

## Try Protected Landscapes Greenhouses

Greenhouse production offers a cost-efficient way to extend the growing season at both ends and to even grow some crops year-round. A good greenhouse is both part of and a supplement to your landscape. A lot of information is available on greenhouse growing, equipment, and supplies.

This article presents a few basic considerations and is meant as a starting point. Following-up on some of the ideas provided here with your own research and experiments is recommended.

Most people think of greenhouses as solar meaning heated and lighted by the sun. Those that rely only on energy from the sun are passive systems. Solar greenhouses are insulated to collect and store energy from the sun for use at night and during cloudy weather. In areas such as the Pacific Northwest, however, most of the light in winter is diffuse and little direct light from the sun reaches the earth because of our cloudy climate. As a result, greenhouse production in these areas will likely require the use of supplementary light and/or heat. This type of greenhouse system is often referred to as an active system.

Greenhouses can be attached to a building (house, shed, barn) or freestanding. Most commercial greenhouses are freestanding. Whichever type you choose, the best placement is such that light is captured from all directions. For an attached greenhouse, the south side of a building will be the sunniest all year. The north side is not recommended. Another factor to consider in deciding where to locate a greenhouse is wind, especially one that is freestanding.

In the areas with long periods of short gray days during winter, solar heating can be unreliable. Electric lights and alternative heating sources (e.g., electric, gas or oil) can be used during the colder months to overcome this limitation. You may also want to install a backup heating system in case of power failure.

Some experts suggest that any greenhouse from simple hoop structures to glass conservatories which grow plants in the soil can produce vegetables without artificial heat. To achieve this, all you need is to do is add a second protective layer of translucent material inside the greenhouse. This twice tempered climate in your greenhouse is three zones warmer than where you live. USDA climate zones are based on a 10° F spread so this means the temperature inside a greenhouse could be 15-30° F warmer, a significant difference in the cool months of spring, autumn, and winter in many areas.

Ventilation is as important as heat. Lack of proper ventilation can result in too much heat or conditions that favor mildew and disease. So a completely sealed greenhouse is not ideal.

Greenhouse production offers a wide variety of plant choices, including those that may be grown year round and those that can be transplanted outside. Cold tolerant vegetables such as brassicas, lettuce, spinach, scallions, parsnips, beets, chard, radishes, and turnips are easily grown in a greenhouse throughout the off seasons.

Winter plants have to be planted before winter to overcome the limitation on growth caused by the cooler temperatures of winter lower levels of light. During the period of winter when there are less than 10 hours of daylight, newly sown seeds grow very slowly. Count on these crops for early spring harvest.

Warm weather crops like melons, peppers, eggplants, and tomatoes can be started early in the greenhouse for later transplanting outside or can be grown inside the greenhouse all the way to harvest. Such crops will not yield as well in winter but it is possible to get tomatoes in winter with added light and heat. For winter growth in the greenhouse look for varieties of plants grown in the South which are varieties adapted to short-day culture.

Other possibilities for greenhouse growing include herbs, specialty or delicate plants such as orchids, some types of mushrooms, bedding plants, bulbs, potted flowers and, of course, cut flowers.

Organic vegetables are prime candidates for greenhouse growing. Cut flowers that can be grown successfully include bachelor's button, calendula, carnation, chrysanthemum, gardenia, lupine, marigold, pincushion flower, poppy, snapdragon, stock, zinnias.

Whether you plant cold tolerant or heat loving plants, timing is key in greenhouse growing. Once you understand your greenhouse climate and light conditions you will be able to schedule plantings to maximize growth and harvest.

Disease is often best handled by practicing proper hygiene, cultivating strong, healthy plants which will be more resistant to disease and pests, and

weeding out weak and sick ones. Diseases and pests can enter the greenhouse via insects, in soil, on plants, and on seeds so careful handling and monitoring can go a long way to prevent disease and pest infestation.

Prevention is very important in the greenhouse environment but diseases and pests will inevitably be a problem at one time or another. Pest management rather than eradication is a more realistic goal and is the basis of Integrated Pest Management (IPM). Perhaps the most important aspect of IPM for greenhouses is monitoring and understanding the life cycle and behavior of pests.

This information will help you develop the most effective control strategy, and enjoy the benefits of your greenhouse.

## About the Author

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