

# Winter Gardening Newsletter

by Linda Gilkeson

April 17, 2009

## Hardening off Tender Transplants

Gardeners with over wintered crops are enjoying purple sprouting broccoli, salad greens, chard, spinach and the last of the root crops right now--and the first of the surviving winter cauliflowers are ready to eat (many were lost this winter but the survivors sure are delicious). Along with planting peas, potatoes and early greens most of you have either started your warm season plants indoors or are beginning to prowl local garden centres for transplants. I thought it would be useful to review the process of getting them ready to go into the garden.

How you harden off tender seedlings can have a long term effect on the crop. Hardening off is the process of reducing the growth rate of seedlings by exposing them to cooler conditions and less water and fertilizer. As their growth is checked, plants accumulate food reserves, which they can use to produce new roots faster when they are transplanted. Hardening off also thickens the cuticle and wax layers on leaves, which helps plants to withstand wind and weather and protects leaves from sunburn.

Some plants can be hardened off to withstand frost, including the cabbage family, lettuce, most greens and onions. If transplants plants are too large, however, exposure to temperatures under 5-10°C for more than a couple of weeks can make some of them send up seedstalks. For more on this vernalization response, see my note: **Vernalization and Your Veggies** <http://www.saltspringenergystrategy.org/food.htm>

The tricky thing is that there is a disadvantage to over-hardening plants. Such plant are slow to begin growth and may never really recover, resulting in lower yields and later maturing crops. Transplants suffering from uneven watering, from being rootbound or chilled become over-hardened. Plants for sale have usually been hardened off by the time they reach the market so they become over-hardened if they hang around too long before they are set out. [Find out when your local nursery brings in new stock, buy your transplants the day they arrive and plant them out immediately or else pot them on]. Home grown seedlings that were started too early suffer the same fate if they end up being held too long in small pots.

Hardening off is least helpful for tender plants, such as tomatoes, peppers, cucumber, melons, squash, and celery. Ideally, you want to time the seeding date for these so that transplants reach the right size to go into the garden just as the weather becomes warm and stable (good luck with that!). Such tender plants are better off being started later rather than earlier so they don't experience a check in their growth. In any case, if seedlings are becoming rootbound and the weather still isn't warm enough to put them out, they should be potted in larger containers and kept in.

Hardening off for tender crops mainly means getting them used to direct sunshine. Tender plants that have been started under glass can be seriously damaged or even die from sunburn if suddenly moved outdoors (really!). Sunburn damage on cucumbers and squash (the most susceptible group) appears as light tan spots and blotches on leaves and stems.

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**What to do:** Gently harden off transplants you have grown by gradually exposing them to direct sun and outdoor conditions. Starting with an hour or so the first day, set them out for a longer period each day, taking about a week to get them used to a whole day outdoors. Move them indoors if nights are cooler than normal. Once they are set out, keep sheets of plastic, floating row cover, cloches or other covers handy to protect transplants from an late cool spell.

**Addendum:** Tomatoes have a built-in indicator that conditions are too cold for them: the undersides of their leaves turn purplish. This is the sign of a phosphorus deficiency, but it is because the plant are too cold and not because the soil is actually low in phosphorous (when it warms up the plants lose their purple tinge). If it is too cool for squash and cucumber family plants they may simply keel over as their stem collapse from cold stress and fungal attack.

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Check out my web site: [www.lindagilkeson.ca](http://www.lindagilkeson.ca)

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