

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.

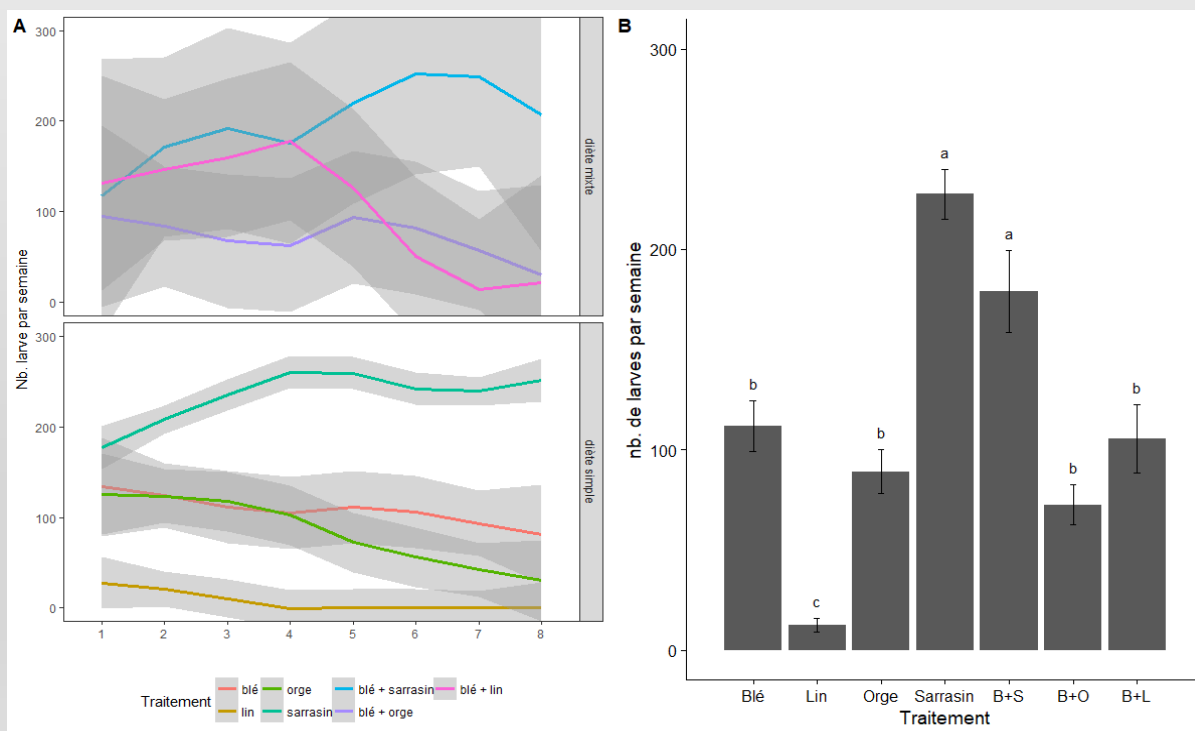
Methodology

- 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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