Inta-Ag Mag

JULY 2022

Inta-Ag

‘No fuss mash’

Family of growers set up their own line of speciality produce, with a ‘personal experience’ thrown in.

POTATO REVIEW UK | MAY/JUNE 2022

A POTATO farming family has launched a range of fresh ‘ no fuss’ premium mash, cooked and packed on their farm on the East Coast of Scotland.

Andrew and Anita Stirling have grown potatoes at Upper Dysart Farm near Montrose for 30 years and in the early 2000s set up ‘Stirfresh’, supplying washed and peeled fresh vegetables for schools and hospitals across Scotland. In recent years, they have built on this to create convenient ‘easy veg’ for retailers, from turnip mash, soup packs and par-cooked baked potatoes, and are the largest supplier of washed potatoes to Aldi in Scotland.

With the rise in demand for healthy convenient meals, they have invested in the latest technology to create a series of vegetable side dishes with long shelf lives.

Launching at Scotland’s Speciality Food Show in Glasgow recently, the initial seven flavours - chorizo mash, wholegrain mustard mash, cheesy mash, haggis ‘n’ mash, colcannon mash, root veg mash and classic creamy farm mash - cook in under four minutes and whistle when the mash is evenly warmed and ready to eat.

Their four children, Alexander, Jessica, Hannah and James, have all returned to the farming business. The youngest sibling, James Stirling, makes the mash, and spent many months perfecting the balance of ingredients for each flavour.

He said: “We have seen the rise in demand for fresh, healthy convenient food, but with a greater consciousness around health, customers don’t want a long list of preservatives. We wanted to create a high-quality, honest, home-style product that customers can fit into life, whether it’s feeding the family or a nutritious meal-in-one to sustain you at work.

With quick cooking, we are sealing in the goodness of our potatoes from the farm for customers to enjoy all the freshness, taste and nutrients without unnecessary additives. The long shelf life then allows retailers to hold stock for longer, save costs in supply and reduce food waste.”

Side dishes and soups are also be produced and will be sold from vending machines at the farm’s coastal setting above Lunan Bay.

Eldest daughter Jessica, who has masterminded the on-farm Larder with the family, said: “We will be building the Upper Dysart Larder brand through our farmgate sales and social media, to support retailers to sell our products. Buying from the vending machines will not only be convenient and easy but seeing the farm will be part of the experience, particularly for young children, to encourage them to see and enjoy their vegetables in a different way. There will usually be someone from our family around to chat to and find out more about what we do here, and the Larder is close to plenty of lovely beach walks so customers can make an outing of it.” ◆

Late blight toolbox: 'Use it to its full extent'

POTATO REVIEW UK | MAY/JUNE 2022

Alternaria leaf tissue monitoring at NIAB. Photo: Syngenta

Andrew Goodinson, Agronomist and Potato Specialist at Hutchinsons, offers seasonal insights into late blight (Phytophthora infestans), early blight (Alternaria alternata and A. solani) and aphids.

GROWERS should not lower their guard when it comes to late blight control, and should invest in a range of actives that can be applied according to the conditions and stresses present when Hutton Criteria are triggered, Andrew Goodinson has stated.

Genotyping undertaken at the James Hutton Institute identified increased incidence of new blight strain 36_A2 to 36 percent of outbreaks in England, whilst fluazinam-insensitive 37_A2 (formerly known as Dark Green 37) was less prevalent than in 2020. Its previous rise caused alarm bells to sound across the sector, resulting in growers reducing the use of fluazinam in their blight control programmes to ensure resistance management. However, this resulted in an increase in costs.

Andrew said: "Now that 37_A2 is on the wane, fluazinam can responsibly be re-incorporated into programmes again. However, it should only be used at full rate (400ml/ha) mid-programme and growers need to be careful not to select for 37_A2 by using it on its own.

"For example, fluazinam can provide important cost-effective benefits as part of a mixture with other actives such as mancozeb. It has other benefits, too, for example it can also help keep on top of Botrytis cinerea which can infect stems and leaves during flowering. "

At GB level, in 2021, the James Hutton Institute found that 40% of the sampled late blight population were 36_A2, and although this is an aggressive strain, but has no known insensitivity to any of the fungicide groups. As such, while growers may need to use their arsenal to the best effect, they do not need to avoid any particular actives when it is identified in their area. The formerly dominant strain 6_A1 (Pink 6) was reduced to 24 percent across the country, but in the Hereford area where Andrew is based, it is usually the first one to come into the crop each year.

"There are some varieties that are particularly susceptible to 6_A1, such as Taurus and Lady Rosetta, so when deciding on the order in which fields should be sprayed, they should be prioritised. I used to use Shirlan (fluazinam) at rosette stage, but because of the threat from 37_A2, for the last two years we have amended our strategy and have found Ranman Top to fit in well at this stage," Andrew said.

Andrew also likes to include Proxanil (cymoxanil and propamocarb) in his programmes because of its suitability throughout the season, noting that it is persistent, systemic and moves well in the plant. It also offers some curative activity.

Most fungicides only provide protection from infection and very few of the currently available actives offer curative activity. Growers need to act before infection takes place.

SPRAY INTERVALS AND MIXES

Moving on to talk about spraying and spray intervals, he remarks that he finds the Hutton Criteria to be a useful guide for product choice, if slightly too sensitive.

That said, even if blight pressure is low, he prefers not to stretch intervals as it can be a 'nightmare' if the weather changes and spray operators to not

have time to get round all the vulnerable crops.

"If the Hutton Criteria indicates that pressure is very high, you need to opt for the more robust blight sprays, as otherwise you could be putting your crop at risk of serious yield losses which could wipe out profits."

Application technique is worth considering he adds, drawing attention to Syngenta's new designs of 90 percent drift reduction nozzles which are suitable for of blight foliar treatments and desiccation.

"These can improve spray penetration throughout the crop canopy by utilising larger, higher energy spray droplets. The angled 3D 90 percent drift reduction nozzles improve consistency of coverage on lower leaves and stems, which is important for effective blight prevention." The spray pattern produced can also significantly reduce the risk of drift that ensure more of the product applied stays in the field target, he advises, noting that with finer droplets wind gusts can shift the spray pattern and result in patches of the crop receiving less application and therefore lower protection from infection.

Andrew likes to 'mix and match' actives according to conditions at the time the Hutton Criteria is triggered, using different fungicide groups to avoid putting a single active under pressure.

For example, he advises reaching for Zorvec (oxathiapiprolin) in high blight pressure situations because of its ten-day persistence. This offers much-needed flexibility when the spray operator needs to stretch the time limits for getting round all the potato fields.

When he uses it in irrigated crops, Andrew prefers to irrigate the day before application so the crop can benefit from maximum protection time.

"Although Zorvec is one of the more expensive options, it is very useful at mid-season when the pressure is really high. We tend to use it in sequence with RanmanTop, Infinito or Shirlan either side."

Another good-value fungicide is Revus (mandipropamid), and Andrew finds it works particularly well as a second spray, particularly when it is mixed with cymoxanil.

"We may use it in up to four or five rounds across the season, depending on the weather conditions at the time."

The future of one of the most cost-effective actives, mancozeb, is now uncertain, and as manufacturers do not want to be caught out with left-over stock, the availability of Curzate (mancozeb + cymoxanil) is limited.

"I find this a useful mix because it also has activity against Alternaria, so we are mixing out own and including it in our blight programmes."

Combining blight spraying with micronutrient or herbicide applications is a useful strategy, saving fuel and labour costs. Andrew has also found. For example, Ranman Top works well in a mix with herbicides such as Titus (rimsulfuron), because of its good wetting agents, he said.

"Growers should always follow manufacturer's and Fungicide Resistance Action Group (FRAG) guidelines to protect the lifespan of all active ingredients."

LATE SEASON BLIGHT CONTROL

Reflecting on the limited actives available for late blight, Andrew notes that growers still have some effective options for foliar blight, although there are fewer which offer protection against tuber blight.

Desiccation for harvesting has become more challenging since the withdrawal of the desiccant diquat because the currently available actives are slower working so the haulm takes longer to die off. As a result, the crop remains green for longer, and therefore susceptible to blight, said Andrew.

"It is crucial for blight spraying to continue until the crop is completely dead, or growers risk taking tuber blight into the store, which can cause devastate quality and causes significant losses."

He finds it useful to hold back for a couple of days after the first desiccation to give time for the outer leaves to dry and be taken away by the wind, to make it easier for the stem to be coated with desiccant and blight spray.

"Infinito (fluopicolide + propamocarb) has good activity for tuber blight and it fits in well with other actives. However, growers should avoid using it when the weather is particularly wet and drizzly."

"Ranman Top also controls zoospores which cause tuber blight so I often find it useful to apply it for the last two sprays before potatoes are loaded into store.

One of its strengths of is rainfastness, which can be particularly useful later in the season and coming up to harvest."

TOP TIPS FOR LATE BLIGHT CONTROL

- Maintain recommended spray intervals
- Attention to detail on the correct water volume; initial doses should be at 200l/ha but as the canopy grows, this should be increased
- Ensure maximum speed is 12km/h; any increase on this will affect spray deposition and therefore efficacy
- Pay careful attention to going round obstacles in the field such as trees and poles, and also boom speed when turning on the headland as parts of the crop may be left unsprayed
- Control groundkeepers
- Be aware of proximity to allotments and vegetable gardens as they can be a source of inoculum

KEEPING AHEAD OF ALTERNARIA

Crops under stress – particularly when they are short of key nutrients - become more susceptible to Alternaria, says Andrew. Potato crops infected with Alternaria (also known as early blight) can create AND be subject to rapid loss of green area, with the subsequent effect on yields and tuber size.

There are two strains of the Alternaria pathogen that affect British potato crops; A. alternata which infects crops early in the season, and the more aggressive A. solani, which makes a later appearance.

This sequence has been verified by a project undertaken by Syngenta, with independent potato agronomists sampling suspected cases throughout the season and sending them for laboratory analysis by NIAB specialists to determine the species of Alternaria present. In the latest published results received from Syngenta, up until a sampling date of mid-July, 85 percent of the positive Alternaria infections identified were A. alternata, with just 15 percent as A. solani at low levels. However, after mid-July, 81 percent contained A. solani and less than 10 percent solely A. alternata. Interestingly, around 20 percent of samples tested were identified with mixed Alternaria populations present. No A. alternata was identified in the sampling after mid-August.

Andrew said the pathogen can overwinter in soil and infected groundkeepers. Spores are then released in the spring, providing a primary inoculum source which can spread by wind and water. Alternating wet and hot, dry weather promotes spore production and therefore Alternaria pressure.

Although initial infections can create similar symptoms, there are some important differences: with A alternata lesions are more angular while A. solani causes interveinal yellowing and concentric ring symptoms, and lead to tubers with sunken lesions.

A Alternata symptoms can be mistaken for magnesium (Mg) deficiency, because Mg deficiency causes chlorosis starting at the intercostal areas of the base leaflets.

Crops under pressure from potato cyst nematode (PCN) damage may also be more susceptible to Alternata, he says.

"There are a number of popular varieties which appear particularly susceptible to the pathogen, including Melody, King Edward, Markies, Russet Burbank, Vivaldi, Agria and Maris Piper, so attention to detail about micronutrient availability – particularly magnesium - is critical."

Alternaria has a long latent period of six to eight days between infection and symptoms appearing, so Andrew prefers a prophylactic approach to control. There are a number of treatment options available, which can help limit the damage to yields from premature defoliation.

"At the moment we still have mancozeb, which is used in most late blight programmes, which is gives useful control. However if it is withdrawn from the toolbox, growers may have to amend their strategies accordingly.

"If environmental conditions promote incidence of the pathogen in susceptible varieties, there are a number of products such as Carial Star (difenoconazole + mandipropamid), Signum (boscalid and pyraclostrobin) and Caligula (carboxamide + triazolinthione) which offer growers different options."

"If you your crops are under stress at the rapid canopy growth phase, and the weather is conducive to Alternaria, protection is a must."

LOCATION, LOCATION, LOCATION AND APHIDS

"Location, environment and season, alongside varietal susceptibility are key to aphid infestation and subsequent virus, so as you can only control two of these, make your choices carefully," said Andrew.

Aphid control is key to the potato sector because they are virus vectors and can devastate quality and yields. These viruses can be persistent (potato leaf roll virus) or non-persistent (including leaf mosaic virus, and potyviruses such as PVA, PVV and PVY, he explains.

This is particularly important for growers planning on producing home-saved seed.

"Aphids are attracted by soft, sappy leaves, and also the difference in colour between the brown of the soil and the green crop. Once they land, numbers can build very quickly."

With fewer options for chemical control for virus-vectoring aphids, getting the most from those that remain is crucial, says Andrew. This means that timing of applications has to be targeted, and he recommends subscribing to the Rothamsted aphid monitoring project to know when aphids which affect potatoes are likely to fly.

He reports that colleagues have been exploring the benefits of planting flower strips on headlands and between crops to encourage predators to thrive. Trials are also underway in Scotland to discover the efficacy of foliar applications of oils and purging strips planted alongside crops. These strips provide a place where the stylet is cleaned before the aphid lands on the potato crop; the idea of using oils is their potential to clog the stylus.

"The challenge with biological controls is that there have to be a certain number of aphids for the predators to go into the crop, so there is always going to be a risk to the crop.

"Of course, seed crops should be grown in areas where virus is less common, but a change in regulation would be beneficial, so that in addition to inspection, seed crops would have to receive a virus test before sale." ◆

Leaf infection spotting in the early stages. Photo: Syngenta

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.

® Foresite is a registered Trademark of Agri Solutions Ltd
ACVM Registration No. P8398

Trial reports will help Potato growers optimise operations

POTATO REVIEW UK | MAY/JUNE 2022

Two Scottish farming co-ops back project to tackle nematodes in potatoes and daffodils.

A COLLABORATIVE project involving two Scottish farming co-op eratives is seeking to mitigate the spread of plant parasitic nematodes in potatoes and daffodils.

Backed in Scotland by Grampian Growers and Scottish Agronomy alongside the James Hutton Institute, Harper Adams University and HL Hutchinson Ltd, the three-year research project is looking at sustainable ways to effectively suppress pests and pathogens using cover crops.

The UK produces the largest volume of narcissus in the world grown over more than 4,500ha, with the vast percentage of the area grown in Devon, Cornwall, Lincolnshire, the Isles of Scilly, Jersey and Scotland. In Scotland, daffodil production is mostly concentrated
on the east coast where 390ha are grown. Annually, Grampian Growers exports 4,000 tonnes of daffodil bulbs and crops 60 million stems of flowers, with flower production split 60/40 export to UK retail.

Eric Anderson, Senior Agronomist at Scottish Agronomy, explains the significance of the project:

"Plant-parasitc nemotodes are microscopic and difficult to control because they live underground or inside of plants. They can seriously damage or even kill crops, but there is no widely available varietal resistance and only limited agrochemical options to treat the nematodes infecting narcissi, some of which are facing an uncertain future. Here in Scotland, we are seeing a rapid rise in land infected by plant parasitic nematodes, posing a very real threat to growers. Through this project we are looking for the most robust alternative solutions through IPM to secure the future of the bulb and potato growing industry."

Narcissi are susceptible to a variety of pests and pathogens. Stem and bulb nematodes cause foliar lesions and bulb decay, while root lesion nematodes can stay in the soil causing issues in future rotations not only for narcissi but reducing yield and quality in following crops of cereals, oilseed rape and potatoes.

While not a pest directly affecting narcissi, potato cyst nematodes (PCN) (Globodera pallida and G. rostochiensis) are a significant concern to the bulb industry as the cysts can adhere to soil and attach to bulbs, potentially act as a source of transmission. The presence of PCN cysts, alive or dead, poses a phytosanitary risk and can prevent the valuable exports of bulbs.

As growers are more than aware, it is a long-standing challenge for the potato industry. In the last decade, SASA has recorded a 187% increase in land infested with G. pallida, from 2,411ha in 2010 to 6,929 ha in 2021, while 15,737ha was found to be infested with G. rostochiensis in the same year. Surveys of land used for ware potato production show 41% of ware fields are infested with PCN.

This joint project with leading research institutions and two grower co-operatives aims to investigate alternative cover crop options for managing soil borne nematode populations and reducing the viability of PCN.

Most nematode management strategies are pre-cropping treatments, and the planting of cover crops, which are grown between harvest and sowing the next main cash crop, can reduce nematode populations. The field trials will evaluate brassica biofumigants and nematode trap crops which are 'poor plant hosts' that can significantly limit nematode multiplication and substantially reduce existing soil populations.

"Performance is dependent on a variety of agronomic factors which we will be exploring," explains PhD student, Vongai Chekanai, who is leading the research in Scotland, as well as carrying out experiments in England and the Isles of Scilly. "We know, for example, that French marigolds increased bulb yield in root lesion nematode-infested sites on the Isles of Scilly, but it doesn't work for all species of nematode infecting narcissus."

Field experiments are currently underway at Grampian Growers' sites near Montrose. Managing Director Mark Clark said: "The market is increasingly competitive and it's essential that our yields and quality remain strong. The demand for nematode-free land for bulb and potato production at Grampian Growers becomes higher and more difficult each year. We are excited to see this research get underway and to be working with such a strong representation from the industry. We look forward to seeing the results and how we can integrate different measures to strengthen the work we are doing."

Key to establishing an effective strategy for managing the target nematode species is to ensure that beneficial non-target organisms are not affected, or soil function reduced. JHI has developed molecular tools to fully characterise beneficial nematode and microbial communities and will be using its cross section of methods to assess soil function and non-target community composition in the glasshouse and field trials. ◆

Farmer's broccoli kayak caper comes a cropper

HTTPS://WWW.STUFF.CO.NZ/

A flooded broccoli plantation that became one Pirongia farmer's most puzzling harvest yet has drawn concerns from industry groups about the public health risk posed if it were to be sold.

The concerns also centred around whether the broccoli would meet industry standards since it had been underwater for some time.

But the farmer, Tony Cato from Pirongia Mountain Vegetables, is confident he has done the right thing.
Cato opted to ditch the harvest altogether after he too became worried about the condition of the broccoli.

It would instead become compost for the next harvest.

"Due to the fact that it had gone underwater, even though the water was crystal clear ... you just never know."

One of the industry groups concerned about the condition of the broccoli was Horticulture New Zealand.

They said the submerged harvest would be a public health risk due to pathogens present in the flood water which could contaminate the crop.

Produce which had been submerged would not meet industry GAP (Good Agricultural Practice) standards as well, they said.

“News of a vegetable grower harvesting broccoli that has been under metres of flood water is of concern to Horticulture New Zealand,” Horticulture New Zealand said in a statement.

“This action poses public health risks because of the pathogens that the flood water may contain. Supermarkets require growers supplying vegetables and fruit for human consumption to be Good Agricultural Practice (GAP) registered.

“Produce that has been under floodwater would not meet GAP standards so could not be sold in supermarkets.”

At the time of the flooding, Cato had to think out of the box and used his neighbour’s kayak to assess the situation.

“We only supply to farmer’s markets … we are able to communicate with our customers about every aspect of what we do and when it comes to this broccoli that was submerged, in the end, we actually took it back to our facility and had a look at it … I decided not to go ahead and sell it,” Cato said.

He said it was not uncommon to get weather such as heavy rain, but there hadn’t been a flood like June 14 for six-odd years.

When his crops did get flooded, he said it was an inconvenience practically and financially.

“We are currently harvesting, so it was probably the worst time for that to happen.

“People don’t understand how hard it is and what conditions you have to grow stuff under … we ended up losing a lot of money, that’s just part of it, too.”

Ministry for Primary Industries (MPI) were initially informed about the submerged broccoli crop and referred it on to Waipā District Council to follow up as the most appropriate authority.

In a statement, Vince Arbuckle, deputy director general of NZ Food Safety said on liaising with council they had been informed the broccoli were not sold.

“Our understanding is that the operator took the right action, and due to the food safety risk decided not to sell the broccoli,” he said.

Cauliflower Soup

(DREAMY FOR WINTER NIGHT)

INGREDIENTS

1 large head cauliflower (about 1kg), cut into bite-size florets
3 tablespoons extra-virgin olive oil, divided
Fine sea salt
1 medium red onion, chopped
2 cloves garlic, pressed or minced
4 cups (1ltr) chicken stock
2 tablespoons butter
1 tablespoon fresh lemon juice, or more if needed
For garnish: 2 tablespoons finely chopped fresh flat-leaf parsley,
chives and/or green onions

INSTRUCTIONS

1. Preheat the oven to 190 degrees. If desired, line a large, rimmed baking sheet with parchment paper for easy cleanup.
2. On the baking sheet, toss the cauliflower with 2 tablespoons of the olive oil until lightly and evenly coated in oil. Arrange the cauliflower in a single layer and sprinkle lightly with salt. Bake until the cauliflower is tender and caramelized on the edges, 25 to 35 minutes, tossing halfway.
3. Once the cauliflower is almost done, in a Dutch oven or soup pot, warm the remaining 1 tablespoon olive oil over medium heat until shimmering. Add the onion and ¼ teaspoon salt. Cook, stirring occasionally, until the onion is softened and turning translucent, 5 to 7 minutes.
4. Add the garlic and cook, stirring constantly, until fragrant, about 30 seconds, then add the broth.
5. Reserve 4 of the prettiest roasted cauliflower florets for garnish. Then transfer the remaining cauliflower to the pot. Increase the heat to medium-high and bring the mixture to a simmer, then reduce the heat as necessary to maintain a gentle simmer. Cook, stirring occasionally, for 20 minutes, to give the flavors time to meld.
6. Once the soup is done cooking, remove the pot from the heat and let it cool for a few minutes. Then, carefully transfer the hot soup to a blender, working in batches if necessary. (Do not fill past the maximum fill line or the soup could overflow!)
7. Add the butter and blend until smooth. Add the lemon juice and blend again. Add additional salt, to taste (I usually add another ¼ to ¾ teaspoon, depending on the broth). This soup tastes amazing once it's properly salted! You can also a little more lemon juice, if it needs more zing. Blend again.
8. Top individual bowls of soup with 1 roasted cauliflower floret and a sprinkle of chopped parsley, green onion and/or chives. This soup keeps well in the refrigerator, covered, for about four days, or for several months in the freezer.