

Stepping up Greenhouse Sanitation®

Ryan Hall

Pacific Plug and Liner, 750 Casserly Rd. Watsonville, California 95076

WHY BE CLEAN?

Disease and insect problems can cause severe economical damage to floriculture and nursery crops. One of the most recent examples of a large-scale disease that devastated geranium crops in North America was the *Ralstonia* outbreak. *Ralstonia* gave many growers a wake-up call on the importance of keeping greenhouses, mother stock, and irrigation water clean of pathogens and vectors. With the help and guidelines from large-scale breeders, Pacific Plug and Liner implemented strict sanitation protocols to help avoid and manage future disease problems.

WHEN CLEAN JUST ISN'T CLEAN ENOUGH

The commercial greenhouse industry has established common sanitation practices to limit disease spread. Weed-free structures, protective clothing such as gloves, regular disinfections of tools, and preventative pesticide applications are now commonplace practices for disease control. With the pressure of new and more economically destructive diseases many growers have implemented more rigorous sanitation programs, many modeled after cutting production facilities with very low tolerances for disease.

CONTROL STARTS AT YOUR FRONT DOOR

Foot Baths. When planning footbaths for the facility, we had to take certain factors into consideration. The baths were installed where critical crops are grown and at the main greenhouse entrance were all employees and visitors pass. The main entrance bath has a concave basin to allow carts to be disinfected as well. A spillover drain makes sure the bath stays at an effective level. The chemical, Virkon S, was selected due to its proven efficacy against viruses and bacteria.

Hand Wash Stations. Waterless hand sanitizer is used as general disinfectant for employee's hands and gloves while working in the facility; every row in the greenhouse has a dispenser located near the footbath. Visitors are required to clean their hands prior to handling any plant material.

Clothing. All employees handling plant material in the production cycle are required to wear aprons and gloves at all times. The frequency of glove changing depends on the crop. Gloves are changed a minimum of three times a day; this is reflective of a change after every break period. Aprons are reused, but disinfected at the end of each day with Virkon S.

Insect Control. Other than the common insect control methods, such as spraying and sticky card capture, Pacific Plug and Liner has implemented certain insect controls to help keep insects out of the greenhouse entirely. All roll up walls are covered

with insect screening to block the entry of pests like thrips and whitefly. Zero tolerance for weeds has been established and employees are required to remove weeds in the greenhouse as they see them.

Clean Plant Material. Pacific Plug and Liner purchases 90% of their cuttings from overseas suppliers. Many of these suppliers have gone to great lengths to offer disease-free and certified cutting material. These disease-indexed products have proven to perform better in production and ultimately produce a superior finished product. Geranium cuttings were one of the first crops to receive this certification. Annuals and perennials are now following the same path with positive results.

Management and Training. By far the most critical component of a successful sanitation program is training staff to understand its importance. Footbaths are not effective if staff jump over them. At Pacific Plug and Liner the training process has been in place for over 1 year. This training has come in the form of education and policing. Each day the staff seems to understand and realize the importance of the program. When this occurs, the tools one has implemented start to work for themselves.

RESULTS

When a successful sanitation program is implemented, one can expect their chemical usage to decrease as well as see an increase in plant quality. At Pacific Plug and Liner, disease outbreaks are less common and less significant when they do happen. Insect problems are very uncommon and the few that do occur are easily managed. Pacific Plug and Liner has seen these advantages first hand. One should carefully look at their current sanitation level before resorting to harsh chemical applications to solve a problem.