Does Origin Bean Type Influence Bean Preference?

A. Zakeyu, C. Dunnewind, K. Svendsen, M. Skinkyte, S. Wergedahl

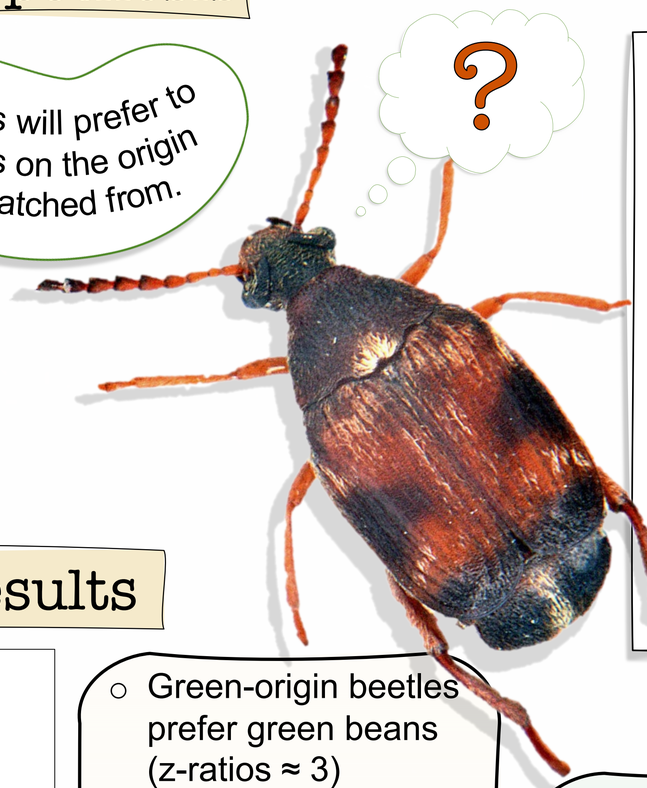
SCAN ME

1. Background

Callosobruchus maculatus are small insects that are commonly found in tropical regions, where they feed and **lay eggs** on legume seeds such as **beans, peas and lentils**. Some species of *C. maculatus* have a **preference** for certain types of beans due to their ability to detect specific chemicals present in the beans (Fox, 2007). **Our study aims to investigate whether a female beetle's preference for laying eggs is influenced by the type of bean she hatched from** i.e., her origin.

2. Hypothesis

Beetles will prefer to lay eggs on the origin they hatched from.



3. Design

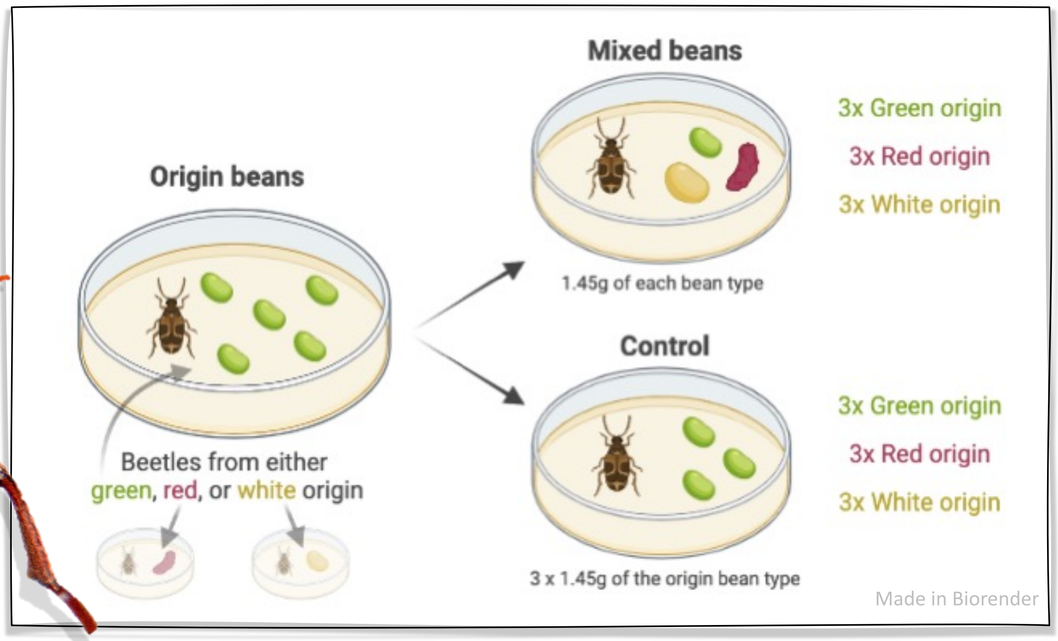


Figure 1: *Experimental design.*

4. Results

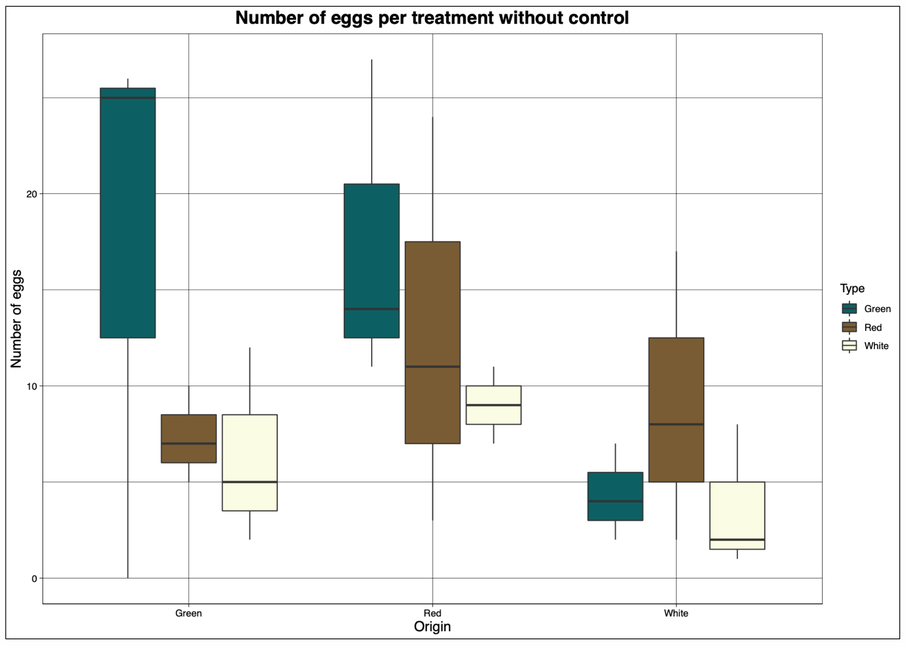


Figure 2: *Boxplot of the number of eggs laid by certain origin bean beetle on different bean types*

- Green-origin beetles prefer green beans (z-ratios ≈ 3)
- Red-origin beetles prefer green beans over red beans (z-ratio ≈ 1.5) and red beans over white beans (z-ratio ≈ 1.4)
- White-origin beetles prefer red beans (z-ratios ≈ 2)
- Beetles from all origins favored white beans the least

5. Conclusion

Our hypothesis was not confirmed, all beetles did not prefer their bean type of origin. Beetles of green origin preferred green beans, beetles of red origin favoured green beans, and beetles of white origin preferred red beans. This suggests that **factors other than bean of origin** influence bean preference. However, our results **partially support** our hypothesis, because beetles of **green origin preferred green beans**, which is consistent with Messina and Slade (1997), who also found a preference for their bean of origin in one beetle strain, but not in another. Future studies should investigate factors contributing to beetle preference for different bean species, which has implications for agricultural pest management.

Messina, F. J.; Slade, A. F. Inheritance of host-plant choice in the seed beetle Callosobruchus maculatus (Coleoptera: Bruchidae). *Annals of the Entomological Society of America* **1997**, *90*, 848–855; Fox, C. W., Stillwell, R. C., Amarillo-S, A. R., Czesak, M. E., & Messina, F. J. (2004). Genetic architecture of population differences in oviposition behaviour of the seed beetle Callosobruchus maculatus. *Journal of Evolutionary Biology*, *17*(5), 1141–1151.