

Dandelion



Totally Tatties

Contents

Care of the seed tatties 3

Guidance for storing and distributing your growing medium 4

Top ten repurposed growing containers 5

Your tattie varieties 7

Tattie planting and growing guide 10

Five key stages of tattie growth 12

Tattie harvest and storage 13

Dae ye ken yer tatties? 15

Tatties and tattie folks 17

Design your own tattie 19

Growing media for healthy crops 20

Indoors Outdoors 22

Reducing plant pests and disease 24

Curriculum for excellence experiences and outcomes 26

Care of seed tatties

When you have bought your seed potatoes, here's what to do to look after them until you plant them. If held in boxes, seed merchants advise: *"It will not be good for the seed potatoes to be held in cardboard boxes for a couple of weeks. They will generate heat and will start to sprout, possibly through the nets, meaning that it will be a tricky job to get them out of the nets without knocking off the sprouts, which is not good practise immediately before planting."* (The sprouts are the seed potatoes beginning to grow.)

Here is what to do to keep your seed potatoes healthy until they are ready to plant out in school or to be taken home to plant out.

- Remove any wrapping or packaging so they can breathe and remove from any nets, to avoid sprouts getting caught in the net and knocked off'
- Handle carefully to avoid bruising the tatties
- Store in a dry, cool, frost-free area, well ventilated area (a temperature between 4-9°C is best). Airflow and temperature are vital to maintaining the quality of the potatoes.
- Check and gently turn the potatoes on a regular basis.
- Potatoes may be damp on arrival. This is natural, due to increased respiration during delivery. They will dry out within a few hours if air can circulate.
- Some varieties might sprout early this season due to high temperatures at harvest. This is natural. Try to handle gently to avoid knocking the sprouts off.
- Do check carefully and regularly for any that have started to rot. Seed tatties are sourced to be as healthy as possible, but things happen. Remove and dispose of any affected as it might spread.

Shetland Black Potatoes

These Shetland Black potatoes have a few small spots of common scab. This is an example of a blemish which will not affect either the yield or eating pleasure and sends a nice message that home grown is fun and may include some imperfections!





Top ten repurposed growing containers

Repurposing items you might otherwise throw away for growing containers is not only more creative than buying ready-made plant pots (and cheaper!) but is also an easy way to make your gardening more eco-friendly.

Many common household items have great potential for repurposing as growing containers, once they can no longer be used for their original purpose of course – read on for the top ten most easily accessible, practical ideas. Some of these can be used for your seed tatties.

1. Shopping bags

Plastic or fabric shopping bags make fantastic large, portable plant containers, thanks to their ready-made carrying handles and durable material. An old supermarket Bag for Life is a good size to grow your 3 seed tatties in.

2. Ice cream tubs

If you have children, then you most likely have an empty ice-cream tub lying around! Often a range of sizes are available, and they are lightweight to transport. If you don't have a sweet tooth, then yoghurt pots can also be used in the same way. Remember to wash and recycle them afterwards.

3. Fruit & vegetable trays

Most fruit and veg from the supermarket come in plastic trays, which are ideal for growing a variety of plants, depending on their size and shape. These are also lightweight and easy to carry.

4. Baking trays

Baking trays which have had their full use in the kitchen can be given another lease of life as growing containers. Shallow trays are ideal for plants which don't need much compost to grow, e.g., cut-and-come-again lettuce, or for starting off seeds.

5. Laundry baskets

Wicker planters are expensive to buy, so why not repurpose your old laundry basket instead! Great for larger plants, and often with carrying handles to make transportation easier. Line a plastic laundry basket with rags to keep the growing medium from spilling out of the holes.

6. Toilet roll tubes

Possibly the most common of all household items, stashing up empty toilet roll tubes is a quick and easy way to get a supply of growing containers. Use tubes to start off seedlings which have a deeper root system, such as sweet peas. Egg cartons also make the perfect recycled holders for toilet roll tube containers.

7. Plastic bottles

Milk bottles or other drinks cartons, just cut the tops off and you have a ready-made container. Keep the top too and use as a mini greenhouse to protect plants from the cold weather, or to start off your seeds.

8. Kitchen colanders

Colanders, and sieves, can be recycled into a hanging basket, with ready-made drainage holes and handles to attach a hook and chain, you don't need much to turn this household item into a growing container.

9. Footwear

Once your footwear has served its purpose, turn it into something completely different! This is a great way for children to see the shoes they have outgrown reused instead of thrown away and will brighten up any garden, small or large. Crocs were almost designed for this purpose, with their ready-made drainage holes and sling-back handle!

10. Sports ball

Next time your football has lost its bounce, turn it into a hanging basket by cutting it in half – two for the price of one!

Dos & Don'ts

DO remember to add drainage holes! This allows somewhere for excess water to drain away and stops your plants sitting in water. Not even plants like a soggy bottom!

DO think ahead and match the size of your growing container to the size of your mature plant; a container which can hold roughly 25 litres of compost is enough to grow 3 tattie plants.

DO add a shallow tray underneath your plant container to catch any excess water which drains away after watering, especially for seed containers which you may start off indoors. Your seed tatties can grow outdoors.

DON'T be shy! Recycled growing containers are more personal and funkier than any plant pot you can buy. Tailor recycled containers for your garden style, e.g., quirky and kitsch or organic and rustic, there's something for everyone.

DO decorate your container! Adding the finishing touches to a recycled container is rewarding and can be fun for children too, e.g., tying an old ribbon around an ice-cream tub.



Different tattie varieties

Potatoes come in all shapes and sizes and although they are often sold in supermarket bags saying something basic like 'white potatoes' there are lots of things to think about when choosing potatoes e.g. different potatoes suit different ways of cooking. Some do well as fluffy roasts or chips, and some are great boiled and in salads. Some are specially bred for the chip market and some to be small and round for new potatoes.

The table below represents some of the potato crops local to you and shows some of the colours and characteristics that make them such a versatile, tasty and nutritious crop.

Do not worry about a few spots or blemishes on seed potatoes – these are usually not a problem. Do remove any that have started to rot though as that might spread to your other seed tatties.

Learn more about different tattie varieties

Different potatoes have different characteristics. This table shows characteristics of 16 varieties, showing how long they take to mature, what they look like, and other attributes. You can use the template on page 9 to keep a record of the different tattie varieties you grow and find the ones that best suit your growing conditions.

Play MASH-UP

Have a go at this game to get to know some tatties.

TABLE OF 16 SCOTTISH SEED TATTIE VARIETIES

Varieties	Maturity	Skin / Shape	Attributes 1	Attributes 2	Attributes 3
Belle de Fontenay	Main Crop	Pale yellow, fingerling	Smooth texture and fine flavour	Favoured by high-end chefs	Old & rare variety, originally bred in France
Caledonian Pearl	Second Early	White, oval	Lots of baby potatoes	Robust & easy to grow	New variety with excellent disease resistance
Caledonian Rose	Main Crop	Red, oval	Big crop, striking red potatoes	Smooth skinned and uniform crop	New variety with excellent disease resistance
Elfe	Second Early	Pale yellow, oval	Sweet, buttery taste	Smooth skinned and uniform crop	Good disease resistance
Gemson	Second Early	White, round	Lots of baby potatoes	"Pearls on your plate"	Easy to grow

Activity

Innovator	Second Early	Russet, long oval	Perfect for American-style home fries	Very versatile	Russet-style skin
Isle of Jura	Main Crop	White, oval	High yielding with excellent flavour	Expect lots of large potatoes	Robust and easy to grow
Jazzy	Second Early	Pale yellow, fingerling	Exceptional, salad-type variety	Great taste and fine texture	Expect lots of delicious potatoes
Kestrel	Second Early	White, oval	Striking purple eyes	Great all rounder	Versatile and tasty
Marvel	Main Crop	Pale yellow, oval	Huges yields of large potatoes	New, robust and easy to grow	Great all arounder that stores well
Pentland Javelin	First Early	White, round	Heritage - bred in Edinburgh	Delicious flavour	Reliable and easy to grow
Red Duke of York	First Early	Red, round	Bright, red potatoes	Strikingly beautiful plant	Superb flavour
Red Emmalie	Early Main Crop	Red, fingerling	Bright red potatoes with red flesh	Colour retained on cooking	Originally bred in Germany, smooth texture
Rocket	First Early	White, round	Very, very early	Lots of round, white potatoes	Ideal for growing in pots
Shetland Black	Second Early	Purple skin, oval	Striking purple skin with white flesh and purple internal ring	Delicious flavour and light texture	Heritage variety
Osprey	Main Crop	Cream with pink eyes, oval	Robust and easy to grow	Great all rounder	Expect high yields of tasty potatoes
Salad Blue	Second Early	Blue skin, Oval	Blue flesh	Floury and good for mash and chips	heritage variety from the 1900s

Here is a template you can use and adapt:

Your name			
Name of Tattie variety	Tattie 1	Tattie 2	Tattie 3
Are they early or late varieties?			
When will they be ready to harvest?			
What colour and shape will they be at harvest?			
Can they fight off pests and diseases?			
What is their texture? e.g. waxy or floury flesh			
Are they grown in Scotland?			
How close to where you live are the nearest ones grown?			
Are they grown in Scotland under any quality assurance schemes like Soil Association, LEAF, Red Tractor or Scottish Quality Crops?			
ADD YOUR OWN QUESTIONS			
WHEN YOU HARVEST YOUR TATTIES YOU CAN ANSWER THE NEXT FOUR QUESTIONS			
1 AT HARVEST count of tatties per variety			
2 AT HARVEST total weight in kg per variety			
3 What did you grow them in? e.g. a Bag for Life or open soil			
4 How do they taste?			

Tattie planting and growing guide



Sprouted potatoes ready to be covered over with soil

- Treat your seed potatoes carefully and try not to knock any little growing sprouts off
- You can give your seed tatties a growing a head start by 'chitting' them – put them in a light but cool place out of direct sunlight for the sprouts to develop. Plant them out when the sprouts are about 1inch long.
- Potatoes like a sunny spot where they won't be caught by any late frosts
- You can grow them in a container or in soil if you have access to a garden – choose which suits you best and then look at the options below
- Remove any that have started to rot but don't worry about a few little spots or blemishes

Option 1 – plant direct to soil

1. Dig over your soil well
2. Dig in a little compost to feed the potatoes and help them grow
3. Make a small trench and then lay the potatoes 30 – 35 cm apart
4. Cover with soil and wait for the shoots to grow
5. When the shoots are 10-20 cm high rake some more soil up around them to bury them again
6. Let the shoots emerge again and then repeat this ridging up process 2 or 3 times so that the baby potatoes will be well covered. If they sit on the surface they will turn green and be spoilt for eating
7. Now they are planted they should be quite self-sufficient but you could water if the summer turns dry and feed with a nitrogen rich fertiliser
8. Harvest when the greenery has collapsed and died – waiting about 14 days will help the skins become stronger and you can keep them longer. Or you can enjoy them straight away

Measure your harvest – see overleaf

Option 2 – grow in a container

1. Find or make a container of around 20 – 30 L (roughly the size of a large bucket)
2. Make sure it can drain freely. Carefully make holes if need be
3. Use the growing medium to cover the bottom of your container to a depth of 5 cm and then bury your potatoes just below this spacing them out as much as you can
4. When the shoots grow though keep adding compost and repeating until your container is full.
5. Check them regularly to see if they are too dry or too wet and look at the leaf colour. If they look yellow or pale they may need feeding using a nitrogen rich fertiliser
6. Harvest when the greenery has collapsed and died – waiting about 14 days will help the skins get stronger and you can keep them longer. Or you can enjoy them straight away.

Measure your harvest, record your results:

Count and weigh your potatoes. Which variety has done best? Any funny shapes, record breaking giants or tiny tiddlers? Keep a record of your results to help you decide what variety to grow next year.

Record your results of:

- Weight of your potato harvest in kg
- Count of all potatoes
- What was the container they were grown in? e.g. Bucket, basket, old barrow, garden, raised bed....

Your Tattie Tales

You can share the story of your tattie growing with your whole school community via social media. Tag [@KSBSScotland](#) [@EcoSchoolsScot](#) so we can share your story with other schools too. They'll be interested to hear your tattie growing tales too:

- a. What did you use as a container?
- b. Did you feed or water – tell us a little about what you did and used
- c. What did you make – any great recipe ideas and did you share?
- d. How did they taste?
- e. Tell us your level of experience – was this your first time growing potatoes or have you done this before?
- f. Tell us where you are (to county level) and the bits you enjoyed most
- g. What did you find most challenging?
- h. Would you grow potatoes or other veg again?
- i. Send us some pictures!

More guidance at <https://www.rhs.org.uk/advice/grow-your-own/vegetables/potatoes>

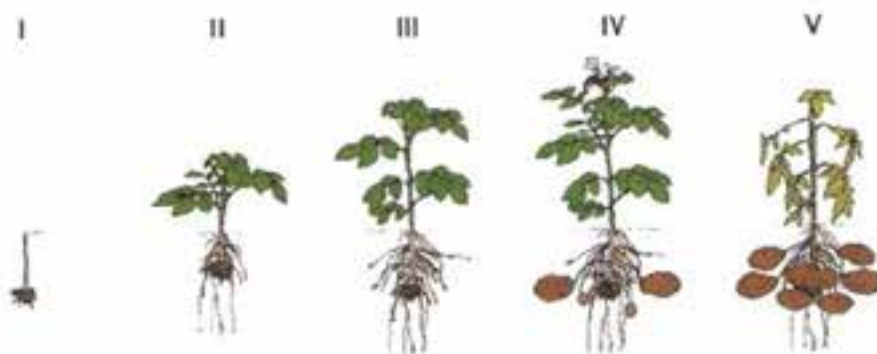
Five key stages of tattie growth

Your potatoes grow from specially produced 'mother' potatoes called seed potatoes. Although they are called seed potatoes, they are not seeds at all, but are specially adapted underground stems.

They are carefully and locally produced by growers in Scotland to be true to type and disease and pest free. Do not eat seed potatoes as they may have green bits which can give you a sore tummy.

The point is to turn your three mother potatoes into a harvest of many, many daughter tubers and cook and share these in tasty recipes!

Here's what to expect as your potatoes grows. You can take photographs of your tatties as they reach each stage and share them on your social media channels and via [@KSBScotland](#) [@EcoSchoolsScot](#)



The growth cycle of a potato

There are 5 key stages you will see your potatoes grow through

- 1. Sprouting:** The shoots emerge from the mother potato and grow upwards to the surface of the soil. The shoots emerge from tiny buds on the surface of the seed potato called eyes. Be careful not to damage these shoots but if they do get knocked off they will try and produce more shoots for you but will be a little slower.
- 2. Vegetative:** The leaves and shoots begin to emerge from the soil. They will often be curled over and will slowly start to unfurl. Potatoes grow fast so this stage is where you will be adding more soil or growing media to give lots of underground space for your new potatoes to grow.
- 3. Tuber Initiation.** Tiny daughter potatoes form on the underground shoots – at this stage they will be nothing much more than tiny bumps on the underground stems and you should aim to keep well-watered (but not soggy). Watering well now can prevent scabs forming.
- 4. Tuber Bulking.** The new potatoes begin to grow bigger and the leaves and shoots above ground get to their maximum size to feed them. Some potato varieties will produce flowers.
- 5. Maturation:** The leaves and shoots start to die and send all their carbohydrates and nutrients below ground to the potato crop. Do not worry that your plant has wilted – this is normal. You could eat the new potatoes now or you could leave them for a few weeks and the skins will grow stronger and protect the potatoes if you want to keep them for longer and enjoy them later in winter.



Harvest is the most exciting bit – be gentle!

Tattie harvest and storage

Timing your harvest: Once the leaves and stems have died your potatoes are ready to harvest. Waiting one to two weeks after the leaves have died will let the skins become stronger and is a good idea if you want to keep them for a while. A strong skin helps to keep water in and stops them shrivelling, and helps to keep rots out.

Dig your potatoes up carefully to avoid damaging them. Sticking a spade or fork through one of them will give an easy entry to rots but even bumping them against stones or handling them too roughly can skin them or bruise them.

If you have grown them in soil very gently ease a fork or spade in around the plant and turn the plant and as much of the roots and young potatoes as you can out on to the surface of the soil in one movement. If you have grown in a container gently turn the container out so you can pick off the crop.

Measure your harvest: Count and weigh your potatoes. Which variety has done best? Any funny shapes, record breaking giants or tiny tiddlers?

Keep a record of your harvest and where it was grown to help you next year.

- Weight of your potato harvest in kg
- Count of all potatoes
- What was the container they were grown in? e.g. Bucket, basket, old barrow, garden, raised bed....

Cook them, enjoy them, share them at a harvest event

Storing your potatoes:

Do not wash your potatoes before storing – a layer of soil or growing medium will help the tatties keep longer, and wet potatoes can rot fast.

Check them carefully for damage, cuts or bruises or any signs of rots and only try and store the ones that are whole and healthy. But don't waste the others – cut off any bits of damage and eat at once!

Store the rest in a cool space and in the dark. They are alive so let them breathe – wrapping them in plastic or using a sealed container will make them sweat and rot quickly. Keeping them cool helps to stop them shrivelling and helps them not to rot.

Good storage options are mesh bags, hessian sacks, paper bags, cardboard boxes or small wooden crates. Most natural breathable containers are fine. Don't stack too many together so that you can check them all easily.

Store your potatoes in a cool, humid, and dark place (4 to 9°C is the ideal temperature range). An insulated garage or shed might also work during the winter. Don't store potatoes in the fridge as cold temperatures turns the potato starch into sugar.

Check on your potatoes regularly and remove any that are soft, shrivelled, or sprouted so they don't cause rots. As long as potatoes are kept in a cool, dark, and frost-free environment, they will keep for many months and into the new year. If small spouts form, rub them off before cooking.

Clamps

On larger allotments and farms, burying the potatoes in clamps used to be common practise and is still used. A clamp is a shallow hole 10-20 cm deep lined with straw with the potatoes heaped on top of the straw. Then more straw is added on top and soil piled on top of that to insulate them and protect them from cold, but also let them breathe.



Dae ye ken yer tatties?

Activities and information

Here are short descriptions of suggested activities and some information to get you started. Scotland has a long tradition of potato breeding and growing. You can explore different varieties and their uses, as well as thinking about how much we rely on particular crops, and ideas of food security.

Key Questions to explore

- Why do we raise different types of the same crop?
- Why was the tattie so important to communities that they would write songs about it?
- Thinking about food security, what are the dangers of relying too much on a particular crop?
- How can we avoid disasters like famine in future? Think about both production and consumption.

Suggested Activities:

- **Tattie Mapping.** What tattie varieties are raised in Scotland? Are there any amongst the tatties you are growing yourselves? Add them to a map with a little story about them.
- **Tattie detective.** What tatties can you get locally? Make a list and find out more about them, perhaps buy some and compare them to your own home-grown ones. Which ones taste the best?
- **Experiment with growing tatties in different places** – in the ground (soil, or on the machair!) or in repurposed containers. Does the same tattie variety grow better in one or the other? What is the difference in the yield? Are some more affected by diseases than others?
- **Listen to 'Pickin Tatties'** first by Mabel Skelton (transcript in supporting information) and then the schoolchildren from Angus. Try rewriting the song with some of your own local places, characters and adventures – or simply write a class poem or song in praise of the tattie! Or just learn the song for your harvest event! Find 'Pickin tatties' in the Dandelion resources on the Feis Rois website.
- **Listen to 'Tattie Jock'** sung by Scott Gardiner and learn it for your harvest event. It has a great chorus for people to join in with. Find 'Tattie Jock' in the Dandelion resources on the Feis Rois website.

- **No more tatties.** Imagine that tatties are the main food that you eat, and it is the staple food for your whole community or area and most of the food shops have only tatties to sell. Now imagine that the potato harvest has failed and there are no tatties at home or in the shops. Where would you go to find food? Discuss in class what you could do and how you might feel. Famine and migration are often linked and have been part of Scotland's story. Find out about the Highland Potato Famine in the 1840s and what caused it. Make a presentation about it to share in class and include your ideas on how we can avoid famine in Scotland in the future.
- **Fieldwork Research.** You can carry out some 'citizen fieldwork.' Find a member of the family, neighbour or somebody you know in your community and ask them if they'd like to be interviewed. Share your interviews with your class. Here are some questions to get you started:
 - How do they eat their tatties? What kind of things do they make with them?
 - In some parts of Scotland, the autumn holiday is called the "tattie holidays", from when children used to be asked to help with the harvest. Did anyone in your family go "tattie howkin"?
 - Did anyone in your family grow tatties? Which kinds, and where did they plant them? Tatties can sometimes be damaged by pests or diseases. Were there any tattie disasters?

Supporting information – Tatties in Scotland

Potatoes became popular in Scotland in the 18th century particularly amongst crofters who noted it could be grown in poor soil and stored over winter, and they could feed more people per acre than cereal crops. By the early 19th century, potatoes formed a major part of the diet of communities, especially in the Hebrides and the Highlands. The onset of a disease called potato blight in the 1840s caused the potato harvest to fail, resulting in a major disaster in Ireland, known as The Great Famine (or *An Gorta Mór* in Irish), with around a million deaths and another million emigrating. The blight hit Scotland too, although to a much lesser extent, causing starvation and thousands of people emigrated from the Highlands in particular.

Potatoes have become a major crop in Scotland since the late 1800s, producing both 'ware' potatoes for food, and 'seed' potatoes for growing. Scottish seed potatoes have a high reputation for quality and consistency, with breeders aiming to achieve quick ripening in cooler weather and good resistance to diseases and pests. There are many varieties and colours of Scottish seed potatoes, and they fall into several categories: First Early, Second Early, and Maincrop (sometimes divided into Early and Late Maincrop). Each take gradually longer to produce a crop, with First Earlies ready usually within 100 days of planting (June–July), Second Earlies within 110–120 days (July–August), while Maincrops can take until October, anywhere up to 5 months or 140 days from planting.

Before the widespread use of machinery, tattie picking was tough work. Mabel Skelton of Arbroath talks about it in this interview from 1985, talking about tattie howkin in Angus in the 1960s:

MS: Well...I was working at the potato harvest and...it was 'bout three o'clock in the afternoon, he sends us to another farm..and when we got there...there wis tatties aa place, double dreels, and we wir so tired from being at this farm before that we were jist...some o them were crawling, and two old ladies wis lyin in a creel...and by the end o the night we could hardly stand. On top of that, the bus came an it left an it didn't take us home ..and we hid tae go home on a coal cart, carryin wir boilins an tatties...an when I got home, of coorse, I'd all these kids tae make their meal and ma husband had come from hes work. I didna feel like it so I sat down an I wrote a bothy ballad called 'Pickin Tatties'

School of Scottish Studies Archives, SA1985.253 recorded by Hamish Henderson

Tatties and tattie folks

Different people have different characteristics. They can look different to each other; they can be good at different things, and they have different health characteristics too. The same is true of potatoes.

People have worked to create new varieties of potato that have particular characteristics such as disease resistance, appearance, and taste. Here are some stories of people in Scotland who developed new potato varieties.

FIRST EARLIES

Pentland Javelin: Midlothian 1968

Bred at the Scottish Plant Breeding Station (SPBS), at Pentlandsfield near Edinburgh, this is the best known of several 'Pentland' varieties. Dr Jack Dunnett MBE is a famous potato breeder who worked for the SPBS (now part of the James Hutton Institute), and he developed the Pentland Javelin as a variety particularly resistant to eelworm. He went on to develop many more varieties in his home area of Caithness. Pentland Javelin is a great salad potato with high disease resistance and a good flavour, although it is a bit later than other first earlies.



Pentland Javelin

Arran Pilot: Arran / Ayrshire 1930

'Tattie Man', Donald McKelvie OBE, (1867-1947) was born in Lamblash on the Isle of Arran. In 1907 his interest in horticulture got going and he started growing seedlings, eventually producing a whole range of 'Arran' tattie varieties such as Arran

Banner, Arran Consul and Arran Victory, winning medals for his efforts. Perhaps the most famous is his Arran Pilot, released in 1930, which is still popular amongst hobby growers and allotment gardeners today. The modern 'Maris Piper' variety, very commonly sold nowadays in supermarkets, is partly descended from McKelvie's Arran Cairn tattie. He was awarded the OBE in 1943 for services to breeding new potato types. Read more about him here via the North Ayrshire Heritage Museum: [Saltcoats museum describes story of Arran potato breeder](#) | [Ardrossan and Saltcoats Herald \(ardrossanherald.com\)](#)

SECOND EARLIES

Shetland Black: 1923

This purple or 'blue' tattie has a distinct coloured ring in its flesh when cut and was first listed in the National Collection in 1923. Shetland folklore says that the variety was salvaged from a sunken ship from the Spanish Armada in 1588, but potato expert Alan Romans thinks that they have genes of the American 'Early Rose' variety, meaning they would not be older than the late 1800s. They are smaller than most modern potatoes and don't have a consistent shape. There is also a variety called Orkney Black which is similar but there is more genetic research to be done on their origins.



Shetland Black

Kestrel: Caithness 1992

After working at the Scottish Plant Breeding Station, Jack Dunnett set up his own independent business, Caithness Potato Breeders, in the 1980s. The company exported its seed potatoes across the world, to Australia, Malaysia, the Middle East and north Africa. One of its tattie ranges was named after birds, including Swift, Osprey, Merlin and Kestrel. Potato expert Alan Wilson calls Kestrel "probably the best potato variety to be introduced since the Second World War...Jack Dunnett's best-ever potato". It is very versatile, being suitable for chips, boiling, baking and roasting, as well as for use as a salad potato. Alan Romans says it has "bonny blue eyes" and is in his view "the best Caithness variety for flavour". It is particularly resistant to slugs!

You can listen to Jack Durnett talking about his work with potatoes from one minute thirty seconds onwards [here](#).



MAINCROP

Majestic 1911

Archibald Findlay (1841-1921) from Fife, was a major potato breeder whose seed tatties were sent as far afield as New Zealand. He bred one of the first blight-resistant varieties, having been motivated by the effects of the Irish potato famine. Potato expert Alan Romans, (also from Fife), notes that Findlay "helped develop the concept of a seed potato industry" and "travelled all over Britain by train to promote his varieties". Initially developing his craft in Markinch, in 1900, Findlay bought Mairsland Farm near Auchtermuchty, as well as a farm in Lincolnshire, just as a major boom in potato breeding was taking place in the early 20th century. In 1911, he launched the variety Majestic and it became one of the most frequently grown varieties in the UK in the 20th century. It is said that it is a parent variety of over 70% of the popular breeds grown today. There is now a plaque in Archibald Findlay's honour on Portland House in Commercial St, Markinch, and the building that used to be his tattie store, in Upper Greens, Auchtermuchty.

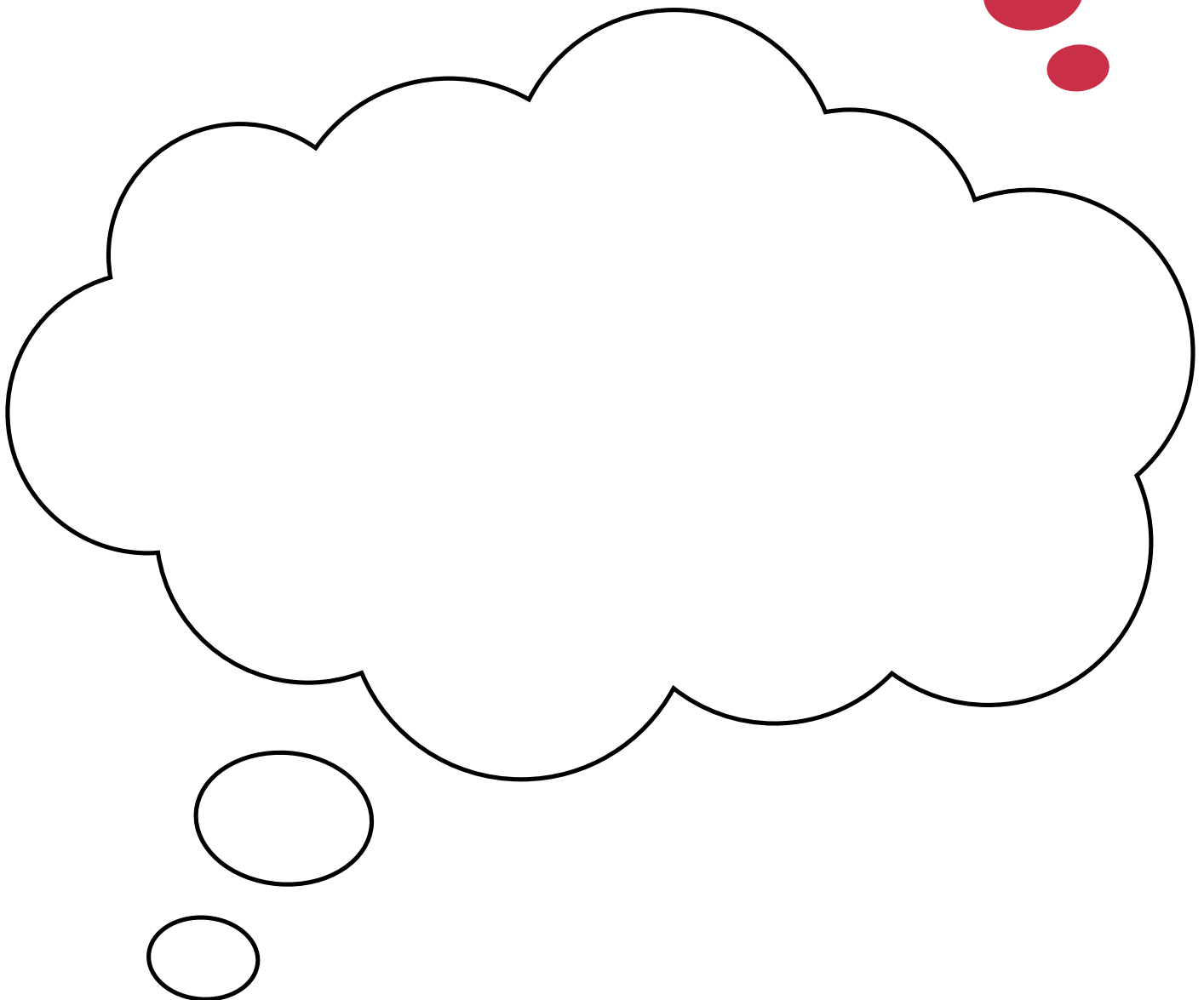
Golden Wonder: Arbroath 1906

Found by a Mr Brown of Arbroath, a farmer and potato breeder in 1906, it is said that this is the potato which gives its name to the well-known crisp company. It is believed that the baker William Alexander, who started making crisps in 1947 to diversify his business, named his new company after the popular local tattie. It is a very dry, floury potato which is best for making chips, but tastes best after being stored for a wee while. It is considered a 'late' maincrop tattie and can sometimes be tricky to grow successfully.

Design your own tattie

Imagine that you can create a new variety of potato. What characteristics will it have and why? Here are a few questions to start you off. You can describe or draw your tattie in the thought bubble below.

Colour? Size? Early or late crop? Waxy or floury? High yield? Taste?



Growing media for healthy crops

Crops can be grown in:

- Growing media
- Soil
- Soil-free systems like vertical farms

1. Growing medium

The term 'compost' is confusing as it has two meanings so Dandelion is using the term 'growing medium'.

Compost can mean a very nutrient-rich soil conditioner made from organic biodegradable materials through a composting process, like a garden compost bin or council food-waste system.

Or the term compost can be used to describe a growing medium in which seeds are sown or young plants are grown in containers. The two things are very different which is why we are sticking to growing medium.



Garden compost (left) and seedlings being grown in a growing medium (right)
(photo credits: Audrey Litterick)

Growing medium vs. Compost

Garden compost is much too nutrient-rich for use alone as a growing medium, and the physical structure is not suitable. In fact, it is chemically and nutritionally similar to farmyard manure and few people would try to sow seeds in that! Garden compost is an excellent, nutrient-rich fertiliser and soil conditioner and is best applied to soils to improve them for fruit and vegetable production or (at lower rates) as a mulch around ornamental plants.

Buying growing media – what to think of

What type?

- Growing media are best bought from companies who understand how to make blends that are suited specifically for sowing seeds or growing on young plants.
- Using a poor quality growing medium or the wrong type for the job can mean plants die off, plant performance is poor, or yields are very low.

How sustainable?

- Modern growing media have been based largely on peat, but peat is a valuable and finite resource, and is important in helping us address climate change and biodiversity challenges. Peat locks up carbon and is found in many of our most unique and sensitive areas of natural environment.
- Alternative bulk constituents are more variable, heavier, more expensive and can have sustainability issues, just as peat does.
- There is no legal requirement for growing media manufacturers to state the composition, although bags are usually labelled as containing peat, having a reduced peat content or being peat-free.
- Alternative constituents to peat include coir, wood fibre, composted bark, expanded clay minerals, sand, gravel and loam (topsoil).
- The major growing media manufacturers have signed up to the "Responsible Sourcing Scheme", which aims ensure that growing media is made from materials that are sourced and manufactured in a way that is both socially and environmentally responsible.

The growing medium Dandelion is using has been specially made from nutrient-rich Scottish green organic waste and mixed with a low nutrient 'carrier' based on composted wood fibre and composted bark with a small amount of coconut fibre (coir). This has meant we haven't had to use peat and we have been able to minimise the use of coir, which must be imported over long distances.

What it means to be peat free?

- Peat-free growing media are more sustainable, but you will need to manage them differently. Do not expect peat-free media to behave the same as peat-based growing media.
- They hold and release water in a different manner to peat and plants growing in them may need a different amount of supplementary feeding during use.
- Make sure your containers have holes and can drain well. The growing medium contains beneficial microorganisms. It's therefore alive and needs to breathe.
- Check your plants carefully and more often, particularly with regard to watering.
- Overwatering is a major cause of death in peat-free media. Lift pots and trays to see whether watering is needed and don't rely on the colour of the medium surface.
- If plants are not growing well, try to assess why and decide if extra liquid feeding will help.

2. Soils

Growing in soil when you can will be far more sustainable than using a growing medium.

Having a healthy soil is really important to getting good yields

How to judge your soil health

Physical – a healthy soil should be crumbly. Dig a spade full – if it sticks together in one slab and looks smooth or doesn't hang together at all and looks dusty then digging in some organic matter can help with structure. Avoid walking on soil and compacting it.

Biological – your soil should be teeming with life and full of fungi, worms, and microbes to help feed the plants and support life and growth. Worms are a good indication of soil health, so if you don't see many, then improving the soil with organic matter can help.

Chemical – feeding your soils is important. Soil pH, which is a measure of the acidity or alkalinity, is the most important and simplest thing to test. Digging in garden compost is one way to help feed the plants. Peas, beans and other legumes will add nitrogen without needing to use chemical fertilisers. Chemical fertilisers can also be used sparingly and following any instructions on the packet



A healthy soil should be crumbly, rich in organic matter and full of life like earthworms

3 Soil-less growing systems

Some crop growing systems avoid the use of soil or traditional growing media completely, and are used in some glasshouses, polytunnels and protected situations.

- **Hydroponic systems.** Plants grow in water, sometimes on sand, gravel or rockwool with the nutrients they need added in the irrigation water.
- **Aeroponic systems.** Plant roots grow in humid air and nutrients are misted at them.
- **Aquaponics:** Plants grow in water in which fish are also farmed. The plants can use the waste nutrients from the fish
- **Vertical farming:** This takes some of the systems above and layers them up so that many plants can be raised in a small area. By using advanced lighting, plant growth is accelerated.



Indoors outdoors activity

Plants can detect all sorts of stimuli. Do they grow differently indoors or outdoors?

- They respond to light and grow towards the light. Indoors they can grow too tall and pale if light levels are low
- They detect gravity
- Some carnivorous plants can count!
- They detect and respond to touch. Thigmomorphogenesis is the name of this super-sense. When growing outdoors rain, wind and passing animals would brush the leaves and plants respond by slowing their growth and growing stronger stems. Brushing leaves mechanically in indoor protected crops can prevent plants growing too tall and spindly. One of the Dandelion Cube science experiments explores whether tickling the plants mimics this effect. Will it slow growth? And will it make the plants tastier?

What can you find out about alternative growing systems? There are different benefits for growing outdoors or indoors in soil-less systems. Here is a basic table to help you investigate what each system does well and where some of the challenges are.

Guess 'more, less, or same' and then use an internet search to check your guess and add information. Remember to note down your sources of information. Compare your findings with your classmates.

More, less, or the same?

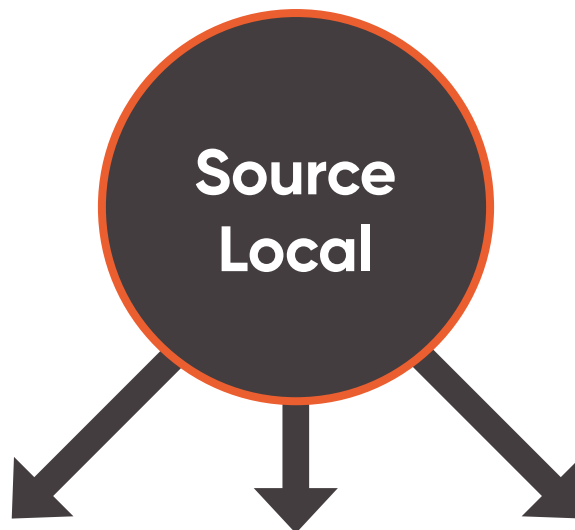
	Growing outdoors	Soil-less systems
Number of different crops that can be grown?		
Seasons of the year that crops can grow?		
Protection from weather?		
Access to wild pollinators?		
Herbicide use?		
Input of manufactured nutrients?		
Input of manufactured light & heat (made by people)?		
Input of water?		
Amount of land area?		
Depends on technology?		

Reducing plant pests and disease. Safe sourcing and cleaning.

Plants get sick too and you can help by doing two simple things – source your plants and seeds with care and keep things clean when you move about.

It is important to know where your seed tatties have been grown as well as the origin of the plants you use in your garden or allotment if you want to make informed decisions about sustainability.

Not only do locally produced plants reduce CO2 through reduced travel miles, but they are also less likely to contain new plant pest and disease species which, once introduced, can have a devastating impact on the environment.



Fewer Miles



Pests



Lower Disease Risk

Certified Seed Potatoes

Saving money by not buying certified seed potatoes can cause problems. Low grades, table potatoes and garden grown seed potatoes carry more virus, bacterial and fungal pests than high grade certified seed potatoes and can result in disappointing crops.

In addition, non-certified seed can carry potato cyst nematodes (eelworm) which is bad news for gardeners and can stay in your soil for up to 20 years.

Source with care!

Do

Buy health assured seed potatoes
 Buy plants grown locally where you can
 Ask where your plants come from – this will help create demand for health assured plants
 Match suitable plants to the location: – stressed plants are more susceptible to pests and diseases

Do Not

Do not keep your harvested potatoes for planting next year
 Do not buy from unknown internet sources
 Do not bring plants or seeds back from abroad
 Do not buy plants that are high disease risk from international suppliers

Keep it clean and stop the spread!

Take Action

Remember to use plant quarantine measures
 Clean your boots between sites
 Clean your tools regularly
 Keep watch for invasive species
 Dispose of green waste properly
 Report anything unusual
<https://www.sasa.gov.uk/plant-health>

Be Aware

Find information on common plant pests and diseases:
Scotland's Plant Health Centre
Plant Healthy
Health in Gardens – Royal Horticultural Society
Forest Research

Scotland's Plant Health Centre

Risks to plant health in Scotland are rising due to increased global movements of plants and soil, coupled with environmental change allowing novel pests and diseases to establish or endemic ones to flourish. We all need to act to address these threats. Scotland's Plant Health Centre recommends 5 key principles to protect plant health in Scotland.

1. Source with care	Buy local from reputable sources
2. Keep it clean	Reduce the risk of spreading pests and diseases by cleaning soil off your boots, bicycle wheels and dog paws.
3. Plan for future challenges	Grow lots of different plants. Choose plants suited to Scotland's climate and try and grow in the most sustainable way you can
4. Embed in policies and practices	Ask where plants are from and check labels for information on assurance schemes like Plant Healthy certification which encourages good practice
5. Raise awareness and knowledge of plant health	Plant Health Centre Key Principles https://www.planthealthcentre.scot/sites/www.planthealthcentre.scot/files/publications/planthealthrisks/2/index.html#zoom=z

Curriculum for Excellence

Experiences and Outcomes

Activities in this brochure support these curricular outcomes.

level	CfE label	explanation
2	LIT 2-09a	When listening and talking with others for different purposes, I can: share information, experiences and opinions, explain processes and ideas, identify issues raised and summarise main points or findings, clarify points by asking questions or by asking others to say more.
2	MNU 2-11a	I can use my knowledge of the sizes of familiar objects or places to assist me when making an estimate of measure.
2	SCN 2-02b	Through carrying out practical activities and investigations, I can show how plants have benefited society.
2	TCH 2-06a	I can analyse how lifestyles can impact on the environment and Earth's resources and can make suggestions about how to live in a more sustainable way.
3	LIT 3-09a	When listening and talking with others for different purposes, I can communicate information, ideas or opinions, explain processes, concepts or ideas, identify issues raised, summarise findings or draw conclusions.
3	MNU 3-11a	I can solve practical problems by applying my knowledge of measure, choosing the appropriate units and degree of accuracy for the task and using a formula to calculate area or volume when required.
3	TCH 3-06a	I can evaluate the implications for individuals and societies of the ethical issues arising from technological developments.
3	HWB 3-34a	Having explored a range of issues which may affect food choice, I can discuss how this could impact on the individual's health.
4	LIT 4-10a	I can communicate in a clear, expressive manner when engaging with others within and beyond my place of learning, and can independently select and organise appropriate resources as required.
4	SCN 4-02a	I have propagated and grown plants using a variety of different methods. I can compare these methods and develop my understanding of their commercial use.
4	SOC 4-08a	I can discuss the sustainability of key natural resources and analyse the possible implications for human activity.
4	SOC 4-09a	Having evaluated the role of agriculture in the production of food and raw material, I can draw reasoned conclusions about the environmental impacts and sustainability.
4	HWB 4-34a	Having explored a range of issues which may affect food choice, I can discuss how this could impact on the individual's health.
Health & Wellbeing	HWB 0-11a / HWB 1-11a / HWB 2-11a / HWB 3-11a / HWB 4-11a	I make full use of and value the opportunities I am given to improve and manage my learning and, in turn, I can help to encourage learning and confidence in others.

With thanks to the contributors to this resource:

SRUC <https://www.sruc.ac.uk/>
Keep Scotland Beautiful <https://www.keepsotlandbeautiful.org/>
Steve Byrne, Creative ethnologist

DANDELION

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CREATIVITY IN THE UK

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