EDUCATING PLANT SCIENTISTS
AT 1890 LAND GRANT UNIVERSITIES AND COLLEGES: CHALLENGES AND SUCCESSES

By

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### 1890 Land Grant Universities and Colleges

**Established through the second Morrill Act of 1890**

<table>
<thead>
<tr>
<th>Year Established</th>
<th>Name of Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1866</td>
<td>Lincoln University</td>
</tr>
<tr>
<td>1871</td>
<td>Alcorn State University</td>
</tr>
<tr>
<td>1872</td>
<td>South Carolina State University</td>
</tr>
<tr>
<td>1873</td>
<td>University of Arkansas at Pine Bluff</td>
</tr>
<tr>
<td>1875</td>
<td>Alabama A&amp;M University</td>
</tr>
<tr>
<td>1876</td>
<td>Prairie View A&amp;M University</td>
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<tr>
<td>1880</td>
<td>Southern University and A&amp;M College</td>
</tr>
<tr>
<td>1881</td>
<td>Tuskegee University</td>
</tr>
<tr>
<td>1882</td>
<td>Virginia State University</td>
</tr>
<tr>
<td>1886</td>
<td>Kentucky State University</td>
</tr>
<tr>
<td>1886</td>
<td>University of Maryland, Eastern Shore</td>
</tr>
<tr>
<td>1887</td>
<td>Florida A&amp;M University</td>
</tr>
<tr>
<td>1891</td>
<td>Delaware State University</td>
</tr>
<tr>
<td>1891</td>
<td>West Virginia State University</td>
</tr>
<tr>
<td>1891</td>
<td>North Carolina A&amp;T State University</td>
</tr>
<tr>
<td>1895</td>
<td>Fort Valley State University</td>
</tr>
<tr>
<td>1897</td>
<td>Langston University</td>
</tr>
<tr>
<td>1912</td>
<td>Tennessee State University</td>
</tr>
</tbody>
</table>
1890 Land Grant Colleges with M.S. and Ph.D. Degrees

1. Alabama A&M University
2. Alcorn State
3. Delaware State
4. Florida A&M University
5. Fort Valley State
6. Langston University
7. North Carolina A&T State University
8. Southern University
9. Tennessee States
10. Tuskegee University
11. University of Arkansas at Pine Bluff
12. University of Maryland Eastern Shore
13. Virginia State University
Ph.D. in Plant Science and Related Sciences

- **Alabama A&M University**
  All disciplines in Plant Science

- **Southern University**
  Urban Forestry
CHALLENGES

- Limited offerings at M.S. and Ph.D. levels as can be seen from the previous slide. Most M.S. and Ph.D. programs are relatively young – 5 to 25 years old.
- Impact of undergraduate enrollment
- Financial support for tuition waivers, assistantships and fellowships
- Employment opportunities after graduation.
- Doctoral programs for those completing their M.S. degrees are few and far between.
Impact of Undergraduate Enrollment

- Very few minorities enrolling in Agricultural Sciences, much less Plant Sciences
- Tendency for students to spend more than four years to earn a B.S. degree, hence academic fatigue sets in, thereby a lack of interest in Graduate School even when the funding is available
- Public perception of agriculture including plant sciences, which is carried over to graduate school
Other Challenges

- Financial support for graduate students, unstable and show declines
- Small faculty base in Plant Science, at 1890s. For example, at DSU there are only six faculty who are SACs qualified to teach graduate level courses in Plant and Soil Science
- Limited participation in the activities of professional organizations
- The all but dissertation or thesis (ABD/ABT) syndrome
Financial Analysis Last Five Years

- Two main sources of funding for graduate students:

  1. School of Graduate Studies.
     a. In-state tuition waivers
     b. Out-of-state tuition waivers
     c. Graduate Assistantships

  2. Research Assistantships
     (Stipends) through major professors
Financial Analysis Cont’d

- Funding the past five years has remained steady until the 2008/2009 academic year.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>In-State</td>
<td>$20,000</td>
<td>$21,000</td>
<td>25,000</td>
<td>25,000</td>
<td>21,000</td>
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<tr>
<td>Out-State</td>
<td>$20,000</td>
<td>$21,000</td>
<td>25,000</td>
<td>25,000</td>
<td>21,000</td>
</tr>
<tr>
<td>Grad. Asst</td>
<td>$81,000</td>
<td>$83,000</td>
<td>89,000</td>
<td>89,000</td>
<td>80,000</td>
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</table>

SUCCESES

• 1890s have achieved successes in producing Masters and Ph.D.s in Plant Science and Related Sciences.

• Alabama A&M University: 70 M.S. and 40 doctorates since about 1988.

• Florida A&M University: 35 M.S. since 1993

• Delaware State University: 3 M.S. since 2005
Graduate Students in the Greenhouse and in the Laboratory

Evaluating soilless medium in Greenhouse benches for Seed Science and Technology laboratory.

Inspecting seeds for Plant Biosecurity.
## Top Producers of M.S. and Ph.Ds 2003-2007

<table>
<thead>
<tr>
<th></th>
<th>Agriculture, General</th>
<th>Forestry</th>
<th>Natural Resources Conservation and Research</th>
<th>Natural Resources Management and Policy</th>
<th>Plant Sciences</th>
<th>Total All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>Black</td>
<td>All</td>
<td>Black</td>
<td>All</td>
<td>Black</td>
</tr>
<tr>
<td>Florida Agricultural and Mechanical University</td>
<td>24</td>
<td>12</td>
<td>26</td>
<td>17</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Southern University and A &amp; M College</td>
<td>35</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Alabama A &amp; M University</td>
<td>19</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Tennessee State University</td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Tuskegee University</td>
<td>21</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Alcorn State University</td>
<td>15</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>North Carolina A &amp; T State University</td>
<td>8</td>
<td>3</td>
<td></td>
<td>1</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Delaware State University</td>
<td>8</td>
<td>3</td>
<td></td>
<td>1</td>
<td>0</td>
<td>9</td>
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<tr>
<td><strong>Grand Total</strong></td>
<td><strong>58</strong></td>
<td><strong>36</strong></td>
<td><strong>35</strong></td>
<td><strong>23</strong></td>
<td><strong>8</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>
Financial Assistance from Grants

- Modest funding available for research assistantships from 1890 Capacity Building Grants Program
- Evans-Allen Formula Funds for research which benefits graduate students
- Attendance at Professional meetings like the upcoming 1890 Association of Research Directors’ Inc. Symposium in Atlanta, Georgia
- More collaborative efforts
Enrollment Last Five Years from the College of Engineering Sciences, Technology and Agriculture CESTA), FAMU

- 2003/2004  22
- 2004/2005  22
- 2005/2006*  17
- 2006/2007  23
- 2007/2008  24
- 2008/2009  19**

- Enrollment is similar for other 1890 Land Grant institutions
Retention and Graduation Rate, CESTA, FAMU

- Over the past five years produced 20 M.S. degrees giving an average of 4 grad. per year.

Incomplete: 5 – Failure to produce final thesis.

Drop-outs: 3 - Personal and family reasons

There is need for improvements.
Plant Breeding and Genetics Class

Graduate students conducting cross pollination in the greenhouse.
Career Placement

- Our graduates have been gainfully employed or have moved on to the professional Schools or doctoral programs

- A few examples in the last five years:

  Leroy Whilby, M.S. 2004: Doctor of Plant Medicine; Ph.D.
  Plant Pathology, University of Florida.
  Lelan Parker, M.S. 2007: Extension Specialist, Univ. of Florida, Orlando, FL
  Tarisha Griffith, M.S. 2008: Publix Processing Center, Lakeland, FL
  Alfred Mbele, M.S. 2006: Miller Brewery, Milwaukee, Wisconsin
Career Placement Cont’d

- Dyranna Russell, M.S. 2006. Doctor of Plant Medicine, University of Florida
- Kirphton Fray, M.S. 2007: Professional Family Business, Fort Lauderdale, Florida
- Tajudeen Salaudeen M.S. 2006: Instructor, Houston Community College, Houston, TX
- Nadine Bradley, M.S. 2008: Ph.D. program, Environmental Sciences Inst. FAMU
- Janice Peters, M.S. 2008: Curator, Entomology, CESTA, FAMU.
How can HBCUs do a better job in producing more MS and Ph.Ds in the future?

- Diversify Plant Science disciplines with the infusion of new technologies
- Actively recruit for interested and capable students that excel in K-12 and college
- Develop/design courses with new technology flavor
- Make visibility in the media to attract public attention and needed support
HBCU Efforts Cont’d

- Enhance financial assistance base for graduate students to attract and retain more capable candidates
- Improved infrastructure for high potency research that will make graduate school more interesting
- Encourage multidisciplinary approaches to graduate level work.
Graduate Students Visiting the Florida State Seed Lab
FAMU Graduate Students Outside the Seed Science and Technology Building at Iowa State University
CONCLUSION

• Tremendous room for growth
• Many challenges
• Full engagement of entire 1890s required
• Some successes already achieved
• May need more partnerships between 1890s and 1862s
• Funds must be obtained and targeted for research assistantships and fellowships.
• Producing minority M.S. and Ph.D.s is critical to the future of the Food and Agricultural Sciences
Acknowledgement

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- Dr. Makola Abdullah, FAMU
- Dr. Susan Bambo, FAMU
- Onoriode Onokpise, Godby High School
Thank You For Listening. Questions?