Lettuce

Cultivars

Contact Manitoba Agriculture's Vegetable Specialist for variety recommendations.

Climate and Soil Requirements

Lettuce is a cool weather crop and produces best at 15° to 18°C. Best results have been obtained from early transplant crops and late crops grown from seed. Early May transplanting is recommended for the spring crop because plants, if properly conditioned, withstand temperatures as low as -6°C.

Lettuce (leaf, romaine, butterhead) is grown on predominately mineral soils, but is best suited to season long production on peat soils.

Iceberg/Crisphead can be produced successfully as an early or late crop whereas mid-summer crops typically produce low yields and high grade out on mineral soils.

Soil temperatures of 24°C favour rapid and uniform germination. At very high soil temperature (27° or higher), germination is delayed and erratic.

Planting and Spacing

Transplants

Start in a greenhouse four-to-five weeks before field planting. Use large cell trays (72-98 cells) for early crops and smaller cell trays (128-200 cells) for mid-to-late season crops.

Direct Seeding

Use a fertilizer with a low to medium phosphate concentration, or use a fertilizer with no phosphate for most feedings and apply a high-phosphate fertilizer once every four or five feedings to promote growth. Do not withhold phosphate completely, as this will delay field establishment.

Spacing

Between-Row:
Leaf & butterhead - 12 inches (30 cm)
Crisphead: 16 inches (40 cm)

In-Row:
Leaf & butterhead - 8-12 inches (20-30 cm)
Crisphead - 12-14 inches (30-35 cm)

Fertility

If required, contact your Ag Supply, Manitoba Agriculture, or fee for service agronomist for fertilizer recommendations.

Micronutrients

Copper

Lettuce leaves that are deficient in copper lose their firmness. This is referred to as being "rabbit-earned". The plants become bleached on the stems and leaf margins. Copper is unlikely to be deficient on mineral soil, except perhaps on very sandy soils. Copper deficiency does occur on organic soils and is best diagnosed by plant analysis.

Extreme care is necessary using foliar sprays with copper sulphate, as foliage is easily injured.

Manganese

Deficient lettuce shows marked yellowing between the veins which remain dark green. Manganese deficiency usually shows up on slightly acid or alkaline muck, peat and dark-coloured sandy soils. Soil application is not recommended for manganese because of the large amounts required. If a deficiency is identified, apply foliar manganese sprays starting after thinning or transplanting. Foliar application rates are:

Manganese sulphate (28% Mn)
0.5 - 1.0 kg/1000 L (Actual Mn)
1.8 – 3.6 kg/1000 L (Product)

Manganese chelates (5-12% Mn)
0.5-1.0 kg/1000 L (Actual Mn)

Calcium

Calcium deficiency which results in leaf tipburn or blackheart symptoms is frequently a problem when the crop is under stress. These problems are the result of inadequate calcium transport through

the plants, usually from insufficient water availability.

Several cultural management practices will reduce the occurrence of calcium-related disorders. Efficient nitrogen use will help prevent excessive vegetative growth. Good soil management practices ensure adequate root volume and promote both water and nutrient uptake. Timely irrigation will help prevent calcium shortages in the plant.

Foliar applications of calcium chloride (5 kg product/1000 L) or calcium nitrate (10 kg product/1000 L) may prevent calcium related problems for crops which have been under stress.

Pest Management

Diseases

Damping-Off and Pythium Stunt

Steam or fumigate soil for growing transplants or use a sterile soilless mix.

Botrytis (Grey Mould)

This common fungal disease often affects tissues damaged by other diseases or insects. Water-soaked lesions followed by a grey mould on lower leaves is characteristic.

Rhizoctonia Bottom Rot

This common, soil-borne fungus often causes a bottom rot near maturity, when leaves are touching the soil. Rust-coloured lesions followed by secondary rots are typical symptoms. Good drainage and growing on raised beds may be helpful.

Downy Mildew

Regular and consistent monitoring and the use of disease forecasting systems help to better manage this disease.

Sclerotinia White Mold Drop

This disease affects many crops, including lettuce, carrots, beans and celery. Rotate with non-susceptible crops such as onions, beets or spinach for two to three years. Removal of crop refuse will help control the disease.

Use wider row and plant spacings to encourage good air movement or plant on raised beds. Spray after thinning with a recommended fungicide.

Aster Yellows

The symptoms of aster yellows on lettuce are bright yellowing and twisting of leaves. Crisphead types suffer poor head formation. Secondary bacterial rots often follow aster yellows. Aster leafhoppers are vectors for transmission of this pathogen.

Lettuce Mosaic Virus

Mosaic-indexed or mosaic-tested seed is available from most sources. This seed is produced in special areas where it is carefully checked to ensure that it is virtually free from seed-borne mosaic. Control aphids, which spread the disease from infected lettuce plants. Weeds such as groundsel, shepherd's-purse and lamb's-quarters are alternate hosts.

Insects

Aster Leafhopper

Aster leafhoppers spread the aster yellows phytoplasma. Monitor leafhoppers with a sticky trap (if checked daily) or with a sweep net to help determine when and if sprays are required. Without daily monitoring, there is no way to predict whether scheduled spraying with insecticides will provide any control. Treat when the Aster Yellows Index (AYI) equals 20 to 25 for head lettuce and 30 to 35 for romaine.

Control weeds in headlands and ditchbanks and control aster leafhoppers on adjacent carrot and celery crops. After harvest, disk down unmarketable heads immediately.

leafhoppers (in 100 sweeps) X % infectivity = AYI

Treat when the AYI equals 20 to 25 for head lettuce.

Aphids

Monitoring for aphids can help determine when and if sprays are required. Check 50 to 100 plants randomly in the field and measure the percentage of plants infested with aphids. Note the average number of aphids per plant.

Cabbage Looper

Cabbage Looper occasionally will infest and damage lettuce crops in Manitoba.

Tarnished Plant Bug

Romaine lettuce is particularly susceptible to tarnished plant bug. If monitoring indicates a need, use a recommended insecticide.

Weeds

Competition from weeds can reduce yield and also make harvesting more difficult. If required, contact your Ag Supply agronomist, Manitoba Agriculture agronomist or fee for service agronomist/consultant for weed control recommendations.

Harvest and Storage

Once harvested and packed, lettuce should be cooled rapidly to 1°– 2°C to remove field heat, and shipped as soon as possible. Relative humidity of 95%+ will prevent dehydration during short term storage and during shipping.