GUIDELINES FOR MANAGING BACTERIAL FRUIT BLOTCH DISEASE

2000 update of the management guidelines proposed in 1996

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The results of our ongoing research suggest several procedures to reduce the risks from bacterial fruit blotch disease (BFB) caused by *Acidovorax avenae* subsp. *citrulli*. Although many of these procedures are already used, financial considerations may make some of them very difficult to adopt. The following suggestions are offered as our best information for transplant growers and watermelon producers in January, 2001.

TRANSPLANT GROWER

1. Plant seed from lots that have tested negative for *Acidovorax avenae* subsp. *citrulli* by grow-out of at least 30,000 seedlings. **DO NOT** plant experimental or non-tested seed in the same houses with commercial seedlots. Minimize traffic and equipment sharing between houses with experimental seed and houses with commercial seedlings. Do not handle seedlings unnecessarily.

2. Make a floor plan of the transplant houses and keep good records of the origin of seed and location of seedlings. Also keep a log of the treatments applied to seedlings.

3. If possible, use "dedicated" greenhouses for particular varieties or seedlots. If multiple varieties and/or seedlots are to be used in the same house, consider placing partitions (2 feet high) between plantings to minimize splash contamination.

4. Carefully inspect seedlings and destroy/discard any flats, and seedlots containing seedlings with symptoms. Be sure of diagnosis before destroying an entire greenhouse of plants. Commercially-available serology-based kits should be used for initial tests but subsequent results should be sought from extension/research laboratories or commercial testing services. In the transplant house certain fluorescent Pseudomonads and another *Acidovorax* spp. can cause symptoms on seedlings that are similar to BFB. The *Acidovorax* spp. may react positively with serological assays so confirmation with other protocols (PCR, fatty acid analysis) should be sought.

5. If possible, use ebb and flow irrigation to reduce bacterial spread. If there is no alternative to overhead irrigation, water at mid-day to ensure that plant surfaces dry rapidly and reduce delivery pressure to eliminate excessive splashing and aerosol generation.

6. With ebb and flow irrigation, discard any seedlings near plants with symptoms. With

overhead watering, discard all seedlings from transplant house with infected seedlings.

7. Alternatively, if confirmed BFB occurs in the transplant house, discard infected seedlings and those nearby. Spray remaining seedlings with copper-containing fungicides to reduce spread(only if registered for greenhouse application in your state). If possible, reduce the relative humidity in the transplant house and promote good air circulation. This is a less desirable alternative than discarding all seedlings, but may be more practical than replanting and missing the targeted market window. The transplant producer should inform all clients (growers) of BFB outbreaks in transplant houses so that adequate disease management measures can be taken in the field.

8. Use the utmost in sanitation techniques when producing transplants. Minimize any physical contact with seedlings. Maintain sanitation stations (70% ethanol in spray bottles and lean paper towels) at all entrances and exits of each facility. Surface sterilize hands when entering and leaving transplant houses.

9. Decontaminate transplant houses with infected seedlings and wait 2-3 weeks, or longer if possible, before replanting cucurbits.

10. Gravel or plastic/cloth floor coverings are better than dirt floors. Dirt from the floor can be splashed onto seedling foliage or the roots may contact the dirty floor, leading to disease. Plastic/cloth coverings can be cleaned or replaced if necessary. Transplants should be raised off the greenhouse floor onto wooden pallets or cinder blocks to lessen the chance of contamination. This also keeps the growing temperature warmer, and facilitates drainage.

11. Transplant flats should be new or cleaned before each transplant generation. Trays should be cleaned to remove soil and plant residue and then treated. Several chemicals (e.g., Greenshield, Physan 20, household bleach) are available for disinfesting transplant trays. A ten minute soak in the treatment material followed by rinsing, provides adequate disinfestation. Be certain to follow label instructions including wearing gloves and eye protection.

GROWER

1. Use seed from seedlots that have tested negative for *A. avenae* subsp. *citrulli* by grow-out of at least 30,000 seedlings per lot, or use transplants from houses in which there were no BFB symptoms on any cucurbits. **Inspect transplants prior to acceptance.** Do not use left-over seed from which the seedlings developed BFB unless it was verified that the inoculum originated in the field or transplant house.

2. Be sure other cucurbit transplants planted nearby are not infected with *Acidovorax avenae* subsp. *citrulli*.

3. Debris, including watermelon culls from a field that had BFB should be plowed under and next years crop should be planted as far from the contaminated site as possible.

4. Eliminate wild cucurbits, such as citron, wild bur gherkin and volunteer watermelons, pumpkins, and melons near production fields and transplant houses.

5. If symptoms appear on seedlings, apply copper materials if labeled in th state, weekly at the recommenced rate. If symptoms are not present, biweekly applications at the full rate or weekly applications at half the recommended rate of the copper pesticide may be used as a protective treatment. Applications should begin at first flower, or earlier and continue until all fruit are mature. It is recommended to tank mix EBDC fungicides with copper compounds to increase bactericidal activity while providing broad spectrum fungal disease suppression.

6. If symptoms occur, avoid working in fields when plant are wet. Decontaminate irrigation and mechanical equipment before moving it from an infested field to a non-infested field.

7. **Do not panic !!!** The severity of losses due to BFB in the field are dependent upon the weather. BFB is a manageable disease in the field.