



# CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

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<b>Project Title</b> Grouped or Crossed Breeding: What Is the Effect on Snail Reproduction and Maturation?	
<b>Abstract</b> <b>Objectives/Goals</b> This project analyzes the egg count and maturation time of the hermaphroditic snail <i>Lymnaea stagnalis</i> in cross-bred and grouped populations. My hypothesis was that cross-bred snails would produce more eggs than group-raised snails. I further hypothesized that maturation data would show larger, more numerous eggs for the snails in the cross-bred bowls. <b>Methods/Materials</b> Snails were gathered from four separate demes (isolated ponds) from a local pond area. Snails were housed in bowls according to their rearing group--this established the group deme. Crossed bowls were set up by putting one snail from each deme with one from another, resulting in six crossed pairs. Data was collected on number of eggs laid. Four different project periods were analyzed, using fresh snails at each set up. <b>Results</b> Combined data show that crossed snails laid 4.43 eggs per observation period while grouped snails laid 2.73 eggs per observation period. Trial data showed that one grouped deme mated far more within its rearing group than when crossed. The deme that least preferred to mate within their group laid almost four times as many eggs when crossed. Data regarding egg maturation can only be reported by the number of days to mature; grouped snails matured sooner than crossed snails. <b>Conclusions/Discussion</b> My hypothesis was right regarding crossed snails laying more eggs. I discovered that had I not taken a wide variety of snail demes into my study, I would not have made this same conclusion as one deme reproduced exactly opposite to that of the other three. Overall, I believe that snails prefer to reproduce with novel (crossed) partners more due to research on sperm competition and natural selection. Additionally, the production of sperm is energy costly to snails, so they discriminate partners through the use of allohormones. My hypothesis on egg maturation was not conclusive. I had not clearly planned the methodology on how to measure for egg size, and egg maturation into viable snails became too cumbersome to manage accurately.	
<b>Summary Statement</b> This project analyzes the egg count and maturation time of the hermaphroditic snail <i>Lymnaea stagnalis</i> in cross-bred and grouped populations.	
<b>Help Received</b> Teacher as facilitator; Dr. Joris Koene (University of Amsterdam) as email support.	