



INTRODUCTION

A member of the cucurbitae family, pumpkin (*Cucurbita pepo*) is a warm season vine crop grown primarily for the Hallowe'en market. There is a limited market for a processing (pie) pumpkin and for ornamental purposes. Pumpkin seed is used in the confection trade and also contains components of interest to the biotech industry. Cooking oil can be extracted from the seed.

MARKET DEMAND

Based on 1998 and 1999 domestic unload data into the five main prairie markets, the demand for pumpkin is approximately 3 500 000 kg (7,700,00 lb) per year in the prairie provinces. Approximately 70% of this demand is met through imports from British Columbia (Table 1).

PUMPKIN PRODUCTION

Suggested varieties:

For the Hallowe'en market: Autumn Giant, Big Moon, Rouge Vif D'Etampes, Spirit, Youngs Beauty

For the processing (pie) market: Baby Bear, Rouge Vif D'Etampes, Small Sugar

For the ornamental market: Sweetie Pie, Jack-Be-Little

Planting:

Pumpkin has no frost tolerance, so it must be planted after all danger of frost is past. For good seed germination, soil temperatures should exceed 16°C. Commercially grown pumpkin is generally direct seeded although transplants can be used. Transplants require careful handling to avoid root damage.

A warm season crop, pumpkin benefits from the soil warming effects of plastic mulch. This technique produces higher yields and improved quality. Orange skinned pumpkin, which the market demands, is best grown with the use of mulch, particularly in cooler seasons of low accumulated heat units. Mulches also conserve soil moisture and keep fruit clean and free of soil-borne diseases. Clear mulch provides the most soil warming but allows weeds to grow. If weeds are a problem, infrared transmissible (IRT) mulch is recommended.

Mulch rows can be placed at varying widths depending on equipment and the system used to control weeds between the mulch rows. Seed can be planted in a double row configuration 2 to 5 cm (1 to 2 in) deep, spaced 1m (36 in) apart toward the outer edge of the mulch row. Using 2m (6 ft) centres this would require 12 000 seeds/ha (4850 seeds/ac). Planting through mulch can be done by hand, with the use of a 'bean' hand planter or on a larger scale with a waterwheel transplanter.

Fertilizer requirements:

A starter solution of 10-52-17 is recommended if transplants are used. A 10% solution (mixed in water)

should be applied at a rate of 300 ml (10 oz) per plant.

Field fertilizing should be based on the results of annual soil tests. Fertilize to bring soil N levels to 50 - 80 lbs/acre and P₂O₅ levels to 100 - 120 lbs/acre. Excessive organic matter levels, or high soil N levels can result in excessive vegetative growth and reduced yields.

Pollination:

Bees are required for pollination. A minimum of 5 hives/ha (2 hives/ac) is recommended.

Irrigation requirements:

While the bulk of the pumpkin roots are shallow, they will penetrate to a depth of three feet. Pumpkin responds well to adequate water. Soil moisture should be maintained above 50 % of field capacity.

Table 1. Pumpkin demand and source of supply for the prairie provinces, 1998 and 1999.

Demand (kg)				
Province	1998	%	1999	%
Alberta	2 743 000	77	2 364 000	71
Saskatchewan	210 400	6	490 300	15
Manitoba	601 500	17	490 900	15
Total	3 555 000		3 345 000	
Supply (kg)				
Province	1998	%	1999	%
Alberta	441 700	12	370 000	11
Saskatchewan	54 900	2	69 000	2
Manitoba	640 500	18	513 500	15
British Columbia	2 418 000	68	2 392 000	72
Total	3 555 000		3 345 000	

Pests:

Sclerotinia (white mold) is the most serious disease of pumpkin. A minimum of a 3 year rotation and careful handling of the pumpkin at and after harvest is the best defense against *sclerotinia*.

There are no serious insect problems associated with pumpkin production.

Harvest:

The Hallowe'en market requires orange pumpkin with stems attached. Harvest should be delayed until most of the fruit are orange but before a severe frost. Light frosts to minus 3 to 4°C are not a problem and may be beneficial in knocking vine growth down to facilitate harvest. Frosts to minus 7 to 9°C will be damaging. Immature fruit are more sensitive to frost than are mature fruit.

Fruit can be cut from the vine the day prior to pickup to improve efficient use of labour. Pruning shears are effective for cutting the stems and result in little fruit damage. Care during both cutting and picking must be exercised to avoid damage. Skin punctures or wounds are entry points for *sclerotinia* mold and other rots.

Pumpkin can be collected into piles in the field and covered for storage, or can be placed into pallet bins or a wagon and removed to storage. Minimal handling is preferred.

Storage requirements:

Pumpkin is best stored at 7 to 10°C and 70-75 % relative humidity. These conditions are needed to heal small cuts and bruises.

Post-harvest handling:

Most pumpkin is packed loose in pallet bins for shipping subject to the requirements of the wholesaler. Bagged pumpkin is also best packed in pallet bins. To cover extra costs for labour, bags, tags and extra weight, bagged pumpkin should be priced at a minimum premium of \$0.09/kg (\$0.04/lb) above the bulk price to maintain similar net returns.



YIELD AND NET RETURN

In the AFIF funded vegetable project conducted at the Canada -Saskatchewan Irrigation Diversification Centre (CSIDC), pumpkin was one of the eleven vegetable crops evaluated.

Yields ranged from 90 to 155 t/ha (38 to 63 tons/ac). Average yearly selling prices ranged from \$0.29 to \$0.33/kg (\$0.13 to \$0.15/lb), depending on the season. The average selling price over the three year period was \$0.32/kg (\$0.145/lb). Pumpkin prices over the course of the project ranged from a low of \$0.24/kg (\$0.11/lb) to \$0.395/kg (\$0.18/lb) for bagged pumpkin.

The net returns were positive each year ranging from a low of \$7350/ha (\$2960/ac) in 2000, to a high of \$21 700/ha (\$8770/ac) in 1999.

The market for pumpkin is limited and highly seasonal. It is recommended that growers have a market established prior to planting.

The Bottom Line...

High yields of top quality pumpkin can be grown in Saskatchewan with appropriate crop management. Although pumpkin is a vegetable crop with potential for high returns, prospective growers are advised to exercise caution as the market is limited and highly seasonal.

FOR MORE INFORMATION

More detailed information on the commercial scale vegetable demonstration project can be found in the publication Commercial Vegetable Crop Production Demonstration available upon request from CSIDC.

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