Interiorscaping in a zoological park has some frustrations and challenges not encountered by most interior landscape professionals. One frustration not encountered by Craig and Corinne was damage inflicted by people. Thousands of visitors, including small children, tour the aviary, and damage to plant material has been very minor.

A Serious New Disease of Marigold in North Carolina

D. L. Strider and R. K. Jones

Bacterial leaf spot of marigold, caused by Pseudomonas syringae pv. tagetis, was found in greenhouses in North Carolina in 1983 and again in 1984. It is a very destructive disease of immature marigold plants and the causal bacterium is seedborne. It was described for the first time in the United States in 1978 in a field in Wisconsin (2).

The first symptoms of the disease that were detected in our work in the greenhouse with the cultivar Lemondrop were small black spots on cotyledons of seedlings in the seed bed (Fig. 1A). About a week later, necrotic spots or flecks could be detected on leaves and were surrounded by chlorotic tissue in an irregular pattern. About another week later, apical growth became chlorotic and distorted (Fig. 1B). Spots were found on less than 1% of the seedlings in the seed bed, but a large percentage of plants transplanted from these seed beds became infected and developed leaf spotting, stunting, distortion, chlorosis of apical growth, and, in some cases, death.

An experiment was conducted last year to determine if the pathogen was seedborne in a particular lot of seed and to get some idea of the magnitude of
spread of the disease under seed bed conditions in the greenhouse. Naturally infected 'Lemondrop' marigold seed were planted densely in Metro Mix 220 contained in 6-inch clay pots. Pots were maintained in the greenhouse with intermittent mist for 10 days, then transplanted to individual 4-inch pots containing Metro Mix 220. These were placed on the greenhouse bench and watered in a conventional fashion with a sprinkler hose as needed. There were two seedings, 5/3 and 5/13/83. Transplanting was 10 days after seeding and disease readings were made 30 days after transplanting. Most of the plants were diseased (78.5%) and unsalable (Table 1). A high percentage (32.5) of plants died.

In 1984, a North Carolina grower reported over 90% loss of several thousand market packs of 'Petite Spry' and 'Petite Yellow' to disease. The disease was determined to be bacterial leaf spot. Obviously this is a very serious disease problem and since it is seedborne, one that must be controlled by the seed producer.

There is little a bedding plant grower can do once the disease appears other than to dispose of affected plants to reduce the possibility of spread to healthy plants. Providing good air circulation, and watering only during fast-drying conditions should also help keep the disease in check.

The pathogen that causes bacterial leaf spot of marigold also causes diseases of zinnia, common ragweed, sunflower and Jerusalem artichoke (1).

References


Table 1. Disease incidence in seedlings of 'Lemondrop' marigolds grown from seeds naturally infected with Pseudomonas syringae pv. tagetis.

<table>
<thead>
<tr>
<th>Disease severity</th>
<th>% plants in different disease severity categories</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Test #1 (264 seedlings transplanted)</td>
</tr>
<tr>
<td>0</td>
<td>26</td>
</tr>
<tr>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
</tr>
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*Disease index: 0=healthy, 1=light, spotting and/or chlorosis, 20% reduction of biomass; 2=moderate, 20-50% reduction of biomass; 3=severe, 50% reduction of biomass; 4=dead.*

(continued on page 13)
Figure 1. Symptoms of bacterial leafspot of marigold: A) Small black spots on cotyledons in the seed bed and B) Chlorotic and distorted apical growth.

Two N.C. State University Students Reap Benefits as Scholars
Roy A. Larson

Jay Coke and Cynthia Wynia, floriculture majors in the Department of Horticultural Science at North Carolina State University, have been selected as recipients of Joseph Shinoda Memorial Scholarships for the 1984-85 academic year. Scholarships were for $3000 and $750, respectively.

Jay, a native of Chapel Hill, is working in an orchid range in Florida (continued on page 14)