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Choosing Vegetable Varieties for South Dakota

Rhoda Burrows, Ph.D. | Professor & SDSU Extension Horticulture Specialist

Seed catalogs and local greenhouses offer many more vegetable varieties than you could possibly fit in your garden plot. So, how do you choose?

Narrow the possibilities with these suggestions:

- For best results, buy from a reputable company. You may pay a little more, but it is worth it for clean, true-to-type disease-free seed with good germination rates. It costs money to maintain these standards, so cheap seed is less likely to be of high quality.
- Check the number of days to maturity listed in the description. Although this changes somewhat depending on temperature, you can still make comparisons relative to other varieties. If you live in the upper Black Hills or the northern part of the state, a variety that requires 120 days would not have time to mature properly.
- Plant form: Is there room for long vines of squash and pumpkin, or do you need to look for bush varieties? Do you need to save space by trellising pole beans or cucumbers, or do you prefer the ease of bush plants? Do you need smaller plants for container growing? Is your area windy? If so, you may want to choose shorter-growing varieties.
- For most of South Dakota, it is a good idea to look for "heat-tolerant" or "widely adapted" in the description, especially for cool-loving crops such as broccoli, cauliflower, lettuce, etc. For early-spring or late maturing crops, look for the term "frost tolerant" on the label or in the description.
- If you want added nutrition, look for "health-enhanced" varieties. For example, dark-red watermelon and tomato varieties have more lycopene than yellow-fleshed, and there are dark orange carrots that have been bred for their high vitamin A content.

Heirloom? Hybrid? I'm confused!!!

Heirloom varieties are gaining in popularity and seed catalogs are offering a wider selection of them. These are "tried and true" open-pollinated varieties passed down through generations of gardeners and often have superb flavor. However, some of these varieties grow well only in specific areas and may be less widely adapted, so look for ones that have been grown in the upper Great Plains. It's also a good idea to plant several different varieties to try them in your conditions. They also may have less resistance to specific diseases or have other undesirable characteristics, such as less uniform coloration, tendency to crack, stringiness, and other flaws. These varieties are generally stable (i.e., don't vary much from year to year) and when grown away from other varieties are good choices for saving seed. Heirlooms can be fun and unique, but choose varieties carefully.

Hybrids are carefully developed crosses selected for improved yield, disease resistance, texture, color, etc. In addition, hybrid plants also have increased vigor over their inbred parents. Because seed companies need to be able to sell them widely to recoup their investment, these varieties are more often adapted to large regions of the country. Seeds are first-generation progeny from selected parents, so you can't save seed from this year's crop to grow identical plants next year.

In between the hybrids and heirlooms are a wide range of varieties developed over decades for their favorable characteristics. These will come true to seed if isolated from other varieties.

For reliability, look for "AAS" on the label—that means it is an "All-American Selection" and has done exceptionally well in tests across the country. If you're adventurous, however, you may find many other varieties that work equally well for you.

Asparagus: Look for hardy varieties, such as the all-male hybrids 'Jersey Giant', 'Jersey King', 'Jersey Supreme', and 'Guelph Millennium' (which seems to do well in heavier soils), etc. Older standbys including 'Martha Washington' and 'Viking KB3' tend to be lower yielding and are more disease-prone but easily available and generally hardy. For variety, try 'Purple Passion', which has purplish-tinged spears (they turn green when cooked). Avoid California releases such as 'UC 157' as they are not hardy enough for South Dakota.

Beans (fresh, not dry types): Bush beans don't require trellises or poles but have a shorter harvest period than pole types, so you will need to reseed them every 2–3 weeks until mid-summer. Bush beans tend to come into bearing a week or two sooner than pole types. While bush beans produce more beans over a shorter period of time, pole beans produce more total beans over a longer season. String beans require de-stringing and the ends snapped off before cooking; snap beans don't. French or filet beans are meant to be picked very young (pencil thin), so they must be picked at least every 2 or 3 days. Lima beans should not be planted until the soil is thoroughly warmed (60–65°F).

Broccoli and Cauliflower: Cauliflower can be tricky to grow in South Dakota due to our uneven and sometimes hot spring temperatures. Sprouting broccoli (without a large central head) is said to be more tolerant of heat than other broccoli types and has a longer harvest period. Avoid varieties that say "performs well in the northeast." There are newer varieties that state they have good heat tolerance that may extend the harvest in warmer months. Smaller transplants are best: after six weeks in a flat, cauliflower tends to get very root bound and will produce only a small "button head." Older larger broccoli plants also have a harder time adjusting to outdoor temperatures and soil water levels.

Cabbage: Select early-maturing types for planting from March through May and autumn-maturing types for late May to early June plantings. Varieties with tolerance or resistance to black rot, tip burn, Fusarium wilt (yellows), and head splitting or bursting are available. If possible, buy seed that has been hot-water treated to kill blackleg and black rot diseases. Set transplants in the ground while their stems are smaller than a pencil; otherwise, they are more susceptible to bolting (sending up a flower stalk). Ornamental cabbage types are not very tasty, but are (barely) edible.

Chinese cabbage: The name refers to several different subspecies including both heading and non-heading types; Napa forms loose, broad heads similar to savoy cabbage; Pak (or Bok) Choi resembles Swiss chard with multiple stems and long loose leaves (prone to bolting); and Tatsoi is a sweet-flavored type that is especially tolerant to frost.

Plant seeds in mid-summer to avoid the tendency of Chinese cabbage to bolt in the spring.

Carrots: If you have heavy clay soil or rocky soil, choose shorter varieties. Common types are Nantes, cylindrical and thin-skinned, great for fresh eating; Chantenay, tapering gradually with a blunt tip and thick skinned, use for canning; Danvers, cone-shaped (classic Bugs Bunny), good for heavy soils, flesh often light in color with yellowish core, higher fiber than Nantes, good for canning; and Imperator, with long slender roots, long-season, and common in grocery stores. (The miniature carrots in the grocery stores are just larger Imperator carrots cut up.) A wide variety of specialty carrots are available; some are multicolored or ball-shaped, others are extra high in vitamins, or extra sweet, etc. Although you can purchase varieties advertised as miniature, you can simply space any variety more closely and harvest when still small. For full sized carrots, be sure to thin them when very young.

Celery: Celery is recommended only for truly dedicated, adventurous gardeners in the warmer parts of the state. Temperature fluctuations and cold nights cause celery to become bitter and bolt, so look for bolt-resistant, shorter season varieties.

Sweet Corn: The most important distinction is whether the corn is **su** (traditional sweet corn varieties), **se** (sugar enhanced), **sh2** (super sweet), or one of the newer generation hybrids, including syn, that are combinations. The su types begin converting sugars to starch as soon as they are picked; se and sh2 types have genes that slow this conversion, so they stay sweet much longer. Of the latter two, sh2 tends to be creamier, while se types are more crisp-textured. Seeds of both se and sh2 have a tendency to rot if planted in soils cooler than 60°F.

Cross-pollination: Sweet corn is the one exception to the generalization that pollen source doesn't affect fruit quality of vegetables. You DO need to pay attention to potential sources of corn pollen, even if you don't plan on saving the seed.

All sweet corn should be isolated from field corn, popcorn, and Indian corn. Sh2 varieties must be isolated from both su and se types, as well as field corn, preferably at least 300–500 feet; otherwise, the ears will have the taste and texture of field corn. (An alternative is to plant early and late-season varieties so that pollination times are at least two weeks apart). **Se** types can be grown beside su types. **Syn** varieties have differing requirements, so read descriptions carefully for isolation requirements. White sweet corn pollinated by yellow sweet corn may contain some yellow kernels, but the taste will be fine (assuming you've followed the above guidelines).

Baby corn: Although there are occasionally cultivars designated for this purpose, any sweet corn can be picked at the 2–3 inch stage (prior to pollination, or about 1–2 days after silking).

Cucumbers: Cucumbers come in two main types: **slicing** (fresh eating) and **pickling** (tend to have a more 'warty' skin). Use **burpless** (free from bitter skin) types only for fresh eating; they will produce mushy pickles. There are a few varieties listed as "dual-purpose" that can be pickled or eaten fresh, but they are not burpless. If space is limited, look for bush-type varieties or build sturdy trellises. Look for varieties that are resistant to powdery mildew, or to bacterial wilt if you have had problems with cucumber beetles.

Eggplant: There are two main types: large oval or elongated. There are also small-fruited and ornamental varieties that can be grown in containers for eating or decoration. Depending on the variety you select, the days to maturity will range from 50–80 days after transplanting. They are very sensitive to frost, so make sure you have sufficient growing season for the variety you select, Fruit color of eggplants may range from white through light pink-purple to black, depending on the variety. Exotic varieties from Italy and Asia are now in the US markets and are interesting choices for the connoisseur. Varieties are also available with tolerance to tobacco mosaic virus.

Garlic: Garlic is best planted in late fall one to two weeks after the first killing frost, and should be ordered as certified seed in late summer. There are two main forms; soft neck with a stem that is pliable for braiding and hard neck with a hard stiff stem in the center. All garlic types need winter protection with a 3- to 4-inch layer of mulch. Varieties that are adapted to mild climates may either not survive the winter, or develop a very "hot" flavor under our cold conditions. Fortunately, varieties that have been developed for cold climates can have very good flavor.

Soft-neck varieties do not produce a flower stalk, and tend to have more (10 to 40), smaller cloves with a 6- to 8-month storage life. Although most soft neck varieties grow best in warmer areas, there are some suitable for our colder climate.

Hard neck varieties produce a flower stalk (which can be harvested and used in cooking) in additional to bulbs. They generally survive cold winter weather better than soft neck types. Hard neck types have larger and fewer (usually 4 to 12) cloves, which do not store for more than a few months.

Occasionally a variety that acts as a soft-neck in one location forms flower stalks in another, and then would be considered hard-neck. For this reason, it is recommended that a new grower try out several varieties.

Lettuce: Lettuce types include **Leaf** (loose-leaf); **Romaine**; **Butterhead** (Bibb); and **Crisphead** (Iceberg-types). Crisphead types are not recommended for South Dakota as they need long, cool summers. It's a good idea to look for "bolt-resistant" or "slow to bolt" in the description, as well as "heat-tolerant," especially for early to mid-summer growing. **Bavarian** type lettuces are very slow to bolt. Lettuce can be planted in both the spring and again in the fall for a second crop.

Muskmelon: Often called "cantaloupe" in the U.S. Days to maturity range from 65–88 days. Traditionally, "eastern" types are fresh-market varieties with coarse netting, deep sutures (ribs), strong aroma, soft flesh, and relatively short shelf life; while "western" types tend to be smaller, lack ribs, have less aroma, and keep longer. Newer varieties may combine characteristics of both types. Be aware that varieties designated as "shipping" tend to have firmer flesh with less intense flavor, but keep longer in storage. Whenever possible, select melon varieties that have tolerance or resistance to powdery mildew, Fusarium wilt, and downy mildew. Check harvest procedures closely: Newer varieties do not always "slip" off the stem.

Related melons: **Honeydews** are smooth skinned with green or white rind and flesh (80–88 days). **Charentais** has a blue-green rind with deep orange flesh (75 days). **Crenshaw** has a yellow rind with pink, flavorful flesh (90 days). Many other types have flesh colors ranging from white to deep orange, and gourmet flavors.

Onions: Select **day neutral** or **long day** types for growing. **Long day** onions begin to form bulbs when the number of daylight hours reaches 14-16. You can grow onions from seed started in early March, purchased plants, or "sets," the miniature bulbs sold in sacks. A word of warning: If the sets are too large (over dime-size in diameter) they may bolt instead of forming a bulb. Sets that are bagged for sales across the United States may not be the best for our area. Generally, the storage life of onions from longest to shortest is: yellow > red > white > Spanish and sweet. There may also be significant differences in storage potential between cultivars within each color group.

Peas: For fresh eating, there are three main types: **Green peas**, our "normal" garden variety; **snap peas**, with an edible pod (some varieties may need to be de-stringed); and **snow peas**, also edible pods, usually requiring de-stringing. Height of pea vines vary greatly so check to see if selected varieties will need trellising. Look for heat tolerance and powdery mildew resistance when selecting varieties. In areas with a late fall frost, peas can be planted for a second crop.

Peppers: Peppers range from sweet (bell) to extra-hot (habanero), or somewhere in between and come in a range of shapes and sizes. Colors range from green or purplish green when immature to red, yellow, brown, purple, or orange when fully mature. If you have had problems in the past with bacterial leaf spot or certain viruses, look for varieties listed as tolerant to these diseases. Varieties reportedly differ in susceptibility to blossom end rot, but this is not usually listed in descriptions so you may need to try several different types/varieties if this has been a serious problem for you in the past.

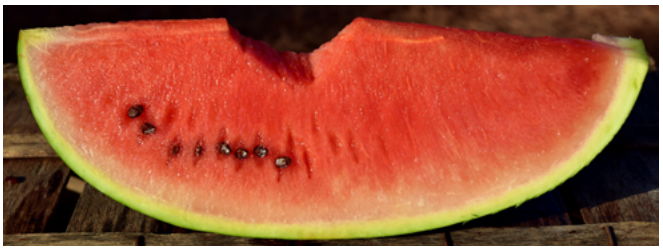
Potatoes: Red, yellow, or white potatoes are the most common, but gardeners can also grow blue skinned or fleshed varieties as well. Check variety descriptions for use and storage characteristics. Depending on their starch content, some varieties are better for boiling or mashing, and others for baking, while still others can be used for either purpose. Some will store well, some not so well. Because viruses are so common, you should start with purchased "certified seed" (pieces of tubers grown under a rigorous program to minimize diseases) unless you are growing an heirloom variety that you cannot obtain from a certified source. Don't cut up grocery store potatoes for seed; they are often treated with a sprout inhibitor and can carry scab or other diseases. If you have had disease problems, look for scab and/or blight-resistant varieties (and avoid applying manure, as it increases likelihood of scab).

Pumpkins: Varieties come in a range of sizes (3 inch to 3 ft diameter) and shapes, and some are even white. If you want to use them for baking in addition to decoration, look for pie or processing varieties; they will be less stringy. For giant pumpkin contests, look for "giant" varieties (these are actually a different species, *Cucurbita maxima*). With all pumpkins, remember to check the number of days to harvest; some varieties require too long a growing season for parts of South Dakota. Be sure to look for powdery

mildew tolerant varieties, since that is a common disease.

Squash: **Summer squash** include types harvested immature before the rind hardens. Summer squash are bush type plants. Common types include Scallop (or patty pan); constricted neck (crooked neck or straight neck), usually yellow and club shaped; and Italian marrows such as zucchini, cocozelle, and caserta, ranging from gray-green to dark green to yellow. Summer squash types require 50–65 days of growth before harvest. Some varieties have some tolerance to powdery mildew, cucumber beetles, cucumber mosaic virus, zucchini yellow mosaic virus, and/or watermelon mosaic. Multi-virus tolerant varieties tend to yield lower than regular hybrids. **Winter squash** include types harvested when the fruit is mature and the rind is hard. They are primarily vining types that require considerable growing space, 50–100 square feet per hill of 2–3 plants. There are also semi-vining and bush type varieties that can be grown where garden space is limited. Depending on what variety you plant, winter squash require 80–120 days before harvest and fruit can range from 1–100 pounds in size. Fruits picked before maturity will rot quickly in storage. Winter squash can produce a wide array of skin colors, providing decorative opportunities. Varieties are available with some tolerance to powdery mildew and/or Fusarium wilt.

Tomatoes: Look for **determinate** or **bush** varieties if you plan to can the fruit, because these types will tend to produce their fruit all at the same time. **Indeterminate** varieties will keep growing and producing over a longer period of time. **'Paste'**, **'Plum'**, or **'Roma'** varieties are great for cooking and canning because they have less pulp, but they also can be used fresh. Determinate types tend to have more problems with blossom end rot, due to the stress on the plant of producing all the fruit at the same time. Gardeners with short cooler seasons will need to choose tomato varieties that produce and mature fruit early, but shorter season (early) varieties may tend to have less flavor than longer season (late) varieties. Look for disease resistance if you have had trouble with wilting or blights. **VFNT** are common designations on tomatoes, indicating resistance to four common tomato diseases: **V**erticillium wilt, **F**usarium wilt, root knot **N**ematode, and **T**obacco mosaic virus, respectively. Some newer varieties are also available with resistance to tomato spotted wilt virus, and to blights.



Watermelon: Growers in the cooler areas of the state should look for the shorter-season varieties. Growers have a wide choice of sizes and flesh and rind colors. "Ice-box" or "personal-size" melons are small (5–15 lb.), round melons perfect for small families. Most watermelons require 75–85 days after planting to maturity, but there are some that take as many as 100 days, or as few as 65 (a yellow-fleshed ice-box variety). **Seedless** watermelons are becoming popular but require extra attention, preferably planting as transplants so that the seed can be germinated under ideal conditions (85°F and evenly moist). Seedless watermelons also require a seeded type growing with them for pollen in order to set fruit. Varieties with colored pollinator seeds make it easier to be sure you've planted a pollinator. If you've had trouble with leaf diseases in the past, look for anthracnose tolerant varieties.

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