



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Cynthia Perez	Project Number J0518
Project Title Yeast Competition	
Abstract Objectives/Goals This experiment examines a possible method to increase the production of alcohol through fermentation with yeast by species competition. This is important because of the increase in the use of biofuels. Methods/Materials In a classic competition experiment that Gause performed in 1934 with yeasts, he noted that one species of yeast was essentially eliminated in a mixed culture by a presumed increase in alcohol production by the other species possibly as a competition kill mechanism. I examined this again with the interest in biofuel technology. I ran monoculture controls, and mixed culture trials. I took population counts and measured alcohol production in each with a refractometer, as well as double distilling the media. Results Combining <i>Saccharomyces cerevisiae</i> and <i>Schizosaccharomyces pombe</i> produced more alcohol than individual monocultures alone, with a sharp decline in the <i>S. cerevisiae</i> population. Conclusions/Discussion Though not intended to be used for alcohol production, Gause's original experiment did mention a presumed increase in alcohol production during competitive fermentation by one species, and did peak my interest. It did indeed produce more alcohol through competition. This may be of note to industry in their attempts to increase alcohol production.	
Summary Statement This experiment examines a possible method to improve the production of alcohol through fermentation with yeast by species competition.	
Help Received I was assisted in part by my instructor Dr. Morse, to comply with federal regulations with the distillation of ethanol.	