Plant Breeding at Texas A&M University and the Texas Agricultural Experiment Station

Part I. Breeding efforts by crop

	Cotton	Legumes (non-forage)	Corn	Rice	Sorghum	Small grains	Forest conifers	Melon	Forage legumes	Turf & ryegrass	Sugar-cane	Potato	Orna-mentals	Fruits, nuts & pepper	TOTALS
Time	6.27	2.68	1.55	2.28	2.37	4.3	0.7	1.55	1.5	4.5	1	0.45	0.83	2.68	32.66
Germplasms	88.75	1	4	6	2	0	0	1	0	0	0	0	0	0	102
Cultivars	2.5	9	0	0	36	6	0	1	2	3	0	12	6	0	76

Part II. Breeding efforts by activity

ACTION	Cotton	Legumes (nonforage)	Corn	Rice	Sorghum	Small grains (not rice)	Forest conifers	Cantaloupe & watermelon	Forage legumes	Turf & ryegrass	Sugar cane	Potato	Ornamentals	Fruits, nuts & peppers	TOTALS
Breeding research	1.975	0.25	0.23	0.87	0.175	0.7	0.25	0.5	0.1	0.7	0.3	0.05	0.1	0.75	6.95
Germplasm enhancement	2.325	1.05	0.4	0.48	0.475	1	0.4	0.35	0.1	0.6	0.2	0.1	0.35	0.16	7.99
Cultivar development	0.38	1.23	0.04	0.6	0.1	1.85	0	0.2	1.3	2	0.2	0.25	0.29	1.19	9.63
Biotechnology res. & devel.	2.07	0.42	0.88	0.33	1.62	0.75	0.05	0.5	0	1.2	0.3	0.05	0.08	0.58	8.83
SUBTOTAL	6.27	2.68	1.55	2.28	2.37	4.3	0.7	1.55	1.5	4.5	1	0.45	0.83	2.58	32.56
Classroom	1.13	0.38	0.35	0.025	0.15	0	0.1	0.25	0	0.05	0	0.25	0.17	0.32	3.175

Part III. Recent graduates and current graduate student enrollment

Degrees awarded -- Plant Breeding* -- 2000 thru 2006				
	MS		PHD	
Year	Domestic	Foreign	Domestic	Foreign
2000	0	1	2	0
2001	2	2	0	0
2002	1	0	0	4
2003	3	0	1	2
2004	0	0	0	3
2005	2	2	2	3
2006	1	1	2	3

* Excludes majors in related fields.

Part IV. Job placement of recent graduates

Most US-native plant breeding graduates obtained jobs in plant breeding in the USA. Foreign plant breeding students have been more varied in their chosen destination. In both cases, some have entered the private and public sectors. Some, including some that have entered the private sector to gain additional experience, expect to subsequently return to academia.

Part V. Plant breeding courses

Undergraduate Course in Breeding:

- Plant Breeding (AGRO 304)
- Plant Breeding (HORT/GENE 404)
- Biotechnology forCrop Improvement (MEPS/GENE 411)

Graduate Courses in Breeding

- Graduate 2-semester survey series (AGRO 641, 642)
- Graduate Cytological Methods in Plant Breeding (AGRO 603)
- Quantitative Genetics in Plant Breeding (AGRO 643)
- Host Plant Resistance (AGRO / PLPA / ENTO 610)
- Plant Breeding Molecular Techniques (HORT 689)
- Phytochemicals … to Improve Human Health (HORT 640)
- Mol. & Physiol.l Basis of Crop Improvement (AGRO/MEPS 689)

Related courses and course sequences:

- Statistics (uni- to multivariate), Experimental design
- Genetics: Cytological, Molecular, Population, Quantiative and Statistical Genetics, Genomics, Bioinformatics
- Molecular & Environmental Plant Sciences, Physiology, Biochemistry,
- Plant pathology, Microbiology, Entomology, Food Sciences
- Agronomy, Forestry, Horticulture, Rangelands and Ecology
- Botany, Biology, Plant Molecular Biology , Taxonomy
- Geography, Anthropology, Ag Economics

Part VI. Institutional philosophy, strengths, weaknesses, future plans, and other comments

Plant breeding is undertaken at the research and teaching levels with team-oriented research approaches. The state-wide network of faculty and 13 statewide TAES facilities, and strong interstate and international collaborations strengthen the campus-based breeding and educational programs at TAMU. Conversely, the TAMU educational programs embellish Center-based breeding. These teams contain scientists in Plant Breeding, Genetics and Genomics, Molecular and Environmental Plant Sciences (Plant Physiology), Plant Pathology, and Food Science. Goals are (1) to provide fundamental information and technology to support the plant breeding programs, (2) to develop new plant materials for Texas farmers, ranchers, and homeowners, and (3) to develop technologies that address novel crops as well as well-established commercialized agricultural commodities.

Many of the activities are driven by scientific and breeding objectives of both the campus-based crop improvement programs and those located at the Research and Extension Centers (see Map) such as Amarillo (wheat), Beaumont (rice), Lubbock (corn, cotton, sorghum, peanuts), Dallas (turfgrass and ornamentals), Overton (wheat, ryegrass, and forage legumes), and Weslaco (sugarcane, fruits and vegetables). Graduate student and post-doctoral research and education are integral parts of these efforts.

FOR ADDITIONAL INFORMATION, CONTACT:

- Poster - David Stelly at stelly@tamu.edu
- Graduate program - C. Wayne Smith at cw-smith@tamu.edu
- Dept. Soil & Crop Sciences -- David Baltensperger at DBaltensperger@ag.tamu.edu
- TAMU/TAES organization -- Mark A. Hussey at mhussey@tamu.edu