

HARRIS® SEEDS

Pumpkin Cultural Guide

Consult the product labels for specific insect control and rate of application. Frequent cultivation starting in the fall and prior to planting is a good method of controlling insect larvae that may be overwintering in the soil. The use of floating row covers is also beneficial in helping reduce insect damage to pumpkins.

Good crop rotation practices, the use of organic fungicides and the removal and destruction of diseased plant material from the field are organic alternatives to disease control.

HARVEST AND STORAGE

The best way to hold mature pumpkins is on a live vine. If the vines are still alive and 30% or more of the leaves are still green, apply a fungicide to control diseases and keep the plants alive.

If the vines have died, it may be wise to harvest the fruit and remove them from the field. Contact with the soil will increase the chances of fruit rots. Use care when harvesting the fruit to prevent wounds that can lead to premature fruit rot. Harvest only mature fruit that has turned color. Green fruit (showing no color), will not turn orange. Removing the fruit from the vine will also allow the curing process to proceed, which will help increase the storability of the fruit.

The use of early maturing varieties should be considered for areas with short growing seasons. Earlier maturing varieties can mature up to two weeks earlier than other varieties. These varieties will allow for greater yields of mature colored fruit in the event that the plants are taken down early due to disease or frost.

The curing process is an important process in the production of pumpkins. Fruit that is not properly cured will not hold up in shipping or on display. Proper curing takes about two weeks. Pumpkins cure best at 75-80° F. and a relative humidity of 75-80%. Desirable storage conditions after curing are 50-55° F. and 50-70% relative humidity with good air circulation to maintain uniform temperatures and humidity during the storage period.

FARMORE® TECHNOLOGY – FI400 SEED TREATMENT

FarMore Technology takes a different approach to pumpkin seed protection using customized treatments to fit specific needs. It's the first line of defense and protection against several key seed diseases, seeding diseases, and key insects. Varieties on the chart in this brochure with FM next to their name are available with FarMore FI400.

Broad-Spectrum Disease Protection

FarMore Technology has proven performance in the field against:

- General damping-off and seed blight
- *Fusarium* spp.
- *Pythium* spp.
- *Rhizoctonia* spp. (including post emergence protection)

Excellent Insect Protection

Early-season insect protection can prevent or eliminate the possibility of diseases vectored by certain insects and FarMore provides excellent protection against Striped Cucumber Beetles in pumpkins and squash.

Performance and Convenience

- Early season protection against disease and Cucumber Beetles
- Broad-spectrum protection in variable environmental conditions
- Enhanced disease protection gets crops off to a healthy start to maximize yield and quality potential
- Treatment is delivered in the bag, on the seed for proper application and convenience

Pumpkin production and the marketing of pumpkins at Halloween time have become a very large business in the United States. Many roadside markets devote many weeks to the marketing and sales of this fantastic vegetable. Families plan weekend trips to the pumpkin patch in search of the perfect Jack-O-Lantern. The many sizes, shapes and types now available add to the childhood mystique of the season and attract families like a magnet.

PLANTING AND SPACING

Pumpkins are a relatively easy crop to grow. The only real demand they have is for space. Choose a well-drained, tillable soil with a pH of 6.0-6.8. A soil test should be done to determine the amount of phosphorus and potassium you will need to apply. Nitrogen recommendations are based on crop need and along with phosphorus and potassium, recommendations should be discussed with your local Extension Agent, Agricultural Consultant and/or chemical supplier. These valuable sources of information should be consulted for other nutrient needs as well as pesticide recommendations, exposures, residues and crop rotations after pesticide use.

Popular organic fertilizers that could be used are dried blood, cotton seed meal, rock phosphate, bone meal, green sand, poultry manure and livestock manure. Many organic growers tend to prefer the use of poultry manure because it is proportionately higher in nitrogen than livestock manure.

Spacing will vary with the variety and the size of the vine. Fruit size can be greatly influenced by spacing. The closer the spacing, the smaller the fruit will be, even on larger-fruited varieties. You should experiment with different spacing and vine types to determine which produces the most desirable fruit size for a particular variety under the conditions of your farm. Refer to the recommended spacings below for each variety we offer.

Sow seed 1-1.5" deep depending on soil texture and moisture and only after daily soil temperatures have reached 60°F. Sow enough seed to ensure a good stand. You can always go back later and thin if need be.

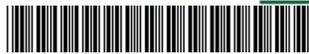
RECOMMENDED SPACING BY VARIETY

Variety	Days to Maturity	Fruit Size	Plant Type	Spacing
Bumpkin F1*	85	6-8 ozs.	Semi-bush	A
Flatso F1	85	6-8 lbs.	Vine	C
Prankster F1* (FM)	85	3 lbs.	Semi-bush	A
Casperita F1	90	.5 - 1 lb.	Semi-bush	A
Neon F1	90	7-8 lbs.	Semi-bush	A
Hooligan F1	90	4-8 ozs.	Compact	A
Baby Boo	95	4-6 ozs.	Compact	A
Gold Medal F1 (FM)	95	35-40 lbs.	Full vine	E
Wee-Be-Little	95	10-14 oz.	Semi-bush	A
Baby Pam	100	2-4 lbs.	Vine	B
Crunchkin F1 (FM)	100	5-9 oz.	Bush	A
Munchkin (FM)	100	4-8 ozs.	Compact	A
Small Sugar	100	6-7 lbs.	Vine	B
Lumina	100	10-15 lbs.	Vine	B
Silver Moon F1 x	100	10-15 lbs.	Large vine	D
Mrs. Wrinkles F1	100	14-18 lbs.	Semi-vine	A

(continued on next page)

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RECOMMENDED SPACING BY VARIETY

Variety	Days to Maturity	Fruit Size	Plant Type	Spacing
Hybrid Pam F1	100	4-5 lbs.	Semi-vine	A
Lil' Orange Mon F1 (FM)	100	1-2 lbs.	Bush	A
Lil' Pump-Ke-Mon F1 (FM)	100	1-2 lbs.	Bush	A
Jarrahdale	100	6-10 lbs.	Vine	C
Tours	100	15-30 lbs.	Vine	C
Galeaux d' Eysines	100	16-18 lbs.	Vine	C
Apollo F1* (FM)	105	18-30 lbs.	Semi-vine	A
Field Trip F1* (FM)	105	5-7 lbs.	Semi-vine	A
Dependable F1*	105	24-28 lbs.	Vine	D
Gargoyle F1*	105	3-5 lbs.	Compact vine	A
Mystic Plus F1* (FM)	105	7-8 lbs.	Semi-vine	A
Little Giant*	108	2-4 lbs.	Vine	B
Long Island Cheese	108	8-10 lbs.	Large vine	D
Mischief F1*	108	2-4 lbs.	Semi-vine	A
Big Moose	110	50-125 lbs.	Large vine	E
Cannon Ball F1* (FM)	110	5 lbs.	Semi-bush	A
Cotton Candy	110	5-12 lbs.	Vine	B
Magician F1 x (FM)	110	10-16 lbs.	Semi-vine	A
Iron Man F1* (FM)	110	3-4 lbs.	Vine	B
New Moon F1	110	35-45 lbs.	Vine	C
Howden	115	20-25 lbs.	Vine	D
Gladiator F1* (FM)	115	20-25 lbs.	Semi-vine	C
Magic Lantern F1* (FM)	115	16-24 lbs.	Semi-vine	A
Magic Wand F1* (FM)	115	15-25 lbs.	Vine	B
Super Herc F1* (FM)	115	30-40 lbs.	Large vine	D
Cinderella	115	10-15 lbs.	Vine	C
Apprentice F1 (FM)	115	1 lb.	Bush	A
Aladdin F1* (FM)	115	25-35 lbs.	Vine	C
Howden Biggie (FM)	115	35-50 lbs.	Large vine	D
Lil' Ironside F1	115	2 lbs.	Vine	A
Sorcerer F1 (FM)	115	15-25 lbs.	Semi-vine	A
Warlock F1* (FM)	115	20-30 lbs.	Vine	C
Prizewinner F1	120	75-150 lbs.	Large vine	D
Wolf	120	15-25 lbs.	Large vine	E
Atlantic Giant	125	200 lbs. +	Large vine	D
Fairytales (FM)	125	15 lbs.	Vine	C
Full Moon	125	60-90 lbs.	Large vine	D

Spacing Codes: A= 20-24" in the row x 8' between rows B= 24-36" in the row x 8-12' between rows
C= 36-40" in the row x 10-12' between rows D= 36-40" in the row x 12' plus between rows
E= 72-96" in the row x 12' plus between rows

Disease/Treatment Codes: * = Intermediate resistance to Powdery mildew
x = Intermediate resistance to Powdery mildew & Zucchini Yellows Mosaic
FM = Available with FarMore F1400 seed treatment

POLLINATION AND FRUIT SET

All pumpkins will produce male and female flowers separately on the same plant. Typically there are about 10 male blossoms for every 1 female blossom. The male flowers will begin to form and blossom first allowing pollen to be available when the female blossoms open. The female blossom is very short lived. Female blossoms will tend to open first thing in the morning and close a few hours later (24 hours at the most)...never to open again. If these blossoms are not pollinated they will abort and fall off the plant. The chance that a flower will be pollinated is dependent upon the number of bees present in the field as well as the number of visits to that flower. It is believed that bees do not prefer one blossom (male or female) over another so it is important that there are sufficient bees available to ensure proper pollination. For complete pollination to occur, each female blossom should be visited 15 times, otherwise small and malformed fruit will develop. The more pollination visits that take place, increases the amount of seeds that will develop within the fruit. The seeds secrete growth regulating compounds that allow for greater fruit size.

The number of flowers on pumpkins are not overly abundant or attractive to bees when compared to other crops. Bees located more than 1/2 mile from the crop are more likely to be intercepted by a more attractive crop.

Avoid planting pumpkins too close to crops such as buckwheat, alfalfa and clover, as bees will be more attracted to these crops and by-pass the pumpkin crop all together. In general, one strong hive per acre is satisfactory. If there is no noticeable bee activity in your field, there is a need for more bees.

Even if you have an adequate bee population near your field you can still have pollination problems. If the weather is poor for bee activity (cold, wet, too hot, windy or cloudy), there is almost no chance that the female flowers open at that time will be satisfactorily pollinated.

Many areas of the U.S. have lost their wild bee populations due to Colony Collapse Disorder. If you believe that your area has lost its wild bee populations or that they have been severely depleted, then you must place beehives in the field to ensure proper pollination. If you do not have your own beehives, you can rent them from a local beekeeper.

Although pumpkin plants produce many flowers, only about one or two fruit per plant will develop to size. The bush or semi-bush types will tend to yield more fruits per acre than the traditional full vine types due to closer spacing and higher plant populations. As a rule of thumb for predicting yields, only 1 to 1.5 fruit per vine should be expected. However, smaller fruited types can produce 2 to 5 fruit per vine.

Never predict yields by the number of blossoms present in the field, but only by the visible fruit. Remember there are both male and female flowers in the field at the same time and that the male blossoms far outnumber the fruit producing female ones. The ratio of male to female flowers will become even greater as the plant matures and the fruits that have already been pollinated begin to size.

STIGMA DEATH

In addition to pollination, development of female flowers may be affected by temperature. Experiences in the Middle Atlantic states and in New England indicates that high night temperatures (above 65°F.) can cause the ovaries to turn yellow and then shrivel and the stigma of the unopened flower exhibits black streaks into the ovary. Some varieties are more susceptible to this condition than others.

INSECT AND DISEASE CONTROL

In order for the fruit to achieve their full size and weight, they must continue to receive nourishment from the plant. If the plant dies down prematurely due to disease, insect damage or early frost, then any further growth of the fruit will be stunted. This is why it is very important that you have a spray program in place to help combat any diseases or insects that may cause damage to the plants or fruit. Your local Extension Agent, Agricultural Consultant and/or chemical supplier will be able to suggest a spray program for you to follow.

University Extension and other Agricultural Consultants also offer an Integrated Pest Management (IPM) service. They will send scouts into your fields on a regular basis to monitor insect and disease activity. They will then make spray recommendations based on their findings. Sprays are then applied only when needed and not on a hit or miss basis, ultimately saving the grower money on spray costs.

CAUTION: Insecticides should not be applied when bees are active in the field. Apply insecticides in the evening hours or wait until bloom is completed before application.

To reduce disease problems associated with pumpkins, research data suggests a crop rotation of at least three years. Other crops to avoid in this rotation are: peppers, eggplant and other cucurbits. Also avoid planting in fields that are normally wet and poorly drained.

Some organic alternatives to insect control are the use of Rotenone, diatomaceous earth and Bt. These products are fairly effective in controlling many different insects at various stages of their life cycle.