MONITORING APHIDS IN SEED AND COMMERCIAL POTATO FIELDS IN OREGON

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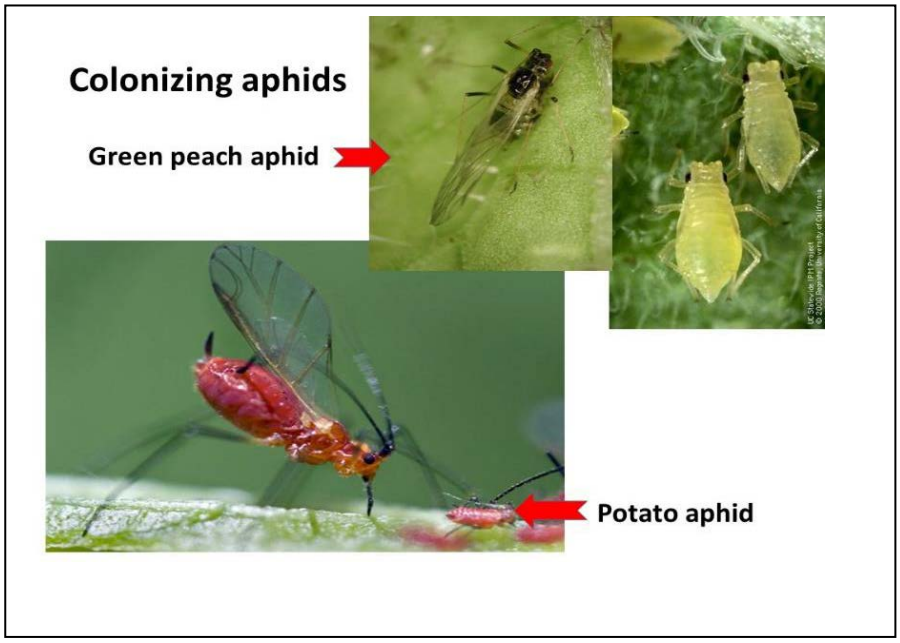
Aphids (Homoptera: Aphididae) are soft-bodied insect pests with sucking mouth parts that cause direct damage to plants due to feeding and indirect damage via transmission of viral pathogens. Aphids are a continue threat to the potato industry in the Pacific Northwest (PNW). Each growing season, the potato crop can experience potential infection threat from numerous pathogens which, in some cases, may lead to additional quality issues during storage. A key virus disease efficiently transmitted by several aphid species is the Potato Virus Y (PVY). PVY is transmitted in a non-persistent manner by up to 50 different aphid species; the transmission efficiency varies depending on species, making the insect/disease interaction complex difficult to understand. Potato aphid (*Macrosiphum euphorbiae* Thomas) and Green peach aphid (*Myzus persicae* Sulzer) are considered to be the most efficient PVY vectors.



The current project was initiated in 2015 to develop a comprehensive management strategy for PVY in the PNW which includes fine-tuning current sampling techniques and to quantify virus incidence and diversity in the region. Specific objectives are to: (1) test different types of traps to identify the presence/absence of aphid species in potato fields; (2) determine aphid abundance in potato fields; and (3) determine trap efficiency. Study locations included seed potato fields in Morrow, and Union counties and commercial potato fields in Klamath, Umatilla and Morrow counties (**Fig. 1**). Yellow sticky traps, yellow bucket traps and tile traps were placed in four different locations around the fields (**Fig. 2**). Aphids were collected weekly; sorted and identified based on morphological characteristics; voucher specimens of "unidentified aphids" were prepared for future barcoding studies.

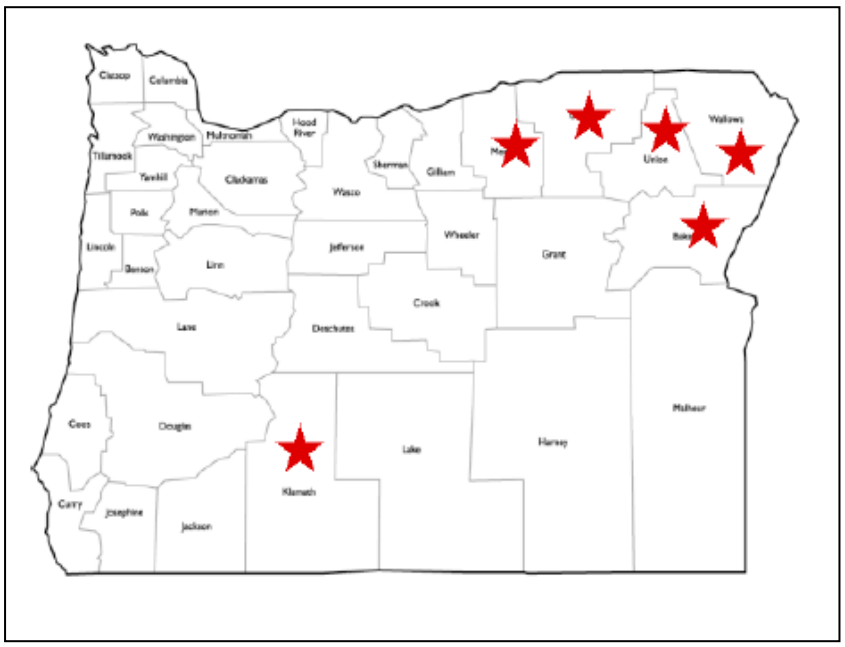
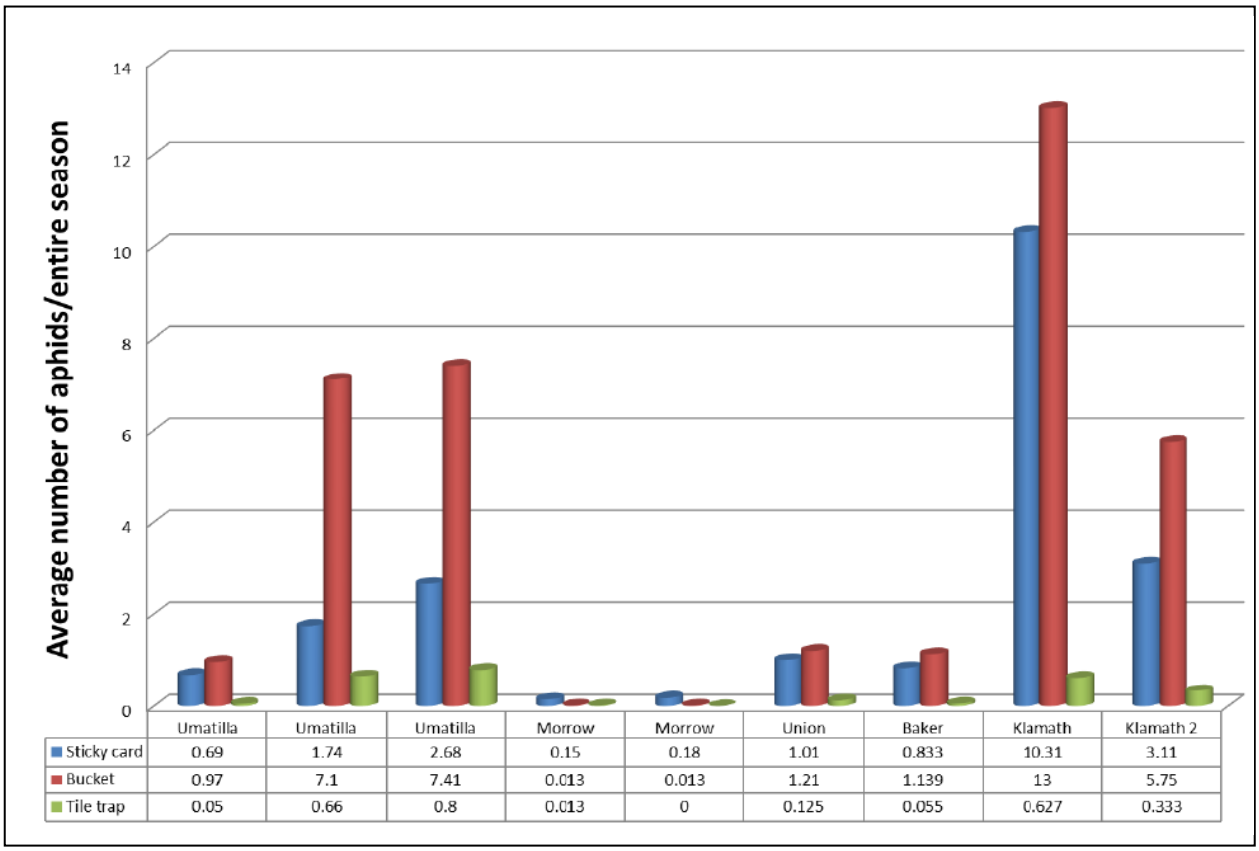


Fig. 1 "Red stars" indicate counties were study was conducted in Oregon, 2015

Fig 2 Different types of traps were placed in the first 2-3 rows in each field. Traps were 5 m apart from each other. Each group was placed at the minimum distance of 50m

Preliminary data analysis show that the highest numbers of aphids were collected in Klamath followed by Umatilla, Union, and Morrow counties (**Fig. 3**). The bucket traps design was determined to be more effective when compared to sticky cards and tile traps design. The numbers of aphids captured in traps were also influenced by environmental factors, landscape and more importantly cultural practices (data not shown).



	Umatilla	Umatilla	Umatilla	Morrow	Morrow	Union	Baker	Klamath	Klamath 2
Sticky card	0.69	1.74	2.68	0.15	0.18	1.01	0.833	10.31	3.11
Bucket	0.97	7.1	7.41	0.013	0.013	1.21	1.139	13	5.75
Tile trap	0.05	0.66	0.8	0.013	0	0.125	0.055	0.627	0.333

Fig. 3 Average number of aphids collected by using sticky cards, bucket and tile trap design.