

**Tatws  
Cynaliadwy  
Cymru**



**Sustainable  
Potatoes  
Wales**

# **Starting a seed potato enterprise: Lessons learned**



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# Introduction

Seed potato production can be rewarding both technically and financially. It can also be challenging and risky but that, for me, is what makes it exciting.

I am not writing this case study because I am an expert; indeed, I am writing this precisely because I am not. Halfway through my second crop, what I can offer is an open and honest account of what new growers can expect as they start out. I hope to inspire, highlight some the key issues to be considered and, perhaps most importantly, help avoid some pitfalls.

Since I started growing I have enjoyed an enormous amount of goodwill. There is such a thing as a potato growing fraternity, and I feel I have been welcomed in to it. I have found that growers, some of over 40 years' experience, are as pleased to pass on their knowledge as I am to receive it. Other support is on hand, including the Sustainable Potatoes Wales project offering one to one technical support and a series of open days and training materials; AHDB Potatoes runs a series of regional national events; and biennial seed potato conferences are held in Scotland.

There a plenty of opportunities to learn. My advice is take them all!

## Motivations

### Why potatoes?

I started thinking about potatoes in the context of diversifying an organic upland sheep farm, Penbryn near Tregaron, which my friend had recently taken over from his father. It quickly became apparent that if the farm was going to be anywhere near viable, we would have increase the income significantly.

Potatoes seemed relatively straight forward and required little additional investment in infrastructure especially when compared to, say, setting up a market garden or a poultry enterprise. I knew that the farm had produced potatoes in the past, albeit some 40 years ago. Some initial research turned up a number of old but serviceable pieces of machinery in the local area, a hangover from a time when potatoes were grown more widely than they are today.



*Penbryn Farm, Bronant, Tregaron*

Standard data from the Organic Farm Management Handbook suggested gross margins of £1350/ ha. Even after I scaled down the yield to something I thought was realistic in West Wales I still came out at around £900/ha which compared favourably to the £165/ ha for sheep.

I had never grown potatoes on a field scale, but I do have horticultural experience and I therefore felt confident that I had some of the skills required and could pick-up the rest fairly quickly. And, to be honest, it was just something that I really wanted to do.

## **Why seed?**

Right from the outset I decided that growing ware would be difficult. The soil was well structured but quite heavy and the high rainfall could easily conspire to make it difficult to get on the land at critical times. In particular I thought the chances of getting a long enough dry spell in the Autumn to harvest were too small to take the risk.

I also listened to the war stories of ware producers. They spoke of insecure markets, prices that somehow managed to be wildly fluctuating and consistently low at the same time and relentless pressure to get ever bigger to achieve the economies of scale demanded by an unforgiving and unrewarding market. It was not a place I wanted, or even could, be in.



Seed, however, seemed to be a different ball game. By growing on contract, I saw that it was possible to attain a guaranteed market at a guaranteed price; and that the price fluctuations are much less of an issue. All of which made it possible, at least on paper, to operate a profitable enterprise on the sort of scale (1-5 ha) that I was considering.

There are technical reasons, too. We are well away from the main potato cropping areas and therefore much more likely to be free from various pest and disease problems. To grow seed, you must use land that has been free of potatoes for at least 7 years and that is not a problem here, at least in the short-medium term. Critically, with a seed crop you are aiming for smaller tubers. That means a shorter growing season which in turn means a late summer harvest when I was much more confident of decent spell of weather.

## **Why Sárpo?**

Sárpo varieties are specifically bred for sustainable production systems and for an organic grower they are in many ways an obvious choice. In a production system where pesticides are heavily restricted, robust high resistance to late blight and virus is vital. Vigorous early growth to smother weeds is very important for me (this year I managed to get away with just one ridging up operation)

Strong dormancy is a characteristic of Sárpos that I think is often under rated. It basically removes the need for cold storage over winter, something we did not have

the capital for, and sprout suppressants, which are restricted under the organic standards

## Getting started

I grew my first crop (varieties Una and Shona) on Penbryn Farm in 2015. From the outset I looked upon my first season as a learning experience. I would treat any profit as an unexpected bonus (not one that ever materialised!) and I would see my main product as experience to invest in future crops.



*Variety Una on Penbryn Farm*

Now in my second year, I have moved production to Tyn yr Helyg Farm (Axona and Shona) in Llanrhystud because there was no land in the right stage of the rotation available up at Penbryn.

These are the main things to consider in the very early stages

### Start planning early

Start talking to your seed company as early as possible, and start familiarising yourself with the varieties you are going to grow.

As part of the seed certification system, the land has to be tested for the presence of Potato Cyst Nematode which can take a few weeks to organise so you need to identify which field you are going to use early on. Having suffered at the hands of wireworm I would also suggest you monitor the field for this pest, particularly if the field has recently been in permanent pasture at this is best done in the autumn, which implies forward planning.

One of the best pieces of advice I received was, if you don't have your own machinery, identify all the kit you are going to use before you even put a plough in the ground. That way you can be sure that the planter, ridger and harvester are, or can be, on the same settings. It is worth spending a few hours familiarising yourself with the machines you are going to use, and seeing them in action, before you start. I had a lot of mechanical problems at planting which may have been avoided if I'd taken the time to have a proper demonstration. As it was I had to hire a tractor and casual labour for an extra day and spend 3 days gap filling!

One of the aims of the Sustainable Potatoes Wales project is improve the stock of machinery available to members of its 'cluster' group and facilitate sharing. This will make an enormous difference to me. Identifying and transporting machinery around was a considerable time cost for me and I look forward to having to do less of it!

The project will also set up a central hub from storage and grading, and this takes care of a number of potential headaches. We didn't have storage problems at Penbryn but only because we had such a small crop but had we had 10 tonnes or so we would have struggled. Grading, though involved a great deal of planning in terms of transporting machinery and organisation labour, and having that taken off my hands this year makes things much easier.

## **Choose a good site**

Potatoes require good ground. They are a relatively hungry crop to fertility is important; the soil structure needs to be open for good drainage and robust enough to be ploughed, power harrowed, ridged and generally knocked about. And of course it needs to be deep enough to ridge. At Penbryn the field was ploughed the previous July and a crop of brassicae sown, this gave the turf a chance to rot down before the potatoes were planted. The field was power-harrowed twice to ensure sufficient depth of soil for ridging.

It is tempting, while you are in the experimental phase, to use land that you do not rely on for your current enterprises, which by definition is poorer ground. Resist!

Use flat or gently sloping fields. On Penbryn part of the field was on a fairly steep gradient. I exacerbated the problems by ploughing across instead of up and down the hill because, given the likelihood of intense rainfall, I was concerned about soil erosion. In practice it was too steep. The ridges were of uneven depth, as was the planting depth. Topping off the haulms was difficult as the mower was almost in the soil at the far end and only skimming the tops closer to the tractor. In the end we spun out the potatoes, but had we been able to use a harvester, that too would have struggled.



*A little too steep!*

## **Getting the scale right**

In my first year, I grew about 0.5 ha, which I felt was large enough to give me an idea of what to expect once I scaled up, and small enough so that we were not carrying too much financial risk. However, in other respects I got it exactly wrong. It was too small to make it worth bringing in some machinery and too large to manage by hand. I would suggest an area of less than 0.25ha or more than 1 ha.

In my second year I went up to 1.4 ha which, so far, seems about right.

# Risk

While seed production can be profitable the trade-off is high risk. Success hinges on whether your crop passes the APHA inspection and can be certified – and the specifications are extremely tight. There are minimum requirements for several diseases, soil contamination, physical damage and misshapen/shrivelled tubers. There are different tolerances for different grades, but even at the lowest grade, they are very low.

If the crop fails you're in trouble; it is of little value to the seed company, who cannot sell it and are not obliged to buy it. You can, of course, re grade it (I did – several times!), but it is expensive in terms of labour, and if there are serious problems (wireworm damage in my case) you can end up grading out a large proportion of the crop, leaving you with a reduced marketable yield to cover the additional cost. It is also very difficult to find an alternative market since your



*Inspection in progress, Tyn yr Helyg*

system has been geared to producing 35-60mm tubers which are unsuitable for the ware and processing market. You can keep the seed and replant it for next years' crop, but if you have had a respectable yield you are unlikely to have the land available. Even if you did, because you have to leave 7 years between seed crops, it would seriously constrain your production in subsequent years.

It seems to me, therefore, that successful seed production is about minimizing and managing that risk, especially in the early years. I have sought to do this in two ways:

**Crop monitoring and rouging:** This the single most important thing you can do to minimize the risk and utterly ruthless rouging is the name of the game. This year I went through the crop twice before my first inspection and once between inspections. Spotting problem plants, especially those at an early stage of inspection is an essential skill. I'm much better (and quicker) at it now than in my first year – it shows in the quality of the crop - but I still have a long way to go. I find viruses and blackleg fairly easy to spot once they are fairly well developed, but I'd like to be able to pick them up earlier. I sometimes struggle to differentiate between specific disease problems and non-specific sign of stress such as 'harshness' (where the veins stand out on the leaves). But probably the area I'm least confident is picking out plants that are not true to type or are of the 'wrong' variety. There are no short cuts; I just have to put in the hours and build up the experience.

**Contractual risk sharing:** I was fortunate to be able to negotiate a contract with my seed company, Sarpo Potatoes Ltd that shares the risk. For their part, they provided the seed free of charge and pay for haulage and the seed inspection, in

return for which I accept low prices (£125/t plus the organic premium). In the event of crop failure, they carry about half of the losses. It is a substantial risk for them, but it makes for a closer, and I believe better, relationship between us; it's in everybody's interest that I succeed.

## Money

In my second year of production, and at the time of writing, I am on course for a Gross margin of about £760/ha (see Table 1) but there is of course plenty to go wrong between here and the market. I am assuming a marketable yield of about 15t/ha and that 80% (12t) of the crop will be in the 35-60mm bracket and that it makes it through the remaining inspections.

There is certainly room to improve. Over the next few years, as I improve technically, I hope to increase yields 18 t/ha (15t of which are seed sized) and my GM to about £1,000/ha. Also as I become a better grower, the likelihood of failing inspections will decrease as my disease identification and rouging skills improve.

There are also opportunities to reduce costs for example using a planter that does not require the hire of a larger tractor and smother planting operation that reduces the paid labour requirement.

## Time

I estimate my 1.4 ha requires about 210 hrs (Table 2), most of which (152hrs) is my own time and the remainder paid casual labour. This includes labour, project management & planning time and logistics (getting the kit in the right place at the right time).

This is undoubtedly high and as I gain experience it will reduce; my mistakes on this crop have not lead to significant financial losses, but I have paid for them with my time. For example, difficulties at planting meant the operation took two days instead of one, adding an additional 21 man hours and the subsequent gap filling another 28.

I hope to reduce time inputs, through more efficient working, by 20% over the next couple of years



*Planting, Tyn yr Helyg*

**Table 1: Gross margin calculations**

Item	Details	Units	£/ unit	£/ ha	£ Total crop
<b>INCOME</b>	Sale of Certified seed (125/t plus 10% organic Premium)	12t	137.50	1,650.00	2,310
	Sale of out grades	3t	£40	120.00	168.00
<b>Total income</b>				<b>£1,770.00</b>	<b>£2,478.00</b>
<b>COSTS</b>					
Land	Rental	1ha	285.00	285.00	400.00
Boxes	Haulage	1		35.00	35.00
Seed	Purchase	3.5t	0.00	0.00	0.00
	Handling	1	10.00	10.00	10.00
Land prep	Plough & P Harrowing	1ha	85.00	85.00	119.00
Planting	Tractor hire	2 days	50	100.00	140.00
	Casual labour			57.00	80.00
Harvesting	Machinery hire	1	200	200.00	280.00
	Labour	30	8	240	336
<b>Total costs</b>				<b>£1,012</b>	<b>£1,416.00</b>
<b>Gross Margin</b>				<b>£758.00</b>	<b>£1061.00</b>

*Actual Estimated*

**Table 2: Time inputs**

Item	Details	Own time	Labour exchange	Paid casual
Boxes	Collection	11		
Land prep	Stone picking	5		
Planting	Planting	14	14	14
	Gap filling	28		
Weeding	Ridging up	5		
	Hand weeding & rouging	15		
Inspections	1st field inspection	3		
	2nd field inspection	3		
Haulm removal	Size Monitoring	12		
	Removal	4		
Harvesting	Headlands (spun out)	14		
	Field	20		30
Project management		18		
<b>Total</b>		<b>152</b>	<b>14</b>	<b>44</b>
<b>Grand total</b>				<b>210</b>

*Actual Estimated*

# Top 10 Tips

1. You will receive a great deal of good will and advice. Actively seek it out and when it's offered, take it with both hands!
2. Start the planning process well before you start growing
3. Don't expect too much from your first year. If you make a profit, treat it as a bonus. Your main product at this stage is experience to invest in future crops.
4. Use the best land available even, and especially when you are experimenting. Resist the temptation to use poorer land that you don't rely on for your other enterprises
5. If you are breaking new ground (i.e. permanent pasture), monitor it for pest problems, especially wireworm that can be a real problem in this situation
6. Think carefully about the appropriate scale for your first crop. It either needs to be large enough for machinery to operate cost effectively or small enough to manage by hand. 0.5Ha is exactly wrong!
7. Get all your machinery and logistics sorted out during the planning stage. That way you know that your planter, ridger and harvester will all be in the same settings. Try and see the machinery working in experienced hands before trying on your own. It will save you a great deal of time and anxiety.
8. Be aware of the relatively high risk nature of seed production and make risk reduction a central aim of your crop management
9. Monitor the growing crop very carefully and be ruthless about rouging out plants that are diseased or not true to type
10. Spend time and effort monitoring tuber size to time haulm removing. It determines the proportion of the crop that is seed sized and therefore directly impacts on your profitability.

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