RESEARCH LABORATORY TECHNICAL REPORT

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Spider Mites

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Spider mites are common pests of ornamental plants and shade trees. Due to the rapid, unpredictable nature of spider mite injury, the ability to detect their presence on plants in the field is essential for plant protection.

Spider mites are classified as arachnids, a group including spiders, ticks and scorpions. The family of spider mites, Tetranychidae, is large with more than 1,200 species.

Hosts

Spider mites are pervasive and feed on many native and exotic ornamental plants (Figure 1). Mite damage is common in urban settings with little plant diversity and in hedges made up of the same species.

Figure 1: Two-spotted spider mites

Injury

Spider mites have needle-like mouthparts and feed by piercing the leaves of host plants and sucking out the fluids from individual plant cells. This causes the leaves to have a stippled or flecked appearance (Figure 2), with pale dots where the cellular contents have been removed. Symptoms of mite injury include flecking, discoloration (bronzing) and scorching of leaves. Mite feeding quickly causes a reduction in photosynthesis. Research with spruce spider mites attacking Alberta spruce found that after three weeks of feeding, the rateof photosynthesis by the spruces was reduced by 50%. Mite feeding also increases water loss from the plant.

Figure 2: Stippling caused by southern red mite

Detection

Frequent inspection of susceptible landscape plants is key to preventing serious damage. When scouting for spider mites, several methods are effective:

1. Visual Inspection

Using a hand lens, the foliage of mite- susceptible plants should be carefully examined for eggs and mites. A hand lens with at least 10x magnification is required (Figure 3). Since many mites feed and lay eggs on the lower surface of foliage, these areas should be thoroughly examined.

Figure 3: Visual inspection with hand lens

2. Beating Foliage

Hold a blank piece of white paper directly underneath the foliage you suspect to be infested (Figure 4). Tap the foliage and if mites are present they will be dislodged, falling onto the paper where they can becounted and identified. Mite eggs will not be detected using this method.

Figure 4: Beating foliage

Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.