



## Protein transition in Colombia; Insects as feed for a circular agriculture

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Kenya



Colombia



Netherlands

# Participants in the project

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- Julián Pineda, Daipiero Gomez, **Entopro**
- Gustavo Martínez, **Operadora Avícola, OPAV**
- Juan Manuel Mejía, **Aves Emaus**
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- Seppe Salari BSc, **InsectoCycle**



Reino de los Países Bajos



# Protein sources for feed



Fishmeal



Soymeal

- Increasingly limited
- Competes with food
- Increased production at expense of forests

# Protein sources for feed

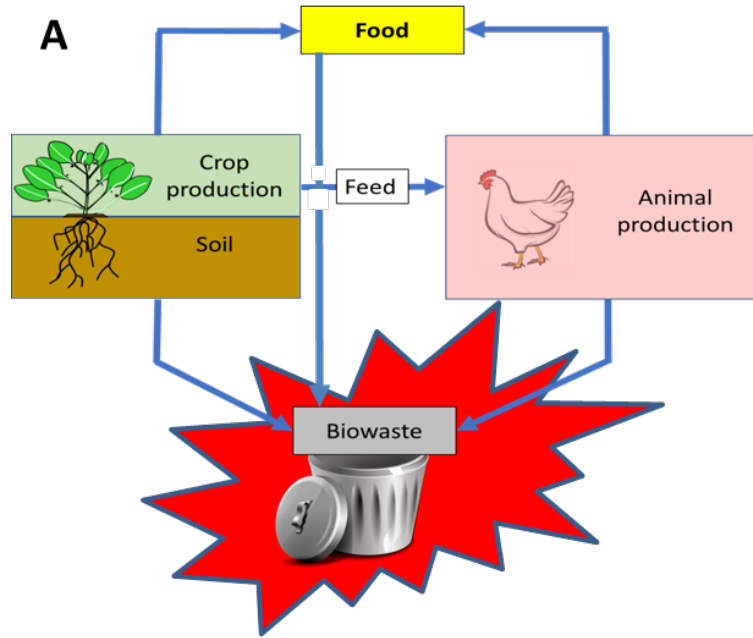


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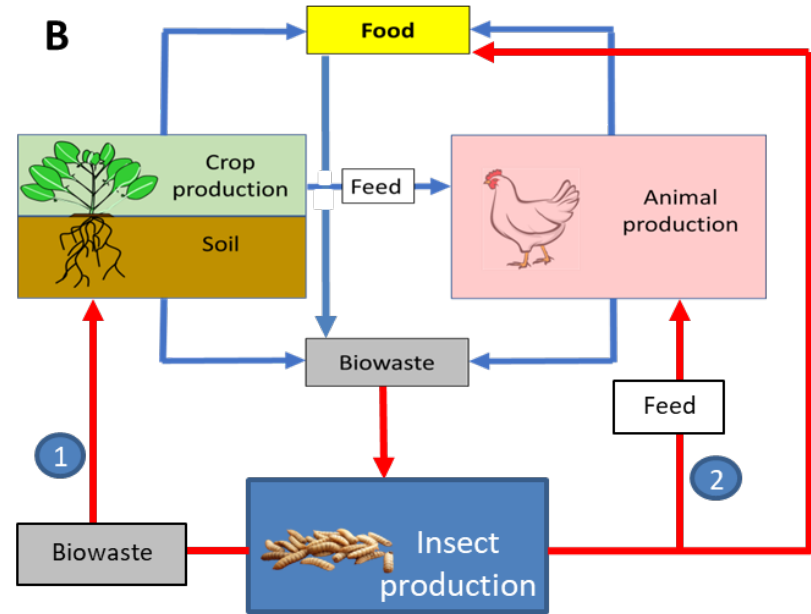
# Feed situation Colombia

- Protein sources in poultry feed in Colombia are mainly imported
- Colombia is a top importing country regarding protein for feed
- Annually, 1 billion US\$ of corn meal, 1,5 million MT of soymeal and 12000 MT of fishmeal are imported by Colombia from USA

# Waste management: towards circularity

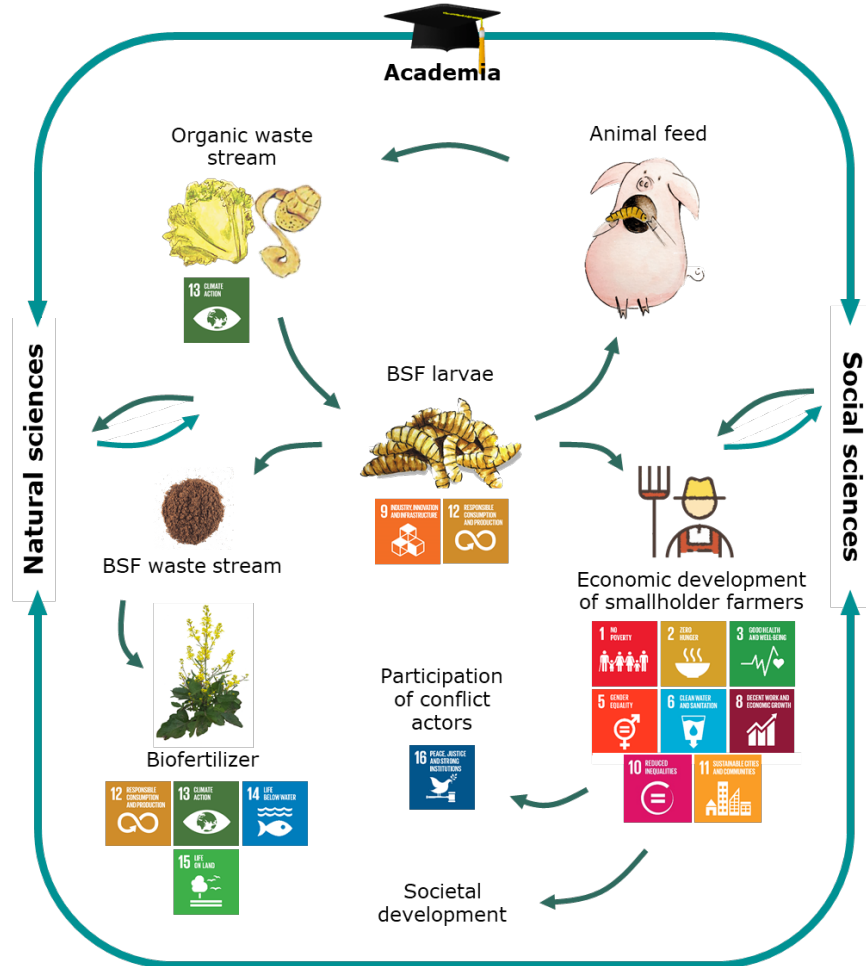


Current



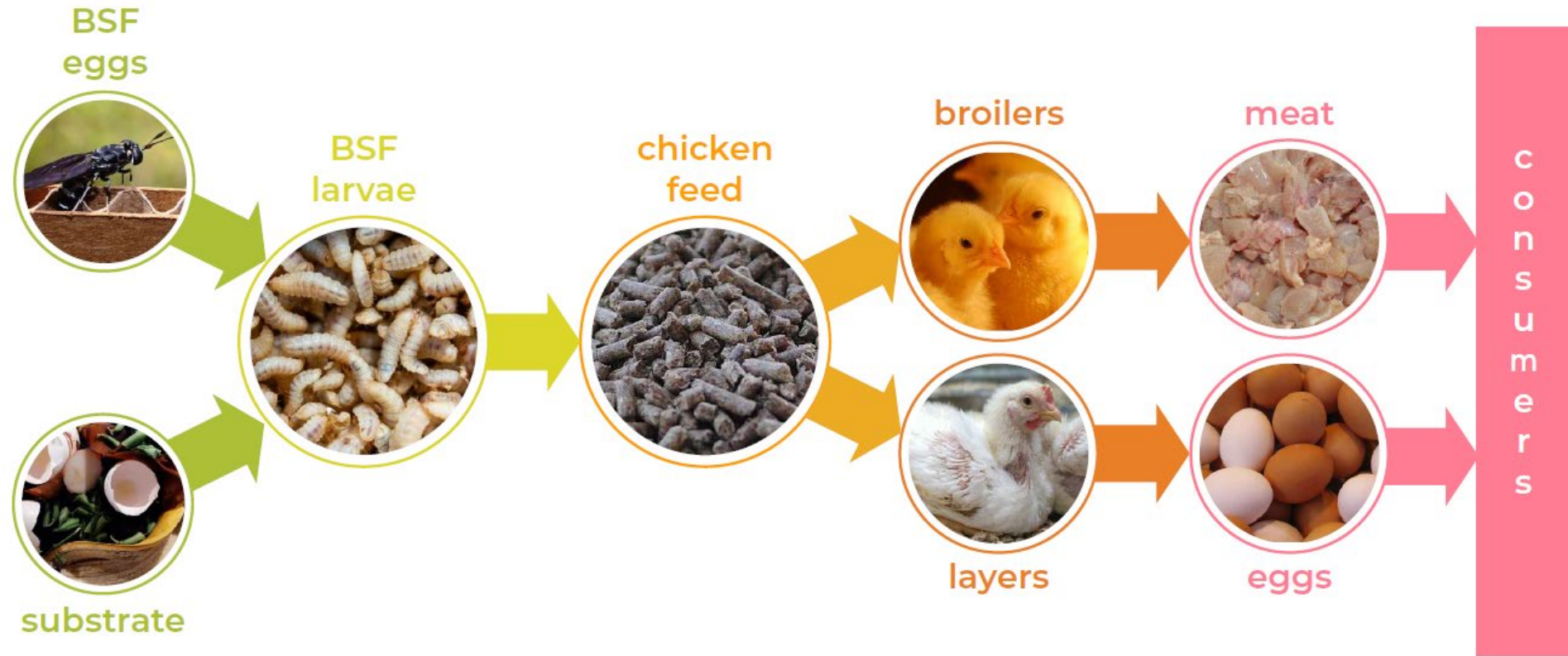
New

# Circularity and Sustainable Development Goals





# Black soldier fly (BSF) for poultry feed: the value chain







# Opportunities

- For small producers and big producers
- Solving waste problem
- Insects have an excellent nutritional profile with a good digestibility
- Internationally a lot of knowledge is generated, so good knowledge basis
- provides alternative source of protein for the livestock industry, and to reduce their environmental footprint/costs.
- Environmental conditions (tropical climate) well suitable
- insect production creates jobs and contributes to the local communities and economy.



# Challenges

- No legislation yet
- Price should be competitive
- Consequences of upscaling of insect production for other value chains
- Continuous supply needed of insects for feed
- Market readiness
- Waste streams become resource and so economic value
- Competition for waste streams
- business models needed



# Knowledge needed

Despite valuable general knowledge basis, specific knowledge needed for the Colombian situation

- Legislation to be developed with stakeholders
- Suitability of substrates available in CO for insect production, developing local insect production; insect safety
- How can insects be included as a feed component for poultry in Colombian conditions: rate of inclusion, effects on poultry production and health.
- Costs and benefits for insect farmers, feed producers and poultry farmers. The cost-benefit analysis requires investigations of local resources for BSF production, and benefits that BSF has for feed producer and poultry farmers.



# Conclusion

- There is great interest in developing insects for feed in Colombia by
  - Insect farmers
  - Poultry farmers
  - Feed producers
  - Academia
- NL private industry and academia willing to help in the transition
- There is a good basis for addressing the local knowledge gaps
- ***The results of this SMP will be used for developing a plan for the next steps***