**Day Length and Growing Plants**

**Effects of Light Levels When Growing Vegetables and Other Plants Out of Season.**

Day length is critical to the growth and lifecycle of many plants. Professional growers of greenhouse crops such as tomatoes and even roses often supplement natural light to take a plant into a different time of the year.



**Day Length Chart (For the UK)**

When mankind moved to an agricultural economy it became important to know whereabouts in the year you were. Seeds need to be planted at the right time. Sow too early and bad weather will destroy the crop, too late and it will not have sufficient time to mature for harvest.

So to find where he was in the calendar, ancient man realised the variable length of the day could give him that help.

The two most important dates were the shortest day and the longest day. The shortest told him that he was in midwinter and the longest midsummer. Two other dates could also be worked out from the day length, the equinoxes where day and night are approximately equal length.

In the UK these dates are:

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| *Winter Solstice (Shortest Day)*  | *21st December* |
| *Vernal or Spring Equinox*  | *20th or 21st March*  |
| *Summer Solstice (Longest Day)*  | *21st June*  |
| *Autumnal Equinox*  | *22nd or 23rd September*  |

Generally speaking vegetable growth slows significantly after the autumnal equinox and accelerates significantly after the spring equinox. The length light during the day increases or decreases by about 2 minutes per day or 15 minutes per week.

Of course, the plant kingdom had worked this out first. Many plants use the length of the day to judge when to flower or set seed. Different varieties of plants will react to day length in different ways. That is why our onions are geared towards a 14 hour period whereas varieties more suitable for the tropics use 10 hours as a trigger. At the equator day length is uniform around 12 hours

Basic to a plant’s growth is daylight. Like a solar power system, the plant uses the energy from sunlight to power its growth.

Temperature, nutrient levels in the soil and water are all important but without sunlight plants will not grow. The more sunlight, the more energy is available for the plant to power that growth. A little like a factory processing raw materials (the nutrients) needing the solar power.

Day length is particularly important to show growers who artificially push vegetables to maturity for a show rather than when they would naturally be ready. You can artificially increase day length by the use of artificial lighting. Experiments have shown that plants do better under high pressure sodium lighting than standard fluorescent lights. However LED lights where the emission spectrum can be controlled are taking over, not least for their high efficiency and low running costs. You also need to ensure that there is sufficient light to simulate daylight.

The human eye reacts to lack of light by opening the pupil stopping you from seeing how much light there is. To accurately judge effectiveness you need meters to measure the light level.

It’s quite a fascinating subject and worth doing a few internet searches.

**The main lesson for normal vegetable growers is not to push things too hard by sowing too early. Even in a heated greenhouse the plants require a certain amount of light to function correctly.**