

Event report/Event overview: Strategic Farm East results day - 10 January 2019

Summary

The Strategic Farm East results day took place on 10 January 2019 and was the final event of the Strategic Farm East programme hosted at Elveden Estate in East Anglia. The event saw the culmination of 3 years of research, specifically focusing on herbicides, PCN and the effect of Nitrogen on Black Dot and yield.

Attendees also heard presentations from Potatoes Sector Board Chair Dr Sophie Churchill on the recent work of AHDB Potatoes; Head of AHDB's Sutton Bridge Crop Research team Adrian Cunnington on potato storage; Head of AHDB's Arable Knowledge Exchange team, Tim Isaac on the Monitor Farm and Strategic Farm programme, as well as associated events; and Knowledge & Innovation Facilitator Laura Bouvet on the collaboration between AHDB and Agri-Tech East.

Farms Director of Elveden Farms Ltd, Andrew Francis gave the closing speech, reflecting on the last three years and the benefits it brought to his business. He singled out the research into PCN as being of particular value and said that the Strategic Farm programme provided a safety net, allowing him and his team to take more risks.

The event was well attended: 99 delegates attended from across the potato industry. There was also significant press attendance, with representation including Farmer's Guardian, Farmer's Weekly and Radio 4's Farming Today.

Speakers

- Dr Sophie Churchill: Chair of the Potatoes Sector Board at AHDB.
- Graham Tomalin: an Agronomist and Head of VCS Potatoes Ltd.
- Adrian Cunnington: Head of Sutton Bridge Crop Research (Storage) at AHDB.
- Dr Mark Stalham: Senior Research Associate at NIAB CUF.
- Dr Marc Allison: Senior Research Associate at NIAB CUF.
- Tim Isaac: Head of the Arable Knowledge Exchange team at AHDB.
- Laura Bouvet: Knowledge & Innovation Facilitator for Agri-Tech East & AHDB.
- Andrew Francis: Farms Director at Elveden Farms Ltd and outgoing Strategic Farm East host.

Strategic Potatoes Farm East results 2018

Herbicide trial results – Graham Tomalin

A link to the presentation can be found [here](#).

Residual herbicides currently provide the major part of a programmed approach towards weed control within potato production in the UK. Linuron was the most widely used residual herbicide, particularly where potatoes are grown on sands/sandy loams. Approval for Linuron herbicides lapsed on 3 June 2018. A number of alternatives are available for growers but many of these have restricted use on sands due to possible crop damage following application, such as: metribuzin, clomazone and pendimethalin. Other alternative residual herbicides have limited control on specific sands/sandy loam weed spectrums. These weed species, in addition to competition within potato crops, cause particular problems in the vegetable rotations adopted on many farms on these soil types.

The objectives of these trials were:

- To assess the efficacy and weed spectrum controlled from a range of residual herbicide/residual herbicide combinations applied at standard crop timings.
- To assess any crop damage/phytotoxicity from the residual herbicide applications with particular reference to a 26 variety screen.
- To assess varietal effects of post emergence applications of metribuzin, bentazone and rimsulfuron to a range of varieties.

Results:

- There were low levels of weeds recorded in 2018.
- Alternatives to linuron exist but the costs are likely to increase.
- Knowledge of weed spectrum present will aid cost effective control – target activities to expected weed spectrum.
- Metribuzin is the most cost effective for many weeds but need to be careful of soil types and variety susceptibility.
- Three residual active ingredient combinations provide control of a broader range of weed species.
- Potential new active ingredient aclonifen looks a useful addition when used in combination with other actives if approval is granted.

Variety and PCN tolerance trial results - Graham Tomalin

A link to the presentation can be found [here](#).

Recent research has shown that an estimated 64% of land used for growing potatoes is infected with a detectable level of PCN.

In recent years *G.pallida* has become more prevalent due to an increase in the growing of varieties resistant to *G.rostochiensis*. This increase in prevalence, together with the constant threat of change to the use of nematicides, has led to an increase in the requirement for varieties to also offer tolerance and or resistance to *G.pallida*. To date, studies have primarily focused on resistance to PCN, however less knowledge has been gained with respect to variety tolerance particularly when grown on loamy sands.

Mixed populations of PCN are common within East Anglia due to less reliance on *G.rostochiensis* resistant varieties over the last 20 years, and this site with a mixed population will demonstrate the importance of knowledge of populations present within a field. Testing to assess the proportion of species present within this trial has included a new technique being commercialised by Richard Austin Agriculture when testing for 2019 season.

This trial follows on from, and built on, the 2016 Strategic Potatoes Farm East Variety and PCN (*G.pallida*) Resistance and Tolerance trial.

The objectives of these trials were:

- To compare the tolerance and resistance of eight new to market or near to market potato varieties with *G.pallida* resistance(partial) to four known commercial varieties through yield and soil PCN analysis.

Results:

- Confirmation of partial *G.pallida* resistance to the population present on this site for newer varieties Alcander, Elland, Iodea, Lanorma, Marvel, Monte Carlo, Royal, Stet Clone.

- Guidance of the tolerance of newer varieties in comparison to known standards.
- Trial indicates the importance of speciation. – Risk of *G.rostochensis* increase with only *G.pallida* resistant varieties – Innovator/Elland.
- Indicates sensitivity of newer speciation tests.

Nitrogen and Black Dot control - Dr. Mark Stalham

A link to the presentation can be found [here](#).

The experiment sought to understand the relationships between Nitrogen (N) rate and time of defoliation and harvest on Black Dot infection post-storage in a susceptible variety.

The hypotheses are:

- Delaying time from defoliation to harvest increases the risk of Black Dot development in store.
- Reducing N increases the risk of black dot infection through premature senescence.
- Reducing N advances skinset.
- Reducing N increases the risk of bruising at harvest.

Results:

- Soil test showed very low *C. coccodes* inoculum concentration.
- No effect of N rate on early ground cover development.
- Canopies lasted slightly longer with increased N, but less than 3 days at 100 % GC from 180 to 270 kg N/ha.
- No effect of N rate on yield or grading, but trend for dry matter percentage to decrease with more N.
- Higher N delayed skinset.
- No effect of N on bruising.
- The effects on Black Dot will be confirmed in April 2019, material currently being stored at SBCSR

Nitrogen and irrigation: results from past three years - Dr. Marc Allison

A link to the presentation can be found [here](#).

The work sought to assess how application of N drives yield.

Results:

- Used RB209 nutrient management guide to calculate the N requirement for crop and site and mostly found 30-60 kg N/ha lower than commercial rate being used on surrounding crop.
- Experiments and strip trials showed no evidence of loss of yield from these lower rates.
- Placed or injected N tended to produce lower yields than broadcast.
- No evidence that much N leached out of the rooting profile during the growth period on heavily irrigated sandy soils, but canopies were paler and shorter-lived where over-watering took place.
- Decreased N did not result in increased bruising.
- Decreased N resulted in better skinset.