

Plant Breeding Investment at Washington State University

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To assess the degree of investment in crop improvement and related plant breeding research at Washington State University, a survey of scientists primarily involved in the areas of plant breeding research, germplasm enhancement, cultivar development, biotechnology research and development, and plant breeding education was initiated in January 2007. Previous surveys have documented the status of plant breeding research or plant breeding education in the public and private sectors (Frey, 1996; Guner and Wehner, 2003; Traxler et al., 2005). This survey will be combined with data from other institutions to create a comprehensive report documenting the current status of plant breeding research and education in the United States.

Part I. Breeding efforts by crop at Washington State University. Person year (PY) is defined as the sum of individual scientist efforts in plant breeding research, germplasm enhancement, cultivar development, and biotechnology research and development.

Crop Group	PYs	Cultivar releases (2000-2006)
Alfalfa	0.05	0
Almond	0.15	0
Apple	1.75	0
Apricot	0.10	0
Barley	1.15	3
Butternut squash	0.05	0
Cherry	1.50	2
Dry bean	0.10	0
Grape	0.15	0
Hops	1.00	1
Maize	0.10	0
Onion	0.05	0
Ornamentals	0.05	0
Pea	0.05	0
Peach	0.20	0
Plum	0.10	0
Potato	1.00	0
Raspberry	0.60	4
Rice	0.20	0
Rose	0.05	0
Strawberry	0.75	0
Tropical fruit	0.10	0
Wheat	3.75	13
Total	13.00	23

Part II. Breeding efforts by activity at Washington State University. Person year (PY) is defined as the sum of individual scientist efforts in each category.

Activity	PYs	%
Plant Breeding Research	2.55	18
Germplasm Enhancement	1.90	13
Cultivar Development	5.20	37
Biotechnology Research and Development	3.35	24
Plant Breeding Education	1.20	8
Total	14.20	100%



Part III. Recent (2000-2006) graduates and current graduate enrollment at Washington State University. Totals indicate students with primary training in the areas of plant breeding research, germplasm enhancement, cultivar development, and biotechnology research and development.

Graduates			
M.S. Domestic	M.S. International	Ph.D. Domestic	Ph.D. International
16	4	1	5
Current Enrollment			
M.S. Domestic	M.S. International	Ph.D. Domestic	Ph.D. International
1	2	5	11

Part IV. The majority (~50%) of recent plant breeding graduates from Washington State University have obtained employment at public research institutions, either in the U.S. or their native country. Of the M.S. graduates during 2000-2006, 22% are currently enrolled in Ph.D. programs. Only 13% of the graduates are employed in the private industry.

Part V. Plant breeding courses at Washington State University.

No undergraduate degree in Plant Breeding is offered. Graduate studies in the areas of plant breeding research, germplasm enhancement, cultivar development, and biotechnology research and development are typically performed in the Crop and Soil Science Department, Horticulture and Landscape Architecture Department, or Plant Pathology Department. Courses specifically geared toward plant breeding education are listed below.

- CropS/Hort 444: Plant Breeding I
- CropS/Hort 445: Plant Breeding II
- CropS 504: Plant Transmission Genetics
- CropS 505: Advanced Classical and Molecular Breeding
- CropS 546: Plant Breeding (coop. with Univ. of Idaho)

Part VI. One of the greatest strengths of plant breeding research and education at Washington State University is the close relationship between University faculty and USDA-ARS scientists. Many of the ARS scientists play integral roles in the training of students, serving on graduate committees and lending expertise to course instruction. Additionally, strong partnerships with various state commodity commissions have been developed to provide funding and encourage expansion of plant breeding and associated research programs. An excellent example of this cooperative effort is the recent additions of plant breeding, bioinformatics, and genomics research capacity in the Department of Horticulture and Landscape Architecture with support from the Washington Tree Fruit Research Commission.

Contributors

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