Agricultural Research Service (ARS)

Report to

Experiment Station Committee on Organization and Policy (ESCOP)

July 25, 2007
Philadelphia, Pennsylvania

1. Update on ARS Organization and Leadership (attached)
2. ARS Budgets (attached)
3. Joint ARS-CSREES-SAES Program Planning Activities (attached)
4. Profile of ARS Laboratories in Pennsylvania (attached)

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Item 2.0 ARS Report
Presenter: Dariusz Swietlik
Background:

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ARS Homeland Security

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ARS Budgets

- In Fiscal Year (FY) 2007, ARS has been operating under the continuing resolution funded at the FY 2006 budget level of $1,128,943,000. OMB has cleared ARS' program and funding plans for implementation of the prior year earmarks totaling $210,000,000. Most of these earmarks were determined to support the Administration's priority initiatives and accountability requirements and therefore could be continued as is or after slight modification. About 30 earmark projects totaling $35 million did not adequately meet the evaluation criteria. These projects are being terminated and the funds reallocated to new projects and research objectives that are relevant, merit-based, and have adequate programmatic control.

- The President's Budget Proposal for FY 2008 is shown below as increases and decreases to the FY 2007 Full Year Continuing Resolution.

Agricultural Research Service
Budget Estimates- Fiscal Year 2008

FY 2007 Full Year Continuing Resolution…….$1,128,943,000

Changes to FY 2008 Budget Estimate:

INCREASES:

FY 2008 Pay Cost Increases……	$19,978,000
Priority Research Initiatives……	$84,546,000
Total	$104,524,000

DECREASES:

Program Reductions (Prior Year Earmarks)…….. ($211,950,000)

FY 2008 Budget Estimate…… $1,021,517,000

Net Reduction in FY 2008 …….. ($107,426,000)

Joint ARS- CSREES-SAES Program Planning Activities

USDA Agricultural Research Service (ARS), USDA Cooperative State Research Education and Extension Service (CSREES) and the State Agricultural Experiment Stations (SAES) are working effectively together toward solving important problems facing American agriculture. Below are three instructive examples of how ARS, CSREES, and SAES coordinate, at upper administrative and scientists levels, their respective programs that address common goals.

Bee Colony Collapse Disorder (CCD)

- CCD is a syndrome of honey bees that strikes colonies. The foragers leave the hive and never return. There is no satisfactory explanation for what is causing bee disappearance.
- In 2006, USDA-ARS, Penn State University, the Pennsylvania Department of Agriculture, and the University of Montana formed a Colony Collapse Disorder (CCD) Working Group which subsequently was expanded to include CSREES, APHIS, EPA, DoD, Florida Department of Agriculture, Arizona State University, North Carolina State University, University of Illinois, and Bee Alert Technology, Inc, Montana.
- In March 2007 a CCD Steering Committee was formed. The CCD Steering Committee oversaw development of an Action Plan, and the CCD Working Group coordinates research. The Action Plan (http://maarec.cas.psu.edu/ColonyCollapseDisorder.html):
  - Focuses on four areas: i) Survey; ii) Analysis; iii) Research; iv) Mitigation.
- Allocation of agency resources:
  - ARS: Base program 7.6 million at 4 Honey Bee Laboratories;
  - ARS: An Area-wide Project to demonstrate how to rear healthy colonies ($1 million per year for 5 years); refocus of ARS Bee Labs to CCD;
  - CSREES: A Multi-state Hatch Act Project to promote bee health.
  - ARS & CSREES: Sequencing of the bee genome with NIH.
  - Agricultural Marketing Service (AMS): Analysis of hive samples for pesticides;
  - APHIS: Trial of a bee health monitoring system in Montana and Florida.
  - Department of Defense (DoD): Use of a new particle size detector for pathogen searches.
- Formation of research teams of ARS and other federal and academic researchers with focus on identifying new pathogens and detecting pesticides associated with CCD, and determining the stress effects of migratory beekeeping on bees.
- Briefings and Testimony at the House and Senate.
- CCD Steering Committee consists of: Co-chairs Kevin Hackett (ARS), Rick Meyer (CSREES) and Mary Purcell-Miramontes (CSREES) and also includes Sid Abel (EPA), Charles Brown (APHIS), Doug Holy (NRCS), Bruce McPheron (Penn State Univ.), Sonny Ramaswamy (Purdue University), and Evan Skowronski (DoD).

The Action Plan and the interagency rapid response to CCD, together, serve as a model of cooperation between ARS, CSREES, Universities and other state and federal agencies.

National Plant Germplasm Coordinating Committee (NPGCC)

- The National Plant Germplasm System (NPGS) is a network of more then twenty gene banks, distributed throughout the U. S., which has responsibility for the conservation and utilization of the Nation's plant genetic resources. The NPGS is funded through a partnership of State and Federal resources, real and in-kind.
- A new National Plant Germplasm Coordinating Committee (NPGCC) was formed in 2005 following a special ESCOP task force study and joint agreement with CSREES and ARS. It's goals are to facilitate the coordination of ARS, CSREES and SAES planning and assessment mechanisms for NPGS policy, organization, operations and support; promote awareness and understanding of the NPGS across ARS, CSREES, and SAES and more broadly to the scientific community; and serve as a vehicle for improving communications and discussions about issues impacting the NPGS with ARS, SAES, and CSREES.
- The current members of the NPGCC are L. Sommers (Colorado State-SAES), Chair; E. Young (Executive Director, Southern Region); K. Grafton (North Dakota State- SAES), G. Arkin (University of Georgia-SAES), A. M. Thro (CSREES), E. Kaleikau (CSREES), B. S. Benepal (CSREES), P. Bretting (ARS-National Program Staff), D. Buxton (ARS-Pacific West Area), and C. Gardner (ARS – Ames).
- NPGCC members made a joint presentation on the NPGS to the 2006 Experiment Station Section/State Agricultural Experiment Station/Agricultural Research Directors Workshop on September 24-27, 2006. That presentation, plus testimonials from key Directors about the NPGS's value, increased the NPGS's visibility to this important group. In May 2007, the NPGCC recommended to the National Research Support Project Review Committee to restore off-the-top funds designated for NRSP-5 (the Prosser, WA virus-free pome and stone fruit project) and NRSP-6 (the potato genebank project at Sturgeon Bay, WI) to their FY 06 levels to sustain these valuable efforts.
- The NPGCC confers frequently by e-mail, quarterly by teleconference, and meets face-to-face at least once a year. Its next meeting is scheduled for June 2008 in Fort Collins, Colorado.

The USDA Animal Genomics Blueprint

- A blueprint for future research, education and extension efforts in agriculture animal genomics has been developed by a task force of ARS, CSREES and SAES scientists and administrators. It is to be released to academia, federal, and industry partners and stakeholders in the next few weeks.
- The Blueprint is built on strong inputs from stakeholders. In 2006, the ARS and CSREES conducted a joint stakeholder workshop where the input from federal, university and private sector scientists, producers and representatives of animal commodity groups and animal industries was obtained.

- Designed as a pyramid, **the Blueprint** has **Science to Practice** at the top that is supported by fundamental and mission oriented research in **Discovery Science** and is based on a solid foundation of **Infrastructure.** **Science to Practice** is concerned with delivering important genome-based technologies to animal producers. **Discovery Science** is concerned with filling critical gaps in our understanding of gene structure and function in animals and **Infrastructure** is concerned with genomics tools, databases, genetic resources and education and training for students, scientists and the public.
- The task force was co-chaired by Ronnie D. Green (ARS) and Muquarrab A. Qureshi (CSREES) and consists of 11 other members: Peter C. Buerfing (CSREES), Noelle E. Cockett (Utah State University), Steven Kappes (ARS), Anna C. Palmisano (CSRESS), Gary A. Rohreer (ARS), James Womack (Texas A&M University), Hans H. Cheng (ARS), Deb Hamernick (CSREES), Mark A. Mirando (CSREES), Daniel L. Pomp (University of North Carolina), and Curt Van Tassell (ARS).

Profiles of ARS Laboratories in Pennsylvania

- Pennsylvania is the home for **the Eastern Regional Research Center (ERRC)** located in Wyndmoor (Philadelphia suburb). Shu-I Tu, Acting Center Director. The seven research units of ERRC consist of:
    - **Food Safety Intervention Technologies Unit.** Howard Q. Zhang, Research Leader. Primary objectives are to develop new processes and new biological, chemical and non-thermal physical technologies for the decontamination of meat, poultry, fresh and fresh-cut fruits, vegetables, sprouts and juices.
    - **Fats, Oils and Animal Coproducts Unit.** William Marmer, Research Leader. The main goal of this unit is to foster the utilization of domestic fats and oils, hides, wool, and other animal coproducts by application of chemistry and biotechnology and add value to these materials, establish new uses for them and overcome environmental impediments to domestic processing. Among the products investigated from fats and oils are biodisel fuel and lubricant additives.
    - **Microbial Food Safety Research Unit.** John Luchansky, Research Leader. This unit's research program addresses strategies and technologies to: 1) prevent bacterial pathogens from entering the food chain; 2) development rapid detection methods; 3) development of risk assessment strategies and mathematical models to predict the growth, survival and death of pathogens; and 4) the effect of food environments on pathogen survival and virulence. Research is conducted principally at ERRC, but poultry and aquaculture research are conducted at Work Sites located at University of Maryland Eastern Shore in Prince Anne, Maryland and Delaware State University in Dover, Delaware, respectively.
    - **Dairy Processing and Products Research Unit.** Peggy M. Tomasula, Research Leader. This unit's main goal is to solve critical problems in milk utilization and create and utilize new concepts and advances in dairy

science and technologies to expand markets for milk, dairy foods and milk-based food ingredients. Examples of research approaches include: genetic modification of food processing microorganisms to produce foods with improve flavor and texture; casein and whey modifications for improved thermoplastic extrusion into high-value products; prediction of milk protein structure-function relationships by computer-assisted modeling and others.

- **Crop Conversion Science & Engineering Research Unit.** Kevin Hicks, Research Leader. Enzymatic, chemical, physical, fermentation and other environmentally sustainable processes are developed to convert surplus crops into value-added functional food ingredients, industrial gums, biodegradable materials, renewable fuels and health-promoting nutraceuticals. The Unit has the Agency's only process engineering unit with facilities and expertise to do pilot plant research involving basic theoretical investigations, process development, scale-up simulations and economic feasibility studies.
- **Microbial Biophysics & Residue Chemistry Research Unit.** Shu-I Tu, Research Leader. The unit develops advanced techniques for the detection of pathogenic bacteria and chemical residue in food. It also conducts research on soil fungi to enhance mineral nutrient uptake by crops.
- **Core Technologies Unit.** Shu-I Tu, Research Leader. The Unit provides ERRC research scientists accessibility to modern research instrumentation, sophisticated data processing methodologies and contemporary electronic research information resources. It includes Research Data Systems, Scientific Information Resources, Microscopic Imaging, Magnetic Resonance Spectroscopy and Nucleic Acid Facility technologies.

- **Pasture Systems & Watershed Management Research Unit.** Ray Bryant, Research Leader. Located on Penn State University Campus in University Park, the unit conducts research aimed at: 1) developing technologies for improving forage use in integrated cropping and grazing systems that reduce off-farm inputs of feed, fuel and chemicals; 2) quantify the effects of land management on water quality and quantity; and 3) integrate animal and plant production and resource management components into prototype systems for testing.

- **North Atlantic Area Office** located in the ERRC in Wyndmoor. Wilda H. Martinez, Area Director. The North Atlantic Area consists of 12 states: Connecticut, Delaware, Main, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and West Virginia. The Area Office provides line management and oversight for research programs of 12 research locations/centers and 6 worksites, consisting of 21 Research Management Units and operating under an annual combined budget of over $100 million.

Action Requested: For information