

FINAL PROJECT REPORT

Project Title: Importation of the honey bee subspecies that coevolved with apples

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Total Project Funding:

Budget 1

Organization Name: WSU

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Item	2014	2015 (No Cost Extension)	2016	2017
Salaries				
Benefits				
Wages				
Benefits				
Equipment				
Supplies	2,000			3,000
Travel	8,000			
Plot Fees				
Miscellaneous				
Total	\$10,000	\$0	\$0	3,000

Notes:

Due to delay in project funding - only one additional year of funding beyond the start year was provided by WSTFRC over the 3-year period – total of \$13,000

Objectives

- 1) Collect, cryopreserve and import semen from a diverse selection of *A.m pomonella* honey bee colonies in the apple forests of Kazakhstan and Kyrgyzstan. Significant findings - completed collection of honey bee germplasm from *A. m. pomonella* as planned from Kazakhstan. Some difficulty to retrieve cryopreserved germplasm through Kazakh customs and air shipment but managed to retrieve all materials. Entered USDA-quarantine protocol and were released as virus acceptable.
- 2) Following USDA-APHIS quarantine procedures, *pomonella* stocks will be recovered through backcrossing, undergo selection in Washington conditions and distributed to California queen producers for propagation. Significant findings- Inseminated queen bees containing imported genetic material were released from quarantine and one year of backcrosses to cryopreserved semen have been performed. Instrumentally inseminated *pomonella* stocks are being overwintered in 2017-2018 and will be further propagated in 2018 for distribution to producers. In 2018, *pomonella* stocks will also be used in research to evaluate mating behavior in inclement (colder) weather compared to currently available commercial US stocks.

Results and Discussion

The objectives outlined in the proposal were completed fully. WSU now has both a working stock of *A m pomonella* honey bees to use for further evaluation and field testing and a resource of cryopreserved honey bee semen from this subspecies in the WSU honey bee germplasm repository. This project represents an initial step in fundamental research on the honey bee subspecies that co-evolved with apples. The work by WSU in this area represents the single largest effort in adding genetic diversity to US honey bee populations, given the restrictions placed on importation of honey bee genetics that accompanied the Honey Bee Act of 1922. The main importance of this work is to assist in the stabilization and development of a sustainable beekeeping industry and tree fruit pollination system.