

Cultural Practices for Whitefly Management in Desert Melons

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SWF populations during the season will vary from year to year. Their abundance is influenced by several naturally occurring factors within the cropping system as well as management practices employed by growers. Weather patterns and seasonal temperatures probably have the largest natural influence in regulating abundance and population growth during the season. Natural enemies also impact SWF populations in crop and non-crop hosts. However, these factors alone are generally not capable of preventing economic damage from occurring. Rather, several fundamental management approaches in association with naturally occurring factors have allowed growers to economically produce vegetables and melons in the desert over the past several years.

Preventing SWF populations from colonizing plants is the key to successful management. This is achieved primarily by preventing the establishment of immature SWF, often through management of adult populations. If adults are allowed to oviposit on the undersurfaces of leaves, it becomes very difficult and often very expensive to avoid damage from the feeding nymphs. Presently, several effective management practices and control tactics are available that act against both adult and immature populations. In addition, because whitefly adults move between successive crops, management approaches are most successful when employed in all crops within the area.

Cultural Practices: There are three times during the seasonal cropping cycle when whitefly management is critical in the desert; during the winter when whitefly abundance is lowest, in late spring during the transition from melons to cotton, and in August and September during the transition between cotton or alfalfa to fall vegetable/melon plantings. These periods all involve the movement and colonization by adult populations. Consequently, cultural management practices can help to avoid or minimize problems with SWF before they have the chance to occur.



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Crop Management. It is important to utilize optimal growing practices to avoid stressing newly emerged seedlings. This would include proper management of irrigation, plant nutrition and salinity. Experience has shown that a vigorously growing plant is better able to withstand external stresses like SWF. This is especially important for fall melons and vegetables planted a time of high temperature stress. Any additional stresses can delay growth and effect yield potential. SWF have a competitive advantage because fall temperatures are often optimal for their development, whereas cool season crops like leafy vegetables and cole crops struggle to grow.

Crop Scheduling. Careful consideration of crop sequencing, crop placement, and planting dates can have significant impacts on adult SWF migration. When practical, it is recommended that growers avoid planting fall melons and vegetables near other significant host crops such as alfalfa and cotton. Delaying fall planting until after termination or harvest can also reduce adult migration onto seedling crops. Early planting of spring melons and uniformity of planting in an area can reduce the impact of SPWF as well.

Source Reduction. In preparing for the establishment of new crop planting, it is always important to be aware of adjacent crops and another natural habitat. Host-crops approaching harvest (vegetable seed, cotton, alfalfa) and weedy non-crop areas are usually the primary sources from which adult SWF migrate. Sanitation and clean culture are perhaps the most important cultural practices that can be employed on an area-wide basis. Rapid post-harvest destruction of host crops can reduce the magnitude and duration of whitefly movement in an area. It is also important to eliminate weed hosts in and around fields to be planted, particularly in the winter where they can serve as overwintering reservoirs for SWF and viruses.

Row covers: Fabric row covers can decrease SWF infestations of fall crops, and severity of viruses. However, deployment of these covers is often labor intensive and expensive.