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## Muskmelons

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# Muskmelons



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# Muskmelons

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The muskmelon is a popular crop although not an easy one to grow in all parts of South Dakota. But in many localized areas it is grown in market and truck gardens as a specialty crop.

Muskmelons are generally considered a warm-season crop. They require soil temperatures of at least 55°F; even below 60°F, growth is slow. Muskmelons are stunted by chilling temperatures (33° to 45°F) and are readily killed by frost.

## Varieties

Careful variety selection is one of the keys to successful production. A good variety for you is one that grows well under your conditions and fits into your marketing plans. Whenever possible, choose varieties that are resistant or tolerant to the more prevalent diseases in your area.

Preferred melons are medium sized with thick, uniform, deep orange flesh and a firm rind. The following varieties are recommended for South Dakota and are resistant but not immune to fusarium wilt. Consumers are attracted to a well netted melon (the markings on the surface of the fruit).

**Delicious 51.** Large oval to round fruit; coarse net; thick orange flesh; good quality.

**Gold Star Hybrid.** Oval fruit, medium sized and heavily netted with firm rind; orange flesh with green; good flavor.

**Harper's Hybrid.** Round, medium, netted fruit; deep

orange, almost solid, flesh; good variety for roadside market.

**Harvest Queen.** Medium sized, oval fruit; faint ribbing; coarse net; thick orange flesh; good quality; holds quality after picking.

**Iroquois.** Large, nearly round fruit; prominent ribs; coarse net; thick orange flesh; good quality.

**Roadside.** Large, round fruit; salmon colored flesh deeply ridged, lightly netted; medium to small vine; heavy setting ability.

**Super Market Hybrid.** Mostly medium sized oval fruit; rich orange flesh; well netted.

Other varieties are available, but most have local adaptations.

## Site Selection

Muskmelons can be grown profitably on most fertile, well drained soils. A sandy loam soil, well supplied with organic matter, is best for muskmelon culture, especially where earliness is important. Light sandy soils are also acceptable where they are adequately fertilized and irrigated.

Generally, the soil should be mellow, hold sufficient moisture for crop production, and yet be able to drain excess water rapidly. Low areas should be avoided since such sites usually lack good air circulation and water drainage, and warm too slowly in the spring.

## Fertilizer

A good fertility program pays off in yield and quality. A soil test takes the guesswork out of

determining the kind and amount of fertilizer needed.

Because soil testing labs use different techniques, the analyses and recommendations of different labs are **not** interchangeable. Use the recommendation of the lab which has analyzed your samples. The SDSU Soil Testing Laboratory will help you. See your county Extension agent for information on where and how to send samples.

A small amount of fertilizer is recommended even for soils having a high soil test to maintain a good fertility level.

The amount of nitrogen fertilizer you will need to add depends on the amount of nitrate-nitrogen already in the soil. Total pounds of N required per acre for muskmelon is 80 lbs. If the soil test indicates that there are 30 lbs of nitrate-nitrogen per acre, subtract the soil test nitrate-nitrogen (30 lbs) from the total required (80 lbs). Apply the difference as fertilizer (50 lbs of N).

Amounts of phosphorous pentoxide ( $P_2O_5$ ) and potassium oxide ( $K_2O$ ) required according to the SDSU Soil Testing Lab are shown in Table 1.

We recommend that you use polyethylene sheet mulch. Consequently all fertilizers must be broadcast and worked into the soil before mulch laying and planting.

### Starting Transplants

The muskmelon requires a relatively long growing season of 80-110 days from seed to market. Therefore, South Dakota melon growers should start seed in a greenhouse 3-4 weeks before transplanting to the field. This will help insure maximum yield before fall frost.

Table 1. Recommended rate in pounds of active actual phosphorus ( $P_2O_5$ ) and potassium ( $K_2O$ ) required per acre.

Lbs of P per acre as shown by soil test	Lbs of $P_2O_5$ needed per acre
0-5, very low	240
6-15, low	180
16-25, medium	120
26-35, medium high	80
over 35, high	45

  

Lbs of K per acre as shown by soil test	Lbs of $K_2O$ needed per acre
0-50, very low	240
51-120, low	190
121-210, medium	130
211-300, medium high	80
Over 300, high	0

The main reason for using transplants is earliness; transplanted melons mature earlier than direct seeded ones.

Many growers use Jiffy-7 peat pellets to grow transplants. Others use peat pots and BR-8 blocks. Peat pots should be the lightweight type. Plant three or four seeds about ½-inch deep in each pot. If the temperature is about 80°F, the seed will germinate in 3-4 days.

At cooler temperatures germination will be delayed, and "damping off" will increase.

Harden off transplants for 7-10 days before transplanting in the field by slowly reducing water supply and exposing them to cooler temperatures. Bury the pot completely when transplanting or you will get drying through wick action. Thoroughly soak all pots with a starter solution (dilute solution of complete fertilizer high in P) before transplanting.

### Seed Bed Preparation and Seeding

If you direct seed plow the seed bed about one month in advance of expected planting date. Shallow disc several times to kill

germinating weeds. Broadcast fertilizer a couple of days before planting and disc deeply into the soil.

Prepare a fine seed bed to give uniform germination, but not so fine that crusting becomes a major problem. Seed after the soil is warm and only when there is enough moisture for rapid germination. The faster crop seedlings come up, the less chance there is of poor stands due to soil crusting, competition from weeds, and disease or insect damage.

Soil moisture will influence the proper depth of planting. If moisture is adequate, a soil cover of ½ inch is sufficient. Never sow muskmelon seeds deeper than 1 inch. Seed can be sown a week earlier than transplants.

### **Planting Distance**

Make the rows 6-8 feet apart. Plant four to six seeds per hill within a row, with the hills 3-4 feet apart. After germination thin to two plants per hill.

### **Wind Protection**

In South Dakota it is essential to provide some sort of wind protection for muskmelons. Newly transplanted muskmelon plants are very tender and susceptible to wind injury.

Trees and shrubs are effective. If permanent windbreaks are not available plant other windbreak materials.

Considerable protection can be provided by a fall planting of rye. In the spring, a row of muskmelon can be planted next to the rye. When enough vegetative growth has occurred, remove the rye.

An alternative to rye is a single row of sudan grass sown in early spring every 80 feet across the muskmelon field. During the growing season this will give good protection to the crop.

Protection is only effective to 10 times the height of the sudan grass. Any windbreak should be at right angles to prevailing winds.

### **Mulch**

Plastic sheet mulch, 3-4 feet in width, is almost a must for early production of high quality melons. Plastic, either clear or black, is laid by special machine. Transplanting or seeding can be done by machine or hand.

Clear plastics are more beneficial, (they retain a more constant soil temperature), but chemical treatment of the soil to destroy the weeds is necessary. Black plastic keeps the light out, and weeds do not grow under it.

### **Weed Control**

**Mechanical.** Cultivation controls weeds and provides aeration if a hard crust has formed. Cultivation of muskmelon should begin as soon as the rows of plants can be followed, and continued until the vines have spread too far to permit further working.

Muskmelon is a rather shallow rooted plant, and its roots often spread farther horizontally than the vine. Since most of the roots are in the upper 6-8 inches of soil, deep cultivation will slow crop development and reduce yield.

**Chemical.** Alanap at a rate of 3-4 lbs active ingredient per acre in 40 gal of water will control annual weeds which emerge with the crop. Make the application immediately after the crop is seeded. To control weeds that develop 4-6 weeks later, apply Alanap at the rate of 2-4 lbs active per acre in 40 gal of water. To be effective, the herbicide must be applied after clean cultivation.

Dacthal W-75, Treflan 4EC, Treflan 5G, Vegadex 4EC, and Vegadex 20G can also be used. Follow label directions.

### Irrigation

Muskmelon will require about 12 inches of water during the growing season. Depending on the rainfall, there are frequent periods when supplemental irrigation can be of definite advantage.

Muskmelon vines require an abundance of moisture when they are making their most vigorous growth and up to the time when the melons are full grown. Avoid overwatering just before and during the ripening period.

### Pollination

Insects are important for the production of fruit on all muskmelon varieties. The flowers are largely cross pollinated, and the pollen cannot be carried by wind. Flowers are receptive to pollen for only a few hours during daytime.

It is generally suggested that one strong, healthy bee colony be used for each acre of melon crop.

To protect the bees, apply all pesticides early in the evening, if possible. Cover the hives with

black plastic before spraying and remove the plastic immediately after spraying.

### Cross Pollination

Contrary to rumors, melons will not cross-pollinate with cucumbers, watermelon, pumpkin, summer squash, or winter squash.

Cross pollination between two varieties of muskmelon will readily occur, however. This will not affect the quality of the fruit of either variety in the year that cross pollination occurs, but seeds saved from these muskmelons and planted in the following year will produce various forms of "off-type" melons. Seeds should never be saved from hybrid varieties, since these will segregate into different types when planted.

### Harvesting

With experience, you can soon learn to judge when melons are ready for picking.

Melons picked too soon will not develop their maximum sugar



**Figure 1. July 15, 8-week-old plants: Direct seed-  
ing into the field on May 15, no wind protection.**

content. If allowed to stay on the vine too long, they will lose sugar and become soft.

Harvest melons at the “full-slip” stage when the background color between the netting starts to turn yellow. The “full-slip” stage is determined by pressing against the stem with the thumb. If the stem separates from the melon, leaving a clean cavity, the melon is ripe. If the melon is not ripe, the stem will not separate easily.

If part of the stem separates and part does not, the condition is called the “half-slip” stage. This is the best stage of harvesting for long distance shipping.

### Rotation

Crop rotation helps to hold down muskmelon diseases and to keep the soil in productive condition. A rotation in which muskmelon or any other related cucurbit is planted more often than once in 3 years is not recommended.

Muskmelon generally grow best after alfalfa, other legumes, or annual cover crops. If cover crops precede muskmelon, plow in the fall so that they decay sufficiently before planting.

### Insects, Diseases

Quality of muskmelon will drop considerably if disease, insects, and other factors cause loss of foliage. Muskmelon fruit produced late in the season in unfavorable weather conditions also will often have an off flavor. The quality of the melons depends on the sugar content of the fruit, which is directly related to vigor and health of the foliage.

Cutworms generally cut the newly transplanted muskmelons or germinating seedlings at ground level. Cutworms are dull gray-brown, striped or spotted, stout, soft-bodied insects. They will curl up tightly when disturbed. Cutworms can be easily controlled by applying a recommended insecticide at the time of planting.



Figure 2. July 15, 6-week-old transplants: 5-week-old plants in 3 inch peat pots transplanted into 6 inch “V”-shaped furrows on June 1. Note the height of the sudan grass after 2 months.



**Cucumber beetles** (there are generally two species which are common on muskmelon) eat the leaf and make holes in the young plant leaves. They are about 1/5 inch long and greenish yellow, with black stripes or spots. The striped cucumber beetle has three longitudinal black stripes on the back. The spotted cucumber beetle has black spots.

**Damping off** is a disease of muskmelon seedlings caused by various fungi. Usually, most serious losses occur during long periods of wet weather. The stem shrivels at ground level, leading to quick collapse and death of the seedling.

These fungi also cause decay of the seed in the ground, and they can kill seedlings before they come up. This can be controlled by seed treatment with a recommended fungicide.

When plants are started in pots, damping off can be checked by spraying the soil immediately after planting with a solution of a recommended fungicide.

**Anthracnose** symptoms on the leaves are small, yellow, water soaked spots, irregular in shape, which often occur along the vein of the leaf. These spots enlarge to form reddish-brown dead patches. Affected fruits have dark, sharply sunken, circular spots 1/2 to 3/4 inch in diameter.

The fungus is carried on the seed, and may live in the soil up to 2 years. To control successfully, rotate crops and disinfect seed with recommended chemicals. Cultivate only when the field is dry.

**Fusarium wilt** is caused by a fungus which lives in the soil and

enters the plant through the root system. The leaves of the wilting shoots turn brown; and brown, dead streaks commonly develop on the stem near the ground line. The disease can be controlled by rotation and by using disease resistant varieties.

**Bacterial wilt** infected plants show drooping of a few leaves, which remain green. The wilting gradually extends to leaves on other runners. The bacteria produce this wilt by working downward into the water conducting vessels of the stem, causing them to become clogged. Eventually they kill the plant.

The bacteria are spread by cucumber beetles, which carry them from diseased to healthy plants. For most effective control, use a recommended insecticide early in the season to reduce the number of cucumber beetles in the field.

**Mosaic** is caused by several viruses, most of which are commonly carried by aphids, which spread the virus from diseased to healthy plants in feeding. The virus also spreads by handling diseased plants.

Leaves of mosaic-affected muskmelon plants are mottled with light green and are often slightly dwarfed and curled; but usually the plants grow to almost normal size. The young fruit is sometimes mottled, and the size and the number of the fruit are often reduced and of poor quality. Insect control is necessary, but you can't depend on it to prevent spread of the virus. You should remove all diseased plants from the field.

**Trade names are used for reader convenience and do not imply product endorsement.**