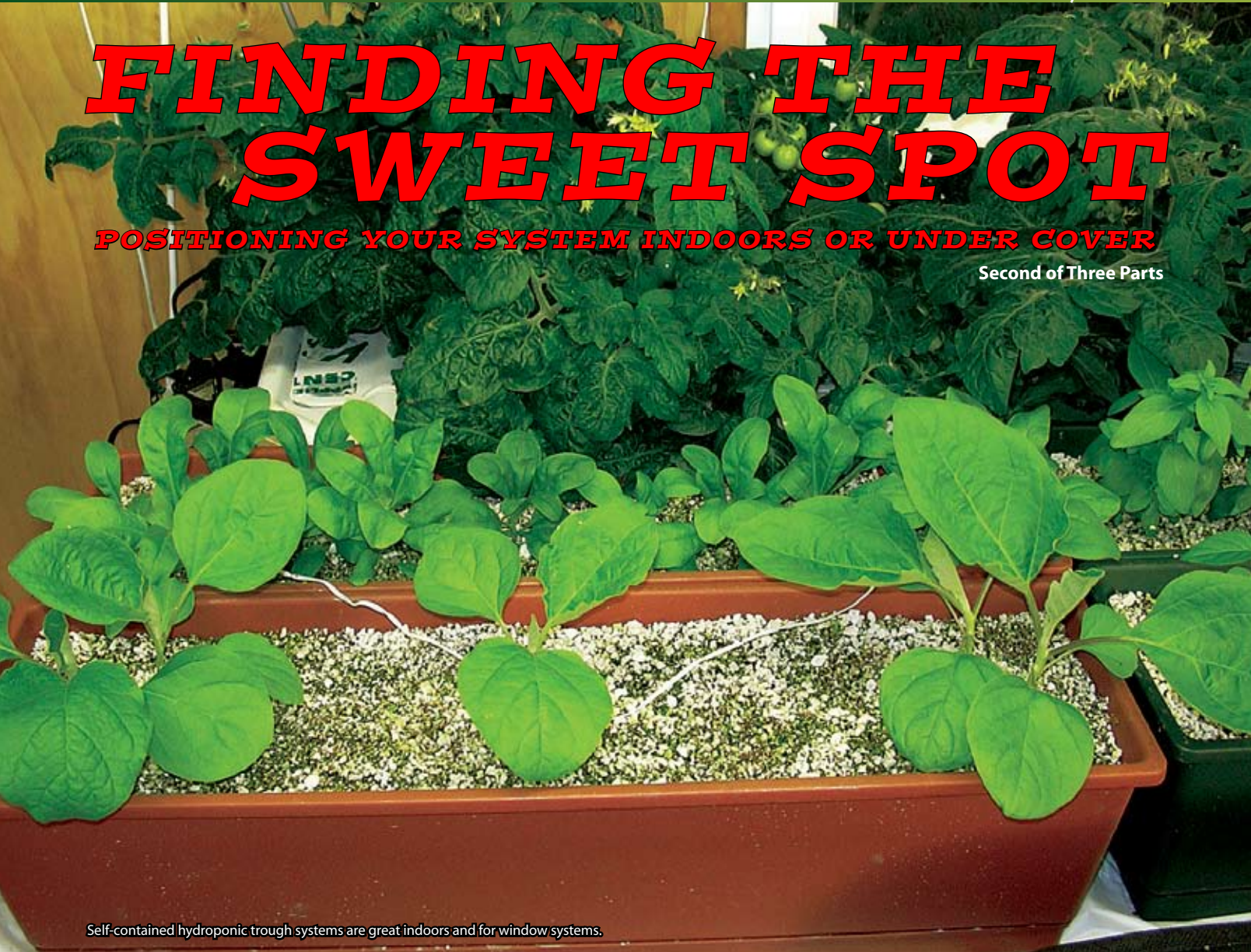


# FINDING THE SWEET SPOT

POSITIONING YOUR SYSTEM INDOORS OR UNDER COVER

Second of Three Parts



Self-contained hydroponic trough systems are great indoors and for window systems.

Positioning a small hydroponic system under cover – whether in a backyard greenhouse, a window box or conservatory – offers many advantages to the beginner.

It creates a cozy, protected area for the plants that is also great for the gardener to work and relax in, especially when freezing winter temperatures hit. It also allows some degree of control over such plant growth factors as warmth, cooling, humidity, light and air movement.

Finally, it keeps rain out of the system and plant foliage dry – an important factor in many regions.

Indoor hydroponic systems fall roughly into two categories – those that rely on arti-

ficial lighting, such as most grow rooms, and those that use natural light, such as greenhouses. (Although supplementary lighting might also be used in naturally lit systems in areas where winter light is too low to support good plant growth.)

Light is perhaps the major consideration when it comes to any type of indoor hydroponics and is also the reason for many early failures by new growers. We tend to underestimate how much light even a small plant needs when grown indoors, and many of the plants beginners like to experiment with, such as tomatoes and peppers, need fairly high light levels for good production.

Lack of light usually results in tall, weak,

stretched plants that yield poorly and may suffer from disease outbreaks.

## Greenhouses

A glasshouse or greenhouse is often an expansion for new growers who have had good success with a small indoor or outdoor hydroponic system; a greenhouse setup becomes a natural progression. Greenhouses do create a great environment for hydroponics, provided they are well positioned and well planned.

There are many excellent small greenhouse kits available that are suitable for hydroponic systems. The main considerations with these



Many indoor or conservatory systems are used to produce specialized plants such as exotic fruit and ornamentals or grapes.

are to find a model with a high level of ventilation area (top ridge vents are good), a way of moving air in and out rapidly when necessary, easy access for hydroponic equipment and an ability to withstand wind, hail, snow or whatever your climate may throw at it.

While a backyard may not have a large



Simon Lennard peeks out from a planting of Wasabi, a plant that is well suited to lower lit, cooler indoor areas.

number of potential sites to choose from, the greenhouse needs to receive good light and not be shaded for much of the day by trees, houses, sheds or other structures. If this is a problem, then supplementary lighting can be installed. However, sunlight is free and maximum use should be made of this where ever possible. Access to water and electricity are also other considerations.

Some thought also needs to be given to drainage – hydroponic systems can have the odd leak, and nutrient will need to be dumped from time to time. Rainwater runoff from the roof should also be considered. Growers might want to consider installing a rain water collection tank if they are on municipal water supplies, which can cause water quality problems for hydroponic systems.

## Conservatories

Conservatories have a reputation for being very hot and dry (low humidity) in summer, which typically creates problems such as sun scorch on sensitive foliage plants and the dreaded infestation of mites.

Mites, which are tiny red spider-like insects, suck the life out of many plants and love conservatories, where low humidity predominates year round and folk don't like to spray and risk sticky residues. Many a conservatory hydroponic system has been the victim of a mite infestation and often new growers don't realize what the problem is when the plants become increasingly sick.

Conservatories and similar environments usually need some form of humidification or at least monitoring of humidity levels.

Ideally for most hydroponic plants (fruits, vegetables, herbs and flowers) the relative humidity levels should be around 70 to 80 percent. However many conservatory growers like to use hydroponics to produce a range of exotic, tropical or specialized plants such as orchids, dwarfbananas, ornamental foliage plants, palms, cacti and succulents and others that give an impressive display. Many of these types of plants have specific requirements, such as high humidity and warmth or hot and dry (in the case of cacti), so checking these factors out before planting is a good idea.

Relative humidity meters are available

from many hydroponic retailers and should be used, along with maximum/minimum thermometers in all growing areas. Humidification of conservatories and similar growing areas is easily carried out using evaporation. Small evaporative coolers are great for enclosed conservatories in summer and can really improve plant growth and development.

Where large foliage plants and media bed systems are in place, good humidity levels may naturally occur (particularly if the incoming air is humid to start with). Plants transpire a large volume of water under hot conditions and evaporation from media beds can all add to the humidity levels, so to keep relative humidity in the range 70 – 80 percent, a good level of air exchange may be needed in crowded conservatories.

Conservatories need careful consideration of the planting layout. Usually there are brightly lit areas near the glass that receive full sunlight, and more shaded areas towards the back or where overhead structures shade certain positions for much of the day. In this case, sun-loving plants can be planted to the front and the shade lovers such as ferns, orchids and many house plants can be positioned to the back.



Plant selection for small indoor sites is important. These super dwarf tomatoes are ideal in a lower light environment.

## Window systems

Many hobby growers often start out with a window box or small hydroponic system positioned in front of a sunny window, hoping to make the most of natural light. Window boxes are excellent for small, short plants such as herbs, salad greens, lettuce and, if light is sufficient, strawberries.

Window boxes positioned indoors or on window sills can become overheated when in direct sun and some consideration to air movement up and around the window box should be considered.

Generally a well lit kitchen window sill and a small trough hydroponic system is an excellent way to produce fresh culinary herbs which can be snipped and used as required.

The most common problem with window boxes or window systems is light, and many growers overestimate just how much light the average window actually gets. What may seem like a nice sunny window spot to us might not seem so to our plants, which might receive quite low overall light on a daily basis. Many windows have a few hours of good sunlight and then dull, shaded conditions for much of the day, resulting in low overall light. Tomato plants, for example, need good light intensity for many hours a day to crop well.

Some window boxes may produce well in summer, but produce a dismal crop in winter

when a spot of bright color or fresh herbs is most needed.

Light from windows (unless there is large sky light in place), is also directional, so plants are going to start leaning or growing towards the light source, which usually results in some strange looking plants growing sideways.

Small, self-contained hydroponic systems can usually be rotated every few days to even out the directional light and give a reasonably straight plant. Larger systems with big plants, however, really need the lighting evened out by positioning a grow lamp on the unlit side of the crop. Reflective material such as white plastic may help reflect some of the incoming light back onto the plants and is worth installing in many small systems.

Light meters can be handy tools for those planning an indoor, window-lit system, or for those who suspect their plants are not getting sufficient light and want to install some supplementary lighting.

The problem with assessing light is that we see light differently than plants do. Humans are most sensitive to light in the yellow wavelengths and this appears quite bright to our eyes. However plants use the red and blue



Low light will cause plants to stretch and become elongated.

wavelengths of lights, ones we don't detect well, so what may seem like a brightly lit spot to us may actually not have sufficient light for a densely planted hydroponic system.

Window-lit systems may also suffer from the quality of light – often these days we have coatings or films installed on window glass to cut out excess light that can fade furnishings or to keep heat in, and these can drastically reduce the quality and quantity of light available for plant growth.

Plant selection can play a major role in the success of naturally lit indoor systems. Lettuces, shade loving herbs such as mint, small salad greens and many ornamental houseplants can produce well at light levels much lower than those required for a fruiting tomato or pepper.

Or light can be supplemented over only those plants that require it, or the higher light plants restricted to summer production. 🍃

*In part 3 of this series, the basics of positioning a hydroponic system in a grow room environment using artificial lighting will be covered.*

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Many new growers start out with a window sill system such as this planter trough and progress to larger and more complex hydroponic set ups.