

## National Virus Forum

### 2<sup>nd</sup> Meeting (15<sup>th</sup> Feb 2021)

**Attendees:** Adrian Fox, Alex Godfrey, Andy Curtis, [Andrew Manfield](#), Antonia Walker, Jeff Beever, Lynne Bradley, Christophe Lacomme, Darren Mackie, David Nelson, Eric Anderson, Gerard Croft, Graham Nichols, Graham Tomalin, James Lee, Jane Thomas, John Addams-Williams, John Sarup, Jon Pickup, Louise Wright, Miranda Reynolds, Phil Burgess, Rob Clayton, Jon Rooke, Rupert Weaver, Sandy McGowan, Ron Scott, Will Shields, Sophie Bambridge, Sue Cowgill.

**Chair:** Mark Taylor

### Summary of Actions

- *Adrian F to contact NAK to explore whether they would share information about the relative number of stocks that are downgraded as a result of PHT vs visual inspection.*
- *Miranda R to explore options for representatives from the Virus Forum to feed into the UK Seed Potatoes Ad-Hoc Sub-Committee that is working on an action plan for the SPCS*
- *Lynne to provide contact details so that the Forum can feedback to Defra on the importance of the two inspections being carried out by APHA on all seed crops in 2021*
- *Establish sub-groups to examine the details of what needs to be done in the next 12/24 months and report back their recommendations to the whole Forum*

### Notes

**Introduction:** Mark reiterated that the aphid/virus challenges that the industry is facing are well documented and that the focus of the meeting would be to identify tangible next steps/changes that can be made. The session was split into 2 main sections: (i) what has changed or been achieved in the last 12 months; and (ii) What needs to be done in the next 12/24 months as a “game changer”. Individuals had been nominated to feedback on behalf of different parts of the industry.

#### What has changed or been achieved in the last 12 months?

- *Sampling and testing (Christophe L & Adrian F)*

Christophe provided an overview of the QMS /UKAS accreditation schemes adhered to by the GB labs (Fera, SASA, NIAB) and the international proficiency testing scheme which Fera and SASA both participate in. Representatives from the labs had held a meeting in Oct 2020. This had covered the specifics of the tests offered by the labs, proficiency testing and sources of variability between samples. The conclusions were that standardisation of the specifics of the testing methods across labs was not a priority or feasible and that it is more important to understand the nature of discrepancies in virus incidence between tuber samples, that in turn could cause discrepancies between different Post Harvest Tests (PHT).

SASA had carried out work to study the performance of a direct tuber test (QPCR test) and growing-on ELISA (GO-ELISA) in detecting viruses in dormant tubers in 19 potato cvs with either secondary (tuber-borne) or primary infection (aphid-borne) and had studied the impact of the length of storage on the results.

When tubers were sampled after a short period of storage (1 month), the direct QPCR test detected more virus cases than GO-ELISA. For longer storage periods (6-9 months), both methods detected a higher incidence of virus cases (than at 1 month's storage) and there was good agreement between the results from the two methods.

Results from the work also indicate that during primary infection, the viruses are not evenly distributed between tubers or within different tissues (areas) of the same tuber. This variation was observed irrespective of the PHT method used.

Post harvest field sampling had also been discussed and the group had concluded that a “W” pattern was likely to be more suitable in identifying virus from secondary infection (assumed to be distributed randomly in a field). A “drill” pattern might be more suitable for identifying primary infections.

Although some work has been done to correlate PHT results and incidence of symptoms in progeny crops, the group had recommended that further work is done on this topic.

Adrian summarised the discussions between the labs regarding the reporting of results from PHT. The statistical method used by the labs provides estimation of virus incidence in a sample at a set confidence interval (for example, a calculated incidence of 0% for 10 bulks of 10 tubers is within a confidence interval of 0% to 3.6% so there is a 95% confidence that the incidence of virus in the tested sample is between 0% to 3.6%). Not all labs automatically provide this information instead the feedback to the customer is done on a case-by-case basis.

- *Certification and Regulation (Jon P and Lynne B).*

Jon summarised the results from the 2020 season. ~80% of Scottish seed crops were free from virus. 11% of crops had between 0.001 and 0.05% virus based on visual inspection. PVY<sup>N</sup> accounted for 67% of the virus seen in symptomatic Scottish seed crops and PLRV accounted for ~18%. He explained that he had calculated the PVY<sup>N</sup> propensity by potato producer for the top 40 producers (based on number of crops in 2020). This showed differences in propensity between producers that couldn't be attributed solely to the number of field generations grown.

Lynne summarised the English/Welsh inspection information for 2020. A covid-19 contingency plan was implemented. The normal 2 inspections were made to all stocks where the parent grade was PB or S1 or 2. All other stocks had a single inspection and were graded no higher than E. Fourteen stocks failed inspection (8 for virus, 3 for virus in adjacent crops, 2 for rogues and 1 for isolation). In addition to the 8 stocks that failed for virus, 101 were downgraded. Parent origins of virus-downgraded stocks were France 3, Netherlands 5, Scotland 40 and England 53.

In 2020, there was a change so that the whole of adjacent stocks were downgraded where a crop over the virus tolerance was found (previously a 10m buffer zone in adjacent stocks had been downgraded).

The 21 day burn-off after final inspection was implemented for stocks that had exceeded 1/3rd virus tolerance (this was first introduced in 2019). A tuber indexing requirement was imposed for stocks that were not burnt off. This was applied to just one stock which subsequently failed inspection.

- *NFU (Rupert W)*

- Concerns about the move to a single inspection by APHA. The difficulties posed by covid-19 restrictions in 2020 were acknowledged but the industry wanted assurance that APHA would revert to the normal 2 inspections in 2021.
- Discussions had taken place with NFU Mutual regarding the instigation of insurance scheme(s) and these were covered in more detail by BPTA.
- NFU had provided a response into the Post Implementation Review of the Seed Potatoes Regulations.

- *FSPA (Jamie L)*

- There has been greater recognition of the issue in industry and there is an expectation that this will lead to change. Industry has learnt more about the factors involved, eg variety propensity, impacts of better tuber testing and burndown.

- *PPA (Jeff B)*

- Concerns about the move to a single inspection by APHA.
- Challenges posed by the loss of actives
- Still confusion about varietal/seasonal effects and how to discriminate between symptoms of primary and secondary infection, especially mid-season onwards.
- Concern about aphid numbers and whether the winter weather will have adversely affected populations in a significant way.
- *BPTA (John Addams-Williams)*
  - Challenges posed by the loss of actives (eg diquat) and also changing climate and seed and ware being grown in closer proximity
  - Disappointed that there had not been stronger input from across the industry into Defra consultations (eg the Post Implementation Review).
  - Don't object to compulsory PHT in principle but it must be underpinned by an insurance scheme for seed growers. Currently an insurance scheme is likely to be two years away.
- *Seed growers (Sophie B)*
  - Want a greater level of activity on the issue not necessarily new actions.
  - Recognise the challenges posed by increasing proximity of seed and ware and challenges posed by rented land
  - Loss of actives
  - Concerns about the move to a single inspection by APHA.
  - Importance of good adherence to burndown requirements
  - Better use of variety propensity data
  - Have been higher levels of PHT testing undertaken by industry
- *Ware growers (Louise W)*
  - Lack of clarity about the process by which growers can flag up an issue (who to contact, how will the issue be investigated)
  - Growers have experienced issues with French and Dutch seed
  - Varieties being dropped due to concerns about them showing virus symptoms
  - Need connectivity across industry
- *Agronomists (England; Graham T)*
  - Disappointed by lack of change. Seed stocks still passing through certification scheme with levels of virus that cause economic losses for ware growers
  - Lack of a standardised protocol for sampling tubers for PHT.
  - Lack of approvals for mineral oils
  - Loss of actives
- *Agronomists (Scotland; Eric A)*
  - Lack of confidence that the certification process assures the quality of the seed. Is visual inspection still fit for purpose if varieties carry asymptomatic virus infection?
  - Implications of changing PVY strains (mature plant resistance, symptom expression)
  - Lack of value attributed to high health status seed
  - Loss of actives and efficacy of approved actives (esp pyrethroids)
- *AHDB (Sue C)*
  - Activity since last meeting: new aphid and virus pages on AHDB website. Continuation of yellow water trap network and pyrethroid sensitivity testing. Discussion of options for establishment of a variety risk

assessment but not pursued due to covid-19 restrictions. Trial testing integration of mineral oils and physical controls (mulch, vetch) delivered by NIAB. Will be repeated in Scotland in 2021. SPot farm aphid/virus trials and results included in recent digital events.

- Knowledge gaps: whether virus propensity information (based on symptom expression) is sufficient or whether industry wants a more comprehensive variety risk assessment to identify asymptomatic varieties and/or quantify effects of virus infection on quality/yield.
- Work on aphids/virus is planned to go ahead in 2021 on at least two SPot Farms.
- *Insurance (Gerard C and Alex G)*
  - Because of differences in spray programmes allowed in seed vs ware there are limited options (biodigestion) for sale of seed that has failed inspection. Therefore introduction of PHT presents a financial risk to seed growers if a crop failure is as a result of a statutory tuber indexing test not allowing the seed to be marketed (compared to visual inspection of crops). Insurance is needed to address this risk and also to cover the situation of a ware grower receiving certified seed but the daughter crop subsequently suffering losses due to virus. In both cases it will be the seed grower who takes out the insurance.
  - Discussions have been held with NFUMutual to agree how the schemes might work. Details still need to be resolved and there is no guarantee that NFUMutual will establish the schemes.

### Discussion

There was a discussion of the potential impact of adoption of PHT.

- **It was agreed that Adrian would contact NAK to explore whether they would share information about the relative number of stocks that are downgraded as a result of PHT vs visual inspection.**
- The aim of the testing (for statutory purposes vs commercial decision making) will determine the sampling and testing protocol required.
- There were different opinions as to whether statutory PHT should be applied to specific grades, and whether this should be the highest or the lowest grades.
- It was proposed that it would be useful to convene a sub-group to look at the two topics above (sampling & PHT) in more detail.

### What needs to be done in the next 12/24 months as a “game changer”?

*APHA/Defra (Miranda R)*

The findings of the Post Implementation Review to assess the effectiveness of the [Seed Potato Regulations \(England\) 2015](#) is available from the [Gov.uk website](#). There is a UK Seed Potatoes Ad-Hoc Sub-Committee (a technical sub-group with members from Defra, the devolved administrations and scheme delivery agencies) working on an action plan for the SPCS to cope with the challenges faced as a result of increasing virus prevalence and there was a question as to how industry can feed into that group.

**It was agreed that Miranda would explore options for representatives from the Virus Forum to feed into the Sub-Committee.**

Lynne confirmed that the intention is for APHA to carry out the two inspections in 2021 however, she can't guarantee this as unforeseen circumstances may arise that affected their ability to carry out the inspections.

*Fera*

- A desk review to recommend sampling and testing strategies and the recommendations evaluated through trial sampling/PHT of crops 2021.

- Work to gain a better understanding of the impact of agronomic factors (such as speed of haulm destruction) on late- season virus transmission.
- Work to gain a better understanding of variety honesty (whether it carries asymptomatic infection)

#### *SASA*

- Work to generate new information on the impact of virus incidence on the severity of tuber symptoms.
- Work to gain a better understanding of the interaction between variety resistance and propensity
- Work/KE to improve the management of virus inoculum/vectors (including better control of volunteers)
- Work to gain a better understanding of the amplification of virus incidence during the season (including the role of infection from neighbouring crops)

#### *NFU*

- Progress the proposed insurance schemes (need to understand the role of PHT in the schemes)
- Activity to highlight the impact of the loss of actives
- Important that 2 crop inspections are carried out by APHA

#### *FPSA*

- Adopt a SMART approach to virus control
- Utilise existing knowledge on variety propensity and new approaches (PHT/more inspections) to improve control
- Encourage the uptake, and early use, of mineral oils
- FPSA to adopt a zero tolerance to the use of dual purpose crops
- Investigate the impact of diversion/border/companion crops

#### *PPA*

- Utilise existing knowledge on variety propensity to improve virus management
- Activity to highlight the impact of the loss of actives
- Important that 2 crop inspections are carried out by APHA
- Encourage the use of mineral oils

#### *BPTA*

- Tighten the tolerances for Certified grades
- Insurance schemes will be essential
- Essential that 2 crop inspections are carried out by APHA
- Address the challenges posed by loss of diquat

#### *Seed growers*

- Industry must work collaboratively
- Essential that 2 crop inspections are carried out by APHA. The timeliness of inspections is also important.
- Maintain availability of actives. Promote the uptake of oils
- Utilise existing knowledge on variety propensity to improve virus management
- Work to gain a better understanding of the impact of farm-saved seed on virus transmission, to understand if it should be discouraged

- More practical research to cover topics such as timing of planting, physical controls such as crop borders and mulches

#### *Ware growers*

- Essential that 2 crop inspections are carried out by APHA
- Provision of a virus sampling protocol
- Phased integration of PHT into the SPCS over several years
- Establish a clear process to investigate the source of virus problems seen in ware crops and seek redress for the issue
- Utilise knowledge on variety propensity to improve virus management
- Maintain the availability of actives (aphicides)
- Automatic sharing of seed crop inspection reports with ware growers/purchasers of seed

#### *Agronomists*

- Seed houses to offer re-plantable ha contracts
- Improve management of volunteers (are statutory regulations for management of volunteers needed for high grade seed areas?)
- Apply PHT in lower grade/longer generation element of seed multiplication chain. This will require an insurance scheme to be in place for seed growers
- More practical research to cover topics such as physical controls, impacts of pyrethroid use, information to address concerns about use of mineral oils (phytotoxicity)
- Be aware of challenges posed by rented land
- Provision of sampling protocol(s) for PHT
- Industry wide collaboration

### **Discussion**

There was a strong view that everything possible should be done to ensure 2 inspections are carried out by APHA in 2021. This is because it is a visual scheme and industry must have confidence it is being adhered to. The group offered to provide feedback into Defra about the importance of inspections. **Lynne agreed to supply the appropriate Defra contact details.**

It was acknowledged that ware growers had a wide range of experiences regarding the virus issue. Both Jon and Lynne were keen to receive feedback on crops with high levels of virus –so that each issue could be explored in more detail.

It was noted that it is a limited number of varieties that have suffered serious virus issues and there was a question as to how the variety aspects could be investigated in fair and transparent way.

Rob C suggested that AHDB could use market information/modelling techniques to explore the implications (for the industry as a whole) of moving to re-plantable hectares; or removing dual cropping from the industry. He explained that because of the ballot on the continuation of the potato levy it was unlikely that new research trials would be commissioned in 2021. However, the prioritisation/outputs from the sub-groups could be used to feed into other activities (eg SPot farms) or discussed with other funders.

The role of the Defra Plant Health Risk Register in prioritising government actions was mentioned. It doesn't cover endemic pests being managed on an individual basis by growers and reference to PVY is restricted to the threats posed by non-European strains of PVY.

Several representatives proposed that two sub-groups be convened to produce recommendations on the specifics of what needs to be done. This would comprise a group to cover certification, sampling and research needs and a second group to cover industry collaboration and implications of changes such as removal of dual purpose crops/changing to re-plantable hectares, uptake of best practice. It was noted that simple best practice messages are required.