

# Impact of different rearing diets on the performance of adult mealworms *Tenebrio molitor*.

Caroline Provost and François Dumont

Québec, Canada



# Opportunity and challenge

- Production of insects for human and animal consumption is an increasingly important activity in Canada.
- Protein production is more efficient and less harmful to the environment using insect rearing compared to traditional livestock, poultry and fish farms.
- Several parameters remain to be determined to ensure efficient and profitable production, for example:
  - Rearing diet
  - Ratio male/female
  - Densities and Cannibalism



*The general objective is to acquire specific knowledge for mass rearing of insects dedicated to animal and human consumption in order to respond to current market opportunities and meet a growing demand for these products.*

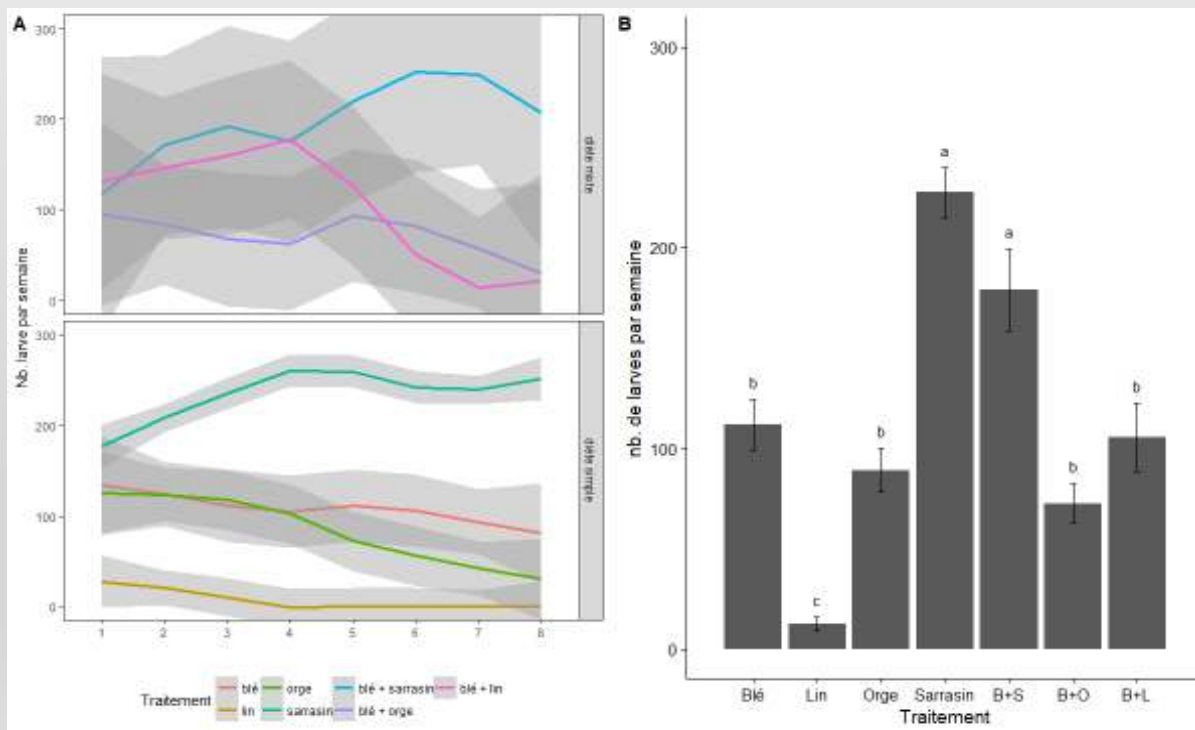
# Methodology

- Trials were done using the common mealworms (*Tenebrio molitor*).
- Survey were done during 8 weeks (15 replicates)
- Seven different flours (mixed with other ingredients) were compared based on:
  - Wheat
  - Barley
  - Buckwheat
  - Flax
  - Wheat + barley
  - Wheat + buckwheat
  - Wheat + flax
- Parameters observed:
  - female fecundity
  - growing curves



# Results

- Female fecundity was affected by diet and was greatly reduced after the week 4 on some diets
- Female fecundity was greater on some diet
- Female fecundity was minimal on flax diet



# Conclusion

- Some flour diets have positive effects on female fecundity and larvae performance while each mealworm was found to have specific diet requirements.
- Trade-offs between mealworm performance and diet costs need to be considered.
- Experiments on the effect of flour composition on several parameters related to performance and nutritional and gastronomic value led to the identification of a more appropriate diet for each mealworm

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