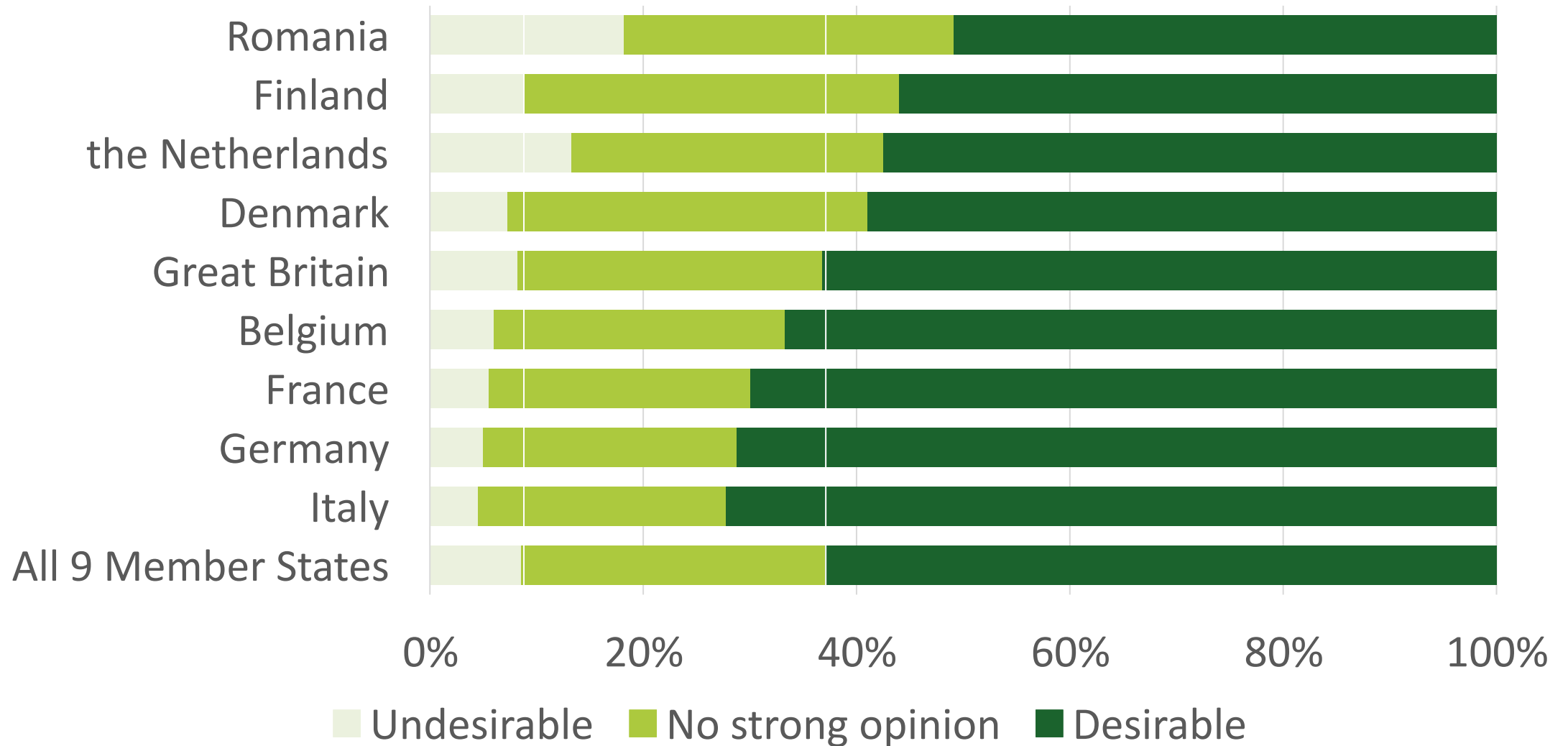




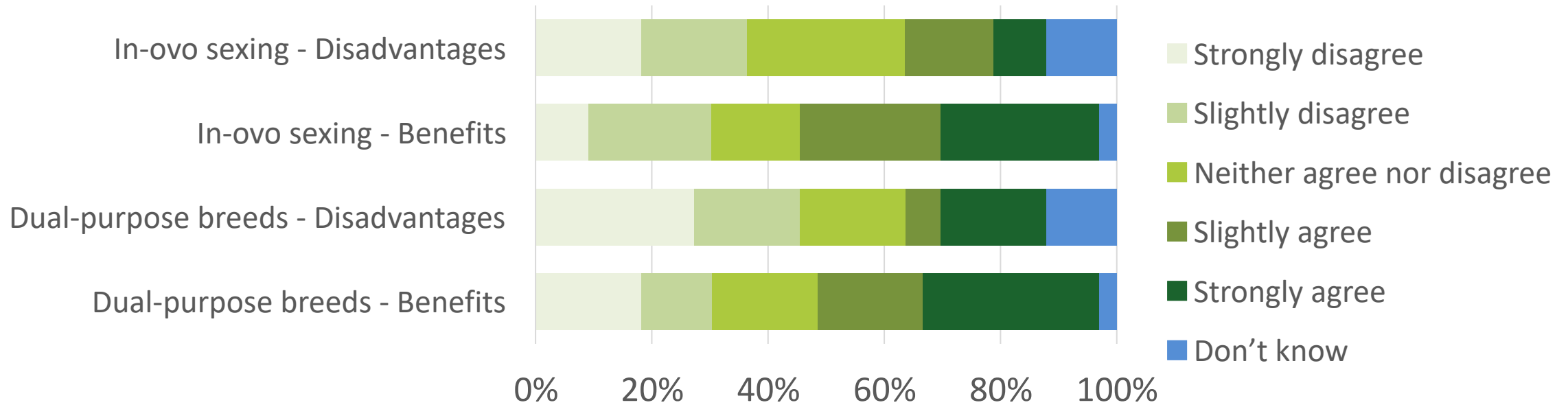
# RESULTS

# The desirability of using methods to avoid the killing of one day old male chicks

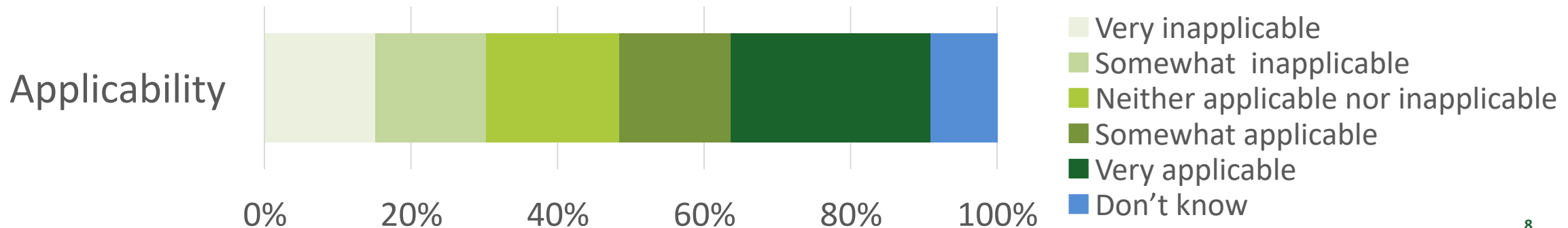
In total, 63% of citizens considered methods that avoid the killing of male day-old chicks as desirable methods.



## PPILOW – Perceived existence of disadvantage that prevent, and benefits that promote the adoption of practices



In total 42% of producers found that methods that avoid the killing of male day-old chicks were applicable.





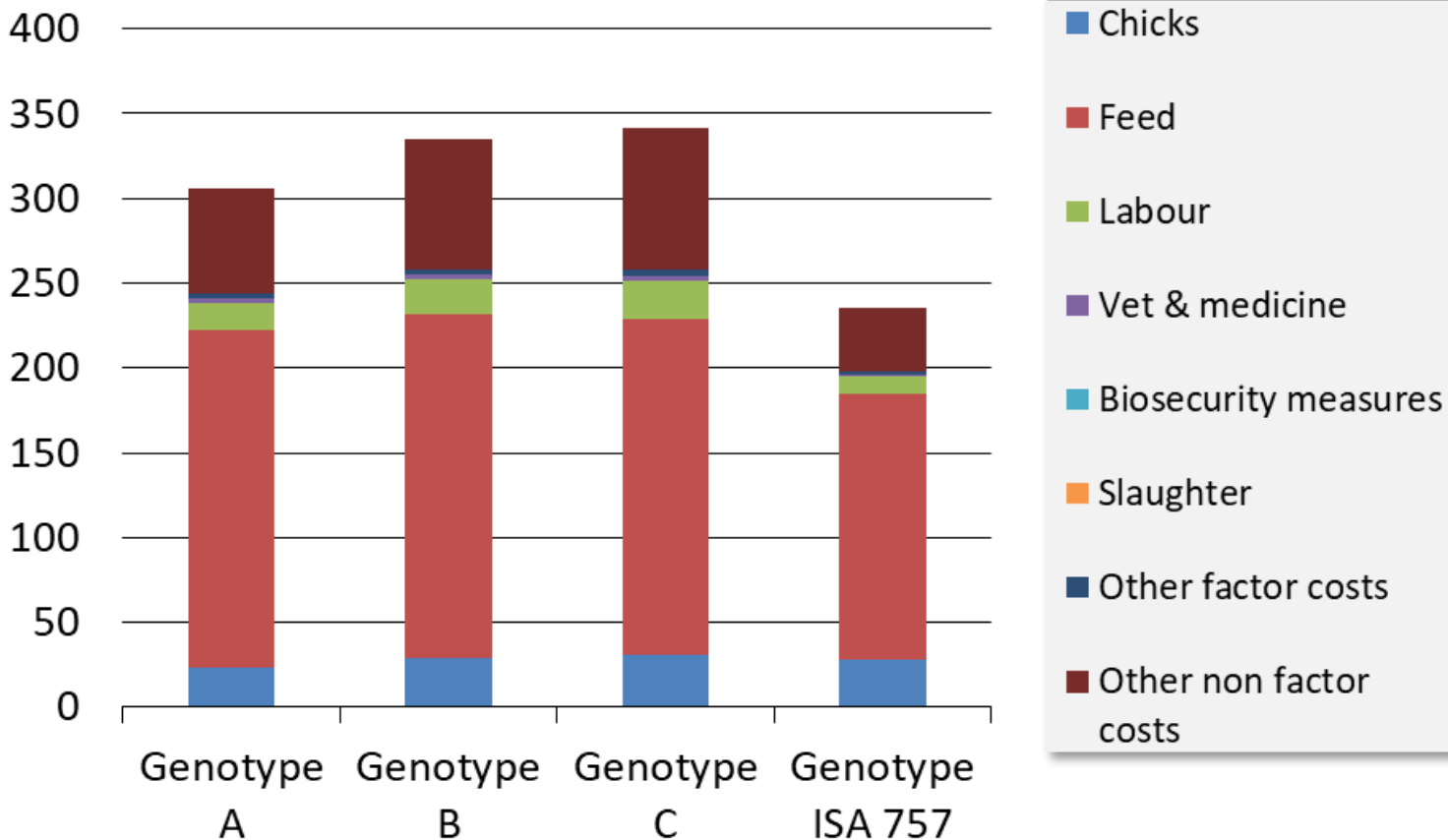
## PPILOW – Results: Economic considerations

- Lower performance (egg yield, growth rate) ➔ i) feed, labour and housing costs per kg output and ii) environmental impacts per kg output are higher than in single-purpose breed.
- Improved health and robustness of the birds may reduce veterinary costs and animal health and welfare issues.
- ➔ Consumers need to pay a higher price for higher quality of eggs and meat.
- The new choice of cuts (smaller chicks and pieces of meat) may affect consumer willingness to pay for meat.
- In-ovo sexing increases the costs of producing eggs.
- ➔ It is essential to develop a business case that would acknowledge incentives for farmers and hatcheries to use dual-purpose breeds in organic farming systems.

# PPILOW – Results: Economic considerations

## Costs of production of male of dual-purpose breeds in Germany – PPILOW WP 7 first results

On-station trial of the males of selected dual-purpose genotypes in Germany



### Performance indicators

**A, B, C:** High feed conversion ratios

**B, C:** Lowest daily weight gain

**A, B:** Lowest mortality rate

**ISA 757:** Best feed efficiency, highest daily gain and mortality

### Production costs of meat at the farm level

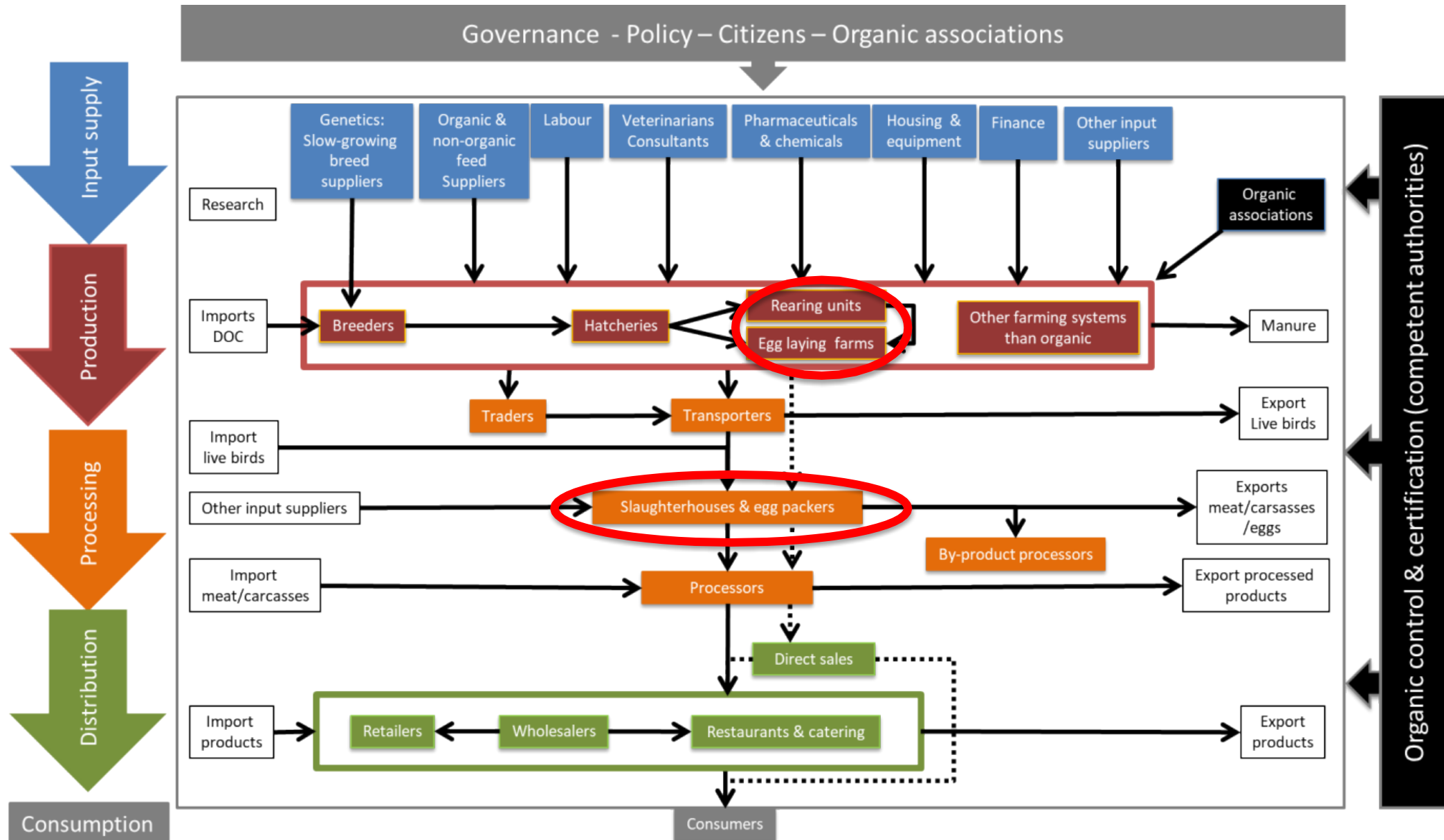
**A:** lowest production costs among dual-purpose genetics

Difference to the control group ISA 757

**A:** €0.70 per kg LG

**C:** €1.07 per kg.

# PPILOW – An example of a value chain



## PPILOW – Dual-purpose breeds

- An opportunity especially for organic farming that focus on "naturalness", and for short supply chains
- Male chicks of dual-purpose breeds can replace slow-growing breeds in organic production
  - ➔ Ethically conscious consumers who appreciate slow-growing broiler
  - ➔ Reduced need for parent flocks.
- Potential for novel practices such as slaughtering different sizes of genotypes, smaller birds, new products for pets/zoo animals?
- Branding and awareness-raising among the consumers to gain adequate sales & price premiums.
- Demanding nutritional requirements & robustness towards climatic challenges.
- R&D and enhancing feed efficiency and laying and growing performance is needed.
- Proper training and knowledge on management is needed.
- Partnering across the value chain is essential.

## PPILOW – Early sex determination using in-ovo method

- Ethically more sustainable egg production for **ethically** conscious consumers
- Investments in and maintenance of in-ovo sexing device, potential abandoning of male chicks' crushing equipment, the training of staff incur costs
- New efforts and R&D put in the processing of male eggs.
- Well-thought consumer awareness-raising campaign about ethically sustainable egg production.
- Dialogue between retailers and producers about ethical standards.

## Concluding remarks

- Solutions to address an ethical issue associated with the killing of one day old male chicks.
- Increased consumer awareness of the benefits of these methods is essential to make the practices more common.
- While in-ovo sexing is targeting egg markets, dual-purpose breeds are targeting both egg and chicken meat buyers.
- Although two products are obtained, the productivity of dual-purpose breeds tends to be lower and production costs higher than those of single-purpose breed.
- The more emphasis on laying performance the dual-purpose genotypes have, the poorer the feed conversion and the higher the production costs per kg tend to be.
- Dual-purpose breeds might fit well into organic systems, as both have a holistic and natural approach and in broiler production both involve slow-growing genotypes.

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*Thank you for your attention*

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