

WHERE TO LAY MY EGGS?



DOES FEMALE *C. MACULATUS* HAVE AN OVIPOSITION PREFERENCE FOR ANY OF THE BEAN TYPES WHEN HER NATAL BEAN (MUNG BEAN) IS NOT PRESENT?



2 EXPERIMENTAL DESIGN

We used 8 petri dishes, where 5 of them were containing mixed beans while the other 3 were only containing 1 bean type (controls). The amount of beans was standardized by weight. 7 females and 3 males were then placed in each petri dish. After 14 days we counted the number of eggs that were laid in total in each plate.



3 RESULTS

The results show that **the beetles display a significant preference for the adzuki bean** (p -values > 0.0001 for all our tests) where the ratio for amount of eggs laid on the different beans shown in the boxplot (ratio eggs laid on beans: adzuki/black = 1.949 adzuki/black-eyed = 1.248) where it shows **the poisonous black bean was the least favoured.**

4 DISCUSSION

The data suggests that the beetles can to some extent distinguish between safe and poisonous beans.

We hypothesize that the preference for adzuki compared to black-eyed peas is due to adzuki being closer in size to the mung bean, and therefore familiar.

Bean beetles prefer to lay a single egg per bean [2]. This may have contributed to the beetles laying more eggs on the adzuki beans, as the number of adzuki beans was higher.

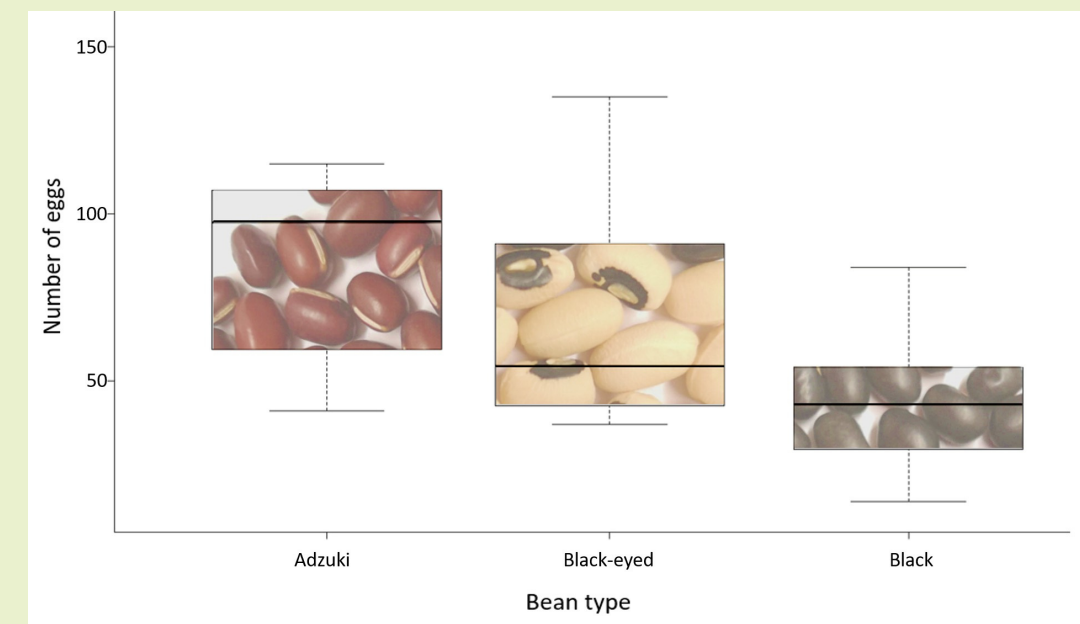
For future research it might provide insight to place a single female in each petri dish, to see if a female chooses only one bean type to lay her eggs on or if she varies her preferences.

1 INTRODUCTION

This experiment utilized *Callosobruchus maculatus*, Eggs from the bean beetles are laid on beans, which is where the larva burrows.

The nutrition the larvae obtain is fundamental for it as an adult, due to not requiring sustenance and having a short lifespan where it mates and lays eggs.

Hence the bean to lay an egg on is important for the bean beetles, ex if it is a poisonous bean the eggs will not become adults.



The Boxplot shows the median, interquartile range, max. and min. value for the total number of eggs laid on each type of bean when given a choice.

REFERENCES

[1] Beck, C. W. Blumer, L. C. (2014) *A Handbook on Bean Beetles, Callosobruchus maculatus*. Available at: <https://www.beanbeetles.org/handbook/>.

[2] Mitchell, R. (1975). The Evolution of Oviposition Tactics in the Bean Weevil, *Callosobruchus maculatus* (F.). *Ecology*, 56(3), 696-702.

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