Summary of the TPB Project (Alternative Approaches to Tarnished Plant Bug Control) Team Meeting held on Tuesday April 12, 2016.

Meeting started at 10:00 am with participation of Clint Allen, Bryce Blackman, Nathan Little, Randy Luttrell, Katherine Parys, O. P. Perera and Maribel Portilla.

Current TPB project term: December 4, 2015 to December 3, 2020.

Initial discussion was centered on information about APHIS regulations for experimental plots 10 acres or less and EPA regulations for large-scale experimental plots. Maribel Portilla indicated based on information obtained from APHIS, Pest, Pathogens and Biocontrol Permitting, that APHIS would not require a permit for movement and use of native isolates of *B. bassiana*, including small scales (total research area of 10 ac or less). However, EPA would require a permit for large-scale use. For both small and large scale *B. bassiana* use, EPA stipulated that no part of the plant that may have the experimental material on it will be able enter the "food or feed" stream. Therefore, the sprayed crop or yield cannot be used for human consumption or forage/feed for livestock or other animals (Crop should be destroyed in the field). All attendees agreed that this regulation would consume our project funds very quickly. No final information has been obtained from EPA about the cost of the permit for large- scale use.
Following the discussion Maribel Portilla stated that there is enough NI8 inoculum to cover the field experiments for the year of 2016. However, more tech powder (pure spores) needs to be produced for the next years. The National Biological Control laboratory (NBCL) has produced 2 Kg of NI8 to be used the year of 2017. Dr. Jaronsky (USDA ARS Northern Plains Agricultural Research Laboratory) is willing to produce 10 Kg of NI8 for our project, which will be used for the large-scale field experiments in 2017-2018.
Next discussion was centered on the project goals set by milestone tables. Emphasis was on increased accountability and improving project productivity.

Objective 1: Determine key factors that naturally regulate TPB population increases and develop new tools for managing TPB, included bio-control strategies.

Sub-objective 1A: Quantify the impact of natural control on TPB seasonal abundance and distribution (Portilla/Blackman/Parys/Perera/Luttrell/).

Sub-objective 1.B: Identify and develop new biological and cultural control options (including entomophatogens, entomophagous insects, host manipulation and possibly behavioral modification) as possible regulators of TPB population growth (Portilla/Blackman/Parys/Perera/Luttrell).

Sub-objective 1.C. Identify sampling methods for TPB that are cost and time effective for landscape level monitoring, and evaluate their use as tools in TPB population management (Parys).

Maribel Portilla is taking the lead in research outlined in the sub-objectives 1A and 1B under the Objective 1. Several thousand of TPB adults have been collected from different locations within the Mississippi Delta. The impact of biological control (microbial and parasitoids) on TPB seasonal abundance have been identified and quantified for 2015. New microbial agents have been isolated from field samples. Enough data for adults and fifth instar nymph were collected in 2015 for life table constructions. Data for second, third and fourth instar will be collected in 2016. Life tables will determine how mortality patterns and expectations of life expectancy are altered when some causes are eliminated. Samples from 22 MS counties and over 300 sites are being coded for obtaining DNA for population genetic analysis. The coded samples will be given to OP Perera who is taking lead on the last part of the research outlined in the sub-objective 1B.

Katherine Parys is taking the lead in research outlined in the sub-objective 1C under the Objective 1. She stated that Dr. David Hall from The Natural Resources Institute, University of Greenwich, UK provided the pheromones for her research. She is identifying field locations for this study. Parys is also leading the stable carbon isotope analysis. Field collection of 500 sweeps in areas with known population of TPB across the Delta were made weekly in 2015. Both adults and nymphs were removed from each weekly collection and processed for SCI. Parys indicated that the data is evaluated and will be presented in Brazil at the International Cotton Conference in May of 2016. The 2016 population of TPB is being processed.

Objective 2: Develop novel alternative ways to deploy TPB control agents, and evaluate effectiveness of these deployments methods in large-scale field experiments.

> **Sub-objective 2.A:** Determine if spray of NI8 applied alone and in combination with novaluron will suppress TPB population colonizing adjacent cotton (Blackman, Portilla, Parys, Luttrell).
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> **Sub-objective 2.B:** Measure impacts of NI8 and new biological control agents identified in sub-objective 1B on TPB population infecting wild hosts and crops in the Mississippi Delta (Blackman, Portilla, Parys, Luttrell).

Bryce Blackman is taking lead on the research outlined in the two sub-objectives under the Objective 2. Patches of wild host growing on field borders and ditches have been identified. NI8 application was initiated and some sprayed plots paired with untreated plots have been established. New plots will be identified and will be sprayed thought out the year.

Randy Luttrell requested to enquiry about the possibility of producing NI8 by commercial companies.

Filed experiments of 2016 and priority for *B. bassiana* use were discussed. Nathan Little will continue with a second year experiment of *B. bassiana* application in large sprayed and unsprayed field plots against commonly used insecticide regimes. This study began in 2015 using 1,384 g of pure spores of NI8 from Portilla's stock. Portilla will provide about 1,200 g of NI8 for this research to be continued in 2016.

The next meeting for the Bt project will be the second Tuesday of October 2016.