

USDA Fruit & Vegetable Advisory Council – Research Working Group

Topic #2 – USDA Support for Public Fruit and Vegetable Breeding Programs

Background Information

Availability of regionally-adapted fruit and vegetable varieties and public plant breeding programs are essential to the success of fruit and vegetable growers in all regions of the U.S, particularly in the face of climate variability and novel pest threats. The fruit and vegetable seed market has become increasingly consolidated, and the relatively small size of regional specialty crop markets makes them less attractive sectors for significant private breeding programs by these now larger seed companies. Consolidation among seed companies has in fact resulted in discontinuation of many fruit and vegetable lines as those larger companies seek economies of scale. Public breeding programs, which have a track record of successfully producing useful plant varieties and have proven their value as the the germplasm “backbone” of private breeding efforts, are therefore also necessary to counter these market imbalances with respect to regionally-adapted fruit and vegetable varieties. The typical cost of public variety developing and releasing a public variety is \$1 million, compared to \$50 million for a transgenic variety.

Unfortunately, state funding for public plant breeding efforts has declined sharply over recent decades, driving a decline in the number of plant physiologists, plant breeders and public breeding programs. Very few universities have even one plant physiologist who has the resources to interact with breeders in germplasm identification and enhancement. What royalties universities are collecting from fruit and vegetable breeding efforts are often being steered to those institution’s general funds instead of being reinvested in the breeding programs. Today, only four fruit and vegetable crops have more than two breeding programs developing public cultivars, and two of those four are really multi-crop programs (cucurbits and berries); carrots, celery, table beets, watermelons, sweet potatoes and sweet corn are down to only one public breeding program each.

These factors magnify the importance of USDA’s Specialty Crop Research Initiative (SCRI) and Organic Research and Extension Initiative (OREI), which already are the most significant sources of federal funding for breeding public fruit and vegetable cultivars. For instance, since 2008, SCRI has invested \$47.1 million in fruit and vegetable breeding programs, none of which involved privately-owned transgenic varieties. However, this represented just 15% of total SCRI funding; and only 3% of the total was dedicated to regionally-adapted variety development. The recently announced Community Food Security grant program has a priority area related to public plant breeding for regionally-adapted varieties.

Proposed Recommendation from the Research Working Group to the Fruit & Vegetable Advisory Council for submission to the U.S. Secretary of Agriculture

Statement: The Committee commends and appreciates USDA's investments in developing public cultivars of fruits and vegetables, including regionally-adapted ones. In light of the critical importance of this research to the success fruit and vegetable growers, and to the long-term survival of our industry, it is clear that these federal investments must be increased, in terms of both funding for research, and restoring the human capital necessary for successful plant breeding programs.

Recommendation: USDA should increase to 30% the the allocation of SCRI, OREI and Community Food Security grant funding for public plant variety development, and ensure that at least half of such funds are targeted for development of regionally-adapted varieties.

Recommendation: USDA should lead the development and support the implementation of a comprehensive national plan to restore funding and institutional capacity for the development of public plant varieties. A goal of this plan should be to increase the number of public cultivar developers in each of the seven US climatic regions. The plan should also address: the negative impacts of consolidation and concentration in the ownership of seeds by encouraging more independent regional seed companies; increasing farmer and researcher access to innovation in the development of elite cultivars; the negative impacts of utility patents and restrictive licenses; development of new, innovative partnerships and models to address regionalized and participatory approaches to public cultivar development; strengthening and democratizing public germplasm collection systems; and building greater public awareness of the importance of public cultivar development.