



Viable Shattercane Seed

Kyle Hickok and Dr. Dille

¹Department of Entomology, College of Agriculture, Kansas State University

²Department of Agronomy, College of Agriculture, Kansas State University



Abstract

- a. Shattercane is a common weed that many farmers all over Kansas have to deal with. This project should help farmers get a better idea when those shattercane plants become able to reproduce.
- b. When does shattercane heads become a potential problem to produce viable seeds?
- c. The control group of fully mature shattercane seeds where the only seeds that sprouted in the 5 day test period. I found that more time may be necessary for the less mature seeds to sprout.
- d. The results from this testing can be important to farmers to know when they need to take action to decrease risks of shattercane problems in the future

Purpose

The purpose for this research project is to determine when shattercane weed seeds become a true problem for farmers. This research project should help agronomist and farmers know when they need to take action and what they can hold off on.

Questions, Hypotheses, and Predictions

Question: At What stage and conditions will a shattercane seed become a viable seed?

Hypothesis: I think only the mature seed (control) will germinate do to the maturation.

Prediction: I believe only mature seed will be viable to germinate.

Study System

I tested shattercane seeds I gathered from shattercane plant out in a couple different fields. Shattercane is found all over kansas and many other states.



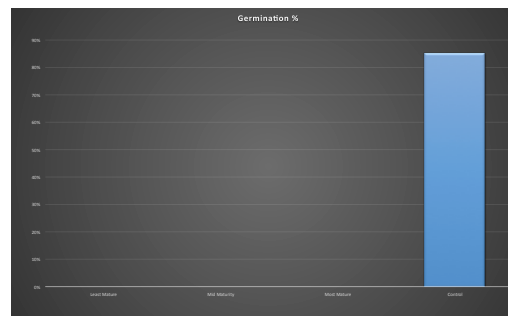
Methods and Experimental Design

I tested the maturation a shattercane seed needed to be to germinate. I went to several different locations and gathered shattercane heads, Then I stripped the seed off the heads and froze half of each locations seed and let the other half dry. After getting the seed frozen/ dried for a few weeks I then put about 40 seeds from each location into 2 petri dishes 20 frozen and 20 dried (20 in each dish). After getting them "planted" in the dishes I then watched over several days to see how many would germinate. I was able to watch them for 5 days, the control germinated but then I ran out of time, I believe some of the more mature seeds may have sprouted in there was more time.



Results

I found that only the control germinated in the 5 day time frame. Other less mature seeds may have been able to sprout in a longer time frame but in this experiment the control was the only one that was able to sprout.
graphs of data ...



Conclusions

None of the tested seeds were at full maturity which led to 0% germination rate- under the lab room conditions. The control These results are significant to an agronomy student like me because it will help in the future when out scouting fields.

Future Directions

If I were to do this experiment again or continue the testing I would first retest seed from a freeze and drying but under different conditions to see if I can get different results. After that I would also test more variables like how long the seed is frozen, how often it is exposed to light, how long the seeds are dry out, not letting seeds dry out at all. I would also give the seeds more time to germinate to see if anything other than the control would germinate.

References

CAB direct 2018. Seeds and phenological studies with shattercane. <https://www.cabdirect.org/cabdirect/abstract/19671702017>

Acknowledgements

Thank you to Dr. Marshal for making the arrangements and to Dr. Dille for all the help collecting samples and helping me plan out what to do for the experiment.