

Polytunnels: Part I



A polytunnel is a low cost way of providing sheltered growing space – enabling you to cheat the seasons and grow many more of your own crops. In a series of articles, of which this is the first, we show you how to make the most of this space all year round.

Despite the warm spring sunshine, the ground on the vegetable plot is cold and wet. Night frosts have nipped new growth on over-wintered chard, and March winds have made the kale a grisly sight.

Inside the polytunnel, however, the spinach is thriving, potatoes are already through, and there is a healthy harvest of salads. The cover protects plants not just from a few degrees of frost but from a combination of outside stresses – cold temperatures, strong winds, and heavy rain – and in the warm conditions inside, nutrients from the soil are also more readily available.

Pushing the boundaries



The other great advantage of polytunnels is that they are relatively cheap and easy to erect. The smallest are no larger than garden greenhouses, but it pays to think big. A lot of extra growing space can be bought for relatively little cost, giving scope for a much greater range of crops.

You can extend the autumn harvest, bridge that ‘hungry gap’ in late spring, and pick salads all year round. In summer you can experiment with different tender crops, depending on where you live. In warm areas you might grow melons and sweet potatoes, for example, but in cold exposed ones, a polytunnel can make the difference

between producing good sweet corn and squashes, and not being able to grow them at all.

Extra care



The extra demands you make on space inside a tunnel mean that you must pay extra attention to the soil. As these articles will show, good organic practices from the vegetable plot easily translate inside: preparing beds with compost and manure, rotating crops, using mulches, and growing green manures.

Similarly, just as plants grow more quickly in a tunnel, so pests can multiply more rapidly. Extra vigilance is needed, and it can help to accommodate some attractant plants for beneficial insects, as you would outside. The sheltered atmosphere and vigorous growth in the tunnel can also provide ideal conditions for fungal diseases, so you need to make sure ventilation is good all year round.

With a little extra care, most problems are easily avoided, and there are many rewards. You can produce exotic and out-of-season crops that would be expensive to buy, and are even more appreciated when home grown. And working in a polytunnel is a wonderful escape on wet and windy days.



Sweet potatoes (*Ipomoea*) easily fit into a rotation because they do not belong to any of the major crop families...



...whereas aubergines belong to the tomato family (*Solanaceae*).



The small, smooth-fruited cucumber 'Diva' does well even in cooler areas.



Courgette 'Parthenon' will set fruit without pollination.



Coriander produces a quick crop in the tunnel early in the year.




In early spring, the vegetable plot is bare, but inside the tunnel crops are flourishing.




Dwarf French beans can crop a month earlier inside.


The polytunnel in spring

 Making the most of your polytunnel space is a juggling act – between sowing and harvesting times, volumes of plants, and the need to rotate crops (grow them in a different spot from year to year).

Space for plant raising

 Raising plants in pots and modules saves valuable space in the ground – both indoors and out. If you don't have a greenhouse, keep plants off the ground on a temporary bench in the tunnel. This can be moved out to make room for summer crops.

Crop rotation

 Rotating crops in the same plant families benefits soil micro-organisms, increases soil fertility, and helps avoid root diseases. In the limited space in the tunnel, it can be difficult to have the traditional 'four-year' rotation – but think instead in terms of the number of different crops and green manures.

Because of the extended growing season, it is easy to work out a rotation of three or four different crops before your original crop of tomatoes, for example, returns to the same spot. Some crops have added value because they belong to different families from the major undercover crops. (See Table 1.)

Height and space



Choose crops that give best value for space. Many modern tunnels have reasonably straight sides, so even tall plants such as tomatoes will grow in side beds.

Nevertheless, some crops such as sweet corn or climbing French beans may still need the maximum height in the centre. Remember plants grow more vigorously under cover, so avoid the temptation to cram them in. If available, you may want to use compact varieties. Good airflow is essential for preventing disease.

Soil preparation



Plants growing quickly under cover need to be well supplied with nutrients. However, there is no leaching by rain, so don't overdo it. If an excess of soluble nutrients builds up in the soil, it can damage plants.

Prepare beds well with composts and manures before planting, so that no liquid feeding will be necessary later – this is far better for both soil and plants.

Sow a quick-growing green manure on bare soil waiting for a crop, or mulch it with straw, grass mowings, cardboard, or black plastic. Otherwise it will become dry and lifeless.

What you could grow this summer

If space allows, you can grow both early summer and main summer crops. (See tables 2 & 3)

Early summer crops are those that normally grow well outside after the last frosts, but can be sown, planted, and harvested earlier in a tunnel – probably by about three-four weeks. For example, if you normally plant French beans outside in mid-May, you could plant them in mid-April in a tunnel, but cover them with fleece on cold nights. Lack of pollinating insects can be a limitation for some crops – runner beans rarely do well inside, for example. To release useful space for late summer plantings, pull up early summer crops when their outdoor counterparts are in full production.

Main summer crops are those that often struggle outside in your area. Tomatoes, peppers, and cucumbers are the commonest, although there are many more you could try. Tomatoes usually do better inside even in warm areas because they are less susceptible to blight when protected from rain.

Attractant plants will bring beneficial insects such as hoverflies into the tunnel. Use compact varieties of flowers you grow outside such as single French marigolds, eschscholtzia, or half-hardy climbers such as morning glory, and allow a few plants of dill or coriander to flower.

Sue Stickland is a professional gardener and garden writer with a special interest in growing vegetables.

Table 1 Family groupings of common undercover crops

Solanaceae	– tomatoes, peppers, chillies, aubergines, early potatoes
Cucurbitaceae	– cucumbers, melons, courgettes, squashes
Brassicaceae	– radish, calabrese, kohlrabi, Oriental greens and mustards
Leguminosae	– sugar peas, mangetout peas, French beans
Compositae	– lettuce, chicories, endives
Umbelliferae	– Florence fennel, carrots, dill, coriander
Chenopodiaceae	– beetroot, spinach, chard
Other	– sweet corn, sweet potatoes, okra, basil, and the green manures phacelia, buckwheat, grazing rye.

Table 2 Early summer crops Variety/cultivation notes

Courgettes	'Parthenocarpic' varieties, e.g., 'Parthenon', give fruit without pollination and so crop more reliably.
French beans	Choose compact dwarf varieties such as 'Maxi' for a quick crop. Climbing varieties are slower to crop but give good value for space.
Sweet corn	Choose early short varieties, e.g., 'Swift', 'Honey Bantam'. Grow a minimum of 9 plants to ensure good pollination
Green manure	Sow phacelia or buckwheat in March or April on ground waiting for main summer crops.
Herbs	Sow dill and coriander for an early crop.

Table 3 Main summer crops Variety/cultivation notes

Tomatoes	Cordon varieties give best value for space; try 'outdoor' varieties in cold areas.
Aubergines	Use early varieties such as 'Tres Hative de Barbentane' in cold areas.
Peppers and chillies	Use early maturing varieties in cold areas.
Cucumbers	Use 'outdoor' varieties such as 'Diva' and 'Burpless' in cold areas and train them upwards.
Herbs	Basil – try different varieties such as 'Red Ruben' and 'Lemon basil'.
Other crops to try	Melons, soya beans, lablab beans, sweet potatoes, tomatillos, etc....

The majority of the vegetable varieties listed here, and many others suitable for polytunnel growing, are available from *The Organic Gardening Catalogue*.
www.organiccatalog.com



Polytunnels: Part 2

In this second article on polytunnels, we look at ways to keep your crops flourishing during the hot summer months, and how to plan early for the best winter harvests.



Summer in the polytunnel can transport you to the Mediterranean: the smell of ripening tomatoes and spicy basil, the shiny skins of peppers and aubergines, and the welcome glisten of droplets from a really fresh cucumber. However, be prepared for plants – and problems – to grow as fast as they would in warmer climates too.

Be ruthless

Keep crops in check: nip out side shoots of tomatoes, excess shoots on cucumbers, and the tops of climbing beans. Provide strong supports. Pull out early summer crops once their outdoor equivalents start cropping – you don't really need any more summer courgettes, do you?! Aim for a light airy plantation, not a steamy jungle.

Watering and ventilation

Regular watering is essential. If plants start to wilt, flowers may not set, and tomato and pepper fruits may develop patches called 'blossom end rot'. Mulching with straw or hay, as you would outside, helps keep in moisture.

It is generally best to keep the tunnel atmosphere dry. Water only by hand and at the base of plants, or with a seep hose, and keep the doors open as much as possible to encourage good air flow. A polytunnel will tend to need a lot more ventilation than a greenhouse. Damp foliage and high humidity cause fungal diseases, particularly blight on tomatoes, and also contribute to blossom end rot.

Perversely, high humidity can also help to control the pest red spider mite. However, on balance, fewer problems occur if you keep the humidity low and mist with a sprayer susceptible crops such as cucumbers and aubergines.

A balanced diet

On poor soils give long-term crops such as tomatoes a mulch of compost or comfrey leaves when they start to fruit – or, failing that, a dressing of organic fertiliser, lightly hoed in. It is easier to feed the plants properly this way than with a liquid feed, and is better organic practice.

Pest control

Pests can quickly multiply in the warm conditions in a tunnel, so be vigilant. Encouraging predators with attractant plants can help, just as it does in the garden. Under cover, however, you also have the option of buying in bugs as 'biological controls' for specific pests – definitely worth a try for greenhouse whitefly and red spider mite.

What to grow this winter



It is difficult to think about autumn in midsummer, but early planning helps to extend the season of summer vegetables, and also enables you to grow some crops – particularly salads – that can give a green harvest all winter through.

Early autumn crops are those normally curtailed by the first frosts, but which can be harvested much later in a tunnel. In my north



The summer harvest – peppers, aubergines, cucumbers, and Red Brandywine tomatoes

midlands garden, I normally make sowings of the crops listed opposite around the middle to end of July for harvesting into November.

Remember the season is back to front compared with spring – in colder areas you will need to sow *earlier* and in warm areas *later*.

Winter crops are those hardy enough to stand the winter under cover. They don't actually grow during the coldest, darkest months, but planting early means they will have already made plenty of foliage so you can carry on harvesting. They should also start to re-grow in early spring. Best value are the winter salads – baby spinach, chicories, endives, and especially the oriental greens. They are nutritious, attractive, vigorous, and healthy – it is worth having a tunnel just to grow these! Establishing large plants early will give you more winter growth than will a later sown seedling crop. Sow into modules and transplant later if space is short.

Sue Stickland is a professional gardener and garden writer with a special interest in growing vegetables.



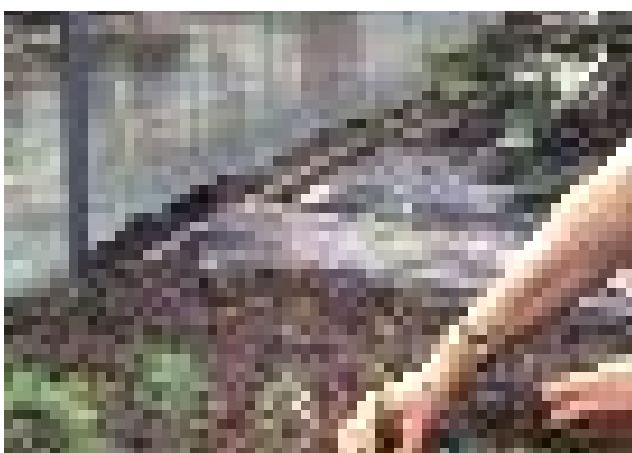
Mulch crops to keep in moisture, just as you would in the garden.



A late autumn crop of pak choi: less danger of bolting at this time of year



Water plants at the base without splashing leaves to avoid fungal diseases; here sweet potatoes planted through black polythene are watered with a seep hose.



A late autumn crop of Florence fennel: seeds sown in modules in late July and planted into the tunnel border in September for cutting in November

Early autumn crops	Variety/cultivation notes
Calabrese	Choose early compact variety such as 'Tiara'.
French beans	Choose compact dwarf varieties such as 'Maxi' as in spring.
Florence fennel	Only small bulbs may be produced, but they are still delicious!
Chinese cabbage, pak choi	Bolting is less of a problem at this time of year.
Lettuce	Choose varieties such as 'Tintin', resistant to downy mildew.

Winter crops	Variety/cultivation notes
Spinach beet	Leaf beet, Swiss chard or 'Rainbow': sow around end July.
Annual spinach	Choose variety for autumn sowing; sow end August.
Spring onions	Choose hardy winter types; sow end July.
Chicories	'Rouge de Treviso', 'Grumolo Verde' are hardiest; sow mid August.
Endives	'Cornet de Bordeaux', 'Pancalieri' are hardy types; sow mid August.
Oriental greens	Mizuna, tatsoi, komatsuna, mustard greens: sow end August.
Herbs	Parsley – plain and moss curled; sow July as very slow growing.

Polytunnels and planning permission

In most cases planning permission is not required for a polytunnel in your garden, but it is advisable to check with your local planning authority before you purchase your tunnel.

The Organic Gardening Catalogue sells useful 'Late sowing seed collections', including 'Oriental leaves' and 'Winter salads'. Each collection contains 8 different types, individually packeted – a great way to get started. For more information see www.OrganicCatalogue.com or phone 0845 130 1304.

Winter and Spring: The Most Valuable Polytunnel Crops of All



Winter crops from a polytunnel can be the most valuable of all. Sue Stickland's final article in our series looks at caring for the plants and soil during these cold, dark months, and plans for bridging the 'hungry gap' in spring. Sue, for many years HDRA's head gardener, is a professional gardener and gardening writer with a special interest in growing vegetables.

Nighttime temperatures inside a polytunnel can be almost as low as outside, but during the day even an hour or two of weak sunshine can make it feel like spring. Established salad crops such as chicories, endives, and oriental greens will take advantage of any mild spells to grow, and throughout most of the winter you should be able to harvest small amounts of fresh, nutritious, tasty leaves.

Winter soil cover



If the only winter 'crops' in your tunnel are dead tomato plants and jumbles of pots and canes, you are really missing out.

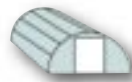
Clear summer crops as soon as harvesting is over, as debris can spread disease. It can even be worth forgoing the last few late tomatoes, for example, to allow you to clear space in time to sow seedling salads, or try overwintering crops such as peas or onions (see table), if these fit in with your rotation. You should be able to harvest them a month, or more, earlier than similar crops outside, with fewer losses.

Alternatively, sow some patches of green manures – crops grown to improve the soil. Under cover, the main value of these is to add organic matter to the soil when their foliage is incorporated in spring, and to keep the soil micro-organisms active and healthy. However, don't grow them where direct-sown small-seeded crops

are planned to follow, as the decomposing foliage can inhibit seed germination.

Mulch remaining bare soil or cover it with black plastic sheeting to keep in moisture.

Winter plant care



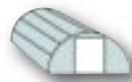
Don't cosset your plants otherwise they will become soft and prone to frost damage later.

Open the polytunnel doors or side vents daily as long as the weather is not extreme. Ventilation is also essential for preventing fungal diseases. Stale humid air encourages these and they can be worse enemies than the cold. To the same end, improve air circulation by removing weeds and debris, and harvesting leaves of closely spaced salad plants regularly.

For extra warmth on really cold nights, cover plants with a layer of thick horticultural fleece. I find most winter salads will withstand outside temperatures of at least minus 10C when doubly protected like this.

Continue to water plants as long as they are still growing. Choose a mild breezy morning when you can keep the doors open, and direct water at the base of the plants, trying not to splash the leaves.

What you could grow this spring



Once light levels improve and temperatures start to rise, overwintered crops will start to make abundant growth. The drier soil and warmer conditions in a polytunnel also allow you to start sowing and planting about a month earlier than you would outside. If you usually sow lettuce on your vegetable plot in late March, for example, try inside in late February. If you have a heated propagator to raise seedlings, then you can gain even more time.

Salad crops such as lettuce, rocket, and radishes give excellent value for space – sow them early to replace bolting overwintered crops. If you have room you could also try other spring vegetables – almost anything, from carrots and cabbages to onions and potatoes (see table). Forget the 'hungry gap': you will have abundant harvests in May and June.

There are limits, as many of these crops will still be in the ground when tomatoes and other tender summer vegetables need to be planted. However, a little planning and a little experimenting will enable you to get the most from your tunnel all year round.



Spring-sown crops in the polytunnel border in May: lettuce, cabbage, calabrese, kohlrabi, annual spinach, onions.



Crops harvested from the polytunnel in early June. What hungry gap?

Autumn-sown crops for spring harvesting

Broad beans: Sow October and November	Most varieties should be hardy enough. Because the flowers need to be pollinated by bees, they may not set pods so well under cover.
Green manures	Sow phacelia and mustard up to mid October. Sow grazing rye up to mid November. Phacelia and rye are easiest to fit into a rotation.
Onions: Plant up to end October	Overwintering sets such as 'Radar'.
Peas: Sow October and November	Dwarf hardy varieties such as 'Douce Provence'. Note they will grow taller under cover.
Seedling salads: Sow up to mid October	Oriental greens grow quickest — try a mixture such as 'Spicy Greens'.

Spring crops	Variety and approximate time to harvest: Quick, 7-10 weeks. Moderate, 9-12 weeks. Slow, 12 weeks or more.
Beetroot	Bolt-resistant variety such as 'Red Ace' (moderate/slow)
Calabrese	Early compact varieties such as 'Tiara' (slow)
Carrots	Quick maturing varieties such as 'Amsterdam Forcing' (slow)
Early potatoes	Early but tasty varieties — I grow 'Orla' (slow)
Kohl rabi	Quick growing varieties such as 'Logo' (moderate)
Lettuce	Leaf lettuce (quick) or hearted 'Little Gem' type (moderate)
Onions	Spring onions, or plant maincrop sets and use the leaves (slow)
Peas	Dwarf sugar peas, such as 'Norli' are best value (moderate)
Radish	Any small summer variety (quick)
Seedling salads	Rocket, cress, oriental leaves (quick)
Spinach	Summer varieties such as 'Matador' (quick)
Summer cabbage	Fast growing pointed types such as 'Hispi' or 'Spitfire' (moderate)



Mustard green manure, sown in late autumn for overwintering.



Rosette pak choi 'Tatsoi' and Red chicory 'Palla Rossa' are usually hardy enough to withstand the winter under cover.



Sowing grazing rye late autumn: a cover crop is better than dry lifeless soil.



From left, pak choi, Greek cress, rocket, red mustard, mibuna: for quick pickings sow seedling salad crops in autumn or early spring.



In spring, crops such as radishes can usually be sown and harvested about a month earlier than outside.

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