

**HEARING TO REVIEW THE FEDERAL
COORDINATION AND RESPONSE REGARDING
POLLINATOR HEALTH**

HEARING
BEFORE THE
SUBCOMMITTEE ON
BIOTECHNOLOGY, HORTICULTURE, AND RESEARCH
OF THE
COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES
ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

MAY 13, 2015

Serial No. 114-14



Printed for the use of the Committee on Agriculture
agriculture.house.gov

U.S. GOVERNMENT PUBLISHING OFFICE

94-750 PDF

WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON AGRICULTURE

K. MICHAEL CONAWAY, Texas, *Chairman*

RANDY NEUGEBAUER, Texas, <i>Vice Chairman</i>	COLLIN C. PETERSON, Minnesota, <i>Ranking Minority Member</i>
BOB GOODLATTE, Virginia	DAVID SCOTT, Georgia
FRANK D. LUCAS, Oklahoma	JIM COSTA, California
STEVE KING, Iowa	TIMOTHY J. WALZ, Minnesota
MIKE ROGERS, Alabama	MARCIA L. FUDGE, Ohio
GLENN THOMPSON, Pennsylvania	JAMES P. MCGOVERN, Massachusetts
BOB GIBBS, Ohio	SUZAN K. DELBENE, Washington
AUSTIN SCOTT, Georgia	FILEMON VELA, Texas
ERIC A. "RICK" CRAWFORD, Arkansas	MICHELLE LUJAN GRISHAM, New Mexico
SCOTT DESJARLAIS, Tennessee	ANN M. KUSTER, New Hampshire
CHRISTOPHER P. GIBSON, New York	RICHARD M. NOLAN, Minnesota
VICKY HARTZLER, Missouri	CHERI BUSTOS, Illinois
DAN BENISHEK, Michigan	SEAN PATRICK MALONEY, New York
JEFF DENHAM, California	ANN KIRKPATRICK, Arizona
DOUG LAMALFA, California	PETE AGUILAR, California
RODNEY DAVIS, Illinois	STACEY E. PLASKETT, Virgin Islands
TED S. YOHO, Florida	ALMA S. ADAMS, North Carolina
JACKIE WALORSKI, Indiana	GWEN GRAHAM, Florida
RICK W. ALLEN, Georgia	BRAD ASHFORD, Nebraska
MIKE BOST, Illinois	
DAVID ROUZER, North Carolina	
RALPH LEE ABRAHAM, Louisiana	
TOM EMMER, Minnesota	
JOHN R. MOOLENAAR, Michigan	
DAN NEWHOUSE, Washington	

SCOTT C. GRAVES, *Staff Director*
ROBERT L. LAREW, *Minority Staff Director*

SUBCOMMITTEE ON BIOTECHNOLOGY, HORTICULTURE, AND RESEARCH

RODNEY DAVIS, Illinois, *Chairman*

GLENN THOMPSON, Pennsylvania	SUZAN K. DELBENE, Washington, <i>Ranking Minority Member</i>
AUSTIN SCOTT, Georgia	MARCIA L. FUDGE, Ohio
CHRISTOPHER P. GIBSON, New York	JAMES P. MCGOVERN, Massachusetts
JEFF DENHAM, California	ANN M. KUSTER, New Hampshire
TED S. YOHO, Florida	GWEN GRAHAM, Florida
JOHN R. MOOLENAAR, Michigan	
DAN NEWHOUSE, Washington	

CONTENTS

	Page
Davis, Hon. Rodney, a Representative in Congress from Illinois, opening statement	1
Prepared statement	3
Submitted letter	31
DelBene, Hon. Suzan K., a Representative in Congress from Washington, opening statement	4
WITNESSES	
Johansson, Ph.D., Robert, Acting Chief Economist, U.S. Department of Agriculture, Washington, D.C.	5
Prepared statement	7
Jones, Hon. Jim, Assistant Administrator, Office of Safety and Pollution Prevention, Environmental Protection Agency, Washington, D.C.	9
Prepared statement	11

HEARING TO REVIEW THE FEDERAL COORDINATION AND RESPONSE REGARDING POLLINATOR HEALTH

WEDNESDAY, MAY 13, 2015

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON BIOTECHNOLOGY, HORTICULTURE, AND
RESEARCH,
COMMITTEE ON AGRICULTURE,
Washington, D.C.

The Subcommittee met, pursuant to call, at 1:31 p.m., in Room 1300, Longworth House Office Building, Hon. Rodney Davis [Chairman of the Subcommittee] presiding.

Members present: Representatives Davis, Thompson, Scott, Denham, Yoho, Moolenaar, Newhouse, DelBene, McGovern, Kuster, and Graham.

Staff Present: Haley Graves, Jessica Carter, John Goldberg, Mary Nowak, Mollie Wilken, Patricia Straughn, Ted Monoson, Keith Jones, Liz Friedlander, and Nicole Scott.

OPENING STATEMENT OF HON. RODNEY DAVIS, A REPRESENTATIVE IN CONGRESS FROM ILLINOIS

The CHAIRMAN. This hearing of the Subcommittee on Biotechnology, Horticulture, and Research to review the Federal coordination and response regarding pollinator health, will come to order.

At this point, I would like to give my own opening statement. Good afternoon. I would like to welcome everyone to this hearing in which we will continue to examine the aspects of pollinator health. As many of you are aware, the Agriculture Committee has had a long interest in examining and promoting pollinator health. In both the 2008 and 2014 Farm Bills, provisions were included to authorize pollinator research and extension programs, improve capacity and infrastructure within the USDA to promote long-term pollinator health, and authorize expanded surveillance of pests and diseases affecting pollinators.

Following the passage of the 2014 Farm Bill, this Subcommittee commenced an oversight process focusing on specific threats to pollinator health under the leadership of former Chairman Austin Scott. In a hearing held just over a year ago, we heard from public and private sector scientists. While there were many factors discussed contributing to pollinator health, one factor leading most lists was the threat associated with the parasitic mite known as the *Varroa destructor*. The lead bee researcher at USDA, Dr. Jeff

Pettis, referred to this mite as a modern honey bee plague and suggested it has been responsible for the deaths of massive numbers of colonies both within the United States and worldwide. Nevertheless, despite the overwhelming consensus within the scientific community regarding the relative importance of the various factors contributing to overall pollinator health, the factor near the bottom of the scientific community's list seems to be the factor highest on the list of activist groups.

Pesticides and, in particular, a new family of pesticides known as neonics seem to be attracting the lion's share of media and public interest attention. Neonics can be applied to the plant or used as a seed treatment. They are highly effective and have seen very rapid adoption rates among producers because of the significant benefits they offer. It is frustrating that efforts to innovate and employ new, proven technologies to enhance our ability to produce food, feed, and fiber, are constantly under attack.

Shortly after our hearing last year, the President issued an Executive Memorandum establishing a White House task force to review pollinator health. The main focus of the work was to be on expanding habitat for pollinators. I should note that the task force findings were supposed to be released at the end of 2014. But, unfortunately, 5 months later, we are still waiting on this report. The Order also directed the various departments and agencies assigned to the task force to work together to develop a national pollinator health strategy. While coordination and communication were understood to be a central tenet of this Executive Order, only days after receiving the Order, the National Wildlife Refuge System announced a ban on neonics and biotech plants without a single effort to communicate with either the USDA or the EPA their intentions or justification.

I would note that the Secretary of Agriculture and Administrator of the EPA were appointed to co-chair the President's task force. As both agencies were completely caught off guard by this announcement, each expressed frustration with the lack of communication. We would reasonably expect, in light of this surprise announcement by an agency within the Department of the Interior, the USDA and EPA would double down on their efforts to enhance Federal coordination and communication. Unfortunately, just 2 months later, EPA released a study of the benefits of neonic seed treatment on soybeans with little to no input from the USDA.

USDA's Chief Economist sent a letter to the EPA disagreeing with the assessment, referring to it as incomplete, premature, and unnecessarily burdensome to the task before farmers and ranchers to produce food, feed, and fiber, for a strong and healthy America. That letter is in Members' folders and will be made part of today's hearing record.

[The information referred to is located on p. 31.]

The CHAIRMAN. Examples like this are why we fought so hard in the farm bill to give ag a seat at the table when EPA is considering rules and regulations that would impact farmers. I expect EPA's Science Advisory Board to follow Congressional intent and give farmers that voice so better policy can be made. Today, USDA and EPA both have a seat at the table, and I look forward to your testimony.

[The prepared statement of Mr. Davis follows:]

PREPARED STATEMENT OF HON. RODNEY DAVIS, A REPRESENTATIVE IN CONGRESS
FROM ILLINOIS

Good afternoon,

I would like to welcome everyone to this hearing in which we will continue to examine aspects of pollinator health.

As many of you are aware, the Agriculture Committee has had a long interest in examining and promoting pollinator health. In both the 2008 and 2014 Farm Bills, provisions were included to authorize pollinator research and extension programs, improve capacity and infrastructure within USDA to promote long-term pollinator health, and to authorize expanded surveillance of pests and diseases affecting pollinators.

Following passage of the 2014 Farm Bill, this Subcommittee commenced an oversight process focusing on specific threats to pollinator health. In a hearing held just over a year ago, we heard from public and private sector scientists. While there were many factors discussed contributing to pollinator health, one factor leading most lists was the threat associated with a parasitic mite known as *Varroa destructor*.

The lead bee researcher at USDA, Dr. Jeff Pettis referred to this mite as a “modern honey bee plague” and suggested that it has been responsible for the deaths of massive numbers of colonies both within the United States and worldwide.

Nevertheless, despite the overwhelming consensus within the scientific community regarding the relative importance of the various factors contributing to overall pollinator health, the factor near the bottom of the scientific community’s list seems to be the factor highest on the list of activist groups.

Pesticides, and in particular a new family of pesticides known as Neonics seem to be attracting the lion share of media and public interest attention.

Neonics can be applied to the plant or used as a seed treatment. They are highly effective and have seen a very rapid adoption rate among producers because of the significant benefits they offer. It is frustrating that efforts to innovate and employ new, proven technologies to enhance our ability to produce food, feed, and fiber are constantly under attack.

Shortly after our hearing last year, the President issued an Executive Memorandum establishing a White House Task force to review pollinator health. The main focus of the work was to be on expanding habitat for pollinators. I should note that the Task Force findings were supposed to be released at the end of 2014, but unfortunately, 5 months later we are still waiting for this report.

The Order also directed the various Departments and agencies assigned to the task force to work together to develop a National Pollinator Health Strategy. While coordination and communication were understood to be a central tenant of this Executive Order, only days after receiving the Order, the National Wildlife Refuge System announced a ban on neonics and biotech plants without a single effort to communicate with either USDA or EPA their intentions or justification. I would note that the Secretary of Agriculture and Administrator of the EPA were appointed to co-chair the President’s task force. As both agencies were completely caught off guard by this announcement, each expressed frustration with the lack of communication.

We would reasonably expect that in light of this surprise announcement by an agency within the Department of the Interior, the USDA and EPA would double down on their efforts to enhance Federal coordination and communication. Unfortunately, just 2 months later, EPA released a study on the benefits of neonic seed treatment on soybeans with little to no input from USDA. USDA’s Chief Economist sent a letter to EPA disagreeing with the assessment referring to it as incomplete, premature, and unnecessarily burdensome to the task before farmers and ranchers to produce food, feed, and fiber for a strong and healthy America. That letter is in Members’ folders and will be made part of today’s hearing record.

Examples like this are why we fought so hard in the farm bill to give agriculture a seat at the table when EPA is considering rules and regulations that would impact farmers. I expect EPA’s Science Advisory Board to follow Congressional intent and give farmers that voice so better policy can be made.

Today, USDA and EPA both have a seat at the table.

I look forward to your testimony.

The CHAIRMAN. And I would like to now recognize the Ranking Member, Ms. DelBene, for her opening statement.

**OPENING STATEMENT OF HON. SUZAN K. DELBENE, A
REPRESENTATIVE IN CONGRESS FROM WASHINGTON**

Ms. DELBENE. Thank you, Mr. Chairman. Thanks for calling this hearing. And I want to thank our witnesses for being here with us this afternoon. As the Subcommittee undertakes our responsibility to examine pollinator health, it will be important to understand as fully as possible the role that the seed treatments and other crop protectants play in growers' overall pest management decisions. In my view, there is no simple answer to the question of their value. Some growers may be justified in using the seed treatments, while others may find little or no need to do so. I do want to caution, though, about any of us reaching any conclusions from a single hearing. This issue is far too complex for talking points. And this issue demands our thoughtful and methodical attention. And I hope that we will hold future hearings to further explore this complex issue.

I hope that we will get the opportunity to hear from beekeepers, fruit and vegetable growers, economic entomologists, and other experts. In light of all the recent press focusing on the use of neonic seed treatments, I have to wonder why today's hearing did not include these parties but, instead, is centered on what seems to be more of an insular issue between two Federal agencies. And while I respect our witnesses' expertise, I believe Members of the Subcommittee would have been better served by first hearing from those on the ground and in the field, those who must make on an individual basis thoughtful decisions on the use of crop protection chemistries.

By focusing on the perception of a disagreement between agencies during an open and transparent public comment process, we reduce our oversight role to refereeing. The testimony provided by constituent witnesses, the beekeepers and growers who we represent, can help inform the policy decisions we make with administrative agencies. My goal is to ensure that individual growers have the tools needed to make the best pest management decisions given their individual circumstances of crop, climate, and ecological sensitivity.

Mr. Chairman, I look forward to hearing from our witnesses today. And I encourage future hearings on this important issue. And I yield back.

The CHAIRMAN. Thank you, Ms. DelBene.

The chair would request that other Members submit their opening statements for the record so the witnesses may begin their testimony and to ensure that there is ample time for questions.

The chair would like to remind Members that they will be recognized for questioning in order of seniority for Members who were present at the start of the hearing. After that, Members will be recognized in order of their arrival. I appreciate Members' understanding.

Witnesses are reminded to limit their oral presentations to 5 minutes. And just like Chairman Conaway has been a stickler for that, we will be here too. All written statements will be included in the record.

I would like to welcome our witnesses to the table. First off, Dr. Robert Johansson. He is the Acting Chief Economist with the

USDA here in Washington, D.C. And Mr. Jim Jones, the Assistant Administrator, Office of Chemical Safety and Pollution Prevention, part of the EPA. Dr. Johansson, please begin your testimony when ready.

STATEMENT OF ROBERT JOHANSSON, PH.D., ACTING CHIEF ECONOMIST, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Dr. JOHANSSON. Chairman Davis, Ranking Member DelBene, and other Members of the Subcommittee, thank you for the opportunity to be at today's hearing on the Federal coordination and response regarding pollinator health. With more than 75 percent of flowering plants relying on pollinators, their health is important to USDA and to all of us consumers. The value of honey production in the U.S. has increased in volume and value terms by about 20 percent in 2014 relative to 2013. And that is from the USDA honey report that NASS does each year. That has been rising to 178.2 million pounds produced and \$38.5 million respectively. The estimated value earned by honey producers in 2014 is more than double that of 1994, even adjusting for inflation. However, production volume is lower by about 18 percent relative to that year.

The current average price of about \$2.16 a pound is a record high, indicating the increasing value that U.S. consumers place on honey. U.S. imports of honey have also reached historic highs, doubling in volume between 2004 and 2013 to about 154,000 metric tons. U.S. honey producers are responding to those higher honey prices. The number of producing colonies and average production per colony grew from 2.6 million colonies producing 57 pounds per year in 2013, to 2.7 million colonies at 65 pounds per colony of production in 2014. Although there is still plenty of room for growth, in 1993 there were more than 3 million colonies producing at 73 pounds of production per colony. Furthermore, the rental fees that producers charge for pollination services continue to rise due to increasing demand for those services.

The average rental rate per hive doubled between 2005 and 2009 to more than \$150. Indeed in 2012, the fees charged for honey bee pollination services exceeded \$650 million. However, annual losses of colonies remains high, making it difficult to meet that rising demand for pollination services. Although the national trend data we currently have is limited, we know that beekeepers lost roughly 34 percent of their colonies during 2013–2014, down from 45 percent the year before, but still very high. And, of course, this morning's report on preliminary numbers for 2014–2015 from the Bee Informed Partnership, shows that losses of managed honey bee colonies were 23.1 percent for the 2014–2015 winter, down 6.6 percent from the previous year. However, for the first time, summer losses exceeded winter losses, making annual losses for the year a very high 42.1 percent.

To promote the health of honey bees and other pollinators, President Obama issued his June 20, 2014 Memorandum, as you had mentioned, Mr. Chairman, charging Federal departments and agencies with taking steps to help restore pollinator populations. The Federal Government is poised to lead in this effort, given its broad, national perspective and ability to identify and prioritize

goals and programs that extend beyond state and national borders. Understanding the Federal Government cannot act alone in promoting pollinator protection, the President also identified the need for public-private partnerships, as well as increasing citizen engagement. To accomplish that effort, the President created the Pollinator Health Task Force, co-chaired by, as you noted, the Secretary of the USDA and the Administrator of EPA.

USDA has a rich history in partnering with other Federal agencies and numerous stakeholders in recognizing that the collaborative effort is much more effective in achieving success. And USDA agencies are providing important contributions to the protection of pollinators. Our research agencies, including ARS, NIFA, ERS, and NASS, conduct and support that research. The Office of Pest Management Policy coordinates our pest management work across the department with EPA. And APHIS conducts a national survey of honey bee pests and diseases and collaborates with others on ways to manage, suppress, and eradicate pests and diseases.

Our conservation programs, including those managed by the FSA and NRCS, support pollinator habitat across the country. And the U.S. Forest Service supports outreach, technology transfer, and pollinator habitat. The Office of the Chief Economist will typically be asked to review and analyze issues that may fall under the purview of those activities. Such review and analysis may occur as a normal part of the operation of my office. As such, I will describe some of our responsibilities, providing some examples of how we interact with EPA and their activities.

The main mission of my office is to advise the Secretary of Agriculture on the economic prospects of ag markets and on the economic implications of policies and programs affecting U.S. food and fiber production in rural areas, to ensure the public has consistent, objective, and reliable agricultural forecasts, and to promote effective and efficient rules governing USDA programs.

Areas of major analyses include international trade agreements, risk-sharing institutions, crop insurance, commodity programs, developments in commodity markets, sustainable development, and ag labor. I see that I am running out of time, so I am going to note just a couple areas of coordination with EPA. And, certainly, my testimony is submitted for the record for those Members that wish to review that.

USDA collaborates with EPA on a number of key issues, such as the Federal Pollinator Health Task Force. Many offices within USDA have established working relationships with EPA that date back to the Agency's founding. My office, in particular, coordinates review of USDA and other agencies' significant rulemakings and has a long history of collaboration with EPA on those issues.

An example is the work that we did on the Ag Worker Protection Standard last year. We provided input into that process. As part of the Federal Insecticide, Fungicide, and Rodenticide Act, FIFRA, EPA must provide the Secretary of Agriculture a copy of the rule and give USDA the opportunity to review and comment. I will also note that we also work with EPA on a number of issues, including the Clean Water Act, and the Clean Air Act.

And with that, I will conclude, just to note that I thank you for inviting me to provide some perspective on pollinator issues, as

well as the role of the Office of the Chief Economist. Thank you very much.

[The prepared statement of Dr. Johansson follows:]

PREPARED STATEMENT OF ROBERT JOHANSSON, PH.D., ACTING CHIEF ECONOMIST,
U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Chairman Davis, Ranking Member DelBene, and other Members of the Subcommittee, thank you for the opportunity to be at today's hearing on the Federal coordination and response regarding pollinator health. With more than 75 percent of flowering plants relying on pollinators, their health is important to the U.S. Department of Agriculture (USDA) and to all of us as consumers.

The value of honey production in the United States increased in volume and value terms by about 20 percent in 2014 relative to 2013 (USDA–NASS Honey Report; 2015, 1995) rising to 178.2 million pounds produced and \$385.2 million, respectively. The estimated value earned by honey producers in 2014 is more than double that of 1994 adjusting for inflation. However, production volume is lower by about 18 percent relative to 1994.¹ The current average price of \$2.16 per pound is a record high indicating the increasing value that U.S. consumers place on honey (average of retail, private, and co-op pricing). U.S. imports of honey have also reached historic highs, nearly doubling in volume between 2004 and 2013 to 154 thousand metric tons (USDA–ERS 2014).²

U.S. honey producers are responding to higher honey prices; the number of producing colonies and average production per colony grew from 2.6 million colonies producing 57 pounds per year in 2013 to 2.7 million colonies at 65 pounds per colony of production in 2014. There is still plenty of room for growth; in 1993, there were more than three million colonies at 73 pounds of production per colony.³ Furthermore the rental fees that producers charge for pollination services continues to rise due to increasing demand. The average rental rate per hive doubled between 2005 and 2009 to more than \$150. In 2012 the fees charged for honeybee pollination services exceeded \$650 million (USDA–ERS 2014).⁴ However, annual loss of colonies remains high, making it difficult to meet rising demand for pollination services. Although the national trend data we currently have is limited, we know that beekeepers lost 34 percent of their colonies during 2013–14, down from 45 percent the year before, but still very high.⁵

To promote the health of honeybees and other pollinators, President Obama issued his June 20, 2014 Presidential Memorandum charging Federal departments and agencies with taking steps to help restore pollinator populations. The Federal Government is poised to lead this effort, given its broad national perspective and ability to identify and prioritize goals and programs that extend beyond state and national borders. Understanding that the Federal Government cannot act alone in promoting pollinator protection, the President also identified the need for public-private partnerships as well as increased citizen engagement. To accomplish this effort, the President created the Pollinator Health Task Force, co-chaired by the Secretary of the USDA and the Administrator of the Environmental Protection Agency (EPA).

USDA has a rich history in partnering with other Federal agencies and numerous stakeholders in recognizing that the collaborative effort is much more effective in achieving success. USDA agencies are providing important contributions to the protection of pollinators. Our research agencies, including the Agricultural Research Service (ARS), National Institute of Food and Agriculture (NIFA), Economic Research Service (ERS), and National Agricultural Statistics Service (NASS) conduct and support research. As a recent example of this scientific collaboration, NASS has initiated a series of national colony loss surveys, which will provide the statistical foundation for several other Federal agencies conducting scientific work in this area. The Office of Pest Management Policy (OPMP) coordinates pest management work across the Department and with the Environmental Protection Agency. The Animal and Plant Health Inspection Service (APHIS) conducts a national survey of honey bee pests and diseases and collaborates with others on ways to manage, suppress, and eradicate pests and diseases. We are exploring ways to further leverage this

¹<http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1191>.

²<http://www.ers.usda.gov/publications/sssm-sugar-and-sweeteners-outlook/sssm-314.aspx>.

³<http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1191>.

⁴http://www.ers.usda.gov/media/1679173/special-article-september_pollinator-service-market-4-.pdf.

⁵Lee, et al. (2015) "A national survey of managed honey bee 2013–2014 annual colony losses in the USA," *Apidologie* 46(3), pp. 292–305.

work with our colony loss survey program, so that detailed results regarding honey bee health can be generalized to the nation as a whole. Our conservation programs, including those managed by the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS), support pollinator habitat across the country. And, the Forest Service (USFS) supports outreach, technology transfer, and pollinator habitat.

The Office of the Chief Economist (OCE) will typically be asked to review and analyze various issues that may fall under the purview of those activities. Such review and analysis may occur as part of the normal operation of my office. As such, I will describe some of our responsibilities and provide some examples of how we interact with EPA and their activities.

The Office of the Chief Economist

The main mission of the Office of the Chief Economist is to advise the Secretary of Agriculture on the economic prospects in agricultural markets and on the economic implications of policies and programs affecting the U.S. food and fiber system and rural areas; ensure the public has consistent, objective and reliable agricultural forecasts; and to promote effective and efficient rules governing USDA programs. Areas of major analyses include international trade agreements, risk-sharing institutions, crop insurance, commodity programs, developments in commodity markets, sustainable development, and agricultural labor.

OCE serves as the focal point for the nation's economic intelligence, analysis, and review related to domestic and international food and agriculture. The World Agricultural Outlook Board (or the World Board) is housed within OCE and coordinates and oversees clearance of all commodity and aggregate agricultural data used to develop USDA outlook and situation information. The World Board publishes the monthly *World Agricultural Supply and Demand Estimates* report, which shows U.S. farmers, policymakers, and traders what's going on in the world of farm commodity forecasts at a single moment in time. The World Board also publishes the *Weekly Weather and Crop Bulletin*, an international summary of crop-related weather developments.

Four other offices are located within the Office of the Chief Economist.

- The Climate Change Program Office functions as the Department-wide coordinator of agriculture, rural and forestry-related global change program and policy issues facing USDA. The Office ensures that USDA is a source of objective, analytical assessments of the effects of climate change and proposed response strategies.
- The Office of Environmental Markets supports the Secretary in the development of emerging markets for water quality, carbon sequestration, wetlands, biodiversity, and other ecosystem services.
- The Office of Energy Policy and New Uses advises the Secretary of Agriculture in developing and coordinating **USDA** energy policy, programs, and strategies related to energy and biobased products, and coordinates USDA activities related to energy and biobased products within and outside the **USDA**.
- The Office of Risk Assessment and Cost-Benefit Analysis ensures that major USDA regulations affecting the environment, human health or human safety are based on sound scientific and economic analysis. The Office reviews and provides guidance to agencies on risk assessments and cost-benefit analyses.

Coordination with EPA

The Department of Agriculture collaborates with the EPA on a number of key issues, such as on the Federal Pollinator Health Task Force. Many offices within the USDA have established working relationships with the EPA that date back to the Agency's founding.

As you know, the USDA works to support the American agricultural economy to strengthen rural communities; to protect and conserve our natural resources; to increase agricultural production and export; and to provide a safe, sufficient, and nutritious food supply for the American people. The USDA encourages sufficient and efficient production of food, fiber and forest products for the public welfare and manages and conserves many of the nation's natural resources. The EPA administers and enforces Federal laws designed to protect the nation's land, water, and air systems so that they may support life. The laws administered by EPA address air and water pollution, solid and hazardous waste management, pesticides and toxic substances and radiation protection. Many of EPA's actions—pesticide regulation, point and non-point source pollution control, solid waste management, air regulation, renewable fuel feedstock regulation—affect rural and agricultural communities.

Through cooperation on environmental issues affecting agriculture and rural communities, the EPA and the USDA have developed strong working relationships.

My office, in particular, coordinates review of USDA and other agencies' significant rulemakings and has a long history of collaboration with the EPA. An example of how USDA and EPA have worked together is the Agricultural Worker Protection Standard. In July 2013, EPA notified USDA that the proposed rule and economic analysis were ready for review. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA must provide the Secretary of Agriculture a copy of a rule and give USDA the opportunity to review and comment. The Office of Pest Management Policy was created in 1997 to coordinate the USDA's role in the pesticide regulatory process. USDA's Office of Pest Management Policy invited EPA to brief USDA to provide an overview of the proposed rule and shortly after that briefing, the proposed rule arrived. In reviewing the economic analysis OCE helped enhance some assumptions that EPA had developed. The early deliberations resulted in improvements to some components in the draft proposed rule prior to the delivery of to the Office of Management and Budget (OMB) for interagency review and then for public comment.

The Office of the Chief Economist also works with EPA on non-regulatory matters. For example, the Office of the Chief Economist through its Office of Environmental Markets has been working closely with EPA to develop and expand market-based approaches to conservation in the Chesapeake Bay watershed. Market approaches can lower costs for those complying with water quality requirements and create new revenue streams for farmers. In 2013, USDA and EPA entered into a Department-level partnership agreement on water quality trading. Through this agreement USDA and EPA are collaborating on new tools and information to help the states in the region reduce costs in program design and implementation, improve environmental performance, and foster consistency. Under the agreement, OCE and EPA have jointly developed a web-based information support tool that links policy guidance from EPA with examples and materials from existing trading programs. That partnership has allowed USDA and EPA to better meet the needs of the states and should create new opportunities for farmers in the region while lowering the costs of improving water quality in the Chesapeake Bay.

We also work with EPA on a variety of Clean Air Act issues, such as our public comments to EPA's Science Advisory Board on the accounting framework for biogenic greenhouse gas emissions. As another example, my office and EPA cooperate on efforts to quantify and report national greenhouse gas emissions and sinks. USDA provides estimates of forest carbon stocks and sequestration and works closely with EPA to estimate greenhouse gas emissions and sinks from the agricultural sector. EPA includes that information in the annual U.S. Greenhouse Gas Inventory.

Conclusion

Thank you for inviting me to provide some perspective on pollinator issues as well as the role of the Office of the Chief Economist.

The CHAIRMAN. Thank you, Dr. Johansson.

Mr. Jones, feel free to give your opening testimony.

STATEMENT OF HON. JIM JONES, ASSISTANT ADMINISTRATOR, OFFICE OF SAFETY AND POLLUTION PREVENTION, ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, D.C.

Mr. JONES. Thank you, Chairman Davis, Ranking Member DelBene, and Members of the Subcommittee. My name is Jim Jones, and I serve as the Assistant Administrator for the Environmental Protection Agency's Office of Chemical Safety and Pollution Prevention, which is the office that is responsible for Federal pesticide regulation in the United States.

Pollinator protection is an extremely high priority for the EPA. Over the past several years, we have taken many steps to develop scientifically sound analytical techniques for assessing the potential impacts of pesticides on pollinators and have acted, based on this science, to reduce those exposures determined to be of most significant risk. As the science continues to advance through the

registration review programs, the Agency will continue to work with stakeholders to put in place any additional mitigation strategies to continue to protect pollinators. As you well know, pollinators are responsible for nearly one in every three bites of food you eat. In addition, they contribute nearly \$15 billion to the nation's economy. Loss of our pollinator populations have the potential to not only threaten agricultural production but to also threaten natural plant communities and important services provided by ecosystems.

Researchers studying pollinator health have been unable to identify a single cause for pollinator declines and have concluded that losses of honey bee colonies are likely the result of a complex interaction of a number of stressors. In May 2013, the U.S. Department of Agriculture and the EPA released a comprehensive scientific report on honey bee health. This report synthesized the current state of knowledge regarding the primary factors that scientists believe have the greatest impact on managed bee health. These factors include exposures to pests and pathogens, poor nutrition due to decreased availability of high-quality forage, exposure to pesticides, and bee biological genetics and breeding. Each play a role in impacting managed bee health and likely also impact the health of native pollinators. It is because of these many factors and in light of the emerging science that in June 2014, President Obama established the Pollinator Health Task Force, co-chaired by USDA and EPA.

In the very near future, the strategy developed by the task force will be released and is the result of a strong interagency collaboration with a focus on improving pollinator health and increasing pollinator habitat. Of all the stressors impacting pollinators, the EPA has a role to play in two areas. First, ensuring that new and existing products do not cause unreasonable adverse effects to pollinators. And, second, registering new products for beekeepers to use in controlling hive pests such as *Varroa* mites. Pesticides play a critical role in agricultural production and the health of our society. Pesticides can also lead to adverse ecological and human health consequences.

Congress has entrusted the EPA to balance the risks and benefits of pesticide use. Mitigating the effects of pesticides on bees, many of which are intended to kill insects, is a difficult task but is also a priority for the Federal Government, as both bee pollination and insect control are essential to the success of agriculture. The EPA is working to reduce bees' exposure to pesticides without losing the ability to control pests in agriculture. Certain pesticides are also important pest management tools for beekeepers to control the *Varroa* mite or hive beetles. This is an inherently difficult goal to achieve since the pesticide, such as those intended to control *Varroa* mites on bees, essentially seek to control the mite while not harming the bee colony.

To achieve these goals, EPA has focused its pollinator efforts in three primary areas. Advancing the science and understanding of the potential impact of pesticides on pollinators. Second, taking appropriate risk management actions based upon the available science. And, third, collaborating with domestic and international partners to advance pollinator protections. In the near future, as

part of the rollout of the pollinator health strategy, the EPA will soon announce additional initiatives for continuing to improve pollinator health. We will take those actions based upon the best available science and utilizing our longstanding principles of public engagement and transparency.

The EPA will also continue to work with USDA and other Federal and state agencies to protect pollinators, while ensuring that growers can meet their pest control needs in order to maintain a diverse ecosystem and provide for a healthy and abundant United States food supply. I am happy to answer any questions from the Subcommittee.

[The prepared statement of Mr. Jones follows:]

PREPARED STATEMENT OF HON. JIM JONES, ASSISTANT ADMINISTRATOR, OFFICE OF SAFETY AND POLLUTION PREVENTION, ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, D.C.

Thank you Mr. Chairman.

My name is Jim Jones and I serve as the Assistant Administrator for the Environmental Protection Agency's Office of Chemical Safety and Pollution Prevention. Pollinator protection is an extremely high priority for the EPA. Over the past several years we have taken many steps to develop scientifically sound analytical techniques for assessing the potential impacts of pesticides on pollinators and have acted, based upon this science, to reduce those exposures determined to be of most significant risk. As the science continues to advance, through the registration and registration review programs, the agency will continue to work with stakeholders to put in place any additional mitigation strategies to continue to protect pollinators.

As you well know, pollinators are responsible for nearly one in every three bites of food you eat. In addition, they contribute nearly \$15 billion to the nation's economy. Losses of our pollinator populations have the potential to not only threaten agricultural production, but to also threaten natural plant communities and important services provided by ecosystems.

Researchers studying pollinator health have been unable to identify a single cause for pollinator declines and have concluded that losses of honey bee colonies are likely the result of a complex interaction of a number of stressors. In May 2013, the U.S. Department of Agriculture (USDA) and the EPA released a comprehensive scientific report on honey bee health. This report synthesized the current state of knowledge regarding the primary factors that scientists believe have the greatest impact on managed bee health. These factors include: exposures to pests and pathogens; poor nutrition due to decreased availability of high quality forage; exposure to pesticides; and bee biological genetics and breeding. Each play a role in impacting managed bee health and likely also impact the health of native pollinators. It is because of these many factors, and in light of the emerging science, that in June 2014, President Obama established the Pollinator Health Task Force, co-chaired by the USDA and the EPA. In the very near future, the strategy developed by the task force will be released and is the result of a strong interagency collaboration with a focus of improving pollinator health and increasing pollinator habitat.

Of all of stressors impacting pollinators, the EPA has a role to play in two areas: first, ensuring that the new and existing products do not cause unreasonable adverse effects to pollinators; and second, registering new products for beekeepers to use in controlling hive pests such as *Varroa* mites. Pesticides play a critical role in agricultural production and the health of our society. If misused or overused, however, pesticides can also lead to adverse ecological and human health consequences. Congress has entrusted the EPA to balance the risks and benefits of pesticide use. Mitigating the effects of pesticides on bees, many of which are intended to kill insects, is a difficult task but is also a priority for the Federal Government, as both bee pollination and insect control are essential to the success of agriculture. The EPA is working to reduce bees' exposure to pesticides without losing the ability to control pests in agriculture. Certain pesticides are also important pest management tools for beekeepers to control the *Varroa* mite or hive beetles. This is an inherently difficult goal to achieve since the pesticide, such as those intended to control *Varroa* mites on bees, essentially seek to control the mite while not harming the bee colony.

To achieve these goals, the EPA has focused its pollinator efforts in three primary areas: (1) advancing the science and understanding of the potential impact of pes-

ticides on pollinators; (2) taking appropriate risk management actions, based upon the available science; and (3) collaborating with domestic and international partners to advance pollinator protection.

Addressing potential risks associated with pollinator exposure to pesticides necessitates that a robust and scientifically supported assessment framework be in place. In January 2011, the EPA convened a workshop through the Society of Environmental Toxicology and Chemistry to explore the current state of the science on pesticide risk assessment for pollinators. Working with a cross-section of stakeholders and scientists from around the world, the outcomes from this workshop provided the scientific foundations for a new pollinator risk assessment framework. Through collaboration with our regulatory partners in Canada and the state of California, the EPA submitted these new scientific techniques to the FIFRA Scientific Advisory Panel in September 2012. Through this new framework, the EPA has identified the types of data, both hazard and exposure, that are needed to properly assess the potential impacts of pesticides on pollinators. The framework:

- relies on a tiered process;
- focuses on the major routes of exposure, including contact and dietary exposure; and
- distinguishes different types of pesticide treatments, such as compounds applied to plant leaves or seed/soil-applied (systemic) compounds.

Working through the Organization for Economic Cooperation and Development, the EPA serves as the co-chair of the Pesticide Effects on Insect Pollinators Expert Group. Working in collaboration with the International Commission on Plant Pollinator Relationships, this group is developing harmonized guidelines for conducting the studies used in the EPA's risk assessment framework. In addition, we have begun to apply this new risk assessment framework in our regulatory decision making processes, both for new registrations as well as the re-evaluation of existing registrations via the registration review program.

Taking risk management action, as supported by the science, is also a critical step in protecting pollinators. One such example is the initiative that the EPA announced in August 2013 to require new pesticide labels that prohibit the use of neonicotinoid products when bees are present. Earlier that year, the EPA had determined, based on potential effects of these compounds on honeybees and other pollinators, as well as bee kill incidents in Oregon and Canada, that when used as previously labeled, these products posed a concern for potential adverse effects on pollinators. Products bearing these new required labeling statements began to appear in the marketplace in 2014. Since then, the agency has required similar types of labeling for other products for which risks to bees have also been identified.

In addition, the EPA accelerated the re-evaluation of the neonicotinoids as part of the registration review process. Working with our regulatory partners in Canada and California, we sped up the re-evaluation schedule for this group of pesticides. The EPA also required the registrants for these compounds to develop the necessary pollinator data, consistent with our new risk assessment framework. We plan to announce, in the near future and consistent with the directive from President Obama in his June 2014 Memorandum, a further acceleration of this re-evaluation. Additionally, in early April 2015, the agency sent letters to registrants of neonicotinoid pesticides with outdoor uses informing them that the EPA will generally not be in a position to approve these applications for new uses of these compounds until new pollinator data have been submitted and more technically robust pollinator risk assessments are complete.

In October 2014, the EPA announced the public availability of a benefit analysis conducted as part of the ongoing registration review of the neonicotinoid pesticides. The agency's analysis of the benefits of neonicotinoid seed treatments for insect control in soybeans concluded that there is little or no increase in soybean yields using neonicotinoid seed treatments when compared to using no pest control at all. Consistent with the EPA's longstanding policies on public participation and transparency, we sought public input of this analysis. In addition, I personally traveled to the Mississippi Delta to meet with soybean growers to better understand their pest control needs and the role of these products in their pest management programs. We are currently in the process of reviewing the over 40,000 comments we received on our analysis. The revised analysis will be incorporated into the risk/benefit determination that we will make for these products as part of the ongoing registration review of the neonicotinoids. Additional benefits analyses for the neonicotinoid pesticides may be conducted, as needed, as part of this ongoing re-evaluation.

In March 2015, the EPA registered a new miticide, oxalic acid, to combat the devastating effects of the *Varroa* mite on honey bee colonies. Oxalic acid was already registered for this use in Canada and Europe. Recognizing beekeepers' need for additional registered tools to combat the *Varroa* mite in U.S. honey bee colonies, the EPA collaborated with the USDA on the registration. The EPA was able to expedite its evaluation in part due to a "work share" which allowed Health Canada's Pest Management Regulatory Agency (PMRA) to share their data reviews with the EPA risk assessors and risk managers. The EPA used the existing data and information from PMRA, including updated reviews of toxicity, dietary exposure, environmental fate and transport, and product chemistry data. After a thorough and priority evaluation of all the data, the EPA concurred with the conclusions and registration decision made by our Canadian colleagues and approved the registration in less than ¼ of the time it usually takes.

Finally, collaboration with domestic and international partners to advance pollinator protection is critical. Over the past three years, the EPA has co-hosted pollinator summits on several topics, including seed treatments, honey bee health, *Varroa* mites, and forage and nutrition. In addition, through the EPA's Pesticide Program Dialogue Committee, the EPA sought advice on how to improve pesticide labeling, increase methods for reporting bee kill incidents, expand the availability of best management practices for reducing pollinator exposure to pesticides, and develop a consistent approach for investigating bee kill incidents. In response to the advice received, the EPA has greatly improved pesticide labels for the neonicotinoids and has imposed similar labeling requirements for other pesticides that are acutely toxic to bees. We have expanded the various methods that bee kill incidents can be reported, both via the EPA's website and other mechanisms, and we worked with states to develop a more consistent approach and guidance for investigating bee kill incidents. We also worked collaboratively with stakeholders and land-grant universities to make more publicly available information on best management practices for reducing pesticide exposures to bees. The President's Fiscal Year 2016 budget request includes additional funding for the EPA's pollinator protection efforts, including \$1.5 million to further the study of acute toxicity amongst honey bee populations and to explore additional risk management options, and \$500,000 to augment the work of states and tribes to develop pollinator protection plans. And, as mentioned earlier, we are working with our international partners to continue to advance the science and understanding of the potential impacts of pesticides on pollinators.

In the near future, as part of the roll out of the Pollinator Health Strategy, the EPA will soon announce additional initiatives for continuing to improve pollinator health. We will take those actions based upon the best available science and utilizing our longstanding principles of public engagement and transparency. The EPA will also continue to work with the USDA and other Federal and state agencies to protect pollinators while also ensuring that growers can meet their pest control needs in order to maintain a diverse ecosystem and provide for a healthy and abundant United States food supply.

The CHAIRMAN. Thank you, Mr. Jones.

In light of the fact that they are about ready to call a vote, it looks like it will be one vote, when it happens, I will make sure that we stand in recess. And we will come back here and continue the line of questioning. But I know one of our Members actually has to go to a markup immediately following the vote. So I am going to yield my first 5 minutes to my colleague, Mr. Moolenaar from Michigan, to ask questions.

Mr. MOOLENAAR. Thank you, Mr. Chairman. Dr. Johansson and Mr. Jones, I appreciate you being here testifying today and for your focus. I just wanted to ask, first, when you talk about releasing a strategy, do you have a timeline for that?

Mr. JONES. Yes. We are talking about something within the next several weeks. So it will not be much longer.

Mr. MOOLENAAR. Okay. Thank you. And as part of the process, I am assuming that there would be a communication strategy of broadly communicating that. Will that be part of that strategy?

Mr. JONES. That is correct.

Mr. MOOLENAAR. Okay. If I could, I would also ask your role is regarding chemical safety and pollution prevention. And we are talking about pesticides but also herbicides. Would that be part of your area?

Mr. JONES. Yes. My office is responsible for pesticide regulation at the Federal level of the United States. And pesticides are defined under the law as herbicides, insecticides, fungicides, rodenticides, basically anything designed to kill a pest.

Mr. MOOLENAAR. Okay. Got you. One of the things I wanted to ask your input on, recently the International Agency on the Review of Cancer, which is part of the World Health Organization, announced a classification of glyphosate as a 2A category probable carcinogen. Are you familiar with that conclusion?

Mr. JONES. Yes, sir.

Mr. MOOLENAAR. Okay. It seems that that conclusion contradicts other parts of the World Health Organization which have reviewed glyphosate and found no evidence of it being a carcinogen. And then other regulatory bodies around the world have reviewed this also. And I understand that the EPA prepared a desk statement and found in 2014 after reviewing 55 epidemiological studies on the possible cancer and non-cancer effects of glyphosate, that it does not warrant any changes in the EPA's cancer classification. And I guess the reason I bring this up is, first, do you still, given the report that they had, are they in communication with you on this, recognizing your conclusions with the EPA?

Mr. JONES. IARC operates independent of the United States Government, and of any other government in the world. We are making sure that we are looking at everything that they looked at before we finalize, well it is not finalized—put a draft assessment, which we are going to do in the July timeframe. But we collaborated with our colleagues in Canada in the development of our assessment.

So we are making sure that we are looking at everything that they looked at. I can say, as a matter of fact, that the body of information that was in front of us is much larger than the body of information that was in front of the IARC.

Mr. MOOLENAAR. So you would stand by your conclusions in spite of what they have concluded and based on a broader assessment?

Mr. JONES. Our conclusions, which will be released in the July timeframe, we will definitely be standing behind.

Mr. MOOLENAAR. Okay. Thank you. And in the next few weeks, you expect to release your strategy. And it would be based on the sound-science approach that you are using in other areas?

Mr. JONES. That is correct.

Mr. MOOLENAAR. Thank you. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. I would like to advise Members that a series of votes has been called. I anticipate the series of votes to last as long as it takes to get you to the floor and back. So it should be a very quick series of votes. And as long as we get back here, we will call the hearing back in order. I would ask that you return quickly so that we can get it going again. This hearing will stand in recess subject to the call of the chair.

[Recess.]

The CHAIRMAN. This hearing of the Subcommittee on Biotechnology, Horticulture, and Research will come to order.

As we left off, again, welcome, Dr. Johansson, Mr. Jones. We will give folks a couple seconds to sit down since I don't think anybody thought we would start the hearing again with only two Members. But we like to be timely. And, ironically, the next questioner is sitting in her chair. So I would like to recognize the Ranking Member, Ms. DelBene, for her round of questions.

Ms. DELBENE. Thank you, Mr. Chairman. And, again, thank you to our witnesses for being with us today.

Mr. Jones, can you describe for the Committee the benefits of moving EPA's pesticide risk assessment process for bees and for other insect pollinators from a qualitative to a quantitative risk assessment process?

Mr. JONES. Thanks, Congresswoman. So one of the issues that came up as we began to observe the attention being paid to the neonicotinoids, was that our assessment wasn't capturing the kinds of exposures the honey bee, in particular, could get from neonicotinoid exposures because the chemicals are, they behave in the environment significantly differently than many of the alternatives. And so we developed a way to allow us to quantitatively assess the risk associated with this class of chemistry to honey bees through the design of a particular study. So it will allow us to speak with greater confidence and less uncertainty as it relates to the impact of these compounds on honey bees.

Ms. DELBENE. And it is my understanding that the EPA has begun to employ the new risk assessment framework for bees as part of its regulatory decision-making process for all pesticide chemistries, and is that correct?

Mr. JONES. That is correct. We deploy the framework for all chemistries. Many chemistries, however, will not trigger the higher-tiered studies because of their properties. But we will at least think about how those other chemicals—whether, the relevance of this new framework is to other pesticides. So it won't just be neonicotinoids.

Ms. DELBENE. Dr. Johansson's letter characterizes EPA's October 2014 analysis as that of an incomplete risk assessment. Now, it seems that EPA simply conducted a literature review whose data could inform the risk assessment process. Would that be a correct characterization of what you did?

Mr. JONES. Well, it was a benefits analysis, we were looking at the benefits of the chemical, as opposed to what risk it poses. So we weren't at all attempting to characterize the risks of the compound. We were attempting to characterize the benefits. And we got a fair amount of comment from USDA and from many others about what they saw that was right about it or was wrong about it.

Ms. DELBENE. And so what happens now with all that comment? Where do you go from there?

Mr. JONES. So we will give consideration to all the comments that we received, which included field visits. I personally went to the Delta at the request of soybean growers there to look at their experiences. We will incorporate all of that into our final assess-

ment. And then we will bring that together with a risk assessment for purposes of risk management.

Ms. DELBENE. And you talked about this a little bit in your testimony, can you put into perspective in real-world terms how important pollinators are to our food supply? My district is a specialty crop district. We have lots of fruits and vegetables and red raspberries in particular, highest producer per capita.

So what in real terms would the continued decline and loss of pollinators mean for our food supply and for our ecosystems?

Mr. JONES. That may be a question better answered by Dr. Johansson.

Ms. DELBENE. Absolutely.

Mr. JONES. But they are of critical importance to agriculture and to American consumers.

Ms. DELBENE. Dr. Johansson, are you—

Dr. JOHANSSON. Certainly we know that pollinators are important for a good number of crops. For example, as you mentioned, specialty crops in particular. A lot of tree crops in California, for example, rely 100 percent on pollinator services. There has been a range of valuations on the actual dollar amount that those contribute to U.S. agriculture as a value-added component.

I mentioned earlier in my testimony that the service fees alone were roughly \$650 million in 2012. Jim had mentioned that some valuations had gone up to upwards of \$50 billion. Certainly, I have seen estimates anywhere in the range of \$15 to \$20 billion per year in terms of the value of the crops that are pollinated by pollinators.

And so putting an actual value on, or how you go about estimating the economic value, you would need to look into a variety of factors such as alternatives to pollination and that kind of thing and sort of net that out. But just from the ballpark standpoint, we would say that certainly pollinators are providing large value-added to the U.S. ag economy.

Ms. DELBENE. Thank you. Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. Thank you, Ms. DelBene. I would like to now recognize Mr. Scott from Georgia, for 5 minutes.

Mr. AUSTIN SCOTT of Georgia. Thank you, Mr. Chairman. I have a couple of comments before I get into the questions. And while I certainly don't blame each of you individually, but it shouldn't take a Congressional Committee or a presidential directive for the USDA and the EPA to work on an issue of this magnitude. There was a lot of talk as we were getting started in the testimonies about honey. But the fact of the matter is pollination is the real issue for our food supply. I like honey. And bees are known for honey. But it is really the pollination issue that is of importance to our food supply.

So I would hope that in the future it wouldn't take Congress or the President to get the agencies to work together on these issues. And the second thing I would ask or suggest is that honey bees and pesticides, those aren't mutually exclusive issues. I have concerns, if you will, when we talk about the neonicotinoids and other things, that they are becoming somewhat the whipping boy here when the pesticides really aren't, that is not the primary issue that is the problem.

The *Varroa* mite is, in my opinion, one of the biggest problems. And my question for you, Mr. Jones, what is the EPA doing to make sure that we have the tools to combat that pest that has been so devastating to our bee colonies?

Mr. JONES. Thank you, Congressman. So our role here is to make sure that when we get an application for a *Varroa* mite control product, that we expedite our review of it. And we actually have a really good example of that in the last 9 months, where researchers at the Department of Agriculture determined that a chemical that had been used for other things, oxalic acid, has the potential to control *Varroa* mite in honey beehives and not harm the bee. And so we worked with them on developing an application that they then submitted to us. And within several months, we had licensed it. So that oxalic acid is on the market today. It was a rather short period of time from discovery of its potential as a *Varroa* mite control and licensing.

Mr. AUSTIN SCOTT of Georgia. All right. So, I appreciate that expedited approval. But what we call a discovery, the fact of the matter is that was already being used in Canada I believe for this very issue, wasn't it?

Mr. JONES. It was, yes.

Mr. AUSTIN SCOTT of Georgia. So it is not really a discovery. It is the fact that other countries were already using this. And if I remember correctly, we actually used the research from Canada on that particular pesticide or whatever we want to call it that attacks the *Varroa* mite to approve it. And I would just hope that we would be able to continue to expedite those things.

What is the current estimate of the bee population, the cultivated bee populations and the wild bee populations?

Mr. JONES. I happen to know for managed bees that the number, the Department of Agriculture number is about 2.7 million managed bee colonies in the United States. I don't believe any of us know the wild populations. I don't know that they are surveyed.

Mr. AUSTIN SCOTT of Georgia. Yes. It would be hard to count them, wouldn't it? That doesn't mean that certain agencies don't try to count other things and make up some numbers from time to time. How does it in the managed area compare to recent historic levels?

Mr. JONES. My understanding is that the managed colony numbers, they are actually up a little bit over the last 5 years, from 2.5 million to 2.7 million. But that in the 1940s, they were as high as six million managed bee colonies. And as recently as the early 1980s, it was around three million. So overall, the trend is they are down. They seem to have stabilized and there is a small uptick.

Mr. AUSTIN SCOTT of Georgia. All right. Thank you. Dr. Johansson, do you have anything to add to those?

Dr. JOHANSSON. No. Those are the numbers that you could see from looking at the NASS honey reports, you can pull out of there the number of colonies. Right now, as Jim had mentioned, the most recent report documents 2.7 million colonies. Last year, there was 2.6, so a slight increase. But certainly in previous years, it was much higher than that. We would expect that as the valuation, as you mentioned, of pollination services goes up, over time you would expect producers to respond by trying to increase that number.

Mr. AUSTIN SCOTT of Georgia. Does the USDA keep any estimates of wild bee populations?

Dr. JOHANSSON. We could certainly get back to you on that. I have seen some in some of the preparation I did. But I don't have the number on the top of my head. And I would hesitate to try to dig through these papers to try to find it for you.

Mr. AUSTIN SCOTT of Georgia. I would be interested in the estimates and what they have done historically.

Thank you, Mr. Chairman. And I apologize, I used 40 seconds of your time.

The CHAIRMAN. I will get them back at the next subcommittee hearing that you are chairing.

Mr. AUSTIN SCOTT of Georgia. That is fine.

The CHAIRMAN. I would like to now recognize my colleague from Florida, Mr. Yoho, for 5 minutes.

Mr. YOHO. Thank you, Mr. Chairman. Gentlemen, I appreciate you being here.

What I would like to bring out in this hearing is clarification and the purity of science and the purpose of science and not have agendas driven by one side or the other. That your decisions in the EPA and USDA are based factually on science. Because if we don't have that in your agency, what we have is mob rule or we have the media hysteria that goes on that drives things that will affect, say, one of the large box retail stores because of media hype in the respect that they think that neonics are bad or insecticides are bad. But, yet, when you look at all the benefits that we have gotten over the years, it outweighs the bad.

And you guys are obviously there to protect us and the environment and things within the environment. But it has to be based on pure science. And what I read here is disturbing in that the EPA is moving to rule before the studies are done. And what I want to ask you is do we have assessed values of neonics in the nectar of a flower that is toxic to a bee? What level is that, Mr. Jones?

Mr. JONES. Thanks, Congressman. We have not finished the risk assessment process for neonics and their essential risks in bees. A part of doing that is understanding exposure. And a part of evaluating that exposure is to get good estimates around the amounts of neonic in honey, in nectar, I am sorry, in pollen and in nectar because that is one of the ways a bee can be exposed.

Mr. YOHO. Well, coming from the State of Florida, we have the University of Florida there with IFAS which does a fantastic job in research. What they are finding out is—and I am sure you are aware of what is going on in Florida with our citrus trees, we have about 90 to 95 percent of the citrus trees in Florida are infected with the huanglongbing bacteria. And it has decimated our population of citrus trees. And without the use of neonics, we will have no citrus in Florida. And Florida without citrus trees is like Wal without Mart. It just doesn't work.

And the neonics have been proven that if you give them 3 weeks prior to the blooming stage of the plant, that they are very effective at stopping citrus greening. And, yet, the levels of the neonics in the nectar measured, is less than 20 parts per million, which is what is deemed toxic for the bee. It is well below that. So a stra-

tegic spraying and application of a product is what is beneficial for the citrus tree, as it is for other crops. And when I look at the honey bee population in the world, I have a study right here in front of me, if you look from 1960 to 2010, the millions, the amount of beehives, they have gone from 50 million beehives to now they are right at 80 million beehives worldwide. And when you look at when neonics were introduced, there was a decline in that era but it was before neonics were introduced into the environment. And our populations have gone up.

And then when we look at the stress that are on the bees, when you look at California that has to import a lot of their bees, they have to transport them long ways or other parts of the country, the stress factor along with the mites and the viruses seem to play more of a relationship when you look at the correlation of stress on the hives, management of the hives, and the contamination when you bring in outside population of bees, it is like children and horses, when you move them together, they are going to pick up exogenous strains of viruses that affect them.

We need to put more emphasis on that and that research. Because if we look at just Canada, they have roughly 16 million acres of canola. And they don't have a decline in bee population. Of course, they don't have the *Varroa* mites. But they have been using neonics steadily for the last 20 years. What are your thoughts on that?

Mr. JONES. Well, a couple of things. First, I would like to recognize that we authorized the use of the neonics in Florida citrus because of the exact scenario that you described. So we are very familiar with the issues they are having. We are committed to using sound science in making the regulatory decisions that we do around neonics. Most of the grief that we get is because we haven't canceled the neonics, not because we are not following a science-based process. I think that you are referring to Australia as opposed to Canada. Canada is suffering some of the same bee issues that we are. Australia, from the accounts that I have gotten, has not, and Australia does not have the *Varroa* mite at least as of yet.

Mr. YOHO. The reports I have right now is that Canada with their canola fields, roughly 16 million acres, their bee population is doing well. And their honey production is doing fine. It hasn't seen a dip. Unless I am wrong on that.

Mr. JONES. Actually, I am sorry, eastern Canada has had bee population issues that are similar to the United States. And western Canada has not.

Mr. YOHO. All right. And I will reserve my questions for the second go-around, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Yoho. I now would like to recognize my colleague from Washington, Mr. Newhouse, for 5 minutes.

Mr. NEWHOUSE. Thank you, Mr. Chairman. I appreciate that. Welcome, gentlemen. Thank you for being here about this important subject. I am a fruit producer. So I understand fully the importance of honey bees to our way of life and to our ability to produce food, but also a user of some of these classes of chemicals. And I might add that they have been very successful in allowing us to control very problem pests very economically and have gone

a long ways to actually reducing the amount of sprays that we apply. We can find a balance here at some point.

But I have just a couple of questions. I will ask Mr. Jones first, if I might. As I am a producer, I am interested in this subject. Would you say that there are any investigations or statistics about negative impacts on bee health that are correlated to the misuse of pesticides contrary to label requirements and recommendations?

Mr. JONES. There certainly, Congressman, have been a number of incidents associated with the misuse of pesticides. One that has gotten a lot of the attention from the state just south of yours in Oregon. And they are easily predicted, if you misuse an insecticide, that you may kill insects that you were not intending to kill. And that is something that we have seen where, in the case in Oregon, neonicotinoids, but, it frankly, could have been any insecticide, were applied to linden trees while tens of thousands of bumblebees were in that tree. The label said it shouldn't be used that way. But it was used that way. And yep, big surprise, all the bumblebees in that tree or most of them died. We have a lot of evidence that if you misuse an insecticide in a way where insects are present that you didn't want to inadvertently kill, you will see deaths, in that case, bee deaths.

Mr. NEWHOUSE. I guess where I would like to probe a little further, how much are we working on enforcing those existing rules, those existing label restrictions *versus* coming up with new rules? Shouldn't we be doing the former before the latter?

Mr. JONES. As a former commissioner of an ag department, I would expect you would know that pesticide use in the United States is enforced by state ag departments with the exception of a couple of states where it is done by the Environmental Agency which is California and New York. So I would turn to my state NASDA colleagues to answer that question.

Mr. NEWHOUSE. I appreciate that. And I do understand. A growing number of municipalities and even several states around the country are banning the use of this class of chemicals. I understand the EPA's regulatory decisions are based on analysis from numerous, hundreds of staff reviewing available data. In your estimation, do these states and cities have the expertise and staff resources to be making these kind of decisions?

Mr. JONES. I wouldn't speculate on the capacity of states or local governments to make some of the choices that are being made. I think that one of the reasons people are frustrated with our time schedule is that we have not finished our review, which is why we are expediting the review of the neonicotinoids so that municipalities, states, and others can have the benefit of EPA's risk assessment.

Mr. NEWHOUSE. So a follow-up to that, similarly, when retailers may have questions about a product and how or why it may be approved, do you explain that approval process and the requirements that you impose on those companies?

Mr. JONES. When we are asked it is usually by a municipality. That is the entity that most often asks can we come and explain to them how we do our work. We always provide that kind of technical assistance. I am not aware of, it doesn't mean it hasn't hap-

pened, but I am just not aware of a retailer having asked for our views on a pesticide regulatory issue.

Mr. NEWHOUSE. Okay. Thank you very much. I will yield back my time, Mr. Chairman.

The CHAIRMAN. You just yielded back the 40 seconds Chairman Scott took. So thank you.

Mr. NEWHOUSE. We are even.

The CHAIRMAN. Yes. I will let him know that. I would like to now recognize my colleague from Pennsylvania, Mr. Thompson, for 5 minutes.

Mr. THOMPSON. Mr. Chairman, thank you. Thank you for this hearing, an incredibly, incredibly important topic in the world of agriculture and, quite frankly, everyone that likes food. Scientific research really is the key to protecting and sustaining pollinator health. And there is already so much research occurring between the USDA, the EPA, and other land-grant universities. I am a little concerned, though, to some degree that this research is being done in silos and we haven't maximized the full synergistic benefits through collaboration, that maybe at times there is little to no coordination between these various entities.

Institutions, such as my alma mater, Penn State, land-grant university, which I know is doing a considerable amount of pollinator research and with Federal resources would be a great partner, especially given their existing work with extension activities. So my question is do the two agencies that you both represent, respectively represent, does USDA or EPA intend to move forward with any kind of national pollinator institute to help bridge these connections and better coordinate efforts and, quite frankly, in a synergistic way get to some good solutions sooner rather than later?

Mr. JONES. Thanks, Congressman. We are coordinating with our colleagues at the Department of Agriculture on pollinator-related issues very closely and with your alma mater, Penn State, I am forgetting the name of the entomologist there who has been very active in our collective collaboration, as well as many other land-grant researchers. I am not aware of any, at least on the EPA's part, of standing up a pollinator institute of any nature. I will defer to Rob.

Dr. JOHANSSON. Certainly we can follow up with you on this question in terms of our work with the land-grants. I know that we have certainly requested additional budget resources for some of our research agencies which do collaborate pretty strongly with institutions like Penn State. So, for example, both NASS, ARS, and NIFA have, we have requested additional funds specifically for pollinators. But I am not aware of that being targeted towards a specific institute.

Mr. THOMPSON. I would be real curious to get both your respective professional opinions, and how would you feel about an initiative that would stand up such a national pollinator institute?

Mr. JONES. I will defer to Dr. Johansson, as I think that the broader issues of pollinators are more in USDA's bailiwick as opposed to just the pesticide.

Dr. JOHANSSON. Well, it is a great question. I would like to hypothetically think about that and get back to you on that. Certainly, there has been pollinator research stations that we have had in the

past that have been part of the extension service and collaborating at places such as LSU. And I know that some of those have had budgetary issues in the past that we are trying to boost now. And that would go a long way towards answering your question. But I need to get specifics from our Office of Budget and Policy Analysis on that.

Mr. THOMPSON. That would be great. And I would welcome input from both agencies.

I think we are all very aware of the potential risk with any kind of impairment to pollinators. And I would love to talk with you and your agencies more about—I recognize that, obviously, we are doing some isolated, some targeted collaboration. But this really, the potential risk here warrants perhaps a little broader collaboration.

I wanted to just quickly, I know that the chief of the National Wildlife Refuge issued a unilateral moratorium on January 26 prohibiting agriculture practices on Refuge property that employ the use of biotechnology and neonic pesticides. There were no independent reviews conducted documenting specific health risks to humans or wildlife, nor was any discussions held between the Refuge System and the agencies responsible for review and regulation of these technologies. My question, Mr. Jones, is with the July 17, where the Fish and Wildlife Service announced it was banning the use of neonicotinoids on U.S.—how did I do, Chairman, with the pronunciation of that? Pretty good.

The CHAIRMAN. Terrible.

Mr. THOMPSON. Okay. Everything I learned I learned from him—was EPA consulted by the Fish and Wildlife Service regarding this decision? And what guidance did the EPA offer if it did?

Mr. JONES. We were not consulted on that decision.

Mr. THOMPSON. Okay. Thank you, Chairman.

The CHAIRMAN. Thank you, Mr. Thompson. Since everyone here has gone through a round of questioning, now the witnesses are stuck with my round of questioning. But, first, being the Chairman of the Subcommittee, I always enjoy hearing about other land-grant universities and the positive research that is being done there. But none can compare to the land-grant university, the University of Illinois. And I see we have fans in the back. Thank you.

The University of Illinois has been at the center of pollinator research. Dr. May Berenbaum was awarded the National Science Award for her research in pollinator issues. And I am proud that what we see here today is a collaboration on research that is very important to this issue happening at many of our land-grant universities, which is why I am so proud of the Subcommittee and the Members that are on the Subcommittee because we have issues that affect the agriculture communities as a whole. And we have research being done at our facilities within our districts. And we are able here today to talk about how that research is being utilized by the Federal agencies who, at this point, are partners in releasing a report that, as I said in my opening statement, is 5 months behind. I will start with that question. Does anybody have an idea at the table, Dr. Johansson, as to when this may come out? Maybe next week?

Dr. JOHANSSON. Well, Jim had mentioned that they were expecting that to come out in the next couple weeks. I have heard spring. And, obviously, *spring* is, in D.C., is a loosely defined term. I think we may already be past spring in D.C. Certainly, we are expecting that to come out sooner rather than later. And I will let Mr. Jones fill in the blanks on more specifics.

Mr. JONES. We are a couple of weeks away and the report will be publicly released.

The CHAIRMAN. Great. I will hold you to it. All right. The first question I have is for Dr. Johansson. I am sure you have read recent media reports regarding allegations of scientific suppression within the USDA. Have you ever felt pressured to modify your conclusions or to keep them from the public?

Dr. JOHANSSON. Speaking personally, no, I have not. I have certainly, as a young researcher, felt that the peer-review process was maybe sometimes a little slow for my desires, wanting to get publications out into journals and what have you. But for the most part, speaking from an economics perspective, all the peer review that we put in place is intended just to make sure that the research that is being done is of sufficient quality and rigor for publication in scientific and academic journals or for presentations at professional meetings.

And so based on that experience, I have not ever felt that any kind of research findings of mine or anybody in my office have been adversely impacted by this review process that we typically try and put in place just to ensure that the research that is getting put out is of high enough quality for use to the public.

The CHAIRMAN. And for this Committee, can you briefly outline the process that you use for USDA scientists' work and the peer-review process that it goes through before publication?

Dr. JOHANSSON. Sure. I think each office in USDA approaches this differently depending on the kind of science that is being done. And so I certainly don't want to speak for those other agencies that have developed their processes and protocols that are specific to the type of research that they are undertaking.

For our process, I can speak to a couple aspects of that. Our office provides advice to the Secretary and that is generally, typically just for internal consumption. And so we often have to put that together relatively quickly and get that up to his office. And he relies on our professional experience to provide the best available information available to him at that time. So that doesn't necessarily have any sort of rigorous protocol that we have to go through to get that up to him.

But, on the other hand, as part of my office, we have the World Agriculture Outlook Board that coordinates all of our estimates for the World Agricultural Supply and Demand that we put out each month. That process is very tightly determined by protocols that we put in place specifically to keep those analysts protected from any kind of what may even be perceived as outside interference from any political or questioning or alterations of their findings.

And so I would just point out that at least the protocols that are in our office are intended, essentially, to make sure that our analysts are able to put out to the public the best, most accurate information available.

The CHAIRMAN. So the reports that there has been suppression due to political motives, they are wrong?

Dr. JOHANSSON. I am not really familiar with those reports. I haven't been involved with that issue. I know we do have a, we have developed a scientific integrity policy at the Department that is intended to provide guidance and discuss these issues. We can certainly get that information to you. But I haven't been involved with any reports of any kind of suppression of USDA science results.

The CHAIRMAN. Okay. So do you equate the need to follow set protocols with this allegation of political suppression that you say doesn't exist?

Dr. JOHANSSON. It certainly doesn't exist in my office or with the work that we have been doing. I certainly can't comment, like I said, on other agencies.

The CHAIRMAN. All right. Well thank you very much. I am going to yield 5 minutes to my colleague from Florida, Mr. Yoho.

Mr. YOH0. Thank you again, Mr. Chairman. I would like you to continue on the working together as the EPA and USDA so that we do come out with sound science. Mr. Jones, you were talking in your testimony, there were three areas that you tried to achieve these goals.

The EPA has focused its pollinator efforts in three primary areas advancing the science and understanding of the potential impacts of pesticides on pollinators, taking appropriate risk management actions based on that available science, and collaborating with domestic and international partners to advance pollinator protection. And we all agree how important bees are in the pollination process in the production of our fruits and vegetables.

To have that sound science working with the USDA, I have also here the National Wildlife Refuge System bans neonics and biotechs without justifying or communicating with the USDA or the EPA, and on October 2014, EPA releases a study on neonics talking about the treatments—I am sure you are aware of the soybean seeds, that there was little or no overall benefits to production, and the USDA comes out and disagrees with that assessment and calls that risk assessment incomplete.

How do we get you guys on the same page working for a common goal instead of fighting against each other, not communicating with each other?

Dr. Johansson, what is your thoughts on that? What would it take to get it where you are working together on that?

Dr. JOHANSSON. Well, I certainly would agree that Jim and I are certainly open to working together collaboratively, certainly on economic analysis that his office is undertaking to discuss the benefits or the economics behind a lot of these treatments, and I am sure we will have an opportunity to follow up with his office on those, moving forward. And, just to point out, we do a lot of collaborating on a lot of issues. And sometimes we just wanted to—in this case wanted to make sure that we did provide comments on this, and we took the opportunity to put those in the public record. I wouldn't necessarily call it squabbling or anything like that. It was just that we wanted to make sure that our comments were heard.

Mr. YOHO. Mr. Jones, what are your thoughts on working with the USDA? I mean, how can we help facilitate you guys working closer together so that when we do come out with a policy it has the stamp and approval of the USDA, the EPA, the United States Government, and it is factual, not based on an agenda, and it is not being politically motivated or outside groups motivated. What can we do to get beyond that and just on pure science?

Mr. JONES. We are committed to basing our decisions on science and following the rule of law, and we collaborate extensively with the Department of Agriculture. As a matter of fact, in the mid 1990s, when there was concern that we might be running amuck in pesticide regulation, the Department set up an Office of Pest Management Policy, which is our point of contact on any issue, pesticide, regulatory, or science. And that is our point of entry into the Department, and we coordinate and collaborate on virtually every move we make that is of significant note.

But we can always do better, and we are committed to doing better and making sure that we are as coordinated as we can be. If we were to issue certain regulations which the benefits assessment was not, we actually have a statutory responsibility to consult with the Secretary, and we do that. We have done that on the worker protection standard, the current certification and training standard, but that was not a regulation. But we still went through the Office of Pest Management Policy, and would be committed to doing that, going forward.

Mr. YOHO. All right. I would encourage you guys to get the results of that report out as soon as we can so we can bring some stability to the market so that we don't have the big box stores not using a neonic because they say the public perception is these are bad.

And it brings me back to the trade deal coming up that we are looking at with the European Union, and what the European Union did banning the use of the neonics, or a 2 year moratorium on it, and now it has spilled over to Canada, and it was, let's see, after the European Commission voted to ban neonics, anti-GMO, green and farm groups turned their focus on Canada, pressuring Ottawa to follow suit. The responsible agency, Health Canada's Pest Management Regulatory, aware that the evidence fingering neonics was spotty vacillated issuing an ambiguous assessment of the reported bees deaths in Ottawa, and we don't want that driving our policies. Because now if we are using those products here, we are going to be banned from trading with Europe on that, and it is not based on science. It is based on a political agenda. And if it is truth behind that, I don't have a problem. But if it is not based on science, and that is why we rely on you guys, and I know you guys are going to do a great job because you have the USDA working right hand in hand with you, and it will make American farmers stronger with our bees. Thank you.

The CHAIRMAN. The gentleman's time has expired. Thank you.

Actually, let me jump in real quick and follow up a little bit on the discussion that was just had.

Part of the reason why both of you are sitting here is because we have a concern that there isn't the communication between the two agencies within the same Administration co-chairing the Polli-

nator Task Force, and the evidence is clear in the letter that we have submitted for the record.

Dr. Johansson, were you surprised at the EPA's action here? And can you actually elaborate a little bit more on your letter and the USDA's disagreement with EPA and how to better coordinate as co-chairs of this task force?

Dr. JOHANSSON. Certainly, on your latter question that with the task force there is great communication and great collaboration between the two agencies and moving forward on that. I am not really involved with the task force. We do, as I mentioned earlier, review certain pieces of research or analysis that may come out of that task force at some later date for its economic content.

In the case of the study that EPA conducted on the benefits of seed treatments for soybean producers, I wouldn't classify it as a huge disagreement. EPA acknowledged that there were some open questions that they needed to get more data on. They wanted to get public comment on that. We agreed with that and emphasized places that we thought that the public could provide good data, particularly with respect to acknowledging the sort of heterogeneity that you get in ag production across the United States. Different regions have different growing practices, different challenges, and certainly the economics of the situation may be different in any given year.

Certainly we would also point out, which didn't come into play in this particular analysis, there are benefits to different types of producers, different crops, as has been pointed out by Congressman Yoho and Congressman Newhouse. Those weren't addressed in this analysis, and certainly moving forward, we would expect that looking at the benefits of seed treatments will be—or the use of this type of chemical, pesticide, would be different by region, by crop, by time of year, and that is essentially the point we were trying to make in those comments.

The CHAIRMAN. Well, thank you. I appreciate that. And keep in mind, now the Ranking Member DelBene talked about why couldn't we have more stakeholders in the pollinator issue and the colony collapse disorder issue sitting at the table with you. Well, we don't have a task force report. It is 5 months late. Otherwise, we would have had those stakeholders sitting at the table, but what we see as an oversight institution is, is we see a disagreement between agencies that are supposed to be working together. This is what frustrates us, and this is the reason why both of you are here. Because, hopefully, your presence, you could take our messages back to your superiors at your respective agencies and let them know that we want to see that communication. We want to work with you. We want to address these issues based upon clear science. And we have so many examples that have come up today of institutions that are willing and doing the work in pollinator research to help you with. But let's make sure that we have that communication within our own agencies.

And, again, I would like to take this opportunity to ask you, Mr. Jones, to take a message back to Administrator McCarthy that I talked to her about, let's get a member of the ag community on your EPA Science Advisory Board. And let me be clear on the Congressional intent of that, since I wrote the provision. I don't want

somebody that just has a scientific ag research—a scientific background. Let's get somebody who is actually out in the fields on that Science Advisory Board so that we can put a seat at the table that has real agricultural experience. I am not saying what type. I mean, obviously central Illinois is home to corn and soybeans. I call them the special crops, not the specialty crops, but we have so many opportunities to work together, and the reason you are here today is I hope you take that message back.

So with that I am going to recognize my colleague from Washington for 5 more minutes.

Mr. NEWHOUSE. Well, thank you, Mr. Chairman. And coming from a state that raises some of those specialty crops, the State of Washington, if I could in a related line of questioning, Mr. Jones, let me relate some frustrations from some of the stakeholders in my district as it relates to registering pesticides with the EPA. I would like your response to some of their concerns.

They reported to me that despite submitting ample independent evidence concerning the impacts of their products, that sometimes the agency will pick fewer independent stand-alone studies. Sometimes that lack raw data to formulate their decisions, and then make registration tolerance decisions based on that instead. And just so you know, I have heard this more than one time.

Could you respond to these concerns and describe to us what the registration process looks like and is it uniform.

Mr. JONES. Thank you, Congressman.

So the registration process involves manufacturers generating a standardized set of data. It is standardized but the amount of data we will ask for to register a pesticide on a food use is a higher amount of data then, for example, to register a nonfood use like a rodenticide product. But within that category, it is standard, the data that we want. They are required to generate that data.

For registration of a chemical, most of the review we do involves the data that is generated. When we are looking at existing chemicals, it often involves not only the information generated by the manufacturer but information that may have been generated by all sorts of entities. Information from the literature, peer-reviewed information from sources other than the manufacturer. For new chemicals, though, likely the only data you are going to have is what the manufacturer generated.

So the process that we use in doing risk assessment involves looking at all available information. As I said, most of that is going to be manufacturer generated, but not exclusively, and then making judgments about how to apply the standards we have for robust science to that data to perform risk assessments.

Mr. NEWHOUSE. Okay. All right. I appreciate that response, and just wanted to make sure you were aware of some of those concerns in the process. Certainly as a specialty crop producer, sometimes we feel like we are overshadowed by the row crops, and that focus of attention certainly is important to us, and would appreciate expediting as much as possible the process.

Mr. JONES. One of the very good collaborations we have is with the Department of Agriculture and their IR-4 program which is designed to basically provide the residue data if necessary to support minor use registrations which we give a very high priority to.

Mr. NEWHOUSE. Good. Good. Thank you. And thank you, Mr. Chairman.

The CHAIRMAN. The gentleman yields back the balance of his time. And thank you for recognizing specialty crops once again.

I want to thank both of you again. I have just got a couple more questions that, because I am here the entire time, I usually wait rather than make my colleagues have to wait around for us to get through a line of questioning, and then we can actually get a few ends tied up and we will get you out of here.

Mr. Jones and Dr. Johansson, there is actually legislation that has been introduced that would suspend the registration of neonics and establish a new standard for pesticide registration.

Mr. Jones, can you tell us what impact you think this would have on farmers' yields and, more importantly, global food security?

Mr. JONES. We have not evaluated what would happen in the event of a removal of neonicotinoids as a class of pesticides. So I really can't speak with any degree of authority on that question.

The CHAIRMAN. And, Dr. Johansson, can you?

Dr. JOHANSSON. Well, certainly we would see producers switch to other classes of pesticides in that case, and so we would need to evaluate relative effectiveness and cost of those other types of treatments. But certainly we would expect that producers would find an alternative. It is just a question of how costly that would be. We would need to evaluate that, but I wouldn't suspect that we would see—other than the case of potentially places where there aren't alternatives, or aren't as effective alternatives, a huge decrease in production. Just probably an increase in cost.

The CHAIRMAN. Okay. And, Dr. Johansson, your testimony discusses the need for public-private partnerships and increased citizen engagement to promote pollinator health. And I have promoted public-private partnerships in other issues, including water infrastructure on another committee that I serve on, and I am interested in what the task force is actually developing here. Can you provide a preview of what you are working on with public-private partnerships, or keep this Committee updated on the particular issue? Even though I would rather that last statement not be an out for you not to have to answer.

Dr. JOHANSSON. Yes. I have to follow up with you on that.

The CHAIRMAN. You took the out.

Dr. JOHANSSON. Yes. We will make sure to get you that information.

The CHAIRMAN. In a couple weeks?

Dr. JOHANSSON. In a couple weeks definitely.

The CHAIRMAN. How about a week?

Dr. JOHANSSON. Well, I will see what I can shake loose when I get back to 1400 Independence.

The CHAIRMAN. Thank you. Thank you.

Well, I am going to go ahead and go into the closing statement, and before we adjourn, do you have any other questions, Mr. Newhouse?

Well, again, thank you to both of you for being here today at this hearing. I was able to get a lot of questions asked on very important issues. Again, we have a concern at this Subcommittee over

the lack of communication between your agencies and between other agencies within the same Administration.

Now, Dr. Johansson, you were being very kind in many of your comments in regards to decisions made, specifically on the issue relating to the EPA's decision on soybeans, but you do say specifically in your letter that the USDA disagrees with the EPA's decision.

I think that disagreement could have been avoided with a little bit of communication. And we are going to continue to have hearings like this to talk about a lack of communication if we don't feel that this task force is coming together and continuing to work.

So take this message back and let your superiors know we really appreciate you spending the time here to answer our questions. You get to be on the front lines of getting our frustration sometimes, and both of you, I truly do appreciate the time that you spent in front of this Subcommittee.

And under the rules of the Committee, the record of today's hearing will remain open for 10 calendar days to receive additional material and supplementary written responses from the witnesses to any questions posed by a Member.

This Subcommittee on Biotechnology, Horticulture, and Research is now adjourned.

[Whereupon, at 3:03 p.m., the Subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

SUBMITTED LETTER BY HON. RODNEY DAVIS, A REPRESENTATIVE IN CONGRESS FROM
ILLINOIS

April 6, 2015

RICHARD KEIGWIN,
Director, Pesticide Re-evaluation Division,
Environmental Protection Agency,
Washington, D.C.

Re: USDA Public Comments on the EPA's *Benefits of Neonicotinoid Seed Treatments to Soybean Production* document published in the October 22, 2014 *Federal Register*; EPA docket identification (ID) number EPA-HQ-OPP-2014-0737.

Dear Mr. Keigwin:

America's farmers face numerous challenges as they work to produce the food, feed, and fiber for a strong and healthy America. On October 22, 2014, EPA added an additional and unnecessary burden by publishing a portion of an incomplete risk assessment titled "*Benefits of Neonicotinoid Seed Treatments to Soybean Production*" which again puts growers in the position of defending their pest management decisions. USDA staff had specifically requested EPA to complete the full risk assessment that would more robustly describe the benefits of neonicotinoid seed treatment for all crops. Instead, EPA released the report regarding soybean seed treatment without additional consideration of other crops or to USDA cautions about releasing a premature assessment of the costs and benefits of such seed treatments. EPA's release of the incomplete report has resulted in a plethora of articles which cast doubt on the value of seed treatment and neonicotinoids for agricultural production and the choices made by farmers. EPA's report indicates that most neonicotinoid seed treatments were prophylactic in nature and that there are available alternative foliar insecticide treatments that would be as effective at similar cost to neonicotinoid seed treatments. EPA concludes that there "... are no clear or consistent economic benefits of neonicotinoid seed treatments in soybeans."

As a whole, USDA disagrees with that assessment. We believe that pest management strategies are made in consideration of pest pressures, climate, landscape, and numerous other factors.

Growers should have the ability to use the best tools available to manage pests that include choices in seed treatment and pest management tactics. Each knows best what works for his or her individual situation.

Again, thank you for the opportunity to review. Our comments are below.

Sincerely,



ROBERT JOHANSSON, Ph.D.,
Acting Chief Economist,
U.S. Department of Agriculture.

ATTACHMENT

USDA Public Comments on the EPA Document

"Benefits of Neonicotinoid Seed Treatments to Soybean Production"

Background

It is clear that the soybean crop is of significant size and importance to overall U.S. production. In 2013, U.S. farmers harvested 3.36 billion bushels of soybeans on 76.25 million acres, which was valued at \$41.84 billion. Average soybean yield was 44 bushels per acre. In 2013, soybean price at the farm averaged \$14.30 per bushel.

It is also clear that expenditures on neonicotinoid seed treatment for soybeans are substantial and not insignificant. In 2013 neonicotinoid seed treatment sales exceeded \$1 billion and more than \$400 million for soybean seed treatments, or roughly nine percent of seed costs. There are at least 36 different EPA registered neonicotinoid-based products for seed treatments in soybean. Many of those products are also registered in 40 or more states in addition to the Federal registration.

The agricultural sector, including the soybean sector, is typically viewed as competitive. As such it is unlikely that most farmers would be purchasing seed treatments if there was no value to them. For example, extension agents at the University of Mississippi point out that adoption of neonicotinoid seed treatments for soy-

beans in MS has risen from two percent in 2007 to 90 percent today. That pace is more rapid than adoption of herbicide resistant soybeans¹ and has been driven by the value MS soybean producers place on the protections afforded by neonicotinoid seed treatments.²

EPA Findings

EPA argues that it would be equally cost-effective for producers to substitute protections afforded by neonicotinoid seed treatments with other foliar applications of pesticides. The report makes the broad generalization that “. . . At most, the benefits to soybean growers from using neonicotinoid treated seeds are estimated to be 1.7% of net operating revenue in comparison to soybean growers using foliar insecticide . . .”

To come to that conclusion, EPA has had to make several broad generalizations and to rely on scarce and limited data that are not public. For example, EPA assumes that foliar spraying of pesticides is done by all producers who are purchasing seed treatments, that such spraying does not incur additional costs in management or equipment purchases, and that such spraying can address the same pests over the same time window as seed treatments. EPA did not consider any potential environmental consequences of foliar spraying such as compaction issues with farm fields if additional treatments are required, increased risk of exceeding food tolerance residue levels when compared to seed treatments, effects of increased foliar sprays to farm workers, pollinators, other beneficial arthropods or integrated pest management systems, nor regulatory barriers to spraying created by other environmental regulations. The EPA analysis assumes that foliar spraying is environmentally preferable to using seed treatments.

EPA notes some additional limitations in their report, which they indicate may affect their conclusions:

- EPA acknowledges that there may be risk management benefits to using neonicotinoid seed treatments, but that they lack information to quantify those benefits.
- EPA acknowledges that neonicotinoid seed treatments may be more or less valuable to soybean producers in conjunction with other crop management technologies, such as IPM or crop residue management. EPA has not included any of those cross effects in their analysis.
- EPA acknowledges that the use of neonicotinoid seed treatment may help soybean producers manage pesticide resistance. The efficacy of alternatives to neonicotinoid seed treatments are not adjusted for such resistance issues.
- EPA also acknowledges that other costs of soybean production not accounted for in this analysis may influence the extent that uncertainty in EPA's analysis would affect the conclusions.

Conclusion

USDA disagrees with the general assertion by EPA that there are “no clear” economic benefits to seed treatments in soybeans. In 2013 neonicotinoid seed treatment sales exceeded \$1 billion and more than \$400 million for soybean seed treatments. In general, USDA would suggest that farmers are efficient and would not use management practices that did not generate expected benefits that were at least as great as the cost of that management practice. Farmers will generally employ such practices to the point when the marginal benefit of that practice is equal to the marginal cost of that practice. In this case, employing a menu of pesticide practices that includes seed treatments is balanced against the costs of using those practices.

Because, those decisions are based on expected crop prices and expectation that in some years pest management will be more or less necessary based on environmental conditions it may be that in any given year costs of pest management exceed the benefit provided in that year. However in other years such investments are repaid and would cover previous year's use of those practices. Similarly, pest management in one region may protect crops from certain pests at a different rate than in other regions. Given the pace of adoption of neonicotinoid seed treatments particularly in some regions of the country, it is clear that there are economic benefits to using those seed treatments.

Unfortunately, EPA's conclusions are not supported by complete data nor analysis. EPA's analysis does not include potential labor and management savings af-

¹ See discussion at <http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption.aspx>.

² See <http://www.mississippi-crops.com/2014/10/31/do-neonicotinoid-seed-treatments-have-value-regionally-in-soybeans/>.

forded by seed treatments. Moreover, it does not consider cases when timely foliar applications are not possible or as effective due to general field and weather conditions. Applications of pesticides are required to mitigate the adverse effect of those pests on a newly emergent crop. EPA's calculation does not include consideration of control for soil pests that would not be affected by foliar applications. EPA's calculation does not include any additional regulatory expenditure by landowners, such as costs to revise pesticide permit applications, or costs to submit new applications for foliar spraying. EPA does not consider the benefits of seed treatments when soybeans are grown in rotation with other crops, such as corn, which may be higher than consideration of benefits on a year by year and crop by crop basis. Under a reasonable sensitivity analysis it can be shown that EPA's calculations could be understated by more than a factor of ten for soybean producers in certain regions.

USDA is disappointed that EPA published this report in such a preliminary format without offering USDA an opportunity to help EPA reframe their analysis and correct the misrepresentation of economic costs and benefits that underlie this report. Farming is different from running a dry cleaning enterprise or an electrical utility. It is the nature of farming that production conditions are uncertain and variable. Producers have to employ a variety of processes and technologies that are best suited to a particular farm, farm family, and environmental condition. As such it is inappropriate to draw conclusions about the entirety of soybean production across regions of the United States under different environmental conditions by simply looking at national averages over several years.

Seed treatments are a preventative measure that guard against yield losses due to certain pests in certain years in certain places. Because farmers have shown rapid adoption of that management technology in some states it is clear that there is value to those treatments. Seed treatments are just one of the tools a producer has to manage pests on the farm. USDA agrees that in some situations different pesticide methods may be equally effective as seed treatments in a given year. And it is likely that in some soybean growing regions, there are more cost-effective pest management treatments. However, in other situations or regions, environmental conditions would likely favor the efficacy of seed treatments over those afforded by foliar spraying.

For many regions, it is generally agreed in the soybean IPM research community that use of neonicotinoid insecticides may not be useful in enhancing yield in soybean, especially for aphid control since it does not persist to the period when aphids are most damaging to yield. However, yield enhancement is not the only consideration for using neonicotinoids in crop production, including in soybeans. Those insecticides may have benefits in soybeans to help produce seed without mottling by reducing virus transmission by beetles, especially around edges of fields. Seed producers get "docked" for mottled seed.

Environmental or ecological consequences of neonicotinoids may not be as great as other traditional insecticidal insect control, especially with regard to unintended mortality of beneficial insects since, in soybeans, it does not persist to the period when most beneficial insects are most active.

Based on the above points, soybean is not a good model for judging the value of neonicotinoids to yield enhancements. Pesticides are considered in production systems as a whole and all crops in that system are generally included. The soybean belt has rotations with corn and soybeans included and neonicotinoids are used in corn as well. Soybeans are now a big part of the production systems in the cotton belt where neonicotinoids have been found to be effective in enhancing cotton yields. Integrated systems rely on every tool available and assessments of any component in the system should include all other possible components.

Because of the many limitations and uncertainties acknowledged by EPA, USDA suggests that EPA revise their study to evaluate the full costs and benefits of neonicotinoid seed treatments in all crops and regions. Furthermore, because EPA has relied on data currently unavailable to the public, USDA requests that EPA include more survey results from the recently released reports that indicate that farmers are using neonicotinoid seed treatments for a variety of reasons.³

³See recent studies on this topic published by AgInformatics (<http://growingmatters.org/studies/>).

Specific Comments

1. USDA suggests EPA reframe their analysis to consider the full costs or benefits of neonicotinoid seed treatments as it would typically do under its FIFRA requirements.

When considering pesticide uses under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA provides a benefit assessment in conjunction with a risk assessment and other materials that inform the determination of whether the use of a pesticide results in unreasonable adverse effects on the environment. Consideration of benefits is required during EPA's decision-making process. During registration, registration review or when considering cancellation of a pesticide, USDA and the public receive the entire set of documents relevant to the Administrator's determination of unreasonable adverse effects on the environment.

In cases where the Administrator proposes cancellation of a product or proposes a regulatory action, the Secretary is provided the relevant documents prior to the interagency review with the option to provide formal comments to be included in the *Federal Register* notice when the regulatory action is published in the *Federal Register*. All of the neonicotinoid pesticides are currently undergoing registration review with data generation projected to be completed by 2015 for imidacloprid; 2016 for thiomethoxam, clothianidin, and dinotefuran; and 2017 for acetamiprid and thiacloprid. Risk management decisions are to follow in 2016 to 2019. Normally the benefits assessment for specific uses would not be released to the public prior to the interim risk management decision. For example, the interim decision and benefits assessment for flutolanil was released in September while the pesticide was in the last stages of registration review and a full 6 months following the release of its human health risk assessment in March. In the case of neonicotinoid seed treatments, USDA and the public will see only the soybean neonicotinoid seed treatment benefits assessment without a risk assessment or notice of the decision under consideration. Soybean seed treatment is singled out among all of the neonicotinoid seed treatments, without explanation, creating uncertainty among growers and seed providers over the future of this tool.

2. The potential change in use for neonicotinoid seed treatments assumed in EPA's analysis is economically significant.

Because the value of these treatments are in excess of \$1 billion in sales for the U.S., any analysis of the costs and benefits of using neonicotinoid seed treatments would be considered economically significant and would undergo full notice and comment by OMB and USDA before public comments were solicited.

Even when limiting the scope to soybean seed treatments, the sales of neonicotinoid treatments exceeded \$400 million in 2013, likely making any economic analysis of restricting the use of those treatments economically significant. If EPA recommended cancellation of soybean seed treatments, the Secretary would be asked to comment on EPA's analysis of the impacts on the agricultural economy. As such, USDA suggests that EPA consider the costs and benefits of neonicotinoid seed treatments per the guidance provided by OMB Circular A-4 and the OMB Information Quality Guidelines. Such analysis would explore the many limitations noted in this study and would also examine the efficient use of pest management systems across crop species and regions while considering potential resistance issues.

3. The report does not consider the environmental benefits of neonicotinoid seed treatments for soybeans.

In general, EPA analysis would consider both the costs and benefits of a particular use of a pesticide in question. Despite the title of this report, EPA does not consider any environmental benefits in this analysis. Using seed treatments minimizes the exposure of non-target insect populations to active ingredients included in foliar sprays. Such potential benefits to those insect populations have not been included in this analysis.

Several reports recently have noted the positive environmental benefits associated with seed treatments. For example, the AgInformatics Value Report (2014) indicates that soybean producers that choose to use neonicotinoid seed treatments say that family and worker safety (70%), protecting water quality (57.5%), and protecting beneficial insects (43.8%) are 'very important' considerations when selecting pest management strategies. And extension agents at the University of Mississippi note, ". . . Neonicotinoids are a class of chemistry that are highly efficacious against insect pests and very safe to mammals. This has led to increased use in many crops grown in the Mid-South region . . ."

4. Preventative seed treatments are likely to be more or less effective under certain conditions and regions.

Most management techniques for growing crops work better in some years than others. For example, during a period of low precipitation it is more useful to irrigate your crop. In other periods, the investment in irrigation technology may not show an economic return. That is also the case with seed treatments. In some years in some regions, neonicotinoid seed treatment may prevent significant yield losses; whereas in others it may not be as beneficial. In some of those instances, the producers may not be able to effectively use foliar sprays as an alternative. That could be due to a number of reasons, such as lack of appropriate conditions for spraying foliar sprays. In addition, common pests are found in both corn-bean rotations. Controlling pests during the soybean rotation may provide benefits for the corn rotation. It does not appear that EPA has considered those potential benefits.

Some foliar pests cannot be effectively controlled with foliar sprays for a period at the beginning of the plant cycle; *e.g.*, germination. Extension agents at the University of Tennessee indicate that seed treatments are most effective in the 3–4 weeks at the beginning of crop growth, which is the critical period for protecting seedlings when they are most vulnerable to pests. Early in the season, it is often the case that fields are wet and therefore difficult for producers to get out into the fields for foliar pesticide applications. In addition, some pests may be below ground and therefore not controlled by foliar sprays.

EPA does not consider protection from the wide range of pests that are controlled by neonicotinoid seed treatments, but simply focuses on three. Other pests often do not cause significant damage to seedlings, but some may: weevils, trochanter mealybug, grape colaspis, wireworms, three-cornered alfalfa hopper, bean leaf beetle, thrips, white-fringed beetles, *etc.* Indeed, EPA notes that “. . . In instances where seed treatments may provide some insurance benefit against unpredictable outbreaks of sporadic pests, such as seed maggots or three cornered alfalfa hoppers, BEAD cannot quantify benefits with currently available information. However, this insurance benefit may exist for some growers, particularly those in the Southern U.S. Given currently available information, BEAD projects that any such benefits are not likely to be large or widespread, given the negligible historical pesticide usage targeting these pests in soybeans . . .”

5. Seed treatments minimize the management and labor investment required for scouting and foliar spraying.

It does not appear that EPA has considered the time and labor savings afforded producers by use of seed treatments. EPA assumes that all producers are already applying foliar sprays and so the addition of active ingredients to address the same pest spectrum does not come at any cost other than the actual ingredients. However, not all soybean producers apply foliar sprays and those that do may not be applying them at the same time as covered by the seed treatment window of pest control.⁴

6. EPA's use of limited data to support their analysis is unfortunate, when they were aware that several other studies on this topic would be released at roughly the same time. Those additional data could have been used to augment the limited data cited by EPA in their report.

EPA's use of unpublished and sparse data to make overly broad conclusions about the efficacy and economic value of neonicotinoid seed treatments does not comport with OMB's Information Quality Guidelines or EPA's Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency. As an example, EPA states “when asked when growers should use neonicotinoid seed treatments, 11 of 20 respondents indicated that they should be used under specific conditions—for example, when planting soybean in an area experiencing high infestation rates, or in double cropping scenarios or when planting early season soybeans.” Compare that to the AgInformatics Value Report that shows soybean farmers select insecticidal treatments (seed *versus* foliar) based on cost, consistency of yield and duration of protective effects. The AgInformatics Value Report included 622 soybean farmers from 14 states.

⁴See discussion at <https://www.pioneer.com/home/site/us/template.CONTENT/agronomy/crop-management/high-yield-management/soybean-aphids/guid.069BE58A-CCEA-CE6C-A77D-3E5B02A320EB> and http://www.farmdoc.illinois.edu/manage/newsletters/jefo04_04/jefo04_04.pdf.

7. EPA's Table 4 should show sensitivity analysis as is standard practice for cost-benefit analysis.

EPA derives their conclusion that neonicotinoid seed treatments do not provide any significant benefits from their calculations in Table 4. EPA describes that table as providing conservative results. USDA would disagree. EPA has not considered many things that would affect those calculations. Indeed, it seems that EPA agrees and acknowledges many of those limitations,

- EPA acknowledges that there may be risk management benefits to using neonicotinoid seed treatments, but that they lack information to quantify those benefits.
- EPA acknowledges that neonicotinoid seed treatments may be more or less valuable to soybean producers in conjunction with other crop management technologies, such as IPM or crop residue management. EPA has not included any of those cross effects in their analysis.
- EPA acknowledges that the use of neonicotinoid seed treatment may help soybean producers manage pesticide resistance. The efficacy of alternatives to neonicotinoid seed treatments are not adjusted for such resistance issues.
- EPA also acknowledges that other costs of soybean production are not accounted for in this analysis may influence the extent that uncertainty in EPA's analysis would affect the conclusions. For example, foliar applications of pesticides often require landowners to apply for pesticide application permits and to undertake more burdensome pesticide applications precautions. Such additional regulatory costs are costly to producers and have not been included in this analysis.

Those limitations further calls into question the overly broad conclusions EPA has published. By considering some reasonable alternatives to EPA's limited comparison, USDA notes that seed treatments could be very beneficial to producers under certain conditions that are unknown to a producer at planting time (see table below).

Revenue and Cost	Units	EPA Assumptions	Sensitivity Analysis			
		Seed Treatment	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Yield	(bu/ac)	45	45	45	45	38
Other pests	(bu/ac)				-1	-1
Price	(\$/bu)	\$12.03	\$12.03	\$12.03	\$12.03	\$9.59
Gross revenue	(\$/ac)	\$536	\$536	\$536	\$529	\$355
Insecticide costs	(\$/ac)					
Seed treatment	(\$/ac)	\$8				
Foliar spray	(\$/ac)		\$14	\$14	\$14	\$14
Labor & Mgmt	(\$/ac)		\$0	\$7	\$7	\$7
Other variable costs	(\$/ac)	\$173	\$173	\$173	\$173	\$173
Total variable costs	(\$/ac)	\$180	\$186	\$194	\$194	\$194
Net operating revenue	(\$/ac)	\$356	\$350	\$343	\$336	\$161
Percent difference	(%)		1.69%	3.79%	4.05%	41.76%

- Alternative 1: EPA assumptions: yield protection of foliar sprays is equal to seed treatment; no additional costs of pesticide treatments for labor and management or scouting. Assumes flubendiamide is the active ingredient in foliar spray. Requires 2 gallons of water per acre for aerial application and 10 gallons per acre for ground application. A recent California study of various emulsifiable concentrations estimated the per acre cost of aerially applying flubendiamide at 2.0 fl. oz at \$22.10 per acre. Flubendiamide is used in soybeans at 2–3 fl. oz per acre.
- Alternative 2: Includes a cost of applying foliar pesticides range from \$6 to \$25 based on prices quoted in *Soybean Business*, a magazine for Minnesota growers. See also Johnson, K.D., *et al.* (2009) "Probability of Cost-Effective Management of Soybean Aphid (*Hemiptera: Aphididae*) in North America," *Journal of Economic Entomology* 102(6): 2101–2108.
- Alternative 3: Considers the case that foliar sprays do not control for potential soil pests or that the optimal time to apply pesticides are not available due to field or environmental conditions. As such, the yield benefits afforded by foliar sprays are assumed to be 1 bu/ac less than those provided by seed treatments.

- Alternative 4: Same as alternative 3, but in a region where the yields are lower than the national average (*e.g.*, Mississippi soybean yield in 2009 was 38 bu/ac and the national yield was 44 bu/ac) in a year with low prices (*e.g.*, average price received by farmers in 2009 for soybeans was \$9.59 per bu).

