

Finding Balance in Undergraduate Research for Graduate School and Career Preparation in Agricultural Sciences

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Outline

- Undergraduate training the past 15 years
- Example of Training:
 - STEP UP to USDA Career Success
 - Regional Model
- What We've Experienced/Learned

Past 15 years

2002--2011

Faculty as Research Mentors

1. Meeting the Experimental Needs of South Texas students for Career in Agricultural Science.
2. Teaching and Mentoring South Texas Students for Careers in Agricultural Science and Research
3. Increasing Student Learning and Career Development through Agricultural and Natural Resources Based Research
4. Experiential Learning and Career Development in Agricultural and Natural Resources
5. Developing an Experiential Learning and Career Development Program to Foster and Mentor Students in Agricultural and Natural Resources

2011--2015

Summer Work Internship/Research Internship Outside the University

1. STEP UP to USDA Career Success: Science, Technology and Environmental Programs for Undergraduate Preparation to USDA Career Success.
2. BGREEN: Building Regional Energy and Educational alliances: A Partnership to Integrate Efforts and Collaboration to Shape Tomorrow's Hispanic Sustainable Energy Leaders.

Example of Training

STEP UP to USDA Career Success:
Science, *T*echnology and *E*nvironmental
***P*rograms for *U*ndergraduate**
***P*reparation to USDA Career Success**

(2011-2015)

USDA/NIFA HSI Award #2011-38422-30826

Two Year Institutions

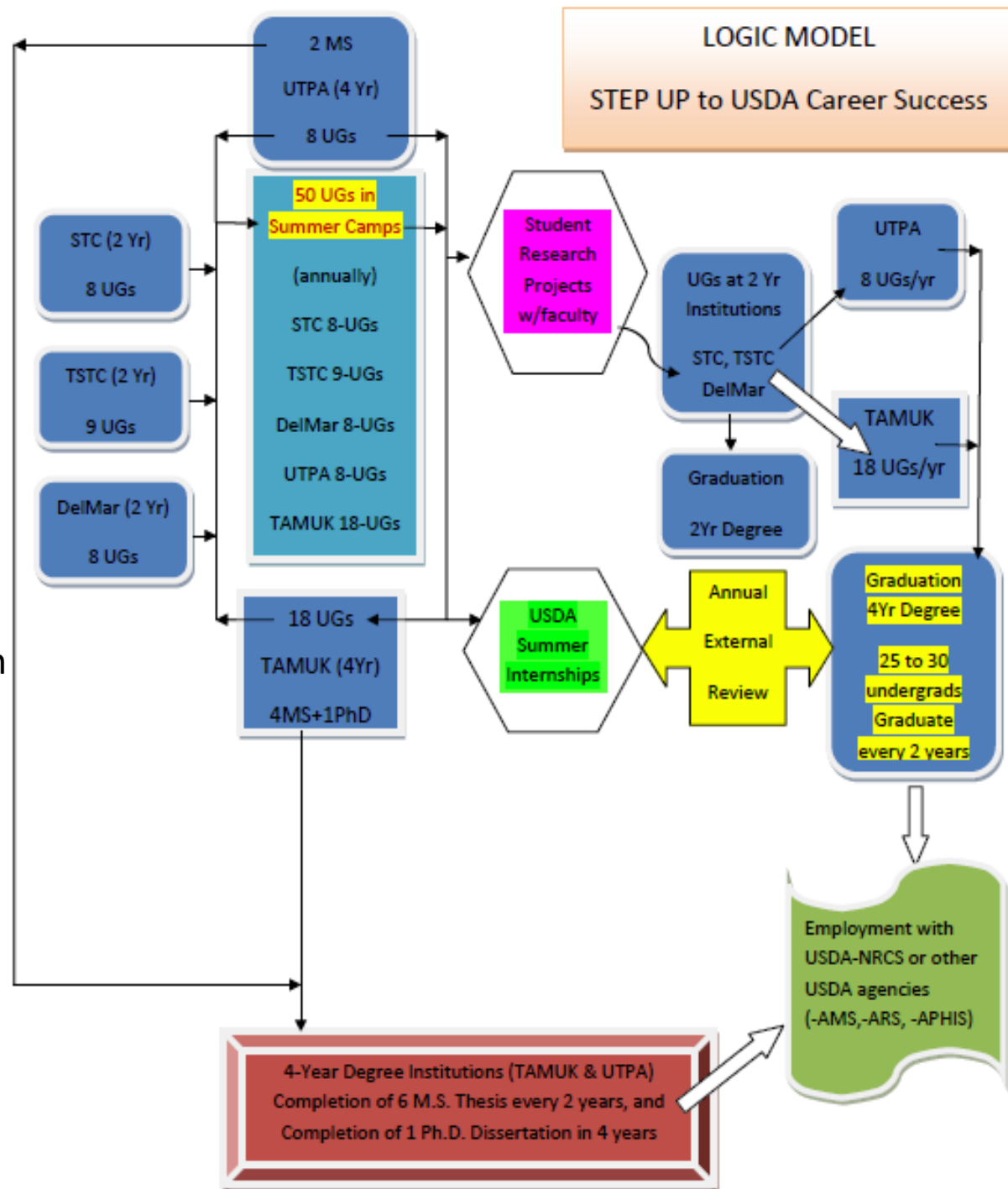
- South Texas College
- Texas State Technical College
- Del Mar Community College

Four Year Institutions

- Texas A&M University-Kingsville
- University of Texas-Pan American

Students Impacted

- Undergraduates
- M.S.
- Ph.D.



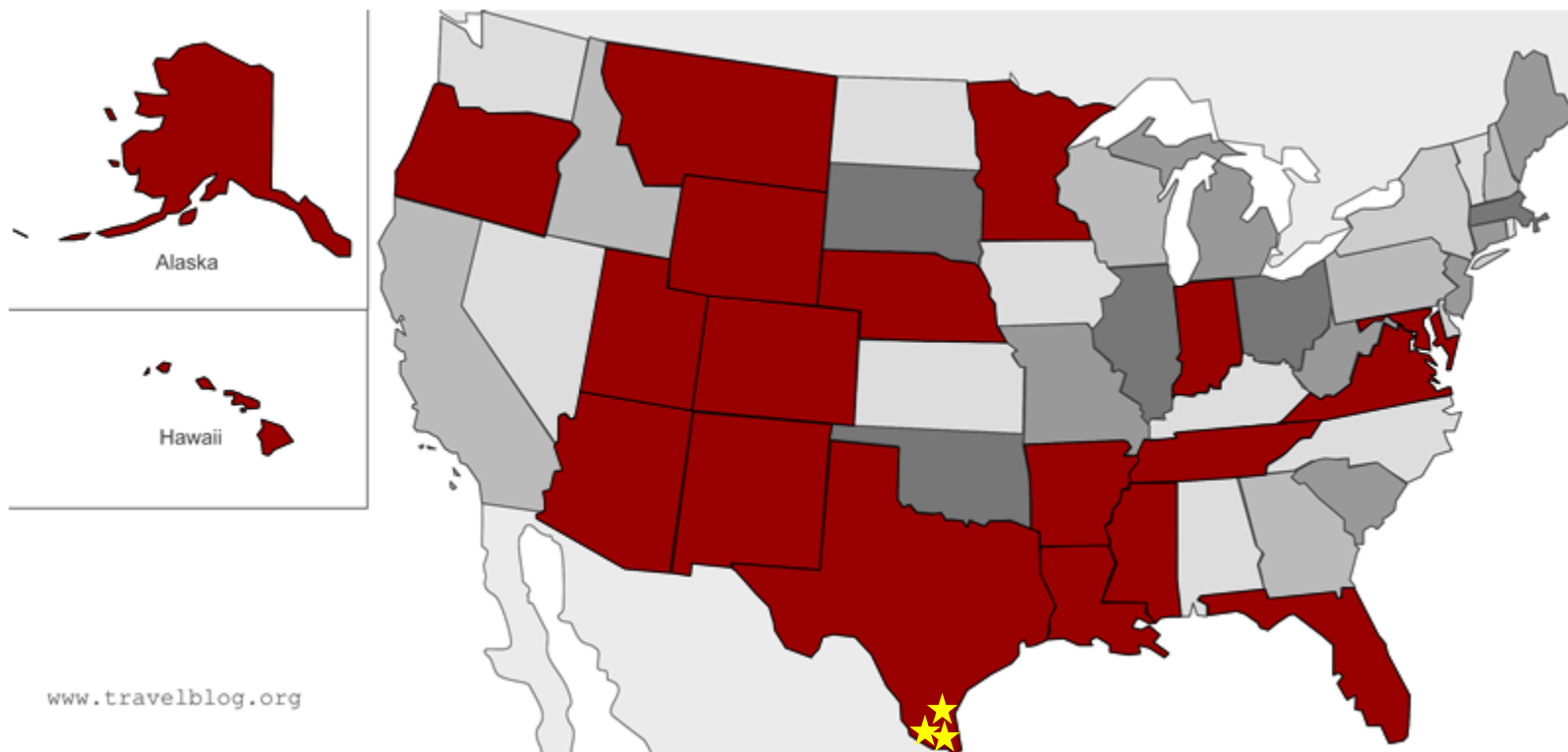
Example of Training

USDA Agencies involved with Internships

- **AMS** (Agricultural Marketing Service)
- **APHIS** (Animal and Plant Health Inspection Service)
- **APHIS-PPQ** (Plant Protection and Quarantine)
- **APHIS-WS** (Wildlife Services)
- **ARS** (Agricultural Research Service)
- **FS** (Forrest Service)
- **FSIS** (Food Safety Inspection Service)
- **NRCS** (Natural Resources Conservation Service)
- **NRCS-PMC** (Plant Materials Center)
- **OC** (Office of Communications)

Example of Training

Internship locations in 20 different states



Example of Training

Number of students conducting summer internships in research and for USDA.

	n	Research	USDA			n	Research	USDA
Year 1					Year 3			
Associate	31	23	6			25	11	13
Bachelor	35	13	17			42	14	18
Total	66	36 (54.6%)	23 (34.9%)			67	25 (37.3%)	31 (46.3%)
Year 2					Year 4			
Associate	25	13	11			38	27	10
Bachelor	40	14	19			42	30	18
Total	65	27 (41.5%)	30 (46.2%)			80	57 (71.2%)	28 (35%)
				Grand Total		278	145 (52.1%)	112 (40.3%)

Example of Training

Meta-evaluation indicators:

Years 1 & 2

- n = 310 students
- 93.5% program satisfaction

Year 3

- n = 445 students
- 94.8% program satisfaction

	USDA Internship		Non-USDA Internship		USDA Job	
	Applied	Received	Applied	Received	Applied	Received
Years 1 & 2	63.8%	49.5%	53.4%	46.5%	15.5%	13.8%
Year 3	66.0%	54.1%	49.5%	38.0%	19.3%	13.7%

What We've Experienced/Learned

Experiences Shape Direction

Faculty as Research Mentors

- Intensive faculty-to-student mentoring

Resulted in:

- 50% pursued M.S. degree
- 10% pursued Ph.D. degree

What We've Experienced/Learned

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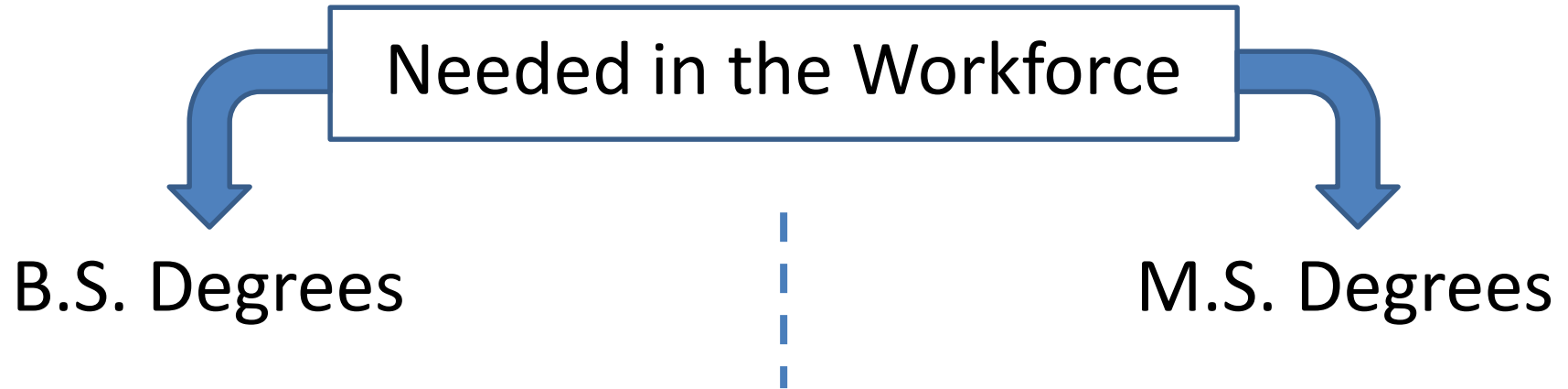
Experience Outside the University

- More mentorship by ag-related agencies & industry partners.
- Less mentorship by faculty

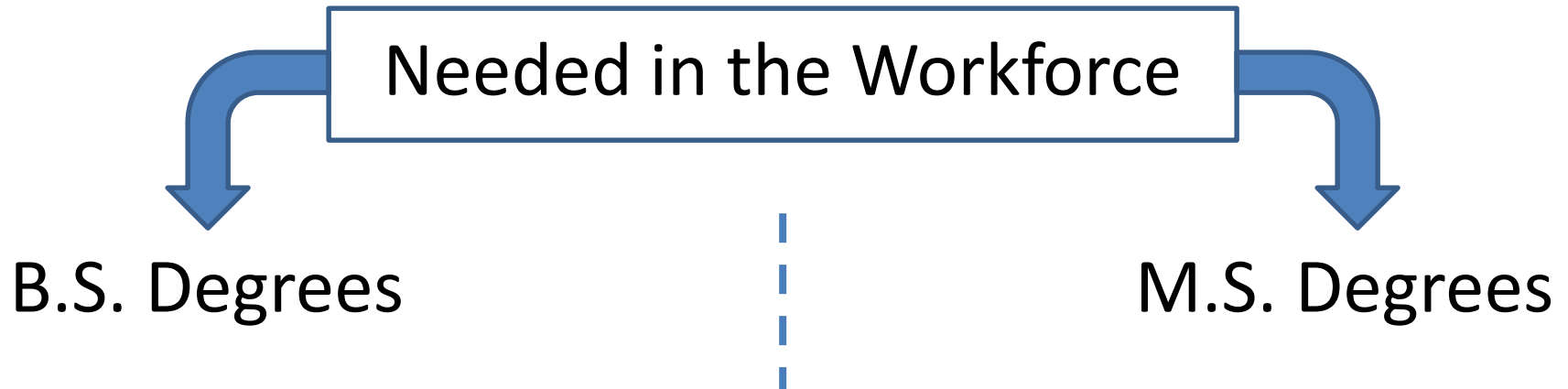
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What We've Experienced/Learned



What We've Experienced/Learned



How do we prepare undergraduates for the choice between graduate school or a career in agriculture at the time of graduation?

What We've Experienced/Learned



One Summer
Ag-related Agencies
or
Industry Partners



One Summer
Undergraduate Research
with Faculty

Balancing Funding

Questions

