Inta-Ag Mag

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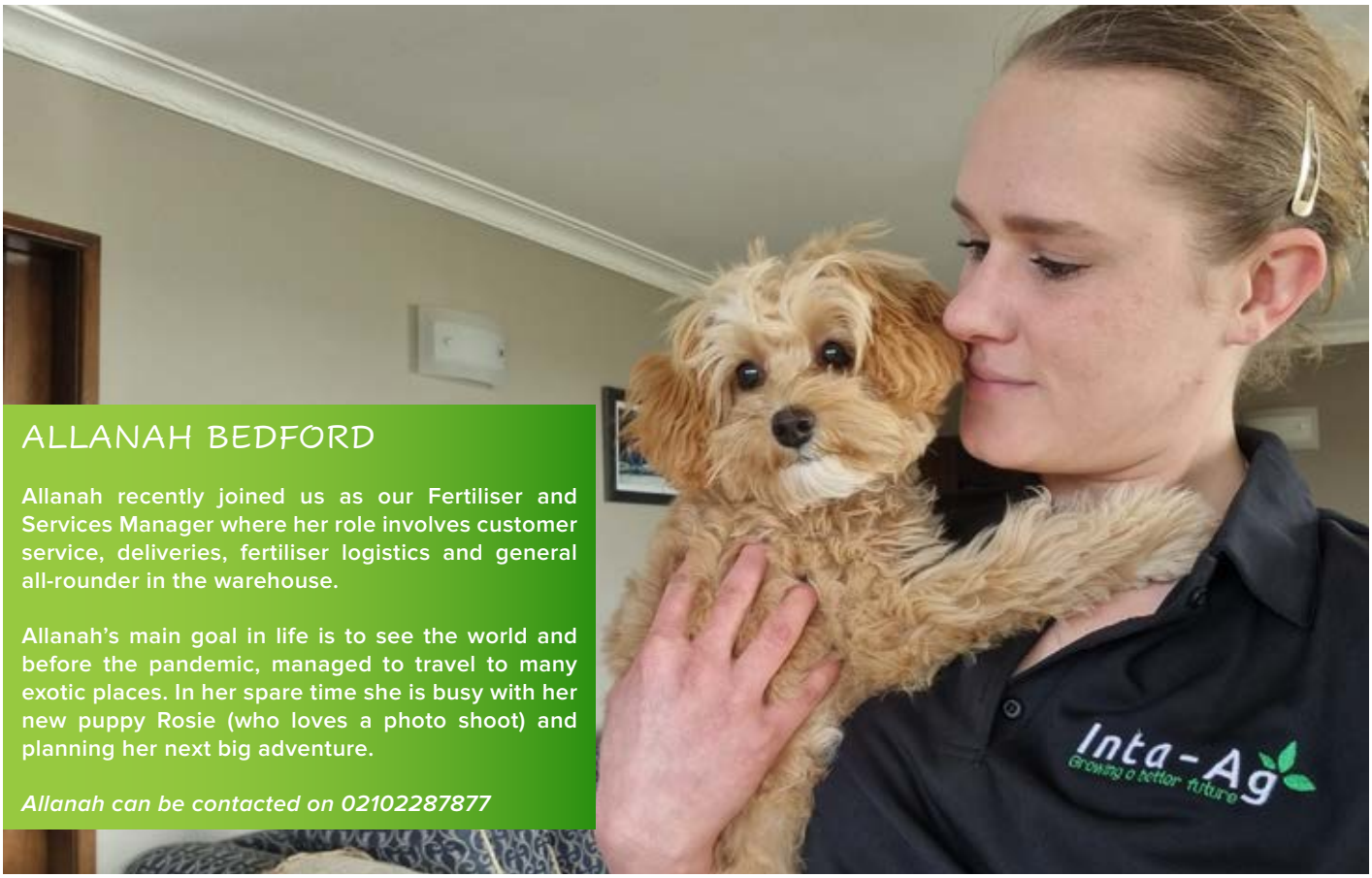
Who's new at Inta-Ag

CRAIG BIRCH

Craig has recently joined the Inta-Ag team as an Agronomist after running his own Horticultural business for more than 15 years in Pukekohe. He's enjoying getting to know and building new relationships with our growers, as well as still providing an excellent service for his existing customers.

On the weekends you can find Craig fishing, trail biking or hanging out with his kids on the sports fields

Craig can be contacted on 021 730 475.



ALLANAH BEDFORD

Allanah recently joined us as our Fertiliser and Services Manager where her role involves customer service, deliveries, fertiliser logistics and general all-rounder in the warehouse.

Allanah's main goal in life is to see the world and before the pandemic, managed to travel to many exotic places. In her spare time she is busy with her new puppy Rosie (who loves a photo shoot) and planning her next big adventure.

Allanah can be contacted on 02102287877

Pre-emergence herbicide strategy

POTATO REVIEW UK | MARCH/APRIL 2022

In the second in our series of articles, Andrew Goodinson, Agronomist and potato specialist at Hutchinsons, offers insights to help growers develop a cost-effective weed control strategy.

WEED control in the early stages of crop development is vital for achieving high yields. Knowing your field, including soil type, layout and topography, as well as previous cropping and current weed burden, is the keystone to staying ahead of the game by devising a made-to-measure herbicide strategy, according to Andrew.

One of the challenges many growers face is that they are growing on rented land, so the knowledge of the previous history of the field can be limited, so he likes to walk the field, inspect stubbles and map out and identify patches of weeds, identifying control priorities.

Andrew said: "There are a wide range of soil types and weed spectrums, and as you cultivate you can bring up buried weed seeds, some of which can be more of a threat than others.

"Weeds such as bindweed and cleavers can grow though the crop and smother the canopy, while others, such as fat hen, oilseed rape, and thistles also compete with the crop for nutrients, light and water.

"Those of a similar family to the crop, such as cleavers and black nightshade (Solanum nigrum), not only compete, but they can also host pests such as Rhizoctonia which can hit quality and yields."

Black nightshade, which is prevalent where Andrew is based in the west, is one of his 'priority weeds'. According to the AHDB, seeds can remain viable in the soil for over five years, and may also eaten by cattle when grazing, so seeds are then passed out and applied back onto the field.

"Fortunately, we have still some useful tools, such as Defy (prosulfocarb), Artist (flufenacet) and Inigo (metobromuron), which help keep on top of black nightshade control, although it is an area of weakness for aclonifen.

Fat hen is another priority weed, as it has a high number of seeds and grows rapidly and can cause shading of young crop plants. "One of the problems of this weed, which likes high nitrogen loams and sandy soils, is not only does it compete for nutrients but it can also grow higher than the spray boom, and can affect blight spray efficacy. It can also create a micro-climate where blight spores can proliferate."

In areas where fat hen is prevalent, Andrew recommends aiming for pre-emergence control, and then if the weed is present at the time of spraying, using protoporphyrinogen oxidase (PPO) inhibiting herbicides as part of a tank mix to remove any which have emerged.

Other weeds high on Andrew's priority list include black bindweed, cleavers, fumitory and thistle.

HERBICIDE OPTIONS, SOIL TYPE AND VARIETAL SENSITIVITY

Input costs are going up, but it is well worth choosing products that will fit the crop, soil, the harvest interval and work on the shape of the beds, Andrew said.

Soils in the area are sandy, or sandy loams, and can be quite challenging when it comes to pre-emergence herbicides, because applications of some residual active substance can cause crop damage in certain potato varieties. As such, any susceptibility should be taken into account in the decision-making process, he advises.

"Herbicides move through sandy soils more quickly than heavier ones, so persistence is shorter. However, as these soils tend to be used for growing earlies or salad potatoes, which are lifted earlier, so you do not need activity for such a long time.

"In addition, if you are growing first earlies, a second crop may be planted, so you need to take into consideration whether it will be affected – some residuals such as clomazone can persist in the soil and affect following crops such as onions."

Andrew recommends basing strategies around metribuzin, but, as every field and situation is different, adding others to the mix depending on weeds and soils.

Soil type can affect activity of some of the herbicides, but one which is popular and can work across different soil types is a base mix of metribuzin and aclonifen.

"Metribuzin with metobromuron is another useful tank mix for pre-emergence control, and aclonifen can make a useful addition to controlling your weed burden," he said.

"If the weeds have already emerged, then you may find that adding in a PPO inhibitor such as pyraflufen-ethyl, which disrupts the cell membrane, at a rate of 0.4l/ha, is the best way forward."

For priority weeds such as cleavers, he recommends a mix that includes metribuzin and prosulfocarb. "If you are growing varieties that are susceptible to metribuzin, then a good alternative is to opt for metobromuron and prosulfocarb or aclonifen.

Not all seasons go to plan, and when goes on to note that when unexpected weather events result in a flush of weeds well before emergence, and a pre-planting application of glyphosate was not put on, there is an option to use Roundup Flex immediately after planting.

"This is a particularly useful get-out-of-jail strategy if you have volunteer cereals or grassweeds, as the PPO herbicides are weak in this area," said Andrew.

Bentazone is another useful but more expensive option if pressure from black nightshade or cleavers is very high but he cautions that care needs to be taken to ensure compliance with stewardship guidelines and prevent the product getting into groundwater.

"With bentazone, getting the timing right can be difficult," he said.

If, for any reason, pre-emergence herbicides do not go on at all, Andrew recommends going in with Rimsulfuron. "It is better to go in with something rather than leave the weeds to proliferate," he said.

He also reminds growers not to spray when heavy rain is forecast, because of the risk of run-off into water courses. "We must not allow ourselves to become complacent about run-off."

HERBICIDES FORMING THE BASIS OF THE WEED CONTROL STRATEGY, THEIR STRENGTHS AND LIMITATIONS

ACTIVE INGREDIENT	STRENGTHS	LIMITATIONS	COMMENTS
Metribuzin	Good activity across a broad weed spectrum on a wide number of soil types	Not much activity on polygonums	Good basis for overall weed control strategy but care needed because of the sensitivity of some varieties (e.g. Innovator, Maris Piper and Lady Claire)
Clomazone	Good activity on groundsel and nightshade,	Highly soluble in water and quite volatile so drift control may be necessary	Contact and residual activity, and a good tank mix when used with metribuzin
Pendimethalin	Good activity on fat hen, cleavers and chickweed	Not suitable for use on light soils or before rain	Affects growing tip of crop and weeds, good activity when used in a tank mix and applied early
Prosulfocarb	Good activity on cleavers and black bindweed (but rates need to be kept up)	Short persistence in soil, particularly if conditions are dry and warm	Good crop safety and works well on light soils, so is a useful alternative for metribuzin-sensitive varieties
Aclonifen	Good activity on fat hen, brassicas and polygonums	Less effective on black nightshade and fumitory	A new mode of action and good in tank mixes
Metobromuron	Good activity across a broad weed spectrum	Rates need to be kept up for efficacy	Similar spectrum to linuron, safe on all soil types. Suitable for metribuzin-sensitive varieties
Flufenacet	Good activity on grassweeds e.g. Blackgrass and ryegrass, and black nightshade, moderate activity on cleavers	Limited activity on fumitory, cranesbill and poppies	Tends to be used too frequently elsewhere in rotations for black-grass control, so other chemistry should be used to prevent over-exposure. Not available as a stand-alone active, only supplied in mixes
Cycloxydim(Laser)	Good activity on grassweeds and volunteer cereals		Good crop safety, but can be costly if trying to control couch
Fluazifop-p-butyl (Fusilade max)	Useful activity on volunteer cereals, bromes, wild oats, ryegrass	Not as active on blackgrass as Cycloxydim	Should be used before flowering
Propaquizafop (Falcon)	Useful for patches of couch, cost effective	Can lead to variegated leaf colour on top of the crop (but does not affect yield)	7 week harvest interval on early crops, 8 weeks on maincrop
Rimsulfuron (Titus)	Useful activity on leavers, brassicas	Little activity on grassweeds, fat hen, fumitory, mayweeds	Foliar activity and is not for seed crops because of bleaching

MAKING THE MOST OF HERBICIDE EFFICACY

Once the weed burden has been identified and decisions taken on which actives to use, Andrew then likes to spend time thinking about how to ensure maximum efficacy from spraying; reducing potential run-off and keeping booms level. If the farmer has the Omnia technology, plans can be drawn up where the tramlines should be before going into the field.

"I use the system to map where structures such as trees and pylons are placed, and plan tramlines so the operator can fold in one section of the boom, preventing spray misses or overdoses as the sprayer words around the obstacle," he said.

The spray operator can also use Omnia to pinpoint an area of interest in the field that he wants the farmer or agronomist to check, he adds.

TIMING CRUCIAL TO EFFECTIVE HERBICIDE MANAGEMENT

The withdrawal of cheap and flexible herbicide diquat has meant agronomists and farmers have had to rethink timings and management, Andrew said.

"If time and workload allows, the optimal time to apply herbicide is now between seven and ten days after planting."

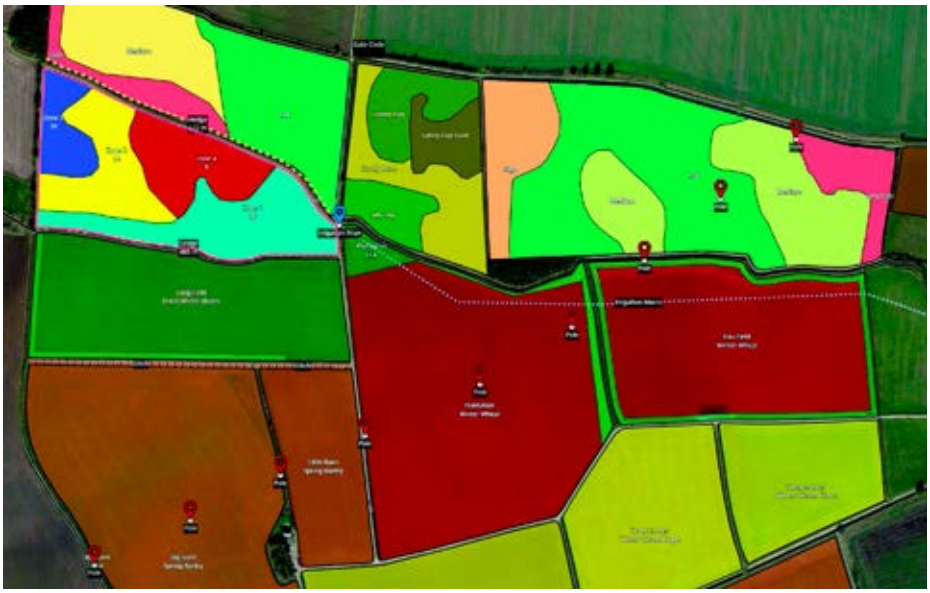
Residual and contact herbicides are normally applied together seven days before emergence 70 percent of the time, and recommends using contact herbicides until the crop is at five percent emergence, although this can be stretched to 10 percent in maincrop.

"If the crop is at 50% emergence, it can hit the plants and slow development by a week while it recovers. Whatever the old wives' tales say about the crop making up for it, you really don't want to stop it growing. But it can be a difficult decision whether to hold crop growth for a week or a potential hit on yield because of weeds."

Strategies such as re-ridging after planting can affect herbicide application timings, Andrew points out, as the herbicide should always be applied when the ridge has had time to settle.

"If the crop is about to emerge, any delay in application due to weather changes may result in a contact herbicide going on late with the subsequent risk of crop damage."

Over the past few years, dry spells during spring have it difficult for pre-emergence herbicides to work effectively as they rely on moisture for the weeds to uptake them. There can be added problems too, as dry ridges lose soil from their sides, so when moisture arrives, weeds germinate and can grow away unchecked.



"If spraying is delayed, it is a good idea to avoid actives such as pendimethalin and clomazone because of their effect on the growing point of the crop. In this case, if possible, I advise opting for a mix of metribuzin + Rimsulfuron. A sulfonylurea herbicide such as Rimsulfuron will work most effectively against small actively growing weeds, so an application can target weeds at cotyledon four-leaf stage.

"Together, these two do a better job than you would think, but before you go ahead, it is a good idea to make sure the variety is not sensitive to either of these actives."

He adds that any spraying should be done before the crop height reaches 25cm, because afterwards the crop will find it difficult to repair the damage, noting that both Adama and NuFarm have useful information on sensitivities on their websites.

Phytotoxic effects of Rimsulfuron include paling and blotching of leaves, which look similar to those caused by virus, so he advises seed growers to avoid this herbicide if possible, as it could lead to confusion.

SPRAY APPLICATION TECHNIQUES DRIVE EFFICACY

Water rates, boom height, forward speed and nozzle choice all contribute to efficacy, says Andrew.

Getting the right nozzle choice is the first step to getting the spray on target and reducing drift, and Andrew's nozzle of choice is the Defy forward/backward facing nozzle.

"For good foliar coverage, the water rate needs to be 200l/ha and the forward speed should be between 10-12km/h. Any faster and you will fail to get cover on the ridge slope which is where the weeds germinate. The outside of the headland is often missed when spraying, but if you miss it with a herbicide, you are also likely to miss it when you go in with the blight spray."

Going through too fast can reduce efficacy as it is not hitting the target, which wastes valuable product and can go against environmental guidelines, he warns.

To help speed up spray times, he advocates marking out tramlines before going in with the tractor, so the paths are clear for the spray operator.

This is particularly useful a wet season, because the tractor firms down the wheel-marks for the sprayer to travel on.

Summing up, Andrew notes that having potato crops in the rotation can be a useful to an overall strategy because it offers a way forward with weeds difficult to control in combinable crops, such as ryegrass and blackgrass.

"Careful consideration of all the areas needing attention to detail and discussing the risks with your agronomist will help need to ensure the best strategy for your particular conditions." ◆

ETHOMATE® Proves Valuable Tool for Onion Weed Management

ETHOMATE herbicide has proven to offer onion growers an effective new tool alongside existing weed management options. “Season 2021/22 was ETHOMATE’s first full season of use and the feedback from growers that integrated ETHOMATE into their herbicide program’s was extremely positive” says Darren Faire, Business Development and Marketing Manager at Agrisource. He adds “We saw ETHOMATE used across all the key onion growing regions this past year, at a range of application rates and tank mix combinations which was very pleasing”

Registered for post-emergent use in onions, ETHOMATE provides good suppression of several key weeds, including black nightshade, fathen, fumitory, hairy nightshade, spurrey, twincress, white clover and wireweed. The field experience from users last season was this suppression effect enhanced overall weed control when used in a program with many of the other key selective herbicides typically applied in an onion weed control program. “Its ability to be tank mixed with many existing onion herbicides has been a welcome benefit for growers” comments Darren. ETHOMATE is absorbed by young shoots of susceptible weeds, its post-emergence activity is targeted at very young weeds as ETHOMATE is not absorbed by leaves after the plant has produced a mature cuticle. Target weeds should be no more than the two leaf stage for optimum efficacy. With a use rate range of 900-1200mL/ha, use the higher rate if weeds are past the first true leaf stage at the time of application.

The successful performance of ETHOMATE has not come as a surprise to Agrisource. The products active ingredient, ethofumesate has been registered for use in New Zealand since 1975 and for some time has been registered for use specifically on onions in countries such as Australia and the USA. For a Pukekohe based, privately owned New Zealand company, Agrisource recognized the need for the onion industry to have new solutions for weed management and committed the substantial investment to secure an onion registration for ETHOMATE. “Growers need access to post emergent herbicides that are specifically registered for use on onions, carry label directions and have proven efficacy and residue profiles. ETHOMATE is the only ethofumesate brand registered for onion use. Agrisource is proud to have brought the product to market. Its another tool to help growers maximise yield and crop quality” says Darren.

For advice on how to get the best out of ETHOMATE in your post-emergent onion herbicide program this season talk to your Inta-Ag agronomist.

® Ethomate is a registered trademark of Agri Solutions Limited Registered pursuant to the ACVM Act 1997 No. P9807

GROWER TESTIMONIAL

Bharat Jivan (M Jivan Ltd) We have found Ethomate a safe tank mix partner when mixed with other Onion herbicides. It provides good knockdown.It was particularly strong on Clover & Self set Potatoes

Foresite® onion herbicide now available at Inta-Ag

- Proven selective, residual pre-emergence onion herbicide
- Effective against a wide range of grass and broad-leaved weeds in onions
- Long lasting control up to 6 weeks
- Contains 380g/litre oxadiazon
- Available in 5L pack

For advice on how to get the best out of FORESITE in your onion herbicide program this season talk to your Inta-Ag agronomist.

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WE ARE PROUD TO ANNOUNCE THE WINNER OF THE 2021 SYNGENTA/INTA-AG POTATO YIELD COMPETITION

CONGRATULATIONS SUNDALE FARMS!

INTA-AG IN ASSOCIATION WITH SYNGENTA WOULD LIKE TO THANK EVERYONE INVOLVED IN THIS SEASONS COMPETITION

Trial reports will help Potato growers optimise operations

THE VEGETABLE FARMER UK | MARCH 2022

Updates on the wide-ranging trials undertaken to help potato growers optimise their operations were presented at the Scottish Agronomy Results Day held online last month. Heather Briggs reports.

Soil health is key to delivering climate change mitigation strategies as it is fundamental to carbon sequestration, said potato senior agronomist Eric Anderson of Scottish Agronomy.

Climate change is driven by more than just carbon, with nitrous oxide and methane emissions - both of which are produced by agricultural foodgrowing activities - playing an important role.

"One of the challenges our industry faces is that nitrogen (N) drives productivity but nitrous oxide emissions occur in response to nitrification and denitrification from microbial processes, and soil health determines their potential to escape into the atmosphere."

Drivers of soil strength
Clay content
Dry bulk density
Organic matter

Mitigation options for reducing N2O emissions from soils is extremely complicated, highly farm specific, and rely on environmental conditions such as the weather.

Priorities include

- Effective drainage
- Mitigation of deep soil compaction
- Conversion of headland to biodiversity habitat to eliminate the less productive areas
- Maintenance of adequate pH throughout rotation
- Use or urease inhibitors Eric called on growers to reflect

on the effects of compaction and use of machinery in the field in wet conditions, pointing out that not only does compaction limit root growth, but remedial activities such as subsoiling, can release NO3 to the atmosphere. [link to Matthieu's talk]

WHAT IS NET ZERO?

Net Zero is the Governments strategy to achieve a balance between emissions emitted into the atmosphere and sequestration of greenhouse gases, principally carbon dioxide, methane and nitrous oxide.

Straw mulch in potatoes.

Movement towards net zero include carbons sequestration, through removal of carbon from the atmosphere and locking it up in vegetation or soil organic carbon. Soil organic carbon sequestration is not an alternative to emissions reductions.

Sequestration should not be dismissed nor exaggerated. Increased soil carbon does not guarantee increased crop yield but it does help. Generally, more soil organic matter is a good thing. Carbon affects soils in a number of ways, including:

- Organic matter
- Water relations
- Aggregation and structure
- Soil biology
- Nutrient cycling

The larger picture includes reducing deforestation at global level, and decarbonising energy production, but there are biological challenges to improving nitrogen use efficiency and reducing livestock numbers.

Eric said: "There are few easy wins, and we need more information on critical indicators and thresholds.

"There needs to be an additional transfer of carbon from the atmosphere to the soil and not just the redistribution of it within the soil or landscape."

A further challenge is that soil type and structure affects the ability to sequester carbon; sandy soils cannot absorb as much as silt or clay.

"Small increases are very beneficial for soil function, but changes in structure and biology are slow."

"We need policies which will offer incentives for increased soil carbon based on measurements able to monitor, report and verify changes in bulk density measurement."

GROUND-BREAKING RESULTS ABOUT COMPACTION REVEALED

Presenting results on new research on compaction, Aarhus University senior scientist Dr Mathieu Lamande revealed that the effect of redistributing stress in different soils has provided some surprises.

Most farmers are aware that traction from machinery, particularly the stresses caused by towing heavy trailers, will deform soils. Many have moved to using larger tyres which work with a larger contact area and lower inflation pressure, while others have changed to using tracks.

Mathieu said: "When we compared tracks to large tyres for the same machinery, we found that tracks had the most effect on air permeability in the soil."

Another revealed that it was repetition of the wheeling on the same that created the most damage.

"The first wheel creates soil deformation which then puts it more at risk when subsequent wheels pass over the same place, so the higher number of passes, the more the damage."

However, some of the detrimental effects of different wheels and tracks was not visible at the soil surface, but lower down the profile beyond the reach of a subsoiler.

"There needs to be greater awareness between trafficability - the ability to drive in the field - and resulting deep compaction."

To help growers understand and make decisions on what is right for free online tool which identifies compaction risk under different scenarios of soil texture, soil water status and machinery type.

"Growers can compare the effects of using different tyre widths and inflation pressures on surface stress, or a trailer with more axles."

"We have to remember that under wet conditions stress levels do not change much, but the soil has less strength, so risk of compaction is greater."

SEED POTATO INNOVATION ASSOCIATION

Following the demise of AHDB Potatoes, one of the concerns raised by numbers growers has been how research will be organised and funded.

Eric said: "Tracing clonal spread and survival of late blight is critical and late blight management strategies, especially fungicide programmes, need to be constantly updated to reflect the risk.

"Were it not for the EuroBlight project, of which AHDB Potatoes was a contributing partner, the damage inflicted on crops by the likes of fluazinam-insensitive
37 _ A2 or metalaxyl-resistant
13 A2 would have easily run to tens of millions of pounds before anyone learned what was happening.

"That we avoided this crisis is a direct result of the funding provided by the AHDB potato levy. There needs to be a collective identification of what needs improvement and a focus on which goals are a priority."

He proposed an initial voluntary association of potato seed growers, partly because growers of both ware and processing potatoes rely on good quality seed. The sense of urgency is perhaps greatest in the seed sector.

As the administrative apparatus needed to enable it is already in place to support the seed sector, it seems obvious to start here. It can in due course be extended to ware and processing growers. Partnerships with other organisations and institutions can be explored too, where doing so would be of mutual benefit.

"Both Scottish Agronomy and SRUC believe grower-supported R&D should continue, and we are keen to explore with growers how this may be achieved. ◆

Carbon affects sail in several ways.

ALTERNATIVE METHODS OF VIRUS CONTROL

Over-reliance on pyrethroids for aphid control has led to selection for resistance, so alternative approaches need to be assessed for their efficacy, said Eric.

Aphids such as the peach potato aphid (Myzus persicae), the potato aphid (Macrosiphum euphorbiae) and the willow carrot aphid (Cavariella aegopodi1) are known to vector viruses which can devastate the seed potato

Virus is a serious issue for seed potato crops. After seeing an increase in down-gradings due to mosaic virus in the previous three years, the seed area not holding grade due to mosaic virus decreased in 2021, to 4.1 percent of the seed area entered for inspection, down from 5.0 percent recorded last year and 4. 7 percent in 2019. The seed area in which leafroll virus was recorded was up again this year, to its highest level since 2009. Mosaic virus accounted for more of the seed area not holding grade at inspection than any other growing crop inspection fault, including blackleg, in 2021.

"We know that the use of mineral oil helps protect against PVY, but it is incomplete so other, complementary methods are called for."

Changes to the New Certis Insyst label (20 percent w/w acetamiprid) as of 14 Dec 2021 bring in new label restricts limiting application between BBCH 40 tuber initiation and end of July. A minimum interval of 21 days must be observed between applications to seed potato. Additionally, changes to Afinto and Tepekki labels mean the products (50 percent flonicamid) will only be supported in ware potatoes going forward. This change creates a severe challenge for PLRV control in seed crops.

Trials undertaken at the SPot Farm Morphie, St Cyrus, and Coal Farm, Fife, were led by Scottish Agronomy and explored the efficacy of mineral oils, straw mulches and wildflower margins in separation beds between seed crop stocks. Results were compared with crops treated with the insecticide Tepekki and Insyst (with Newman Crop spray applied until tuber initiation) and Newman Crop spray applied alone.

Both winter wheat and spring barley straw were trialled, with results suggesting they were a practical mitigation strategy for seed crops classified as FG1 and FG2. This is because in these crops there is a disproportionally high number of blank beds, and the contrast between canopy and soil is known to attract aphids.

However, he pointed out, straw mulch does not protect the crops from late vector migration. In the trial, straw was chopped and mechanically spread over seven beds planted with the variety Daisy at the rate of 6t/ha after the application of a pre-emergence herbicide.

"We found that wheat straw chopped better than barley straw, and rots down more easily," commented Eric.

The crop was also treated with mineral oil early in the season.

The straw was retained until harvesting took place on 14 October, and he was pleased to find it did not block the harvester (a Standen T2) but flowed freely.

"The crop covered with the straw mulch yielded extra tuber numbers, which may be due to it having kept the seedbed warmer and also retained moisture in a dry year."

The result was that incidence of PVYN was down by 40 percent, while leafroll virus dropped by 59 percent.

"The mineral oil and straw complemented one another and are a good option for controlling noncolonising aphids such as the willow carrot aphid, but it does not affect colonising aphids later in the season."

He recommends that growers combine activities such as straw, mineral oils and encouraging aphid predators through the use of wildflowers, and warned that protection from virus needs to last until the canopy is completely dead.

Top tips for control and management of aphids

- Only plant certified seed or virus-free home saved seed
- Minimise PVY inoculum in seed, and reducing the spread of PVY in the field
- Remove any potato volUhte·ers in nearby environment • Apglication of 2 percent V/v mineral oils has been consistently shown to be effective at reducing the spread of PVY
- Apply straw mulch for FG1-2 crops could significantly reduce virus transmission
- Minimise tuber transmission of viruses, using post-desiccation and pre-harvest testing especially when grown in areas with high virus and vector pressure
- Manage potential sources of inoculum by roguing, avoiding proximity of ware and carrot crops
- If in a high pressure area, grow varieties with low susceptibility
- Control aphids throughout the whole growing season