



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Audrey Q. Webb</b>	<b>Project Number</b> <b>J1730</b>
<b>Project Title</b> <b>GMO: Food or Foe? The Effects of GMO vs. Organic Papaya Diet on the Longevity and Fertility of the Fruit Fly</b>	
<b>Abstract</b> <b>Objectives/Goals</b> If the independent variable "organic vs GMO diet" is fed to separate populations of fruit flies, I expect the dependent variables "longevity" and "fertility" to be reduced in the GMO fed fruit fly populations. <b>Methods/Materials</b> 24 vials of fruit flies were fed GMO papaya media and 24 vials of fruit flies were fed organic papaya media. The flies were observed for 2 generations over the course of 6 weeks to record longevity and fertility data. For longevity study, the adult flies were transferred to new vials every 5 days to avoid including their offsprings in the longevity count. The lifespan of these adults were recorded. For fertility study, 24 male and 24 female 2nd generation flies were mated in 8 separate vials to observe reproductive rate on GMO and organic papaya media. The larvae in these 8 vials were counted and recorded on day 5. <b>Results</b> The 1st generation fruit flies which were fed organic papaya lived longer on average than the flies fed GMO papaya by 22%. The difference became more pronounced with the 2nd generation; the 2nd generation flies fed organic papaya lived longer by 41% on average. Regarding dietary effects on reproductive rates, flies fed organic papaya produced more larvae than flies fed GMO papaya media by 12%. <b>Conclusions/Discussion</b> Based on the experimental data I observed, the results support my hypothesis that fruit flies fed GMO papaya will have a reduced lifespan and fertility compared to fruit flies that are fed organic papaya. Therefore, I would recommend that people avoid GMO and choose organic until human clinical trials reveal the long-term effect on the human race. Not only are GE agricultural practices questionable, but also our health could quite possibly be compromised.	
<b>Summary Statement</b> This project observes the effects of GMO versus organic papaya diet on the longevity and fertility of fruit flies.	
<b>Help Received</b> Alexis Bailey at Margaret Fuller Fly Lab at Stanford suggested techniques for handling the Drosophila. Mom provided an extra set of hands for counting, chilling, sorting, and transferring hundreds of flies, and offered guidance on how to create a display board using Pages software. Dad taught me how to make	