Mexican fruit fly *Anastrepha ludens* artificial diet improvement testing

Daniel Garza[1], Hugh E. Conway, PhD[2], Christopher Vitek, PhD[1],
[1]The University of Texas-Pan American Edinburg, TX
[2]USDA-APHIS-PPQ-CPHST-Mission Lab Edinburg, TX
Daniel.Garza@aphis.usda.gov; **Hugh.E.Conway@aphis.usda.gov**; **Vitekc@utpa.edu**;

The Mexican fruit fly (MFF) *Anastrepha ludens* is a major pest of citrus and fruit in South and Central America and a reoccurring invasive pest in south Texas with the potential to cause millions of dollars in damage to the Texas citrus industry. The primary control method for MFF is Sterile Insect Technique (SIT) by mass rearing and releasing sterile fruit flies reared on artificial diet. Diet improvement testing has been ongoing at the Mexican Fruit Fly Mass Rearing Facility at Edinburg, TX since 1989. In this study, new artificial diet mixes were tested by replacing part of the torula yeast with different combinations of corn cob, maseca (corn meal) and toasted soy. Analysis of data from small scale (50 kg) and large scale (1650 kg) tests indicate that these diets replacing two or three bags of yeast produced similar values for adult emergence and flight ability compared to control (current diet) but produced more pupae per kg of diet and a higher value for conversion from eggs to adults. The cost saving per year for replace two yeast and three yeast diets would be $164,327and $244,809 per year, respectively based on ingredient cost on 15 Aug 2013. There are only minor differences in percent lipid/fats and carbohydrates among the compared diet mixes. The essential amino acids was slightly higher in replacing two bags of yeast than the control and slightly less in replace three bags except for two amino acids 1) arginine and 2) histidine which were more abundant because of maseca. The quality and quantity of flies produced from experimental diets were good if not better than the control diet.