



Potato Progress

Research and Extension for Washington's Potato Industry

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Spider Mite Management

Andrew Jensen, WSPC Director of Research & Technical Affairs

Mite outbreaks

Spider mites are a severe problem in some potato fields in Washington nearly every year. Mites are present in most fields, but become extremely damaging in relatively few. What causes them to explode and take down fields is uncertain, but entomologists, growers, crop advisors, and others claim there are plenty of contributing factors: **1)** application of non-selective pesticides, such as pyrethroids, and certain carbamates and organophosphates, which negatively impact mite predators and allow spider mites to flair, **2)** proximity to certain crops such as corn, alfalfa, and mint, which tend to harbor mites, **3)** proximity to dusty roads, and **4)** hot, dry weather. It is critical to understand that number **1)** is by far the most important factor. In most cases, mite outbreaks in potatoes are an induced problem, brought on by pest control practices aimed at other pests.

Mite populations can increase very quickly. Under optimal conditions, a single female spider mite can theoretically produce 77 million descendants in just 60 days. Under good conditions for mites, there can be up to seven times as many females as males on your potato leaves. These facts add up to a lot of mites, and a lot of potential damage if they are not managed properly.

Monitoring mite populations

Start monitoring mite populations in early July. Scouting for mites specifically is important, rather than hoping to find them incidentally during aphid scouting. The use of a hand lens greatly improves the effectiveness of scouting for mites. Initial mite infestations can be very spotty within fields, making it important to sample for mites in several locations in each field. Because mites reproduce better on stressed plants, it is a good idea to check areas of your fields that you know tend to be stressed for some reason (e.g. dry spots, low spots, edges, etc.). It is also wise to check the edges of fields nearest to crops likely to have many mites. It is important to recognize mite problems before significant damage is noted, and certainly before webbing occurs. Uniroyal representative Don Joy adds the following comments on scouting for mites:

“Some of the first mites of the season on potatoes can be found on the basal petioles of the plant. The bottom two leaflets of the basal petioles are a good place to start looking. Mites infesting the basal petioles are most often found in fields where potatoes fol-

low corn. On occasion, mites can initially be found on the upper petioles. This usually happens as a result of mites blowing in from adjacent fields. Unfortunately, another reason for a mite infestation in the upper part of the plant can be that mites have overwhelmed the lower petioles and moved up in search of food. This happens more often than anyone will admit. Another good place to spot mites is on the new shoots that sprout after the vines lay down. Mites love the tender leaves of these new shoots. Leaf injury from mites is usually easier to spot on new shoots. Leaves may look completely normal, but you can often notice very small areas of desiccation, somewhat whitish in color, on the top of the leaf where mites have actually been feeding on the underside of the leaf. Most often you will see 2-4 areas of desiccation on the leaf, with each one about the size of a pinhead. Spend extra time checking rill-irrigated potatoes as they often have mites before potatoes under a center pivot.”

Mite control

Don Joy, of Uniroyal, makes the following recommendations regarding the use of Comite in potatoes:

“One-2 mites per leaflet, with a maximum of 5 mites per leaf, is a threshold level on potatoes, so early applications are critical. You do not want to start out behind. Fieldmen should recommend the high end of the label rate – 2 to 2.5 pints per acre. Use the higher rate if the populations exceeds two mites per leaf. The addition of a good spray adjuvant, such as a silicone surfactant, will improve coverage. Some fieldmen also recommend the addition of sulfur to irritate the mites and get them to move around more. If the pH of the spray solution is on the alkaline side, buffer it down to 6.5. And lastly, we recommend a spray volume of 10 GPA by air. Applicators, in some cases, do not like to go to that high volume but coverage is improved if they do. Unfortunately, a higher volume of water costs more to apply, but it is worth it. If at all possible, treated fields should not be irrigated for 24 hours following application.”

WSPC mite research

The Washington State Potato Commission recognizes the need for additional information on mite management. During the 2000 season, the WSPC funded miticide screening work with Dr. Gary Reed (OSU) and Dr. Alan Schreiber (Ag. Development Group. Dr. Doug Walsh has been conducting laboratory and field work on mite biology. Research efforts will be continued in 2001, with a goal of finding additional miticides for Washington potato growers, and the knowledge of when and how to apply them to avoid yield loss from spider mites.

Brief View of 2001 Seed Lot Content

Robert E. Thornton, Washington State University

The upcoming Potato Field Day at the WSU Othello Research Unit on June 28th will again feature the Potato Seed Lot Trial. This is the 38th year this trial has been conducted by WSU with funds provided by the Washington State Potato Commission. The following tables provide a brief look at the planting date, seed source, and variety content of the 2001 Seed Lot

Trial. The majority of the samples were received and planted in April (72%) with another 19% planted at the end of March (Table 1). There are some interesting factors concerning the variety make up of this year's entries (Table 2). As has been the case over the years of the trials, Russet Burbank is the dominant variety but is closely followed by Ranger Russet (this includes those entries identified as Amisk), these two varieties make up over 50% of the total entries. Umatilla Russet and Russet Norkotah are the next dominant entries, 16% and 13% respectively. Shepody accounts for only 4% of the entries and this percent is equaled by the combination of Gem Russet and Alturas, each with 2% of the total entries. The remaining 9% of the entries include the yellow fleshed and red skinned varieties as well as numbered clones, chipping varieties and other russet varieties. The 2001 Seed lot trial content will be discussed and compared to the recent 5 years of seed lot trials as a part of Concurrent Session III of the Potato Field Day Program.

Potato Field Day Program

June 28, 2001

WSU Othello Research Unit

(6 miles East of Hwy. 26/17 Junction, south of Hwy. 26)

8:30 - 9:00 am Coffee and rolls

9:00 - 10:30 am Visit Seed Lot Trial

Concurrent Session I

POTATO CULTURAL PRACTICES FIELD TOUR

10:30 am **Physiological Markers and Seed Productivity-Field O-S**
Rick Knowles - Washington State University, Pullman

10:50 am **Optimizing Stand Uniformity and Tuber Size of Umatilla Russet-Field O-S**
Rick Knowles - Washington State University, Pullman

11:10 am **Potential of Mycorrhizal Fungi to Enhance Yield Under Low-P Conditions**
Rick Knowles - Washington State University, Pullman

11:30 am **Economics and Agronomics of Potato Stand Establishment**
Mark Pavek - Washington State University, Pullman

12:00 - 1:30 pm **HOSTED LUNCH**

Concurrent Session II

POTATO PEST MANAGEMENT FIELD TOUR

10:30 am **Predators That Feed on Green Peach Aphid-Field O-T**
Bill Snyder - Washington State University, Pullman

11:00 am **Fusarium & Storage Rot Control Trial-Field O-V**
Tom Cummings - Washington State University, Pullman

11:30 am **Impact of Cropping Systems on Volunteer Plants-Field O-O**
George Newberry - Washington State University, Pullman

12:00 noon **Management of Volunteer Potatoes With MH-Field O-O**
George Newberry - Washington State University, Pullman

12:30 - 1:30 pm **HOSTED LUNCH**

Concurrent Session III

POTATO PEST MANAGEMENT WORKSHOP

10:45 am **Potato IPM-Area Wide Study Using Commercial Test Sites**
Andy Jensen - Washington State Potato Commission, Moses Lake

11:15 am **Disease and Other Profiles of Recent Potato Seed Lot Trials**
Robert Thornton - Washington State University, Pullman

11:45 am **Fungicide Application Methods for Control of Late Blight**
Dennis Johnson - Washington State University, Pullman

12:15 pm **Seed Transmission of Late Blight**
Debra Inglis - Washington State University REU, Mt. Vernon

12:45 - 1:30 pm **HOSTED LUNCH**