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POTATO INDUSTRY CHALLENGES UNDER THE SPOTLIGHT AT SHOW

THE VEGETABLE FARMER UK - JANUARY 2020

The biennial British Potato Event (BP2019) was held in Harrogate in November. Challenges from the withdrawal of crop protection products plus concerns around aphids and virus and new, aggressive blight strains, were among the principal topics of discussion at the event. Frances Wright reports.

Help may be on the way for growers dealing for growers dealing of the licence for sprout suppressant CIPC (chlorpropham) and the challenges posed because of residues on potatoes stored in previously treated potato stores.

A few months after the expiration of the use-up period of CIPC containing products, the maximum residue level (MRL) will drop. It is currently 10mg CIPC/kg potatoes, said Certis European Development Manager Potato Portfolio, Tjaart Hofman at one of BP2019's packed seminars at which there was standing room only.

This is expected to be a problem because of the persistency of CIPC in stores where potatoes have previously been treated. "Moreover, the EU Commission is likely to enforce the new MRL in early 2021." As a result, growers have limited options, such as reducing the residue loading in the stores by efficient cleaning. However, as complete removal of the residues is unlikely, another option is required, which is to seek a legal framework that will allow for some residues at a low level.

Certis has been working with the Potato Value Chain and UPL, and have requested the authorities for a temporary MRL, which is exceptional, he told delegates. For this to happen, a dossier comprising residue monitoring data, and other studies could expedite a new risk assessment for consumer safety of CIPC and its metabolites. This, of course, will need reviewing by the EFSA and the EU Commission.

Dr Hofman believes a temporary MRL of less than 1 mg/kg may be achieved, and hopes to have some clarity on timelines for this to be approved or rejected by February 2020. "Any drop in MRL is not likely to happen before early 2021. In light of this, the processing industry will reject any potatoes harvested in 2020 that have been treated with Cl PC."

This is despite the legal use of CIPC products until October 8, 2020, but processed potatoes will have to comply with the same new MRL, so processors will therefore only accept potatoes which have not been treated with CIPC in autumn 2020.

"All stores previously treated with CIPC will need to be thoroughly cleaned in 2020, and demand for specialist external cleaning is likely to be high." He went on to say that the value chain is determining best practice for cleaning stores, and publication is likely to be in early spring 2020.

"Minimum activity for any store with a history of CIPCusage will be sweeping and vacuuming entire stores, and there will be a need to pay special attention to ceilings, pressure chambers, fans and ducts."

Tjaart Hofman, Certis European Development Manager, Potato Portfolio.

Another step-change in P infestans aggressiveness in the UK may be occurring, according to SRUC's blight specialist researcher Dr Ruairidh Bain. Blight samples genotyped by the James Hutton Institute showed natural infection by the new and aggressive genotype
36 A2 at SRUC's trials site in Ayrshire, he reported. This could be why the disease was so difficult to control in trials during the second half of August, despite no evidence of any fungicide resistance issues.

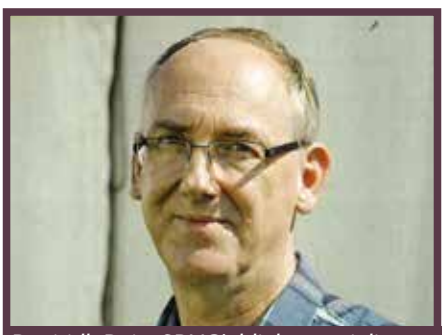
Speaking on SRUC's stand at the event, he pointed out that infection rates could have been influenced by a long spell of weather favourable to blight, alongside more than twice the normal amount of rainfall which will have severely tested the rain-fastness of applied fungicides.

"However, it is impossible to separate out the individual effects of the amount of rainfall and the number of Hutton Periods, the air temperatures and the new blight genotype. Nevertheless, we have seen some parallels to 2007, which was when genotype 13 _ A2 started to have a considerable impact on the effectiveness of blight control measures."

Using Scottish Government funding, Dr Bain has been evaluating varietal resistance to foliar and tuber blight in the field, but with natural infections of other strains overcoming the inoculated one (13 A2), this has made unlerstanding the results more complicated.

While the results were supposed to reflect resistance to 13 A2, he found that in 2017 -only 68 per cent of the infections were 13 A2, while 27 per cent were 6 A 1 and 5 per cent 8 A 1. In 2018, 79 per cent was 6 A 1, with new and aggressive 37 _A2 forming 13 per cent, leaving a mere 8 per cent of the infection as the inoculated strain 13 A2.

"Despite these challenges, in the preliminary results we have seen that six of the most popular 50 varieties (by GB planted area) have a combination of foliar and tuber resistance ratings the same, or better, than those that gave very good control of tuber blight in our field experiments. As a result, contrary to widelyheld opinions, there is scope to develop 1PM strategies with popular varieties."



Ruairidh Bain, SRUC's blight specialist researcher.

SALTEX - POTENTIAL DESICCANT AID

Substituting diquat for desiccation is going to be difficult for growers producing indeterminate varieties such as Markies on fertile black soil, said Richard Austin Agriculture researcher Dr John Keer.

Speaking on his stand at the event, he revealed that trials this year have looked at the efficacy of Spotlight Plus (Carfentrazone-ethyl) and Gozai (Pyraflufen-ethyl), both of which are approved for use as herbicide and desiccants. "Applied during a warm, sunny period during early September, they both worked well," he said. "However, we need to evaluate what happens when desiccation takes place later on, such as from the end of September."

After the weather broke and it became cool and dull, he found both desiccants to be slower and less effective than Reglone (diquat). "Nonetheless, mixing in Saltex - a brine using sodium chloride - improved the speed of kill. At present Saltex does not have approval for desiccation, but it can be applied as a rotational fertiliser for sugar beet later in the rotation, and thus play an important role in the overall rotational strategy."

Pelargonic acid was seen to act very quickly, but with limited effect, added Dr Keer. "It scorches where it hits the leaf, causing desiccation in that particular spot, but, as it does not progress, the rest of the plant stays green. Additionally, the cost is currently prohibitive."

He went on to emphasise that without diquat managing and planning lifting has become more difficult. "Of course, you can still stop the crop with flailing, but it means taking heavy machinery onto the land at the end of the season, and the wheelings can make lifting difficult in heavy soils."

VIRUS LEVELS ON THE UP

A significant increase in aphid vectors combined with earlier flights and increasing numbers of volunteers has raised the threat of nonpersistent virus over the last two seasons, warned Graham Tomalin of VCS Potatoes during a seminar at BP2019. Moreover, pest resistance and reduced options for control of resistant aphid populations may result in fewer viable generations of seed potatoes, particularly for susceptible varieties, delegates heard.

This is because of the risk of viruses being vectored by these aphids, and in 2019 the number of downgraded crops by Defra/APHA was nearly double that of the previous year. Graham said: "Mineral oils have the potential to help, and there is a need for more research in this area as there are no approvals for use at the levels and period of crop growth required.

"In addition, we also need better understanding of the effects of non-persistent virus on the newer varieties. Interactions of different combinations of non-persistent viruses with specific varieties can produce markedly different effects on yield and particularly quality."

SEED TREATMENT FOR RHIZOCTONIA CONTROL

Following the recommendation to cease use of Monceren powder on seed tubers at planting for next season, many growers are looking at a switch to precision application of liquid Maxim (fludioxonil) seed treatment prior to planting, reported Syngenta techriical manager Michael Tait, speaking at BP2019.

This may mean investing in liquid seed treatment application equipment, so to make the switch easier, the company has been working closely with Frontier, who can provide contract applications for growers, he said.

After seeing how the system works, some growers may then wish to invest in their own equipment.

Work to improve seed treatment deposition on seed tubers applicator operation, has been undertaken with Team Sprayers, to ensure growers get the best activity possible.

"Maxim provides excellent activity against Rhizoctonia black scurf, along with seed borne silver scurf and black dot. Furthermore, in Frontier field trials, it has also appeared useful for suppressing common scab."

AMISTAR APPLICATION IN-FURROW

In-furrow applications have also been reviewed in collaborative trials with Team Sprayers and Grimme, for operation at today's faster planter speeds and addressing greater emphasis on minimising spray drift.

New nozzles, and how those nozzles are set up on the planter, have been carefully evaluated with water volumes of 501/ha and 1001/ha.

Michael said: "The higher water volumes worked better at offering good soil coverage, to optimise disease control.

"We also saw less drift during application, especially at higher planting speeds, and there was reduced chances of nozzle blockages, but it does mean you are carrying more water."

Aimed at combatting *Rhizoctonia solani* and soil borne black dot *(Colletotrichum coccodes)*,
Michael said that good results are expected from the trials, but as black dot develops during the storage period, the skin quality results have not yet been evaluated.

John Keer, of Austin Agriculture.

INTA-AG'S NEW COVER CROP RANGE

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BUCKWHEAT WITH CRIMSON CLOVER

Buckwheat is a speedy short-season cover crop. It reaches maturity in just 70 to 90 days and its residue breaks down quickly. Buckwheat suppresses weeds and attracts beneficial insects with its abundant blossoms.

It is easy to kill, and extracts soil phosphorus from soil better than most grain-type cover crops. Buckwheat thrives in cool, moist conditions. Once desiccated the buck wheat releases phosphate back to the next crop.

Crimson clover's deep root system is a nutrient scavenger so it brings up nutrients form deeper in the soil and fixes nitrogen from the atmosphere which is released when worked in.

Blended with 2kg Crimson Clover per 25kg bag

BAG SIZE 25KG
RATE: 40KG/HA

ULTIMATE COVER CROP

This unique cover crop mix is very popular in Europe, where we found it in wide use. It features a very intense soil conditioning effect in the top two inches of soil. While not a deep tiller in terms of root depth, it is one of the best soil improvers we've seen in terms of its ability to aggregate soil particles into the type of crumbly aggregate structure that is typical of high quality soils.

Triticale – Rye and wheat cross, scavenges nutrients, large shallow root system
Crimson Clover – Fix Nitrogen shallow Biomass, large shallow root system
Phacelia – Shallow rooting, excellent soil conditioning
Linseed – Mobilises Phosphate, shallow rooting soil conditioner, very good mycorrhiza host.
Smart Radish – Clubroot control and free living nematode control, deep rooting.

CONSISTS OF:
Triticale prophet bare seed
Crimson clover
Phacelia
Linseed
Smart Radish

BAG SIZE: 25KG
RATE: 60KG/HA

SMART RADISH

Eradicates up to 70% of clubroot present in soil each 3 month crop.
Smart Radish also seems to attract the moth species e.g. Tuber moth, Cabbage white
The photos above shows the benefits of adding Crimson Clover to Smart Radish supplying nitrogen to its host partner.

Plasmodiophora Brassicae
IPM - Green Manure
Clubroot – Resistant Gene (plasmodiophora brassicae)
Root Knot – Nematode (Metiadogye spp)
Sugar Beet Cyst – Nematode (Heterodera schactii)

BAG SIZE: 25KG
RATE: 15KG/HA

ONE OF OUR BESTIES IS LEAVING!

This month we will be saying goodbye to Jerome Benefield. After 20 years of service he's decided he'd like a change.

Jerome has been a big part of our Waikato area where he managed the Waharoa store for many years as well as concentrating on Agronomy duties both in the Waikato and Pukekohe region. He is widely respected for his dedication to his customers and for being an all round honest bloke.

He's definitely a key member of our team here at Inta-Ag and will be missed by all.

We wish you well Jerome!

GROWERS PULL OFF MONSTER RAPESEED AND CEREAL YIELDS

FARMERS WEEKLY UK - 20 NOVEMBER 2019

A winter wheat crop by Lincolnshire grower Mark Stubbs yielded 16.3t/ha to take the top prize in the Adas-organised Yield Enhancement Network (Yen) competition in 2019.

Following good use of tissue tests, Mr Stubbs' crop of Siskin achieved 85% of its full yield potential. East Yorkshire entrant Richard Wainwright came second, with a yield of 15.2t/ha, with Oxfordshire grower David Passmore taking third place with 14.8t/ha.

All three winners included farmyard manure, grew their winning crops after oilseed rape and have a policy of prioritising soil health and good soil structure. Plenty of muck and near-perfect weather at its coastal location were the reasons given by Mr Stubbs for his success. He entered the wheat competition for the first time this year with a commercially grown crop.

Reassuringly, given the current season, the crop was drilled on 4 November at a seed rate of 513 seeds/sq m. His practice of getting nitrogen on as soon as possible in February helped to get it growing strongly and develop a good root structure, with a total of 230kg/ha of N being applied in four splits.

Low disease pressure and good varietal resistance meant three fungicides were used at T1, T2 and T3, with two applications of plant growth regulator.

"The weather was perfect," he says. "Growing it near the coast meant the sea frets kept temperatures 5C lower than inland areas, and we had good sunlight for much of the time."

The silver gong went to Farmers Weekly Farmer Focus writer Mr Wainwright, with a crop of Graham, which reached 88% of its yield potential.

Drilled on 18 October at a seed rate of 275kg/ha, his crop received a total of 325kg/ha of N in six applications and four fungicides, at a cost of £106/ha, in an approach he describes as "kitchen sink farming".

"The trouble with this is that if it doesn't yield, for whatever reason, you're in trouble," he says. "We did it for the Yen entry, as we're on the cusp of learning more about crop nutrition. Otherwise, the farm's cost of production for wheat is pegged at £80/t."

Bronze went to Mr Passmore in Oxfordshire for a crop of Kerrin, which achieved 80% of its potential on a chalky Grade 3 soil.

Sown on 1 October at a seed rate of 350kg/ha, Mr Passmore's crop also received 230kg/ha of N in four applications. Good use of pig manure and getting the basics right were the reasons he gave for its success, which was achieved despite the crop having a below-average number of ears/sq m .

"It compensated for that by having a higher number of grains," he reports. "These Yen crops can be high risk, so I used four fungicides at a cost of £123/ha and three plant growth regulators."

BEST POTENTIAL WHEAT YIELD

Scottish grower Donald Ross took the top accolade for best percentage of potential yield, with a 12.8t/ha crop of Skyscraper that managed to hit 93% of its potential.

Lots of muck and an extended autumn helped his 5 October-drilled crop put on good early growth, while five splits of nitrogen and three applications of potash were used – an approach Mr Ross has developed by learning from previous Yen reports.

Mr Wainwright was second, with 88% of a 17.4t/ha yield potential, while a first-time entry from Kaido Kirst in Estonia took third place with 86% of 11.3t/ha.

NUTRITION FOCUS

The new focus for Yen will be crop nutrition, with the intention to look at soil, tissue and grain nutrient levels and develop thresholds for 12 nutrients.

"We know that magnesium in the soil and the seed, phosphate in the seed and iron in the seed are all associated with high yields," says Adas' Sarah Kendall.

Half of the crops entered into Yen are deficient in P, while only 27% of crops have no deficiencies.

"There's more to learn and we're looking forward to working with our Yen farmers to expand our nutrition knowledge and develop best practice."

REGIONAL AWARDS – HIGHEST YIELD OF CEREALS

- **Scotland** David Bell, Fife: 14.3t/ha
- **North** Richard Wainwright, North Yorkshire: 15.2t/ha
- **East Midlands** Mark Stubbs, Lincolnshire: 16.3t/ha
- **East Anglia** John Benton, Norfolk: 12.8t/ha
- **West** Andrew Williamson, Shropshire: 11.8t/ha
- **South East** David Passmore, Oxfordshire: 14.8t/ha
- **South West** Mark Doble, Somerset: 14.3t/ha
- **Non-UK** Hubert Rijk, the Netherlands: 13.2t/ha

NATURE OR NUTURE?

The Adas team behind the Yen competition has identified the weather factors that are associated with high yields, but stress that the yield variation associated with seasonal factors is less than that associated with farmers and farm factors.

Pete Berry, head of crop physiology, has looked at the influence Mother Nature has on final results, going back as far as 1970, to understand more about the effect of weather on yields.

In wheat, there are four parameters, which together account for 30% of yield variation:

1. **Dry November** Gives better plant establishment from minimal waterlogging
2. **Cool May** Results in better tiller retention and lower respiration
3. **Cool 21 June to 11 July** Brings improved fertility and grain set, less respiration
4. **Non-windy July** Reduces lodging

In oilseed rape, there are five factors, which together account for 37% of yield variation:

1. **High maximum temperature in October** Leads to strong autumn growth
2. **Dry December** Results in less waterlogging, 50mm below average rainfall give 0.11t/ha more yield
3. **High minimum temperature in March** Stops any checks to growth
4. **Sunny/dry April** Prevents excessive canopy growth, with 50mm less rain giving 0.2t/ha extra yield
5. **Cool/wet/dull May** Gives better seed set

"Given the uptake of Yen by growers and their willingness to collect and share data, we now have some very useful insights," says Sarah Kendall of Adas.

Dr Kendall adds that large cereal yields come from large crops, which have more ears than average and tend to be taller. Husbandry factors that matter include:

- Following a break crop
- Narrow drill widths
- Applying slurry
- Adequate N use
- Several plant growth regulator applications

"However, it isn't all about how much you spend on them – it's attention to detail," she says. "The cereal Yen shows high-yielding crops are associated with high ear numbers and high final biomass, which are carefully managed."

The OSR Yen demonstrates the need to maximise seed number and have a focused approach to inputs. Higher yields come from a longer period between flowering and desiccation, as well as greater use of fungicides and plant growth regulators, but fewer herbicides.

"With the exception of this year's winner, higher yields also tend to come from crops grown at lower seed rates," she says.

OILSEED RAPE, BARLEY AND INNOVATION AWARDS

A record-breaking oilseed rape yield of 7.19t/ha saw Kent grower Richard Budd win the OSR Yen competition this year, also taking the best potential yield award with 85% of 8.4t/ha.

His crop of Campus was grown on virgin land using home-saved seed and wasn't drilled until 14 September, at a seed rate of 7.5kg/ha, with a target of getting 60 plants established/sq m.

Grown after wheat and established by strip-till, the crop had very little trouble from flea beetle and received Mr Budd's standard herbicide programme of Centurion Max (clethodim) and Kerb (propyzamide). Two applications of fungicides and plant growth regulators were made, while 230kg/ha of N went on in three splits.

Late drilling, high sunlight levels and a kind winter all helped, Mr Budd believes, although he also credits regular tissue testing, plenty of luck and close attention to detail.

His approach is to develop a large crop canopy, dominated by the main raceme. His Yen entry was grown using the farm's standard programme, rather than receiving additional inputs.

Second and third places were taken by Richard Wainwright and Mark Stubbs – who were both also successful in the wheat competition, and grew DK Exclaim, using mid- to late August drilling dates.

Mr Wainwright's OSR yielded 6.82t/ha and was a monster crop from day one, so his strategy was to keep it greener for longer. The exposed location kept the flea beetles away, while his annual use of cattle muck meant it only required one 40kg/ha N application.

He credits early drilling (17 August), the use of muck and luck with the weather for the very high yield, but also points out that he didn't desiccate the crop. He also took silver for the best percentage of potential yield, with 72% of 9.4t/ha.

Mr Stubbs ended up with a yield of 6.77t/ha from a crop drilled on 27 August at a seed rate of 45 seeds/sq m. Shot holing from flea beetle feeding was evident, he reveals, but early spring nitrogen helped the crop to grow away.

A good, but uneven, canopy allowed maximum light interception, with the flowering period extending to eight weeks. "Having entered the oilseed rape Yen before, I used the information from the reports to fine-tune my approach."

David Fuller-Shapcott in Roxburghshire received bronze in the potential yield category, with 63% of 10.1t/ha. Growing the hybrid INV1035, he aimed for a low plant population and kept the canopy going – possibly helped by the desiccation spray being washed off soon after application.

Spring barley

The first-ever spring barley Yen award was won by Alex Wilcox from Norfolk with a yield of 10.7t/ha. He also took the title for best percentage of potential yield, with 72% of 14.9t/ha.

His crop of Laureate was drilled on 15 January at a rate of 235seeds/sq m (127kg/ha) and received 110kg/ha of N in two splits, two fungicides and one plant growth regulator. Manganese and boron were also applied.

Mr Wilcox uses both organic manures and soil conditioners, having seen spring barley performance drop by 2t/ha on new land that hadn't been improved.

"I want spring barley to stop being the poor relation," he says. "That can mean treating it more like a winter barley and getting it to set big ears, so I've been tinkering with its agronomy."

The grain N in the winning crop was 1.8. "I have reduced N use from 140kg/ha to 110kg/ha and will probably trim that back to 100kg/ha this year," he says.

Innovation awards

Peter Chapman from South Redbog Farm, Strichen, Aberdeenshire, was the well-deserved recipient of the Innovator of the Year Award.

This award recognises his efforts at initiating the Scottish Yen growers group, driving the spring barley competition and developing ideas to achieve crop momentum.

Commendations went to David Fuller-Shapcott of Roxburghshire, Chris Eglington of Norfolk and Ed Horton of Gloucestershire.

INTA-AG SOYA UPDATE

Well our non GMO Soya break crop is making progress, despite the intense heat and lack of rain surprisingly it is producing a healthy crop of soya beans.

The team want to thank Andrew Bayley and all of the growers who made the effort to come and view this break crop opportunity, especially at this very busy time of year.

Harvest date is March, update to come!

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