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Sequential acquisition of *Potato virus Y* strains by *Myzus persicae* favors the transmission of the emerging recombinant strains

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Highlights

Sequential acquisition of potato virus Y strains by aphids alters virus transmission

Recombinant strains out compete the ordinary strain when sequentially acquired

Sequentially acquired recombinant strains are transmitted with equal efficiency

Order of acquisition does not affect the outcome of transmission efficiency

Virus titer is not correlated with transmission efficiency

ABSTRACT

In the past decade recombinant strains of potato virus Y (PVY) have overtaken the ordinary strain, PVY^{O}, as the predominant viruses affecting the US seed potato crop. Aphids may be a contributing factor in the emergence of the recombinant strains, but studies indicate that differences in transmission efficiency of individual PVY strains either from single or mixed infections, although variable, are not generally significant. Multiple strains of PVY are present in all potato production areas and common in many potato fields. Therefore, it is likely that individual alate aphids moving through a potato field will sequentially encounter multiple strains as they "taste test" multiple potato plants while looking for a suitable host. This study examined