

Pest management in winter greens-a program update

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Our understanding of pest management in winter greens continues to deepen via our NESARE project “Sustainable Pest Management in High Tunnel Winter Greens Production”. We find when developing pest management for a fall/winter tunnel crop we need to look at the system as a whole. Some of the key steps take place before the greens crop is in the ground.

Summer tunnel crops (such as tomatoes and peppers) are the single highest source of pests of winter greens. We’ve noted repeatedly in this project that managing a high population of aphids, slugs, cabbage worms, etc. is difficult under cold conditions; bio-controls are too cold sensitive, biopesticides are temperature driven, and days below freezing make sprays impossible. It is clearer now more than ever that managing pests on the summer crops is key to having marketable greens. Fortunately we can use bicontrols in the summer crop successfully as well as appropriate sprays.

Another pre-plant management step is selecting pest/disease resistant varieties. For example Downy Mildew resistance is essential when selecting spinach and lettuce varieties. The cold, damp growing conditions in winter tunnels is perfect for diseases such as Downy Mildew. Growing susceptible varieties is high risk.

Insect resistance is another important trait. At one of our cooperating sites we found aphids were more prevalent in mustard crops, than spinach or other Asian greens (see figure 1).

Appropriate planting density can help with both insect and disease control. High density plantings trap moist air within the canopy which leads to diseases such as Gray Mold and Downy Mildew. But, the tight canopy also interferes with insect management. For example, aphid materials such as Botanigard or Mycotrol (OMRI listed), require contact with the insect. When the greens canopy is closed our sprays cannot effectively reach the target (see figures 2 and 3).

As temperatures drop we refrain from the release of biocontrols, with one exception: lady beetles. Under row covers lady beetles have provided excellent control of aphids at some of our cooperating sites.

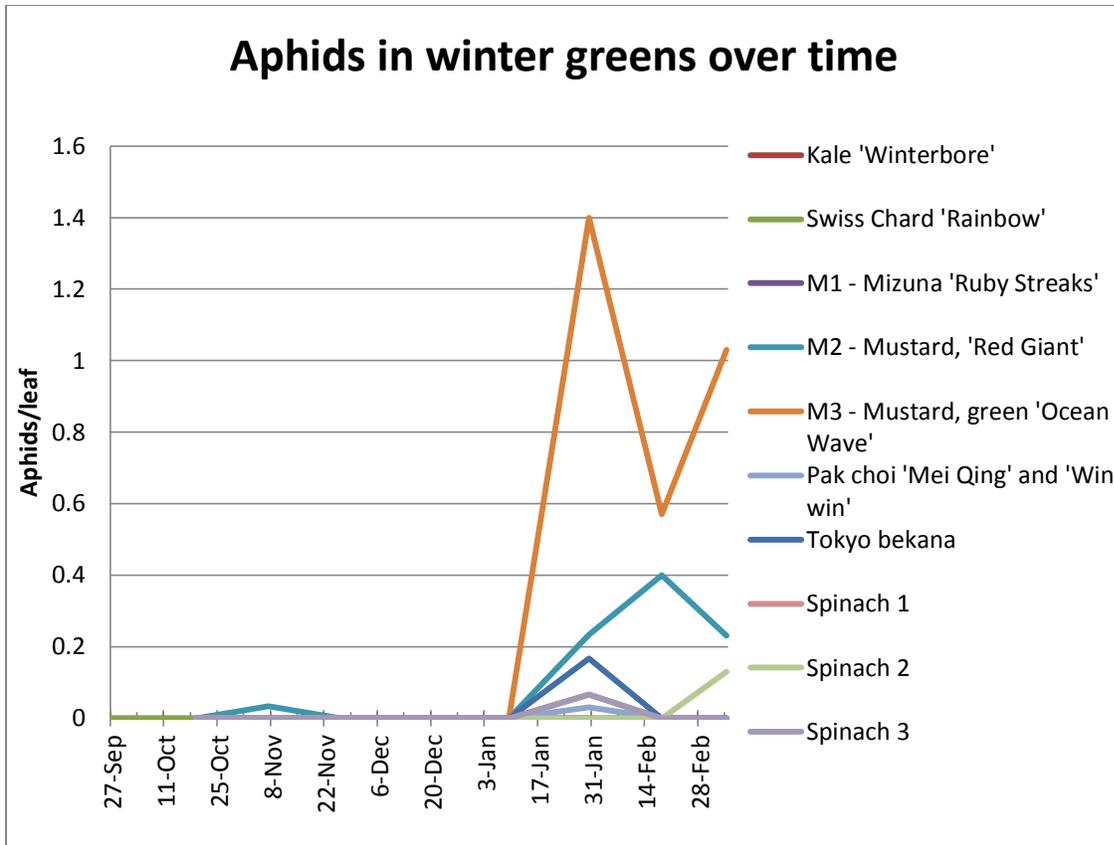


Figure 1. Aphids were more prevalent in mustards than other winter greens at this cooperating high tunnel.



Figure 2. A tight canopy increases disease and insect losses.



Figure 3. Wide spacing decreases disease pressure and allows for spray penetration.