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Geneva Releases 'Whitaker' Summer Squash at the NYS Vegetable Conference

by Linda McCandless

Liverpool, NY - A new variety of summer squash being released by Cornell University researchers at the New York State Agricultural Experiment Station in Geneva, NY, is a boon to growers because it has been bred for resistance to three viruses and one fungal disease.

"'Whitaker' is a truly unique squash variety," said Richard W. Robinson, the vegetable breeder at the Geneva Station who has been developing the variety for nearly 10 years. "Its resistance was transferred from two exotic wild species of squash from Ecuador and Mexico. The result is a higher-yielding vegetable that requires fewer pesticides."

'Whitaker' was developed by conventional breeding techniques and is the only squash variety resistant to zucchini yellow mosaic virus, cucumber mosaic virus, papaya ringspot virus, and powdery mildew. These diseases adversely affect squash yields for commercial and home growers throughout the Northeast. The new squash is of critical importance to commercial growers because it can be grown in areas of intense virus and fungal pressure. The squash was officially released on February 10 at the annual meeting of the New York State Vegetable Growers Association.

'Whitaker' has medium green fruit with dark green stripes and has an erect, bush-type growing habit. In taste and character, it resembles an Italian, Cocozelle-type of summer squash.

The parentage of 'Whitaker' is complex. It has four species in its pedigree, including two wild *Cucurbita* species from Central America. Wild species are highly regarded as sources of insect and disease resistance because the resistance has been developed by centuries of natural selection. Robinson and Joseph W. Shail, research support specialist, made hundreds of experimental crosses in developing the new variety.

"*Cucurbita ecuadorensis* and *C. martinezii* have never before been used to breed a summer squash variety because of the complexity and difficulty of the interspecific hybridization breeding program," Robinson said. Many other squash breeders in the United States and Europe have tried to transfer virus resistance from the obscure wild species called *C. ecuadorensis,* but failed. The late Tom Whitaker discovered *C. ecuadorensis* growing in Central America more than 40 years ago, and it is in his honor that the new squash variety was named.

Some of the challenges the research team overcame in developing this quadruple-resistant squash were difficulties in crossing distantly related species and segregation in subsequent generations for sterility, poor horticultural type, bitter and toxic fruit, undesirable gene linkages, and disease susceptibility. The cooperation of Dr. R. Provvidenti and Dr. H. M. Munger was very helpful in overcoming these obstacles, said Robinson.

Another unique characteristic of 'Whitaker' is that it was bred to set fruit even when not pollinated. Parthenocarpy, or fruit set without pollination, is a useful trait for commercial growers who frequently grow squash in plastic row tunnels that exclude pollinating insects. It is also helpful when pollination is restricted by a lack or male flowers or when bee populations are reduced by mites or other causes, as they have been in recent years.

In addition to using 'Whitaker' as an open-pollinated variety, Robinson expects seed companies to be interested in using it as a parent of future hybrids. The squash line is being licensed for sale by the Cornell Research Foundation. Funding for this research was provided by various seed companies, the New York State IPM Program, the New York State Vegetable Growers Association, and the Pennsylvania Vegetable and Research Program.

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