Vegetable propagation by grafting and its importance^{©}

P. Devi[a], A.S. Attavar and C. Miles

Department of Horticulture, Washington State University, Northwest Washington Research & Extension Center, 16650 State Route 536 Mount Vernon, Washington 68273, USA.

Abstract

   Grafting vegetable plants onto specific rootstocks that are resistant to soilborne diseases such as verticillium wilt and fusarium wilt has become a common practice, attracting interest among intensive vegetable crop producers as well as organic growers. It is a unique horticultural technique that involves the joining of two plants through their vascular tissues in order to take advantage of their combined characteristics. There is documentation that grafting originated in China in 1560 BC. However, vegetable grafting was started in Japan in the 1920s to overcome soilborne diseases. Vegetable grafting was introduced to Europe in the late 20th century, and was brought to the USA almost 20 years ago. Today, grafting accounts for about 97% of watermelons, cucumbers, and eggplants that are grown in greenhouses. With the loss of the soil fumigant methyl bromide, the potential of grafted plants for disease control and the costs and labor needed for grafting have become important topics of study. Grafting has the potential to increase commercial cucurbit and solanaceous crop production in the USA by overcoming soilborne pathogen impediments by providing a more vigorous root system, increasing fruit quality, and improving water and nutrient uptake efficiency. For grafting to be a viable alternative pest management strategy in the US, efficient cost and labor-saving grafting methods are needed. Our current research studies are investigating how to optimize the success rate for grafting vegetable transplants utilizing the one-cotyledon grafting and splice grafting methods to reduce labor requirement. Additionally, we are also testing grafted plants to control verticillium wilt caused by *Verticillium dahliae* in Washington.

[a]E-mail: pinki.devi@wsu.edu