

# Squash and Pumpkin

## Cultivars

Contact Manitoba Agriculture's Vegetable Specialist for variety information.

## Climate and Soil Requirements

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

Squash and pumpkins can be produced successfully on a wide range of well-drained soil types.

## Transplants

Approximately 25 lb of seed is required to produce transplants for 2.5 acres. Direct plant into 128 cell trays three to four weeks prior to field transplanting. Do not damage root mass when pulling plants from trays.

## Seed Treatments

Treat seed with a fungicide prior to seeding to control damping off and seed decay.

## Seeding and Spacing

Squash and pumpkins can be transplanted for early crops or direct seeded into the field.

## Direct Seeding

Most commercial crops are direct seeded in Manitoba. Quick, uniform emergence is essential to avoid uneven stands weakened by insects and disease. Delay seeding until soil temperature is 16°C. Soil temperatures between 25 to 35°C are ideal for fast, uniform germination.

*Direct Seeding Rates for:*

*Standard types - 2-4 lb/acre*

*Semi-bush type - 3-4 lb/acre*

*Small bush type - 4-6 lb/acre*

## Spacing

*Standard types:*

*In Row - 4-5 ft (120 - 150 cm)*

*Between Rows - 5-10 ft (1.5 - 3 m)*

*Semi bush type:*

*In Row - 1.5-2 ft (45 - 60 cm)*

*Between Rows - 4-5 ft (1.2 - 1.5 m)*

*Small bush type:*

*In Row - 1.5-2 ft (45-60 cm)*

*Between Rows - 3-4 ft (0.9 - 1.2 m)*

## Fertility

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

## **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 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**

Treated seed will help prevent damping-off, seedling blight and seed decay. Use a registered fungicide for control.

Use sterile soil or soilless 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 fungicide. 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.

#### **Alternaria Leaf Spot**

This disease is often prevalent in muskmelons. The oldest leaves are infected first. Sprays applied to control scab and anthracnose are somewhat effective at controlling Alternaria.

#### **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). Spray with a recommended fungicide.

#### **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 8-10 day intervals.

Look for new powdery mildew-resistant varieties on the market.

The sugar content in squash may be reduced in plants infected with powdery mildew. In pumpkins, mildew will cause the stems (handles) to break down prematurely.

## **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.

### **Squash Vine Borer**

Fleshy, white larvae feed inside the stems and fruit of gourds, pumpkins and squash. This pest is rarely a problem in commercial fields as borers are generally controlled by cucumber beetle sprays. If a problem occurs, spray the base of plants thoroughly with one of the insecticides recommended.

### **Striped Cucumber Beetle, Spotted Cucumber Beetle**

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, spray with a recommended registered pesticide.

### **Leafhoppers**

Feeding damage plugs the vascular system, causing hopper burn. Hopper burn is frequently mistaken for drought stress. If hoppers are found feeding in the crop, use a recommended control product.

### **Squash Bug**

The squash bug is primarily a pest of pumpkin, squash and zucchini but can be found on any cucurbit crop. The squash bug overwinters as an adult in sheltered areas and emerges during mid-summer. Crop rotation and field sanitation are the best methods for managing this pest.

### **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, use a recommended control product.

### **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 products.

## **Curing and Storage**

Curing the fruit for 10 to 20 days at 24°–27°C can decrease its higher water content and improve its eating quality. Butternut, Hubbard and Delicious cultivars respond to this treatment, but storage life may be shortened. Curing acorn-type squashes decreases the storage life and eating quality.

Maintain storage temperatures between 10°–15°C. Pumpkin and squash are susceptible to cold injury, which appears after the fruit has been brought to room temperatures.

Maintain relative humidity at 50 to 70%. Very high humidity levels will increase storage rots,

while dry conditions will increase weight loss and shrinkage. Weight loss should be kept below 15%.

## **Pumpkin and Squash Storage Expectancy**

*Pumpkin:* 8-12 weeks

*Squash:* *Acorn:* 4-7 weeks  
*Butternut:* 8-12 weeks  
*Buttercup:* 10 weeks  
*Turban:* 12 weeks  
*Hubbard:* 6 months