

## **International Projects on Cucurbit Diseases**

Cucurbits are important economic crops in many parts of the world. In the last 25 years, there have been changes in cultural methods which include introduction of hybrid cultivars, transplanting, plastic mulch, drip irrigation, and increased plant density without adequate rotation. Some of these changes have likely contributed to an increase in the number and intensity of soil-borne diseases that cause significant economic losses. Coinciding with changes in cultural methodology, a group of diseases known generally as “vine declines” have become more prevalent in many cucurbits, especially muskmelon and watermelon. Vine decline of cucurbits is also referred to as crown rot, root rot, sudden death, sudden wilt, wilt, and vine collapse. Cucurbit crops that develop vine decline generally appear healthy until 10 to 20 days before harvest. Symptoms of vine decline are varied and often include a slight but detectable yellowing of the crown leaves. Death of crown leaves and other leaves occurs. Fruit from affected plants are subject to sunburn, premature ripening, and may have reduced sugar content. In some cases, the vine can wilt and collapse in two or three days. Beginning in 1993, onsite visits to locations outside the United States were made to study in other scientist’s laboratories and to share and learn new techniques. Many trips have been made to Central American countries to evaluate disease problems and make recommendations to minimize crop losses. In addition, plant samples were obtained to allow precise diagnosis of the disease. Various workshops have been presented on integrated management strategies for controlling soilborne diseases and allow for sustainable production of crops. Below is a list of some of the international activities with which our laboratory has been involved.

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| <b>Year</b> | <b>Country</b>          | <b>Sponsor</b>  | <b>Objectives</b>   |
|-------------|-------------------------|---|---|
| 1993        | Spain                   | Organization Economic Co-Op Development               | Survey melon growing areas. Share knowledge of vine decline diseases common to United States and Spain.   |
| 1996        | Honduras                | Agropecuaria Montelibano                              | Survey melon growing areas and determine cause of melon vine decline.   |
| 1996        | Spain                   | United States Government                              | Determine the role of <i>Acremonium cucurbitacearum</i> , <i>Monosporascus cannonballus</i> , and <i>Rhizopycnis vagum</i> causing vine decline of melons.                  |
| 1997        | Costa Rica<br>Guatemala | Productos Especiales del Monte                        | Survey melon growing areas in both countries to determine the cause of vine declines in watermelon and melon.   |
| 1998        | Honduras                | Agropecuaria Montelibano                              | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 1999        | Costa Rica              | Productos Especiales del Monte                        | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 2000        | Costa Rica              | Productos Especiales del Monte                        | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 2000        | Mexico                  | Productos Especiales del Monte                        | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 2001        | Honduras                | The Sol Group   | Assist in developing integrated methods for control of melon vine declines.   |
| 2001        | Costa Rica              | Productos Especiales del Monte                        | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 2002        | Costa Rica              | Productos Especiales del Monte                        | Assist in disease identification and control strategies for vine declines in watermelon and melon.  |
| 2008        | Guatemala               | United Nations International Development Organization | Presented workshop on various pathogens involved in melon vine declines, how to recognize and identify, and control strategies.   |
| 2009        | Guatemala               | United Nations International Development Organization | Provided technical assistance to melon farmers on 'green' alternatives to the use of methyl bromide. Designed experiments and objectives for evaluating various treatments. |