

Testimony of

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“Agriculture Research Programs”

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Mr. Chairman and members of the subcommittee, I am pleased to appear before you this morning representing the National Association of State Universities and Land-Grant Colleges to discuss our proposals for the Research Title of the Farm Bill.

As you know, NASULGC has been working diligently over the past two years to reach consensus within the land-grant community and among our stakeholders about how the Federal-State Partnership¹ in food, agriculture, and natural resources research, education, and extension should be updated and improved to meet the opportunities and challenges of the 21st Century.

The land-grant system traces its roots to the First Morrill Act of 1862, with major statutory authorities enacted in 1887, 1890, 1914, 1962, 1977, 1994, 1997, and 1998. Although we have a long history and many proud traditions, we have looked hard at how we have been doing business, listened to our critics, and embraced change.

Specifically, we have decided that future funding increases for both fundamental research and integrated activities (projects that integrate research with extension and/or education) should be distributed primarily through competitively-awarded, peer-reviewed grants. However, for reasons explained below, this must not be done by reducing the funding streams that sustain the basic capacity of U.S. Department of Agriculture's intramural research units, land-grant universities, state agricultural experiment stations, or cooperative extension offices. In fact, just the opposite is true; these capacity programs need greater funding too!

CREATE-21: A Bold and Comprehensive Plan

CREATE-21 is, as I said, the result of a deliberative process to rethink the basic structure of the Federal-State Partnership that guides, manages, and funds America's food, agriculture, and natural resources research, education, and public outreach. The acronym we've chosen stands for "Creating Research, Extension, and Teaching Excellence for the 21st Century," and we believe that ours is the best plan to accomplish that objective.

CREATE-21 originated, in part, as a response to Office of Management and Budget (OMB) efforts over the last three years to eliminate entirely or redirect to competitive mechanisms a portion of appropriated research funds flowing through the USDA to state agricultural experiment stations, forestry schools, and veterinary medicine schools.²

However, CREATE-21 is much more than just a response to OMB criticism. It is a bold and comprehensive plan to bring together in a single organization the many research agencies, offices, programs, projects, personnel, and facilities currently spread across USDA and more tightly integrate this "intramural" research capacity with the "extramural" research, teaching, and extension capacity within land-grant universities and related institutions. (See Fig. 1, pg. 7.)

¹ The unique partnership arrangement between the Federal Government and the governments of the several States is described in Section 1409A (a) of the National Agricultural Research, Extension, and Teaching Act of 1977 (as amended).

² OMB's objections stem not from the quality of the research work performed — after all, these programs routinely garner high OMB program evaluation scores — but rather from the fact that the funds are distributed by statutory formulas and not competitive processes.

The other fundamental purpose of CREATE-21 is to double USDA funding for intramural and extramural food, agricultural, and natural resource research, teaching, and extension programs. This element is included within CREATE-21 because there are dozens of critical and urgent national problems that will not be solved in an acceptable timeframe unless USDA science program levels are substantially and immediately increased. (See Fig. 2, pg. 7.)

CREATE-21: Details and Benefits

Food, agricultural, and natural resources research, extension, and education programs are spread over four USDA agencies: (1) Agriculture Research Service (ARS); (2) Cooperative State Research, Education, and Extension Service (CSREES); (3) Economic Research Service (ERS); and (4) Forest Service R&D (USFS R&D). As a result, there is frequent programmatic duplication, no “lead-agency” to address critical national issues, and a lack of clear and simple integration across agencies.

CREATE-21 addresses the shortcomings of this situation by integrating ARS, CSREES, ERS, and Forest Service R&D (including their functions, personnel, programs, and activities) into a new organization to be called the National Institutes for Food and Agriculture (NIFA).³

- NIFA will be an independent agency reporting directly to the Secretary of Agriculture and headed by a Director who is an acknowledged expert. The Director will be nominated by the President, confirmed by the Senate for a single six-year term, and guided by a Council of Advisors.
- The Director and his team will manage a broad and integrated portfolio of programs organized by problem/solution areas and will include six national institutes:
 - (1) Economic Opportunities in Agriculture and Natural Resources;
 - (2) Nutrition and Health;
 - (3) Rural and Urban Community Development;
 - (4) Natural Resources and Environment;
 - (5) Food Safety and Agricultural Security; and
 - (6) Families, Youth, and Communities.
- NIFA’s “competitive” programs will be open to all qualified universities/investigators and will be aimed at solving problems of pressing multistate, national, or international significance.
- NIFA’s “capacity” programs will maintain and expand the intramural research capabilities within USDA (e.g. ARS, ERS, and USFS R&D) and the research, extension, education, and international capabilities within land-grant universities and related institutions.
- Finally, NIFA will have special funding provisions to enhance the capacity and competitiveness of the 1890, 1994, small 1862 land-grant institutions, and related agricultural colleges.

³ “NIFA” as included in the CREATE-21 proposal refers to the new organization to be formed from ARS, CSREES, ERS, and USFS R&D. Under the “Danforth” proposal, “NIFA” is a new stand-alone agency reporting to the Secretary of Agriculture and providing fundamental research grants.

Consolidating ARS, CSREES, ERS, and Forest Service R&D into one cohesive organization will, we believe, have many advantages:

- Program integration will be strengthened by integrating the research capacity of ARS, ERS, and Forest Service R&D and aligning these intramural resources more closely with the research, education, and extension capacity of America’s land-grant universities and related institutions.
- Budgetary efficiency will be improved through elimination of duplicative programs and activities and a streamlined bureaucracy.
- Organizational flexibility will be increased through a variable structure organized around six major problem-solution areas (the six institutes listed above).
- Stakeholder participation will be enhanced through a Council of Advisors and other mechanisms for improved and increased input at all levels.

In addition to the organizational elements described above, CREATE-21 envisions increased funding (compared to current agency baselines) for NIFA’s competitive and capacity programs. If CREATE-21 is enacted and fully funded, after seven years:

- Competitive funding will reach \$2.1 billion per year, with fundamental research constituting 55 percent of the total and integrated programs the remaining 45 percent.
- Capacity funding will reach \$2.9 billion per year, enabling intramural USDA research and extramural programs at land-grant universities and related institutions to maintain and extend their base operations.
- The competitive/capacity ratio — considering existing funds (\$2.7 billion) and new funds (\$2.7 billion) — would be 42 percent competitive and 58 percent capacity funding. Currently, the ratio is approximately 10 percent competitive and 90 percent capacity.

However, to “jump start” the funding enhancement program, \$200 million per year in mandatory funding would flow immediately to NIFA from the statutory authority for the Initiative for Future Agricultural and Food Systems (IFAFS) program.

Urgent National Example: Honey Bee Colony Collapse Disorder

Mr. Chairman, the land-grant community realizes that CREATE-21 is ambitious in its objectives and scope. We have coalesced behind this proposal because we believe that neither the status quo nor halfway measures are acceptable. To illustrate why a comprehensive approach — dealing with both organizational structure and funding issues — is absolutely necessary, let me present a single, detailed example⁴ of an urgent national problem that would be better addressed if CREATE-21 were enacted.

The Associated Press ran a story recently that appeared in hundreds of newspapers across the country relating to the sudden and wholesale disappearance of honey bee colonies. This problem, which has been called “Colony Collapse Disorder” (CCD) is well known to us at Penn State and

⁴ Although this example focuses on the honey bee colony collapse disorder, there are many other problem areas that could illustrate our case (such as avian influenza, human health and obesity, biofuels/bioproducts, international competitiveness, animal health and disease, climate change, sustainable agriculture, etc.).

to me, personally, as I am an entomologist whose research has focused on insect genetics, including honey bee genetics. It is a problem with enormous implications:

- Honey bees pollinate \$15 billion in U.S. crops each year.
- Major crops that depend on honey bee pollination for 90 to 100 percent of their fruit set include apples, blueberries, cherries, almonds, cucumbers, and squash.
- Crops that depend upon honey bee pollination for significant fruit/vegetable production include asparagus, avocados, broccoli, cantaloupe, celery, citrus, cranberries, melons, peaches, pears, and strawberries.
- Feed crops that depend upon honey bee pollination include alfalfa and soybeans.

Beekeepers have experienced honey bee losses for many years.⁵ However, in late 2006, beekeepers reported sudden, catastrophic losses of colonies on a scale that they had not previously experienced. Moreover, the causal agent of these losses was not readily apparent to beekeepers or university and ARS researchers.

The problem is widespread. According to our best information, CCD symptoms have been reported in 24 states, Canada, and Europe. In addition, CCD affects both migratory colonies (those that are moved from region to region to service the pollination needs of commercial agriculture) and colonies that remain in one location throughout the year.

A variety of potential explanations exist for CCD. Researchers are examining mite load, disease presence (both known diseases and new pathogens), pesticide effects on bees, the impact of transportation on bee colony health, the health of imported honey bees, the contents of imported royal jelly, and the impact of reusing old beekeeping equipment on CCD incidence.

The explanation for CCD is likely to be a complex mixture of factors:

- Mites have been a major factor in honey bee health for the past 15 years. Work at Penn State, the Pennsylvania Department of Agriculture, and ARS is examining collapsed and healthy colonies to assess the impact of mite presence in the syndrome.
- A variety of pathogens — viruses, bacteria, fungi, and protozoans — have been identified in bees from collapsed hives. Work at Penn State is now focusing on comparing healthy and collapsed hives to look for patterns in which pathogens might be associated specifically with collapsed colonies.
- Methods for analyzing pesticide levels in hive compounds (wax, honey, and pollen) are under development so that healthy and collapsed colonies can be compared. This work, begun at Penn State, has expanded dramatically, with cooperation from USDA, the Environmental Protection Agency, and pesticide producers.

What does this problem have to do with CREATE-21?

⁵ A variety of diseases and, more recently, two species of parasitic mites have resulted in death of colonies and reduction of surviving honey bees within surviving hives.

1. It underscores the vital link between research and extension. CCD was first reported by a stakeholder (beekeeper) through the Cooperative Extension System at Penn State. The close link between extension and research permitted us to immediately design research experiments to address this emerging problem. Without such a relationship, our response would have been greatly delayed as the data slowly made their way from the field to the laboratory. Thus, it is important for Congress to increase funding for both research and extension and thereby stop the slow, steady erosion (by inflation) of capacity funding programs such as Hatch (research) and Smith-Lever (extension).

2. It points out the enduring value of capacity funding. The Hatch and Smith-Lever programs provide Penn State and other land-grant universities with support for the world-class laboratories, scientists, and staff necessary to tackle urgent national problems. Our immediate response to CCD was to initiate research and successfully leverage federal capacity funds with monies from external funding sources. Without Hatch and Smith-Lever funds, we would still be raising money and recruiting scientists instead of moving ahead with this time-critical research!

3. It demonstrates the significance of a national network of state agricultural experiment stations and cooperative extension units. While Penn State is at the forefront of the CCD effort, we are collaborating with colleagues in dozens of states. Yes, some of the answers to the CCD riddle may come from Pennsylvania, but they may just as likely come — in whole or part — from research in Florida, Maine, or Montana!

4. It illustrates the need for greater integration among USDA agencies and the Department's external partners. Both ARS and CSREES have national program leaders for “bees and pollination” and both agencies sponsor research in this area (with the ARS work performed internally and the CSREES research at land-grant and other universities). While there is ad hoc coordination among the various entities, there is no clear and simple integration as would be the case under CREATE-21.

5. It shows the importance of fundamental research. Recently, the honey bee genome was sequenced (mapped) and we now know that honey bees do not have the normal complement of genes to eliminate toxins from their systems or genes to fight immune disease. Armed with this information, researchers are able to narrow the focus of their current investigations and thereby produce results (hopefully) in a more expeditious manner.

In summary, CCD is a good example of what we are promoting under CREATE-21: (1) enhanced capacity funding; (2) increased funding for fundamental research; and (3) greater integration among USDA agencies and better coordination with the Department's external partners.

Concluding Remarks

CREATE-21 Compared to the Other Leading Plans. As described above, CREATE-21 addresses both the organizational and funding issues that this subcommittee must tackle as you craft the Research Title of the 2007 Farm Bill. The two other major proposals before you have much to recommend them, but as the attached document illustrates, neither represent a truly comprehensive approach. Now, this is not to say the other proposals are bad; they are both sound and would serve to improve upon the system now in existence. They are just not as all-encompassing as CREATE-21.

The leaders of America's land-grant universities believe that this may be the only near-term opportunity to reinvigorate all of the components of the Federal-State Partnership. Therefore, we urge you to create an organizational structure and funding framework that will serve our stakeholders over the next 50 years. Collectively, if we fail to adjust to new economic and environmental conditions, then we will surely fail in our mutual responsibility to provide America's farmers, ranchers, foresters, families, and children with the service, science, and education they so rightly deserve.

Other Farm Bill Recommendations. Mr. Chairman, NASULGC's Farm Bill Committee has developed a number of other proposals to improve the operation and effectiveness of Farm Bill programs and authorities beyond CREATE-21. These include suggestions to further enhance the contributions that our research, education, and extension programs make through the Farm Bill's research, energy, conservation, nutrition, rural development, trade, and other titles. These were developed by consensus over the past year, and include provisions to improve research, extension, and teaching at 1890 universities, Tribal colleges, Insular Area institutions, as well as traditional land-grant colleges. We will be pleased to submit draft legislative language to achieve these goals to you or to the committee staff. We urge your favorable consideration of these proposals as well as CREATE-21.

Conclusion. On behalf of the Board on Agriculture Assembly of the National Association of State Universities and Land-Grant Colleges let me thank you for the opportunity to present this testimony. We look forward to working closely with you in the weeks ahead to craft a Research Title to the 2007 Farm Bill that seizes the opportunity to update and improve both the structure of the USDA science apparatus and the mechanisms by which the Federal-State Partnership funds food, agricultural, and natural resources research, teaching, and extension.

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Figure 1:

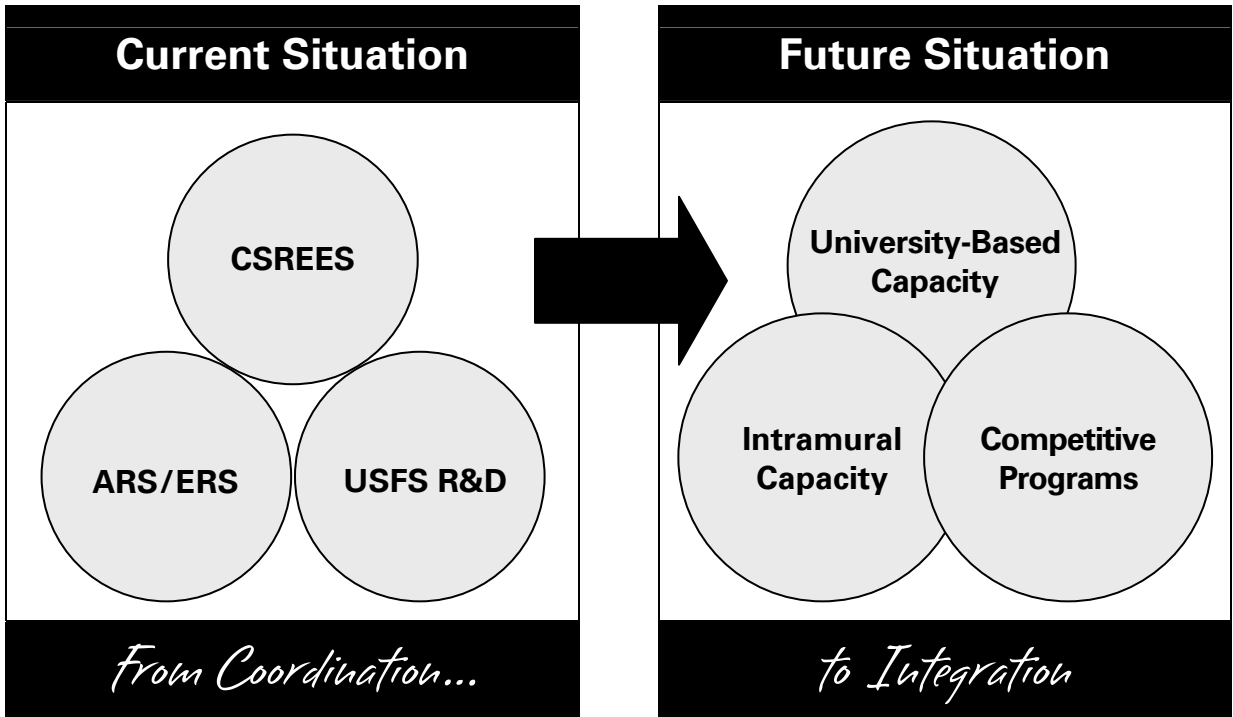


Figure 2:

