

# GREEN ABOUT GREENS?

## GROWING SALAD GREENS FOR THE FRESH MARKET

*By Av Singh*

It's been nearly two decades since the once mighty iceberg lettuce descended to the ranks of white Wonder Bread. In its place 'designer greens,' with names like radicchio, tatsoi, mizuna, chervil, arugula and endive, are garnishing meals at the finest restaurants and at homes across Canada.

Constant demand and stable high prices have attracted attention from growers seeking greater returns per acre; direct marketing opportunities are allowing farmers to receive even higher premiums. However, these alone should not be the factors in determining whether growing salad greens for market is right for your farm. Consider your soil suitability, length of growing season and accessibility to local markets. As well, external inputs, including fertility, irrigation and labour, need to be addressed before you sow your first seeds.

### Site selection

**Growing Tip 1:** Plant early season crops on sandy soils and mid-to-late crops on heavier soils with higher organic matter content and subsequently higher moisture-holding capacity.

Generally, salad greens are planted as soon as the ground can be worked in spring. Therefore, the ideal site is well-drained and warms up quickly. Proper drainage helps prevent disease but must be balanced with the need for soil to have good moisture retention to adequately supply the shallow-rooted plants.

### Species selection

The term 'mesclun' leaped into common vernacular in the late 1980s as this specialty mix of greens was fast replacing iceberg, Romaine and Bibb lettuce. Mesclun, essentially meaning 'baby greens,' may include many types of greens, as well as herbs and even weeds. However, young leaf lettuces are normally the primary component of salad greens. In leafy salads, chefs like to see a variety of leaf sizes

**Growing Tip 2:** Choose species (and cultivars) depending on your own situation—consider your market demands; the length of your growing season; soil conditions; prevalence of pests and diseases; and water needs. Keep experimenting with new species and varieties.

and shapes (smooth to crinkled edges) as well as colours (typically ranging from pale green to red). Growers like the leaf lettuces because they are generally early maturing, often regenerate after cutting as a baby lettuce, and are relatively trouble-free in terms of pests and diseases.

### Planting

Salad greens produce a marketable crop relatively quickly and several croppings are planted in succession to ensure a steady supply throughout the fresh market season. Typically, seeds are sown as early as possible, and floating row covers or cold frames are used to protect the crops from spring frosts. In preparing the seedbed, the soil should be worked to a depth of 15 cm (6 in.) to allow for

#### Mesclun mixes may include:

- lettuce varieties with different colours, shapes and textures
- brassica greens such as collards, kale, mizuna, mustard, tatsoi
- herbs such as arugula, cilantro, fennel, sorrel
- other greens like spinach, cress, amaranth, corn salad (mâche)
- weeds such as dandelion, purslane, lamb's quarters



*Roxanne Beavers selling her greens and other produce at market.*

**Growing Tip 3:** If the risk of erosion is negligible, prepare the seed bed in the fall, thereby reducing the chance of working a field when it is wet. Working wet fields can lead to compaction resulting in poor water infiltration, lack of oxygen for root growth, and increased presence of disease.

unrestricted root growth. The soil surface should be scratched just before seeding to prevent soil crusting.

Many producers create raised beds to allow for improved drainage and warming of the soil. Raised beds are designed based on the width of the equipment used and can be several hundred feet in length.

When it comes to seeding, it's best to gather information from your seed distributor. Seeds for salad crops tend to be very small and have specific recommendations on sowing rate, seeding depth and planting date. Seed distributors will often have suggestions on the best equipment (e.g. gravity-fed cones, belt-drive seeder, walk-behind seeder) to ensure even spacing.

Direct seeding is often the desired option, considering the market crop is only slightly larger than a robust transplant. However, many growers begin transplants in greenhouses three to four weeks before planting them outdoors. Using transplants gives a greater competitive advantage for the crop. A robust transplant with proper root structure will be able to gather water and nutrients in less favourable conditions. As an organic grower, it is important to note that many commercial potting mixes contain synthetic substances prohibited in certified organic standards. Because of this, many farmers create their own transplant mix which balances the need for nutrients, water retention and aeration.

**Growing Tip 4:** The growing season can be extended by protecting plants from late spring frosts and early fall frosts. Growers can create a warmer microclimate by planting on a southern slope, or by using floating row covers, clear plastic tunnels, cold frames or hoopouses.

## Nutrient management

Lettuce is sensitive to soil acidity and prefers a soil pH range of 6.5 to 7.0, which is an optimal range for other species such as spinach, chard, endive and chicory. Soils high in organic matter (near 10%) can adequately supply the major nutrients to salad greens, however some farmers provide more soluble forms to stimulate quicker growth. Compost and fish meal are common sources for supplemental nitrogen. Seaweed-based products such as kelp meal are often used to address micronutrient deficiencies such as boron, zinc, copper and molybdenum, in addition to nitrogen.

## Irrigation

Salad greens have shallow root systems, high transpiration rates and large leaf areas. They are often grown on well-drained soils. As a result, moisture stress is common. If plants are exhibiting wilt, the related moisture stress will reduce yields. Common irrigation methods include drip and overhead sprinklers; both have their strengths. However, drip irrigation systems reduce the incidence of foliar diseases caused by excessive leaf moisture and reduce the chance of soil particles (as well as soil diseases) from splashing up onto the leaf.

**Growing Tip 5:** In growing lettuce, light levels are very important. Lettuce grown outdoors should be planted in areas away from artificial light (e.g. farm lights) because this may falsely extend the natural photoperiod. The plants might bolt early as a result. On the other hand, too little light can have serious adverse effects on the leaf quality. Higher levels of nitrate will accumulate in plants grown under low light—when nitrate is converted to nitrite, it is toxic to humans.

## Pest management

The primary pests for lettuces are aphids and thrips, both of which can be adequately controlled with insecticidal soap. Brassica greens are susceptible to flea beetles and floating row covers may be the best defence. Some growers plant attractant crops to draw the pests away from market crops, such as radish as a border to keep flea beetles away from mizuna or tatsoi. Many growers will then treat half of the attractant border with insecticidal soap to reduce populations, while still allowing a refugia area for some of the pests.

Black cutworm, common in beds rich in organic matter, may be a problem. Damaged plants look wilted and, at times, there will be burrows in the stem just beneath the soil surface. The best control is to hunt for worms near damaged plants and kill them. As well, controlling grassy weeds near salad beds may deter female moths from laying their eggs and thereby prevent the problem.

Many growers prefer growing 'baby' to mature greens because

young lettuces and greens face few disease challenges (with the notable exception of damping off). As plants mature, the likelihood of fungal and bacterial diseases increases. Organic farmers have few control options and therefore rely heavily on prevention which includes planting in well-drained soils with proper aeration and the use of compost to ensure healthy soil life.

With the harvest of young lettuces there is great probability that the harvest will include young weeds. Handweeding, as verified by many WWOOFers, is a time-consuming and laborious effort. Nutrient management (i.e. don't



overfertilize) and crop rotation are the organic farmer's greatest tools. If shallow-rooted crops, such as greens, are grown successively over seasons, more competitive weeds will proliferate and smother the market crop. Cover crops and mulches may be beneficial in breaking weed cycles.

## Harvest and handling

Growers will either clip the entire plant all at once or harvest the more mature outer leaves (either way there will be new growth from the crown). Salad greens retain

**Growing Tip 6:** Lettuce seed is very sensitive to allelopathic chemicals released by weeds such as nutsedge, foxtail, quackgrass and some members of the mustard family. Also, the residues of broccoli, beets, barley and rye can inhibit lettuce growth.

their freshness if they are hydro-cooled immediately after harvest. Growers often harvest salad greens into polypropylene mesh bags and then submerge them into a cool water bath for several minutes. After rinsing greens to remove any grit, growers use several techniques for drying the greens ranging from laying them out on screens to using laundry tub-sized salad spinners. Once spun and graded, greens should be placed in their final container and placed in a high humidity environment (95%) with temperatures near but not below freezing (1–2°C).

Successful fresh-market salad green production can be based on simple steps as outlined above. However, to maintain or expand your market requires constant attention to the needs of your consumers and constant experimentation to help consumers understand what they want.

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