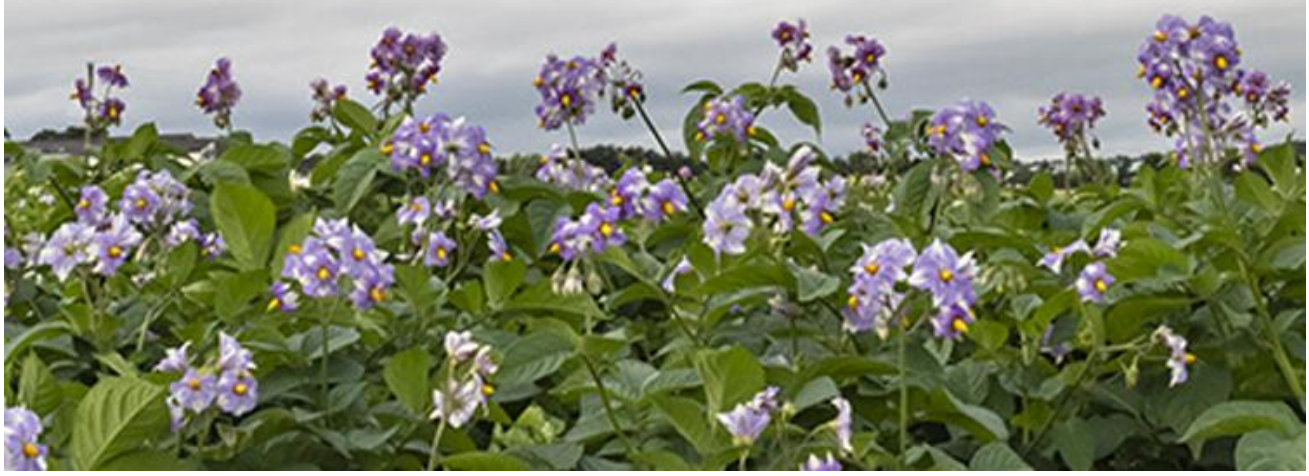
Follow

The Six Steps

to ensure

Effective virus management in potato crops

see overleaf for details



Keeping virus out of seed and ware crops requires an integrated approach in achieving the best crop health possible. Aphid-transmitted viruses pose a threat to potato (seed and ware) production by reducing yield and impacting on quality.

Maintaining high standards of seed and ware crops is becoming more difficult as pesticide availability is reduced, higher virus and vector pressure and climate change. ***Insecticides are not effective enough to prevent virus ingress,*** hence insecticide application should be integrated with other management measures. ***Both seed and ware growers should apply the Six Steps*** to control (both seed- and aphid-borne) virus infection; and, ensuring everything is being done to protect the Scottish Seed potato and GB potato industry's reputation.

Virus Control

STEP 1: Source healthy seed and isolate crops from virus infection
• Plant as healthy seed as possible (high grade, low field generation).
• Potential sources of infection include other nearby potato crops, potato volunteers, and uncontrolled growth in potato dumps. Place crops away from these sources of infection.
• Avoid dual purpose crops – due to a longer growing period they are more exposed to infection and present challenges in formulating a legal and effective insecticide programme. Grading back smaller tubers i.e. 35-50mm from dual purpose crops is likely to increase virus risk.
STEP 2: Remove infected plants before virus can be spread by aphids
• Rogue potato plants exhibiting virus symptoms from potato crops at the earliest opportunity. Note that virus symptoms (e.g. mosaic, leaf rolling) can vary between potato varieties and environmental conditions.
• Control potato volunteers (potato plants growing from previous seasons' crops).
STEP 3: Understand your varieties and their risks
• Target varieties with high virus propensity[1] (e.g. Maris Piper, Cara, Atlantic) with extra control measures throughout the season.
• Isolate varieties with high virus propensity[1] away from other crops.
• Seek additional information from your seed supplier, i.e. quality of your seed, crop management in the preceding year and the risk level for each variety.

Vector Control

STEP 4: Act on aphid monitoring information[2]
• Check suction trap and yellow water trap data at least weekly. Get yellow water trap set up and operational early (before emergence).
• Anticipate aphid flights in your area based on available information[2] and inspect crops regularly for colonising aphids.
• Monitor aphid flights and target your insecticide applications - select insecticide programmes and other control measures accordingly, e.g. as soon as aphids are flying, apply appropriate insecticides to certified seed and home saved seed crops.
STEP 5: Target your spray programmes
• Select a combination of insecticides that will protect crops from both Potato virus Y (PVY) and Potato leafroll virus (PLRV). Systemic insecticides can be effective against colonising aphids (transmitting PLRV), but they are not effective in controlling non-colonising aphids (transmitting PVY).
• Mineral oils can reduce non-persistent virus (such as PVY, Potato virus A, Potato virus V) acquisition and transmission by non-colonising aphids when sprayed early and frequently.
• Continued over-reliance on pyrethroids applied before tuber initiation is likely to result in further resistance shifts. Pyrethroids can still be used post tuber initiation.
• Observe manufacturer and IRAG guidelines to ensure an effective and legal programme for seed or ware crops is followed.
STEP 6: Continue control measures until haulm is dead
• Desiccate crops as early as you can (consistent with maximising marketable seed size fraction) - a shorter growing season reduces virus risk.
• Where legally possible, continue insecticide programmes until senescence is complete.
• Prevent and control crop regrowth.

[1] *Varietal Propensity to Virus Infection | SASA (Science & Advice for Scottish Agriculture)*

[2] *Aphid Monitoring Network | SASA (Science & Advice for Scottish Agriculture)*; *https://aphmon.fera.co.uk/*

Note: *this document should be read in conjunction with its full version "The Six Steps for Effective Virus Management in Potato Crops"*