



## G3.1 Growing plants



The Silver Award section explained how to plan your growing space for sustainable harvests every term. It introduced a broader range of crops and ways of keeping them growing healthily.

The following sections go further. They invite you to have a go at more challenging crops and growing for specific nutrition. There is also guidance for how to choose from the many crop varieties available for maximum benefit.

For every topic there is an Activity suitable for pupils and the community (numbers A50-52). See the DVD.

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## G3.2 Growing adventurous crops



Adventurous crops delight and amaze people. Some are easy to grow but unusual; others commonplace but demanding. Both need the right conditions to do well and sometimes advanced horticultural care. This section explains how to plan your growing of adventurous crops with examples for inspiration. A50 adds to this with growing instructions for pulses and cereals.

### Before your start

Develop a shortlist of adventurous crops to try, starting with those you've heard about or seen at an allotment or local grocer. There are lots of exciting possibilities, so narrow down by checking the following.

- 1 Growing requirements for each crop (see Food Growing Instruction Cards and reference books in further information box on the next page). Don't waste time and money growing plants that just don't like the conditions you have available. For example, melon needs the extra warmth of a greenhouse/polytunnel or cold frame to produce a reliable harvest in the UK.
- 2 Availability of seeds or plants to get you started; this can be tricky. For example, sweet potatoes are best bought as rooted cuttings called 'slips'; tubers are much less reliable. Ask local allotment groups or other schools for supply and good plant catalogues such as [www.organiccatalogue.com](http://www.organiccatalogue.com).

### Getting the horticulture right

Adventurous crops require practised and often more advanced horticultural skills. They need this throughout their season to do well. Don't let this put you off growing adventurous crops. It's part of the excitement and challenge of such Gold level growing. The following techniques are particularly important (manual references included).

- Established support network for the garden during the school holidays (B4.11).
- More difficult germination techniques (G4.6) and reliable potting on and transplanting (B5.5).
- Proper ventilation of greenhouse/polytunnel (S4.9) and protected cropping (G4.9).
- Exact watering tailored to plant needs (B5.6).
- Extra crop maintenance, such as pruning (G4.10).
- Extra vigilance for plant problems (S4.6).

### Recovering from failure

Despite good conditions and care, bad luck and bad weather can ruin some adventurous crops. For example, nectarines will always be poor in wet UK summers. If crops do fail, try to find out why and prevent the problem next time if you can.

#### Top tip



#### Some examples to try

Asparagus  
Aubergine  
Calaloo  
Cauliflower  
Fenugreek  
Forced chicory, seakale, cardoon  
Gourd  
Lemon grass  
Melon  
Mushroom  
Nectarine  
Okra  
Passion fruit  
Peach  
Quinoa  
Salsify  
Scorzonera  
Sweet potato  
Tree spinach  
Watercress  
Yam  
Unusual varieties of favourite crops.

## Examples of adventurous crops

See also *Food Growing Instruction Cards*



*Nectarine and peach: warm sunny wall, covered in spring with plastic sheeting on a framework for cold protection; then hand pollinated.*



*Melon: space widely apart in a greenhouse or cold frame. Tie shoots to wire and carefully prune growing tips.*



*Asparagus: as tried by St Bernadette's Primary School growing in a permanent bed and picked carefully from second year.*



*Mushrooms: buy 'spawned' material that contains 'mycelium', eg logs. Care varies, eg generally keep at 12°C minimum and moist.*



*Okra: use varieties suitable for UK. Grow in greenhouse or very sheltered site outdoors. Water, mulch, stake, and prune growing tips.*



*Fenugreek: excellent in Indian cooking, a quick maturing crop, but slightly cold sensitive. Sow regularly March to August for regular supply.*

<b>Health &amp; Safety</b>	Only eat plants you're sure are safe to eat, ensuring adult supervision.  <i>See also Health and Safety Guidelines (Section SG1.2)</i>
<b>Activities on DVD</b>	A50 Growing pulses and cereals
<b>Further information</b>	<p>B4.11 Holiday care of the garden</p> <p>B5.5 Transplanting young plants</p> <p>B5.6 Watering plants</p> <p>S4.9 Using greenhouses/polytunnels</p> <p>S4.6 Managing plant problems</p> <p>G4.6 Germinating difficult seeds</p> <p>G4.9 Using protected cropping</p> <p>G4.10 Pruning and training fruit</p> <p>Food Growing Instruction Cards</p> <p>Organic Gardening Catalogue <a href="http://www.organiccatalogue.com">www.organiccatalogue.com</a></p> <p>'Growing Unusual Vegetables: Weird and Wonderful Vegetables and How to Grow Them' by Simon Hickmott. ISBN 1899233113</p> <p>'Asian Vegetables: A Guide to Growing Fruit, Vegetables and Spices from the Indian Subcontinent' by Sally Cunningham. ISBN 1899233164</p>



# G3.3 Growing for specific nutrition



Eating fruit and vegetables helps a healthy diet as they're full of nutrients, but the amounts are affected by how you harvest, prepare and cook fresh produce. Since fruit and vegetables are also seasonal, school catering teams need to know which produce has similar nutritional content so you get the same nutrients throughout the year. This section explains the importance of growing for nutrition.

## Growing fruit and vegetables

By growing a wide variety of fruit and vegetables you will have:

- Produce to eat right through the year, fresh or stored. See S3.3 about harvesting each term and A32 about storage.
- A good mix of different nutrients, vitamins and minerals.

According to current Government advice, eating lots of fruit and vegetables is beneficial to health. It can help protect against many different cancers, and lower the risk of heart disease.

### Top tip



### The bigger picture

As well as having a balanced diet, it's also important to exercise and get your heart rate up. So brisk walking, running, cycling, playing sport, even doing some digging in the garden will burn calories and get you fitter and healthier.

**Nutrients of major edible crops**  
Produced by Health Education Trust

This table focuses on the 14 key nutrients within the School Food Standards. See end of table for a full explanation.

List of crops	Preparation of food crop	Nutrients that can be found in each food crop - 100g of food, as served (HS = High source)	
		Children	Adults
<b>Vegetable</b>			
Artichoke, Globe	Boiled	HS of folate	HS of folate
Artichoke, Jerusalem	Boiled	Source of fibre	Source of fibre
Asparagus	Boiled	HS of folate; Source of vit. C	HS of folate; Source of vit. C
Asparagus Pea	Boiled	HS of folate & vit. C; Source of protein & iron	HS of vit. C; Source of folate
		Source of fibre & vit. C	

HEALTH EDUCATION TRUST  
www.healthedtrust.com



See the DVD for nutritional information on a range of crops from the Health Education Trust.

This is summarised on each Food Growing Instruction Card. See also A51 for a seasonal recipe challenge.

## Case study

### Nutrition in Food for Life Partnership schools

Pupils at Franche Community Primary School have built nutrition into their growing from early in the season. Everyone gets involved in planning which crops to grow for preparing seasonal, nutritional dishes. They've made sandwiches and delicious soups from their harvests, among many other recipes.

Teaching assistant Mary Bendall explained how every year group has a simple folder as a "one stop source of information for cooking and growing". There is also a diary filled in every session by proud pupils recounting their horticultural and culinary experiences. Both are crammed full of techniques they've learnt together.

They've now had pumpkins in the autumn term, leeks in spring, and strawberries in summer, together with other nutritious crops for preparing themselves and donating to willing cooks in their school kitchen.

## Preparation tips: storing and cooking fruit and vegetables for nutrition

- For optimal nutritional value, fruit and vegetables should be cooked and eaten as soon after picking as possible. The vitamins in fruit and vegetables can easily be destroyed during storage and preparation.
- When storing freshly picked fruit and vegetables, keep in a cool, well-ventilated place or in a refrigerator, not in full sun where the nutritional content will be lost. You can also freeze fruit and vegetables once you have picked or cooked them to eat another time.
- Lightly scrub fruit and vegetables to remove dirt but don't soak them in water as vitamin C, a water-soluble vitamin, will leak out into the water and be lost. Don't peel vegetables too thickly as many nutrients are stored just below the skin.
- Cooking vegetables considerably reduces the vitamin C and folate content. Always try to steam your vegetables, or cook in a very small amount of water for the shortest amount of time and add the vegetables when the water is boiling. Stir frying is also a great and healthy way to eat vegetables.



### Health & Safety

Be careful when using kitchen equipment to prepare food, ensure adult supervision when necessary. Follow Manual Handling guidelines for lifting heavy trays of harvested fruit and vegetables (SG1.3).

See also *Health and Safety Guidelines (Section SG1.2)*

### Activities on DVD

A32 Storing produce  
A51 Making a meal of it

### Further information

S3.3 Harvesting each term  
Poster: Garden to kitchen  
Crop nutrition table by Health Education Trust (see DVD)  
Health Education Trust [www.healthedtrust.com](http://www.healthedtrust.com)  
Focus on Food Campaign [www.focusonfood.org](http://www.focusonfood.org)  
National Health Service 5-a-day [www.5aday.nhs.uk](http://www.5aday.nhs.uk)  
Food Standards Agency [www.eatwell.gov.uk/healthydiet](http://www.eatwell.gov.uk/healthydiet)



# G3.4 Comparing varieties



A joy of growing your own food is trying new flavours and forms that go beyond the ordinary available from shops. Plant varieties offer just this chance, adding diversity to crops, such as different shaped tomatoes, red lettuce, early cabbage and purple potatoes. This section explores the scope of growing different varieties. A52 gives a chance to study these differences.

## What is a variety?


Varieties are natural ‘variances’ within a crop, such as tomato ‘Yellow Pear’, that looks just as it sounds. Variances occur naturally following sexual reproduction and random mutations in plant genes. Plants showing useful variance are ‘selected’ by plant breeders and gardeners who grow them on and select again. Over time, new varieties are produced and named, often many new introductions every year. Look in seed catalogues for the latest.

**Note:** Selected variance is different from ‘genetically modified’ (GM) varieties where genes are ‘spliced’ between different species. Their use in the UK remains controversial.

## Special mention: heritage varieties


‘Heritage’ varieties are special because they unite gardeners across generations. Many are passed on through family generations as treasured heirlooms. Others are ex-commercial, forgotten when seed companies merge or cannot afford to register varieties in the European Union. Growing heritage varieties offers schools powerful curriculum links, especially by comparing the performance and taste of modern and older varieties. Many heritage varieties are still available, like the following.

- Fruit tree varieties such as the Victorian apple ‘Laxton’s Superb’ bred in 1897, or ‘Worcester Pearmain’ bred in Worcester in 1874.
- Vegetable varieties such as the once popular climbing French bean from Germany, ‘Lazy Housewife’ from the 1800s. This is thought to have earned its name because the leaves wither at the end of the season, exposing the pods, making them easier to pick.

**Top tip** 

**Food Growing Instruction Cards**

Each card has carefully selected varieties suited to organic food growing in school.




Comparing heritage varieties at Damson Wood Infant School.

## Finding heritage varieties



- Garden Organic's Heritage Seed Library - a unique living library with over 800 varieties. Schools can join and help preserve a valuable genetic and social record. See [www.gardenorganic.org.uk/hsl](http://www.gardenorganic.org.uk/hsl)
- Seed companies, eg runner bean 'Painted Lady' and lettuce 'Little Gem' (19th century).
- Seed-swapping groups, eg some varieties earn notoriety, such as pea 'Harold Idle' grown by a family for 50 years at their Northamptonshire allotment.

## Variety differences

Learn as much as possible about a variety before growing. Ask for advice from seed suppliers, at seed swaps, fellow gardeners and other schools. Prioritise varieties that suit you and school caterers. Include those that allow you to harvest each term and make organic growing easier by having more resistance to plant problems.

<b>Colour</b>	Try unusual colours, eg yellow tomatoes, red and blue fleshed potatoes, purple cauliflowers, rainbow chard, purple beans, etc. These are a great talking point to get people interested in growing.
<b>Shape</b>	Try unusual shapes, such as Italian broccoli 'Romanesco', gourds, short carrots, round courgettes, etc. Together with unusual colours, such produce is very good for displaying/selling.
<b>Harvest time</b>	Try early/late varieties ready at different times of year to stagger your term-time harvests, eg potatoes, leeks, strawberries, apples, etc. See S3.3. Lots of heritage varieties also mature over a longer time, unlike many modern ones.
<b>Size</b>	Try small and larger versions of crops, eg small 'cherry' versus large 'beefsteak' tomatoes; plus aubergines, cucumber, dwarf French beans, etc.
<b>Taste</b>	Try unusual flavours and build them into recipes, eg delicate or strong flavours, different textures, waxy or floury potatoes, etc. Heritage varieties are especially interesting, such as the very sweet taste of white carrots.
<b>Habit</b>	Try varieties that suit your space, eg trail, climb, clump, etc. Habit also refers to varieties resistant to flowering prematurely (bolting), eg beetroot and spinach; and others like 'cut-and-come-again' salads such as lettuce.
<b>Pest/disease resistance</b>	Try varieties that are less prone to common crop problems, eg mildew, aphids, potato late blight, wilt diseases, cucumber mosaic virus, bean mosaic virus, clubroot, tomato blight, etc.



<b>Health &amp; Safety</b>	Only eat plants you're sure are safe to eat, ensuring adult supervision. <i>See also Health and Safety Guidelines (Section SG1.2)</i>
<b>Activities on DVD</b>	A52 Studying crop differences
<b>Further information</b>	S3.3 Harvesting each term G4.5 Saving your own seed Food Growing Instruction Cards Organic Gardening Catalogue <a href="http://www.organiccatalogue.com">www.organiccatalogue.com</a> 'Vegetable and Fruit Gardening', Royal Horticultural Society. ISBN 1405331267