

A Public Plant Breeding Program to Develop Organic Cultivars and Train New Plant Breeders

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Abstract

Organic farming systems represent unique cropping environments distinct from conventional farming systems. Consequently, plant breeding activities focused in organic farming systems will result in cultivars well-tailored to production needs of those systems. Further, a range of niche consumer markets exists for organic producers, including new and novel traits or trait combinations. The objectives of this program are to develop a framework for organic producers in Northern California to interact with faculty and students at the University of California, Davis to identify cultivar needs in vegetable and bean crops, prioritize development of new cultivars, and to breed and commercialize new cultivars.

The public plant breeding programs at UC-Davis will develop new cultivars for organic production while providing experiential training for undergraduate and graduate students in field-based plant breeding directly in organic systems, both at the UC-Davis organic student farm and on-farm with organic producers. Students will gain familiarity with organic cropping systems, resulting in a cadre of next generation plant breeders ideally suited for organic crop improvement. By cooperating with the Organic Seed Alliance, we will have regular interactions and meetings between student researchers, faculty, organic seed companies and organic growers. We will develop and conduct on-farm trials, host extension events at trial sites, and ensure that new, publicly released cultivars derived from our program will be useful and available to organic growers and organic seed companies. We will highlight specific projects underway to meet these goals.

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