

# Cucumber

## Cultivars

Contact Manitoba Agriculture and Food's Vegetable Specialist for variety information.

## Climate and Soil Requirements

Cucumbers are frost tender, thriving only if weather is warm. Delay seeding and transplanting until late May and early June when soil temperatures are 16°C or higher.

Cucumbers produce well on a wide range of well drained soil types. Yields are typically higher and fruit bearing is longer on heavier soils such as loams or clay loams

## Seed Treatments

Treat seed with a fungicide prior to seeding to control damping off and seed decay. Cucumbers may be raised either from transplants, for early crops, or from direct seeding in the field. About 2.0 lb/ac of seed is required to produce enough transplants for 2.5 acres.

## Seeding and Spacing

Total cucurbit yields tend to increase with plant density. In other vine crops, high plant populations may result in harvest problems due to excessive vine growth. An overly dense canopy is also be more conducive to disease pressure.

Quick, uniform emergence is essential to avoid uneven stands weakened by insects and disease.

Cucurbit seeds will not germinate at a soil temperature below 10°C. They germinate fastest at 25°C to 30°C soil temperatures. Delay planting until the soil temperature is 15°C or higher.

For transplants, direct seed into trays (128 cell) three to four weeks prior to field transplanting. Do not damage the root mass when pulling plants from trays.

For direct seeding of cucumbers, 4 to 5 lb/acre are required.

Sow cucumbers at a depth of 1/2 to 1 inch (1.3 to 2.5 cm).

Suggested spacing requirements: rows 4 to 6 ft (1.2 to 1.8 m), plants 12 to 15 inches (30 to 38 cm) apart.

## Fertility

Refer to Tables 1 through 9 for this crop. For general recommendations in the absence of a soil test, refer to Table 10 in the fertility section.

When using transplants, the application of a starter fertilizer such as 10-52-17 or 10-40-10 is recommended.

As a general recommendation broadcast and incorporate 18 to 54 lb/acre of nitrogen, and 107 to 143 lb/acre phosphorus (P<sub>2</sub>O<sub>5</sub>). Sands and sandy loam

soils are frequently low in available potassium. On these soils, broadcast and incorporate 130 to 116 to 152 lb/acre of potash (K<sub>2</sub>O). If phosphate fertilizer is sidebanded, reduce rate to one-fifth of above rate, and if potassium fertilizer is sidebanded, above rate can be reduced by half. The recommended levels of sulphur sulfate on well drained soils is 27 lb/ac.

Excess nutrient levels may occur when high rates of fertilizer are used.

Producers should avoid applying fertilizer at rates in excess of those recommended by a soil test. Soil sampling to a depth of 24 inch (60 cm) is strongly recommended to monitor nutrient levels and avoid over-fertilization.

### **Irrigation**

Good moisture is necessary throughout the growing season. Irrigate to supply 1 inch (2.5 cm) water after seeding or transplanting. Good moisture reserves are also necessary at time of flowering and fruit development. Do not let soil dry out during this period. Irrigate in the late afternoon to avoid bees working the field.

### **Pollination**

All vine crops depend on insects to transfer pollen from male to female blossoms. Each female blossom must be visited 15 to 20 times in order for adequate pollination to occur. Poorly pollinated fruit will usually exhibit awkward shape (nubbins) and poor size.

In small plantings, there may be enough native pollinating insects to perform this function. In large plantings, the grower is advised to introduce one colony of honeybees for every two to three acres. Plan to have the hives in the field at first bloom.

Insecticides will poison bees. Spray only in the evening or at night, after bees have finished foraging for the day. If possible, remove hives from the field prior to spraying.

## **Pest Management**

### **Diseases**

#### **Damping-Off**

Seed treated with thiram (dithiocarbamate group M) will help prevent damping-off, seedling blight and seed decay. Refer to the *Guide to Vegetable Crop Protection 2003* for registered fungicides. Use sterile soil or soil-less mix for growing seedlings.

#### **Angular Leaf Spot**

It is not possible to completely control this disease with fungicides. A reduction in disease severity may be achieved by spraying with a copper compound. Repeat at weekly intervals in wet weather. Do not work in crop when foliage is wet.

#### **Bacterial Wilt**

This disease overwinters in the stomachs of adult cucumber beetles. Plants become susceptible as soon as the beetles emerge in the spring. Bacterial wilt moves in the vascular system of infected plants. As a result, there is no effective treatment. Beetle control is essential for effective bacterial wilt control.

Cultivars vary in their susceptibility to bacterial wilt.

#### **Cucumber Mosaic (Virus)**

This virus is transmitted by aphids and cucumber beetles. Transmission occurs very quickly (in less than one minute). As a result, aphid control will not necessarily prevent an infestation. Use of resistant cultivars is the best means of preventing yield losses.

#### **Scab**

This disease is more prevalent during cool weather conditions. It requires the occurrence of frequent rains or heavy dews. Fungicide sprays are not always completely effective at controlling scab. Plant cultivars resistant to scab, if they are available. Follow a two-year rotation away from all vine crops.

### **Anthracnose**

Use resistant varieties where possible and follow a two-year rotation away from vine crops. Begin fungicide applications at the first sign of disease or if weather conditions are favourable (cool and wet). Refer to the Fungicide/Bactericide section in the *Guide to Vegetable Crop Protection 2003* for control recommendations.

### **Powdery Mildew**

This disease generally appears in late July to early August. In all vine crops, severe infections can reduce yield. As soon as mildew appears, apply a recommended fungicide at 8-to-10-day intervals. Look for new powdery mildew-resistant varieties on the market.

## **Insects**

### **Seedcorn Maggot and Wireworm**

Maggots are usually a problem in direct-seeded crops during cool, wet springs when germination is delayed. The maggots feed on the swollen, ungerminated seed.

Adult flies lay their eggs from April until the middle of June. The females are attracted to moist soils that give off an odour of decaying organic matter. Fields with high residue levels or where manure has recently been applied are good potential egg-laying sites. Apply and incorporate manure well in advance of planting.

Wireworm is more likely to be a problem for the first two years following sod. Controlling wireworm is difficult and may take several growing seasons. Slow-emerging crops are more vulnerable to wireworm damage. Plant into well-prepared, warm soils. Avoid unnecessarily deep planting depths.

### **Striped Cucumber Beetle, Spotted Cucumber Beetle (AKA Southern Corn Rootworm)**

Beetles usually arrive in cucurbit fields as the crop begins to emerge. They can cause significant damage to young seedlings. Beetles must be controlled to prevent the transmission of bacterial wilt.

Spray when beetles first appear in the field. A general guideline is to treat when beetles exceed 0.5 to 1 per plant. A follow-up spray may be necessary, as beetle emergence is often staggered.

Cucumber beetles tend to congregate in certain areas of the field, making them an excellent candidate for spot spraying.

### **Aphids**

Begin monitoring for aphids in late June, especially during hot, dry weather conditions. Aphids are vectors of virus diseases. Focus monitoring efforts on runners. If monitoring indicates a need, refer to the insecticide tables for control recommendations.

### **Leafhoppers**

Feeding damage plugs the vascular system, causing hopper burn. Hopper burn is frequently mistaken for drought stress.

### **Two-Spotted Spider Mite**

Mites move into the crop from grassy field margins. A well-timed border spray will often provide efficient control. This pest is often more prevalent in hot, dry summers. If monitoring indicates a need, spray as recommended in the Insecticide section of the *Guide to Vegetable Crop Protection 2003*.

### **Weeds**

Competition from weeds can reduce yield and also make harvesting more difficult. For recommended herbicides refer to the *Guide to Vegetable Crop Protection 2003*.

### **Harvest and Storage**

Cucumbers should be stored at 7° to 10°C and 95% relative humidity. Cucumbers are sensitive to chilling injury at temperatures below 7°C. Avoiding moisture loss is important. A storage life of 7 to 10 days can be expected.