FY 2005
USDA Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowships Grants Program

Annual Program Summary
Higher Education Programs
Science and Education Resources Development
Cooperative State Research, Education and Extension Service

U.S. Department of Agriculture
August, 2005
The Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowships Grants Program is administered in the USDA/Cooperative State Research, Education, and Extension Service, Science and Education Resources Development, Higher Education Programs Office under the legislative authority contained in section 1417(b)(6) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended (NARETPA) (7 U.S.C. 3152(b)(6)). Initiated in FY 1984, the USDA Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowships Grants Program is designed to help meet the Nation’s ongoing need for food and agricultural scientific and professional expertise. The fellowships are intended to encourage outstanding students to pursue and complete graduate degrees in critical areas of national need. In FY 2005, the fellowships program operated under new rules where replacement fellows is allowed and fellows are eligible to work on campus in activities related to their program of study. In FY 2005, applications were solicited for Master’s level as well as doctoral level training. Prior to FY 2005, the program has supported the graduate degree programs of approximately 1,198 graduate students in disciplines pertaining to identified areas of national need in the food and agricultural sciences.

The National Needs Graduate and Postgraduate Fellowships Grants Program did not run a competition for two years. In the FY 2005 program, funds appropriated in FY 2003 and 2004 were combined to have, after allotted expenditures for the National Teaching Awards, the Food and Agricultural Information Systems and the cost of the review panel, grant awards to support training made in the amount of $5,948,000. All U.S. colleges and universities that confer a graduate degree in one or more of the food and agricultural sciences areas targeted for national need fellowships were eligible to apply. The available funds were distributed across the two degree levels and national need areas to support applications that were determined to respond to the announcement with proposed excellent programs to train students to meet targeted national needs presented in the FY 2005 program announcement. The national need areas announced in FY 2005 were: 1) Animal, Microbial, or Plant Molecular Biology, including genomics and bioinformatics; 2) Natural Resources and the Environment; 3) Agricultural Systems and Natural Resources Engineering; 4) Marketing and Management; 5) Food Science and Human Nutrition; 6) Human and Family Sciences and Consumer Sciences and 7) Multidisciplinary and/or multi-institutional programs.

Based on peer review, 39 proposals were selected for funding. These 39 grants will support the recruitment and training of 22 students at the master’s level for two years and for 75 students at the doctoral level for three years. The grants were awarded to 23 institutions in 22 states. Summary tables of the applications received, proposals funded, the number of graduate fellowships granted, and the funds awarded in each national need area are presented in Tables 1 through 3.

Specific information related to the fellowships program run in FY 2005, by national need area, state, and number of fellows supported in each grant are presented in the tables that follow. A total of $15,239,517 was requested in application submitted. Table 4 presents the institutional summary data for awards by state.
<table>
<thead>
<tr>
<th>National Need Area</th>
<th>No. Proposals Received</th>
<th>No. Masters Fellows Requested (Funds Requested)</th>
<th>No. Doctoral Fellows Requested (Funds Requested)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal, Plant, Microbial Molecular Biology including Genomics or Bioinformatics</td>
<td>20</td>
<td>12 ($491,617)</td>
<td>98 ($4,692,000)</td>
</tr>
<tr>
<td>Natural Resources and the Environment</td>
<td>7</td>
<td>8 ($256,000)</td>
<td>19 ($1,311,000)</td>
</tr>
<tr>
<td>Agricultural Systems and Natural Resources Engineering</td>
<td>6</td>
<td>4 ($128,000)</td>
<td>24 ($1,671,228)</td>
</tr>
<tr>
<td>Marketing and Management</td>
<td>13</td>
<td>14 ($448,000)</td>
<td>32 ($2,208,000)</td>
</tr>
<tr>
<td>Food Science and Human Nutrition</td>
<td>13</td>
<td>0 ($0)</td>
<td>47 ($3,245,492)</td>
</tr>
<tr>
<td>Human and Family Sciences and Consumer Sciences</td>
<td>0</td>
<td>0 ($0)</td>
<td>0 ($0)</td>
</tr>
<tr>
<td>Multidisciplinary and/or Multi-institutional Programs</td>
<td>14</td>
<td>25 ($817,682)</td>
<td>30 ($2,111,797)</td>
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</table>
Table 2. Funding Decisions by National Need Area

<table>
<thead>
<tr>
<th>National Need Area</th>
<th>No. Proposals Funded</th>
<th>No. Fellows Granted</th>
<th>Funds Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal, Plant, Microbial Molecular Biology including Genomics or Bioinformatics</td>
<td>1 Master’s + 13 Doctoral</td>
<td>4 Master’s + 22 Doctoral</td>
<td>$1,646,000</td>
</tr>
<tr>
<td>Natural Resources and the Environment</td>
<td>0 Master’s + 3 Doctoral</td>
<td>0 Master’s + 14 Doctoral</td>
<td>$966,000</td>
</tr>
<tr>
<td>Agricultural Systems and Natural Resources Engineering</td>
<td>2 Doctoral</td>
<td>0 Master’s + 6 Doctoral</td>
<td>$414,000</td>
</tr>
<tr>
<td>Marketing and Management</td>
<td>4 Master’s + 5 Doctoral</td>
<td>14 Master’s + 9 Doctoral</td>
<td>$1,069,000</td>
</tr>
<tr>
<td>Food Science and Human Nutrition</td>
<td>0 Master’s + 9 Doctoral</td>
<td>0 Master’s + 23 Doctoral</td>
<td>$1,587,000</td>
</tr>
<tr>
<td>Human and Family Sciences and Consumer Sciences</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multidisciplinary and/or Multi-institutional Programs</td>
<td>1 Master’s + 1 Doctoral</td>
<td>4 Master’s + 2 Doctoral</td>
<td>$266,000</td>
</tr>
</tbody>
</table>
### Table 3. Graduate Fellowships Training Awards made in FY 2005

<table>
<thead>
<tr>
<th>State</th>
<th>Institution</th>
<th>Project Title</th>
<th>Project Director</th>
<th>Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>University of Arizona</td>
<td>Multidisciplinary Training in Ecohydrology for Addressing National Watershed Needs</td>
<td>David Breshears</td>
<td>$276,000</td>
</tr>
<tr>
<td>CA</td>
<td>University of California, Davis</td>
<td>Marketing and Management for a Changing Agrifood Chain: Educating Tomorrow's Leaders Today</td>
<td>James A. Chalfant</td>
<td>$138,000</td>
</tr>
<tr>
<td>CO</td>
<td>Colorado State University</td>
<td>Animal Infectious Disease Training Program</td>
<td>Jeffrey Wilusz</td>
<td>$138,000</td>
</tr>
<tr>
<td>FL</td>
<td>University of Florida</td>
<td>University Of Florida Graduate Program in Animal Molecular and Cell Biology</td>
<td>Peter J. Hansen</td>
<td>$138,000</td>
</tr>
<tr>
<td>FL</td>
<td>University of Florida</td>
<td>Training Masters Level Agribusiness Management and Marketing Students</td>
<td>Lisa O. House</td>
<td>$128,000</td>
</tr>
<tr>
<td>FL</td>
<td>University of Florida</td>
<td>Graduate Training in Plant Health Risk Management for Crop Biosecurity Enhancement</td>
<td>Robert J. McGovern</td>
<td>$138,000</td>
</tr>
<tr>
<td>GA</td>
<td>University of Georgia</td>
<td>National Needs Graduate Fellowship: Functional Foods and Human Health</td>
<td>William L. Kerr</td>
<td>$276,000</td>
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<tr>
<td>IA</td>
<td>Iowa State University</td>
<td>National Needs Training Grant in Animal Molecular Biology, Genomics and Bioinformatics</td>
<td>Christopher K. Tuggle</td>
<td>$138,000</td>
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<tr>
<td>IA</td>
<td>Iowa State University</td>
<td>USDA National Needs for Fellowship in Food Safety and Quality</td>
<td>Aubrey F. Mendonca</td>
<td>$138,000</td>
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Table 3 cont’d. Graduate Fellowships Training Awards made in FY 2005

<table>
<thead>
<tr>
<th>State</th>
<th>Institution</th>
<th>Project Title</th>
<th>Project Director</th>
<th>Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL</td>
<td>University of Illinois, Urbana-Champaign</td>
<td>Training in Human Nutrition</td>
<td>Sharon M. Donovan</td>
<td>$138,000</td>
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<tr>
<td>IL</td>
<td>University of Illinois, Urbana-Champaign</td>
<td>Developing Land-Grant Scholars in Agricultural Systems and Natural Resources Engineering for the 21st Century</td>
<td>Michael C. Hirschi</td>
<td>$138,000</td>
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<tr>
<td>IN</td>
<td>Purdue University</td>
<td>Food Biosecurity: An Integrated Approach Using Computer-Based Modeling, Hazard Detection/Identification, and Intervention/Decontamination</td>
<td>Richard H. Linton</td>
<td>$138,000</td>
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<td>IN</td>
<td>Purdue University</td>
<td>Ecological Sciences and Engineering Graduate Program</td>
<td>Bernard A. Engel</td>
<td>$128,000</td>
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<tr>
<td>IN</td>
<td>Purdue University</td>
<td>Food and Agricultural Sciences National Needs Graduate Fellowships in Agribusiness Management</td>
<td>Joan R. Fulton</td>
<td>$138,000</td>
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<td>KS</td>
<td>Kansas State University</td>
<td>Minority Fellows in the Economics of Food Safety and Biosecurity</td>
<td>John A. (Sean) Fox</td>
<td>$128,000</td>
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<tr>
<td>KS</td>
<td>Kansas State University</td>
<td>Meeting National Needs for Scholars Trained in Economics of Food Marketing and Biosecurity</td>
<td>Ted C. Schroeder</td>
<td>$276,000</td>
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<tr>
<td>KY</td>
<td>University of Kentucky</td>
<td>Doctoral Training in Nutrition and Chronic Diseases</td>
<td>Linda H. Chen</td>
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<td>MD</td>
<td>University of Maryland, College Park</td>
<td>Graduate Training Program in Plant Functional Genomics</td>
<td>Caren Chang</td>
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<tr>
<td>State</td>
<td>Institution</td>
<td>Project Title</td>
<td>Project Director</td>
<td>Award Amount</td>
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<td>MI</td>
<td>Michigan State University</td>
<td>National Needs Fellowship Program in Plant Molecular Biology: Plant Biotechnology with a Global Perspective</td>
<td>Rebecca Grumet</td>
<td>$138,000</td>
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<tr>
<td>MO</td>
<td>University of Missouri, Columbia</td>
<td>Plant Genomics, Proteomics and Bioinformatics</td>
<td>John C. Walker</td>
<td>$138,000</td>
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<tr>
<td>MO</td>
<td>University of Missouri, Columbia</td>
<td>An Innovative Doctoral Training Program to Prepare the Next Generation of Cross-Disciplinary Scholars in Animal Reproductive Biology</td>
<td>Matthew C. Lucy</td>
<td>$69,000</td>
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<td>MN</td>
<td>University of Minnesota, Twin Cities</td>
<td>Graduate Studies in Animal Health and Microbial Genomics</td>
<td>Mitchell S. Abrahamsen</td>
<td>$138,000</td>
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<tr>
<td>MN</td>
<td>University of Minnesota, Twin Cities</td>
<td>Food Sciences and Nutrition National Needs Graduate Fellowship Program</td>
<td>Marla M. Reicks</td>
<td>$138,000</td>
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<td>NE</td>
<td>University of Nebraska, Lincoln</td>
<td>Ph.D. National Need Fellowships in Food Safety and Toxicology at the University of Nebraska</td>
<td>Stephen L. Taylor</td>
<td>$138,000</td>
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<tr>
<td>NE</td>
<td>University of Nebraska, Lincoln</td>
<td>Preparing Women for Leadership in the Food Industry Through Training in Agricultural and Food Industrial Organization</td>
<td>Azzeddine M. Azzam</td>
<td>$128,000</td>
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<tr>
<td>NC</td>
<td>North Carolina A&amp;T State University</td>
<td>Agricultural Biotechnology and Genomics Multidisciplinary Graduate Education</td>
<td>Mulumebet Worku</td>
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<td>NC</td>
<td>North Carolina State University</td>
<td>A Proposal to Meet the Need for Scientists Trained in Forest Products Marketing and Management</td>
<td>Walter N. Thurman</td>
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<td>NY</td>
<td>Cornell University</td>
<td>Ph.D Training Program in Farm-to-Table Food Safety and Biosecurity</td>
<td>Kathryn J. Boor</td>
<td>$69,000</td>
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<tr>
<td>NY</td>
<td>Cornell University</td>
<td>Plant Breeding for the 21st Century: Utilizing Genomics for Crop Improvement</td>
<td>Elizabeth D. Earle</td>
<td>$69,000</td>
</tr>
<tr>
<td>State</td>
<td>Institution</td>
<td>Project Title</td>
<td>Project Director</td>
<td>Award Amount</td>
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<td>NY</td>
<td>Cornell University</td>
<td>Training Ph.D. Scientists to Decipher the Genomes of Plant Pathogenic Microbes</td>
<td>Rosemary Loria</td>
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<td>OH</td>
<td>Ohio State University</td>
<td>Graduate Fellowships in Soil Microbial Ecology and Environmental Science: Focus on Bioremediation, Biosecurity Cycling</td>
<td>Warren A. Dick</td>
<td>$207,000</td>
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<td>OR</td>
<td>Oregon State University</td>
<td>PhD Food Scientists with Postsecondary Education Training, IT Expertise and Instrumentation Research Capabilities</td>
<td>J. Antonio Torres</td>
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<td>PA</td>
<td>Pennsylvania State University</td>
<td>Meeting the Need for Leaders in Agricultural Biosecurity</td>
<td>Leonard J. Francl</td>
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<tr>
<td>PA</td>
<td>Pennsylvania State University</td>
<td>USDA National Needs Fellowship (NNF) in Integrated Soil and Water Sciences</td>
<td>Hangsheng Lin</td>
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<td>TX</td>
<td>Texas A&amp;M University, College Station</td>
<td>Fungal Biology and Emerging Issues in Agriculture</td>
<td>Daniel J. Ebbole</td>
<td>$138,000</td>
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<tr>
<td>TX</td>
<td>Texas A&amp;M University, College Station</td>
<td>CSREES-USDA National Needs Master's Fellowships in Biosecurity and Integrity of the Agribusiness and Food Supply Chain</td>
<td>Eluned C. Jones</td>
<td>$64,000</td>
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<tr>
<td>TX</td>
<td>Texas A&amp;M University, College Station</td>
<td>Graduate Fellowships in Animal Biotechnology and Genomics at Texas A&amp;M University</td>
<td>James E. Womack</td>
<td>$138,000</td>
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<tr>
<td>WA</td>
<td>Washington State University</td>
<td>Integrated Education and Research for Bioconversion and Applications Development: Addressing New Agricultural Opportunities</td>
<td>Shulin Chen</td>
<td>$207,000</td>
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<tr>
<td>State</td>
<td>Institution</td>
<td>Number of Fellows Supported</td>
<td>Funds Awarded</td>
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<td>-------</td>
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<tr>
<td>AZ</td>
<td>University of Arizona</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>University of California – Davis</td>
<td>0 M.S. + 2 Ph.D.</td>
<td>$138,000</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>Colorado State University</td>
<td>0 M.S. + 2 Ph.D.</td>
<td>$138,000</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td>University of Florida</td>
<td>4 M.S. + 4 Ph.D.</td>
<td>$404,000</td>
<td></td>
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<tr>
<td>GA</td>
<td>University of Georgia</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>Iowa State University</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>IL</td>
<td>University of Illinois at Urbana-Champaign</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>Purdue University</td>
<td>4 M.S. + 4 Ph.D.</td>
<td>$404,000</td>
<td></td>
</tr>
<tr>
<td>KS</td>
<td>Kansas State University</td>
<td>4 M.S. + 4 Ph.D.</td>
<td>$404,000</td>
<td></td>
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<tr>
<td>KY</td>
<td>University of Kentucky</td>
<td>0 M.S. + 3 Ph.D.</td>
<td>$207,000</td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>University of Maryland, College Park</td>
<td>0 M.S. + 2 Ph.D.</td>
<td>$138,000</td>
<td></td>
</tr>
<tr>
<td>MI</td>
<td>Michigan State University</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>MN</td>
<td>University of Minnesota</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>University of Missouri</td>
<td>0 M.S. + 3 Ph.D.</td>
<td>$207,000</td>
<td></td>
</tr>
<tr>
<td>NE</td>
<td>University of Nebraska – Lincoln</td>
<td>4 M.S. + 2 Ph.D.</td>
<td>$266,000</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>North Carolina A&amp;T State University</td>
<td>4 M.S. + 0 Ph.D.</td>
<td>$128,000</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>North Carolina State University</td>
<td>0 M.S. + 3 Ph.D.</td>
<td>$207,000</td>
<td></td>
</tr>
<tr>
<td>NY</td>
<td>Cornell University</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>OH</td>
<td>The Ohio State University</td>
<td>0 M.S. + 3 Ph.D.</td>
<td>$207,000</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Oregon State University</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>The Pennsylvania State University</td>
<td>0 M.S. + 4 Ph.D.</td>
<td>$276,000</td>
<td></td>
</tr>
<tr>
<td>TX</td>
<td>Texas A&amp;M University</td>
<td>2 M.S. + 4 Ph.D.</td>
<td>$340,000</td>
<td></td>
</tr>
<tr>
<td>WA</td>
<td>Washington State University</td>
<td>0 M.S. + 3 Ph.D.</td>
<td>$207,000</td>
<td></td>
</tr>
</tbody>
</table>
FY 2005 Graduate Fellowships Proposal Review Process

There were 73 proposals submitted in response to the FY 2005 announcement. The peer review process utilized experts located in each of the five regions of the land grant university system (NC, NE, S, W and 1890) to review the proposals. Each proposal was reviewed by four faculty and/or professionals in the targeted national need areas. In a March 2005 meeting, an 18-member peer review panel evaluated and recommended proposals for further consideration. The peer panel included faculty and subject matter experts from land grant and non-land grant institutions and practitioners from the food, environmental and agricultural sciences community. At the panel meeting, three panelists evaluated each proposal for merit with respect to addressing the criteria outlined in the requests for applications; training in the identified national need area; and potential for successful matriculation of highly qualified personnel to meet the Nation’s needs in the targeted expertise shortage areas.

The peer review process highlighted areas that proposals to the National Needs Fellowships Grants program should fully address: (i) enhancing training at the graduate level that effectively prepares professionals to contribute within the areas of the identified national need; (ii) making multidisciplinary training an approach that utilizes the expertise in multiple disciplines rather than training different individuals in different disciplines under one fellowship program; (iii) enhancing diversity (talents, gender, socio-economic, racial, ethnic and cultural) in the fellows supported to pipeline highly qualified and diverse personnel into the Nation’s food, environmental and agricultural sciences workforce; (iv) addressing opportunities for practice of critical thinking, management and leadership skills in an integrative manner; (v) providing strategies for problem solving that encompass a global perspective; (vi) including innovative training in ethics and policy to enhance the skills of the emerging professionals to contribute to areas of national targeted expertise shortage in the food, agricultural and environmental sciences; and (vii) creating project managements procedures that enable successful outcomes where fellows are pipelined into further training or into the workforce.

The descriptions of National Needs Graduate and Postgraduate Fellowships Program grants awarded in FY 2005 may be accessed from the CSREES Current Research Information System database using the following link:

http://cris.csrees.usda.gov/cgi-bin/starfinder/0?path=fastlink1.txt&id=anon&pass=&search=CG=*38420*%20NOT%20PS=term*&format=WEBTITLESG