

Experience — the mother of wisdom

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Roots Potatoes

It's often said that learning is best when put into practice and much has been learnt about potato desiccation over the past year or so. CPM talks to a couple of potato specialists who pass on what they've learnt from their mistakes using PPOs.

*By Rob Jones
and Lucy de la Pasture*

Many management decisions leading up to desiccation are made with that end-goal in mind — from seed rates to maximise the fraction of marketable tubers, to applying just enough but not too much nitrogen and then timing maleic hydrazide applications. The demise of diquat has added another layer of complexity to the mix because the alternative strategies available don't always go as planned.

Following the first full season of diquat-free desiccation, and potentially armed with greater knowledge gleaned from real field conditions, many potato growers should now have an even better understanding of what it takes to achieve good desiccation, says agronomist John Sarup, co-director of Spud Agronomy and Consultancy.

John set up the company in 2012 and, together with business partner Rob Blades, covers 4500ha of potatoes, mainly across

the northern counties and Scottish borders where John advises on seed, ware and processing crops.

“I began looking at diquat-free desiccation strategies around 10 years ago when I set up the company, long before diquat's withdrawal. Early results from flailing, followed by the application of a protoporphyrinogen oxidase inhibitor (PPO) were variable — mainly due to a lack of understanding about how PPOs worked back then, coupled with a trial-and-error approach to discovering the key factors that influence crop senescence.

Fortunately things have improved in the interim, with desiccation using PPOs becoming a more predictable process as John's understanding of them improved.

Sunny conditions

“Once we'd worked out how to maximise the efficacy of the PPOs by applying them in bright sunny conditions and learnt to target them correctly at the severed stems rather than the foliage, then results improved significantly,” he says.

Fast forward to 2021 and John now feels the vast majority of critical factors have been fully identified that can either make or break desiccation. It's now more a case of fine tuning the information already out there to ensure successful crop burn-down, he says.

“During the past 10 years, by combining knowledge gained from my own work with other trial observations, I've identified six key areas that can make a significant difference to desiccation outcomes.”

The first of these is temperature and timing of the PPO application to maximise its efficacy. “Always apply PPOs early to mid-morning in bright, sunny conditions to

give the chemical maximum time to kill cells.

“The second is soil moisture at the time you begin desiccation. This is important as it will affect the speed of skin-set. If you can find a dry weather window and begin the process with a dry soil, then you'll achieve quicker skin-set which is critical for crops going into store,” says John.

“The third element is better early season planning, not only to reduce the early season weed burden, but also focusing on field layouts to ensure the flail can turn without damaging headlands. Another alternative is to plant a different variety on the headlands which you can then harvest as green-top — this will also help to make the later desiccation process easier.”

The fourth area to consider involves the application of the PPO itself, says John. “It's important to always apply PPOs in minimum water volumes of 300-400 l/ha to ensure good spray coverage. The fifth and sixth keys to success are nitrogen management, ▶



Our results improved once we'd worked out that applying PPOs in bright sunlight helped efficacy, says John Sarup.



A well flailed crop should have 15-30cm of exposed stem left behind and the foliage should be completely separated from stems.

► to control haulm size, and the determinacy of the variety being grown, as this often dictates the nutrition management strategy.”

In terms of desiccation methods, John believes a flail approach followed by one or two PPO applications is the quickest and most economical, providing the soil type and weather conditions are right for successful flailing.

“My advice is not to spray prior to flailing and, when flailing the crop, leave 15-30cm of exposed stem behind, making sure any foliage is completely separated from stems. The flail operation can then be followed with an application of Gozai (pyraflufen-ethyl) at its full rate of 0.8 l/ha plus methylated vegetable oil, alongside an application of Ranman Top (cyazofamid) to give the crop on-going tuber blight protection throughout the desiccation period and to kill any remaining zoospores,” he advises.

“When desiccating seed crops, I would also recommend going back into the crop with a second spray of Gozai plus oil, again at 0.8 l/ha, 10 days after the first PPO was applied to make absolutely sure

there is no stem regrowth.”

If poor weather or soil type prohibits flailing then that leaves a chemical-only strategy, highlights John. “I recommend Gozai for the first spray in the sequence, mainly because I feel it’s more effective in opening up the crop.”

When it comes to the prevention of regrowth, he says there’s no discernible difference between the performance of the two PPOs, based on trial work and customer feedback.

Calum Cargill of Crop Services (Scotland) advises on 810ha of potatoes in Perthshire, Angus and Fife, where 85% of his customers are certified seed growers. He first began early desiccation trial work by combining flailing with the use of Gozai in 2016, not long after the product was launched.

“I definitely feel that I know more now than I did five years ago. While desiccating ware crops is often pretty straightforward in reasonable weather conditions, many of the original issues that I came up against when desiccating seed crops are still significant challenges today, despite my increased knowledge base,” he says.

“Seed crops are young and even when tubers reach their target size, they want to keep growing. Regardless of whether the desiccation approach is mechanical or chemical, the risk of virus transmission by aphids and strong possibilities of stem regrowth can make the process very challenging.”

So how does he feel about a chemical only strategy? “It’s certainly possible on seed crops but it’s expensive and can take a number of applications to complete the process. Flailing first is quicker, but growers

require a reasonably dry weather window to flail effectively. Even in August, this far north that’s not always possible,” he adds.

When employing a chemical-only strategy, Calum says both available PPOs should be used in sequence to maximise results.

While Calum isn’t a keen advocate of nitrogen management if that means sacrificing the benefits of a bigger potato crop for potentially easier desiccation, he accepts that in some situations a compromise is often unavoidable.

“In dry conditions and on anything but very light soils, my general advice to customers would be to flail and follow up with a PPO, such as Gozai at its full rate of 0.8l/ha plus oil. If it’s a seed crop then it pays to be decisive — once tubers have reached their target size, ideally the decision to kill the crop would have been made at least five days beforehand.”

He agrees with John when it comes to getting the best results — flailing well to ensure clear separation of foliage and the exposed stems, and then apply the PPO 24-48 hours later in bright, sunny conditions, if possible, to maximise effectiveness. ■



Soil moisture at the time of desiccation will affect the speed of skin-set.



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