

News Release

Scientists Selected to Further Quest for Answers to Key Bee Health Questions

Part of 4-year, \$1 million Healthy Hives 2020 Initiative to Find Tangible Solutions to Improve Colony Health

Paso Robles, Calif. (June 20, 2016) – Project Apis m. announced today the names of scientists and research projects seeking to answer key questions around bee health to receive funding as part of the Healthy Hives 2020 initiative. Healthy Hives 2020 is an initiative of the Bayer Bee Care Program and administered by Project Apis m. with the goal of improving the health of honey bee colonies in the United States by the year 2020.

Projects funded cover critical bee health topics such as bee nutrition, Varroa and disease management, and enhanced management techniques through smart-hive technology. The recipients were selected from a total of 23 research proposals seeking to provide practical and tangible solutions to the key issues affecting the U.S. beekeeping industry. More projects will be funded as the Healthy Hives initiative moves forward.

“Project Apis m. is dedicated to honey bee health and we are so excited about this initial round of grant recipients,” said Danielle Downey, the director of operations for Project Apis m. and Healthy Hives 2020 program manager. “Today’s beekeepers are faced with a broad range of issues and are in urgent need of practical solutions to improve the health of their hives. We believe these projects will be critical to helping us enhance the vitality of honey bee colonies, while also improving crop productivity.”

Projects Funded:

In February 2016, Healthy Hives 2020 issued a call for research proposals to address priority areas established by the program. The Healthy Hives 2020 Steering Committee reviewed the nearly two dozen proposals received and selected the seven research projects based on their direct correlation to the objectives set forth by the advisory council. Awarded projects* include:

Arathi Seshadri, Ph.D. – Assistant Professor, Colorado State University

Phytochemicals as management tool for sustainable honeybee colony health and Productivity

Develop laboratory studies to test the effects of phytochemical nutritional supplements on forager longevity and pathogen tolerance. Evaluate the field benefits of nutritional supplements using pollen patties infused with phytochemicals by measuring foraging activity and colony survivorship.

Brandon Hopkins, Ph.D., – CEO, Advanced Beekeeping Solutions

Evaluation and comparison of management strategies and economics of apicultural practices in commercial beekeeping operations

Develop accurate “real-time” data to enhance management decisions and optimize economic output, especially for large migratory operations spread over wide geographies. The research will use Radio Frequency Identification (RFID) technology on bee pallets to provide a detailed economic evaluation of the data and to identify best management practices among collaborating beekeepers.

Jody Johnson, Ph.D. – Cullaborate, LLC

Pesticide Toxicity Analysis of Varroa mites

Evaluate the efficacy of potential varroacides with novel modes of action with the intent to provide beekeepers with new tools to combat Varroa. These efforts will accelerate the discovery and field testing of new varroacides and facilitate quicker notification and commercial registration by the respective regulatory agencies.

Joseph Cazier, Ph.D. - Center for Analytics Research and Education, Appalachian State University

Electronic Data Collection and Sensor Integration for Data Aggregation, Best Management Practices Data Mining and Smart Hive Development

Establish a standardized platform for consistent and reliable collection of human and natural order data from commercial and hobby beekeepers, using advanced data analytics across multiple locations, crops and forage locations. The comprehensive analysis will examine beekeeping economics, best management practices, smart hive development and robust data collection and analytics.

Quinn McFrederick, Ph.D. – Assistant Professor, University of California, Riverside

Determining how Nosema ceranae infection alters the honey bee midgut microbiome

Determine how Nosema alters the honey bee midgut microbiome and how the microbiome differs in bees that are resistant to the parasite. The researchers will partner with a local beekeeper to identify Nosema-resistant or susceptible colonies to determine if there is a pattern in the microbiomes composition that could lay the groundwork for future midgut engineering to protect against infection.

Stephen Martin, Ph.D. – Professor, School of Environmental & Life Sciences, University of Salford

Establishing the Deformed Wing Viral (DWV) diversity across the USA

Characterize the distribution and associations of DWV strains within different U.S. honey bee populations (e.g. managed, feral, Varroa-tolerant, hygienic). Screen 1,000 bee colonies to detect and isolate benign types from the

virulent strains. Determine if non-virulent strains can be linked to increased colony survival to develop a long-term solution to the problem of Varroa-transmitted viruses.

Steve Sheppard, Ph.D. – Washington State University

Comparison of US honey bee genetic lines for queen production and pollination efficiency under field conditions

Compare subspecies performance as it relates to mating success and queen production, foraging behavior and pollination efficiency, overwintering survival, productivity/vigor and Varroa tolerance. Old World subspecies and three commercial lines will be examined under differing climatic environments to increase our knowledge of apiculturally-relevant characteristics associated with crop pollination.

**Note: Only the lead researcher is listed*

Healthy Hives 2020 Background

Healthy Hives 2020 is a major initiative focused on identifying tangible solutions that will improve the health of honey bee colonies in the United States by the year 2020. Through the initiative, Crop Science, a division of Bayer, is partnering with experts on bee health and establishing an advisory council to discuss strategies to improve honey bee health by:

- Better quantifying the characteristics of a healthy honey bee colony;
- Enhancing collaboration, communication and partnerships to address honey bee health issues; and
- Identifying and developing new strategies and tangible solutions that will improve colony health.

As part of the Healthy Hives initiative, an advisory council of bee health stakeholders, including academia, government, agriculture, business and the beekeeping community, was established. The group assembled in 2015 to review honey bee health conditions and set four urgent priority objectives to improve colony health:

- Conduct an economic assessment of the true “cost” of commercial beekeeping;
- Create a set of “Best Management Practices” for commercial beekeeping based on definitive colony health performance data;
- Evaluate the use of “smart hive” technology to monitor commercial migratory operations; and,
- Assess available honey bee genetics for traits relevant to colony resistance to pests and disease, as well as pollination and honey production.

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About Project Apis m.

Project Apis m. (PAm) is the go-to organization at the interface of honey bees and pollinated crops. Since 2006, we’ve infused over \$6 million into honey bee research which aims to provide healthier bees, resulting in better pollination and increased crop yields for the grower, and lower losses and better honey production

for the beekeeper. We work closely with commercial beekeepers, growers, and top bee scientists in the USA and Canada to direct strategic efforts focused on practical solutions. PAm funds research studies, purchases equipment for research labs, supports graduate students through scholarships to encourage careers in pursuit of science-based solutions to honey bee challenges, and has expanding efforts to enhance honey bee health and nutrition by putting forage on the landscape where it counts most for bees. We are a non-profit 501 (c) (5) organization governed by a nine-member board. Our board members are beekeepers, pollinators and honey producers representing major national and state industry organizations. PAm also has four scientific advisors who review project proposals with the board.

For more information on Project Apis m., visit their website: www.projectapism.org.

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