

Global Warming and Short Season Vegetables and Crops

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The confusing mixture of reports and opinions on global warming and climate change presents a challenge to assess near term responses. There is certainly more we do not know than we are sure of but one fact that we can work with is the effect any change has on the number of ideal or even possible growing days, soil moisture content and diseases for each individual cultivar. Since the earliest times gardeners and farmers have relied on average times to plant and harvest, average frost free growing days or moisture available. A few weeks of the commencement of the growing season one way or the other can make a bumper crop or the proverbial "slim pickings". Modern irrigation has modified production times by eliminating the moisture availability problems and opened marginal crop areas where natural rainfall is too limited for dry land farming. This is certainly true of gardening. Under ideal conditions the best selection of a cultivar is made to utilize the longest production period thus providing the most useable crop however there are downsides to this selection. If the averages fall on the sort side much of the crop can be lost to frost or extreme heat and the longer the crop is exposed in the garden or fields the longer insects and diseases have to affect the outcome.

The time the crop is in the ground also determines the labor hours in watering, weeding and disease/insect control before what can be called "crop revenue" or "harvest stream" commences in the growing time or season. In the garden a harvest stream may mean a crop that produces over a period of time like tomato or cucumber or a blend of harvest times where one cabbage may produce in 50 days and another in 90. Replanting for multiple crops in the same space utilizing the whole season is also extending the harvest stream. The risk of loss of one long season plant in the garden can be offset by growing shorter season selections or a blend of both. We do have the advantage that recent plant breeding to time the market where planting to harvest are as close to predictions as possible to avoid competition and produced cultivars of differing harvest times. This makes it possible to do some selections for the small plot farm or garden for shorter growing averages in the harvest stream. These cultivars do conform to traditional seasons however and the need to seek out even shorter season types is necessary if we are to cope with uncertain changes outside the normal averages. Much work on extreme short season vegetables was done by Russian and Siberian breeders starting in the mid Twentieth Century. Much of this has been lost or open pollinated lines have not been well maintained but there is material available and interest in these cultivars is growing.

Many factors can change with the lengthening or shorting of growing seasons. Periods of best growing soil and air temperatures, length of useable light, moisture availability all can be affected. Rising average temperatures can actually shorten the growing season and while the growing season may commence earlier the day length or nighttime temperatures may limit production or modify how vegetables are grown. High temperatures later in the season may actually bring the harvest stream to a halt either by stopping growth or making moisture requirements unworkable. High temperatures often

stop pollination and cause root and leaf crops to bolt into bloom. Much of these problems can be modified by incorporating extremely short season crops into the gardening program as they are able to grow and produce under the adverse conditions of colder nighttime temperatures and lower/shorter daytime lighting. The objection often raised is the smaller size or flavor of early crops and often this is the case. Some gems however are available such as Silvery Fir Tree tomato, a small carrot leafed plant that is into production seventy five days from seed (55 days from transplant) with a small 6cm fruit that explodes with old fashioned flavor. Other cultivars in this same class would be Fireworks, Urbikany and Shasha's Altai. Using these cultivars as an example of starting the harvest stream earlier and selecting additional mid season types such as Floradade gives the flexibility we may need to adapt to changing seasonal length and temperatures. The same strategy may be applied to all crops with the possible need to expand the planting area to achieve the same production of a more risky long season cultivar that may or may not produce well season to season.

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