

**Research and Development Grant Report
for Integrated Pest Management**

**Title: Breeding and Evaluation of Squash and Pumpkin
with Multiple Disease and Insect Resistance**

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Abstract:

The summer squash variety 'Whitaker' developed in this breeding program was introduced in 1998. It should reduce the need for pesticide application since it is resistant to four important diseases—cucumber mosaic virus, zucchini yellow mosaic virus, papaya ringspot virus, and powdery mildew. 'Whitaker' has four species, more than other squash variety, in its complex pedigree. This variety is named in honor of the late Dr. T. W. Whitaker, who discovered one of the wild species we used as a source of multiple disease resistance.

Crosses and selection were made to add to the 'Whitaker' variety resistance to additional diseases, particularly watermelon mosaic virus, and to cucumber beetles. Crosses were also made to transfer the multiple disease resistance of 'Whitaker' to other types of summer squash and to winter squash.

Pumpkin germplasm with good type and resistance to cucumber mosaic virus was bred and released to seed companies to enable them to develop CMV resistant varieties. This germplasm was crossed with 'Whitaker' and other sources of disease and insect resistance. Advanced generations of these crosses were evaluated for disease and insect resistance, Jack O' Lantern fruit type, and strength of attachment of the peduncle ("handle") to the pumpkin fruit.

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