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Home Vegetable Garden  
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# Home Vegetable Garden

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## COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

MOST OF THE NEW VEGETABLE varieties released each year will yield better and have better quality than some older varieties. However, excellent older or standard varieties should not be discarded just because newer ones are available. Try out a few new varieties each year to see how they perform before discarding proven varieties.

You may find it advantageous to grow several varieties of the same kind of vegetable in order to extend the harvest period. Early, medium, and late varieties of sweet

corn all planted at one time will mature over a 3-week period. The medium and late varieties of sweet corn or tomatoes, for example, are usually of much higher quality than early varieties.

Successive plantings also extend the harvest season. Planting 5 feet or so of leaf lettuce at 2 or 3 week intervals is much better planning than sowing 20 or 30 feet of lettuce which will come into production all at once and will probably be wasted.

Experienced gardeners buy most of their

seeds through seed catalogs because many more varieties are offered for sale, especially the newer ones. Names and addresses of seed companies can be obtained from garden magazines. Catalogs of most seed companies are available from December on through spring and include much information that cannot be printed on small packets such as varieties good for home freezing, disease-resistant varieties, hybrid varieties, etc.

Many other excellent varieties are available through seed catalogs.

### ASPARAGUS — Mary Washington

**BEANS, LIMA:** (Large seeded) — Fordhook 242; (Small seeded) — Thorngreen, Thaxter; (Pale) — King of the Garden.

**BEANS, SNAP:** (Bush Green) — Bountiful, Contender, Greencrop, Spartan Arrow, Tenderette, Topcrop, Executive, Improved Tendergreen, Bush Blue Lake, Romano; (Bush Yellow) — Cherokee Wax, Eastern Butter Wax, Kingdom Special; (Horticultural) — French Horticultural; (Pale) — Blue Lake, Kentucky Wonder.

**BEETS —** Crosby Green Top, Ruby Queen, Detroit Dark Red, Long Season.

**BROCCOLI —** Green Comet, Spartan Early, Waltham 29.

**BRUSSELS SPROUTS —** Jade Cross, Long Island Improved.

**CABBAGE:** (Early) — Stonehead, Yellows Resistant Golden Ace, Badger Market; (Midseason) — Market Prince, Market Topper, Greenback, Marion Market, Red Ace; (Late) — Chieftain (Savoys), Savoy King F; Hybrid, Badger Ballhead, Wisconsin Ballhead.

**CARROTS —** Nantes, Imperator, Spantansweet, Spartan Bonus.

**CAULIFLOWER:** (Spring) — Snowball A, Super Snowball, Snow King, (Fall) — Snowball Imperial, Snowball 25, Royal Purple.

**CELERY —** Golden Self Blanching, Summer Pascal, Tall Green Light, Utah 52-70.

**CHINESE CABBAGE —** Michihli

**COLLARDS —** Vates

**CUCUMBER:** (Slicing) — Burpee Hybrid, Challenger, Gemini, Marketmore, Spartan Valor, Triumph, Spantansweet, Statioy, Gemini 7, Meridian 1; (Pickling) — Wisconsin SMR 24, Cransler, Pioneer, Spartan Champion, Spartan Progress.

**EGGPLANT —** Black Magic Hybrid, Black Beauty.

**ENDIVE:** (Escarole — Smooth Leaved) — Florida Deep

Heart, Full Heart Batavian; (Curled) — Green Curled, Salad King.

**GARLIC —** Creole, Italian

**KALE —** Vates

**KOHLRABI —** Earl White Vienna

**LEEEKS —** American Flag

**LETTUCE:** (Butterhead) — Summer Bibb, Buttercrisp; (Crisp Head) — Fulton, Spartan Lakes; (Leaf) — Grand Rapids, Salad Bowl; (Romaine) — Paris Island.

**MUSKMELON —** Burpee Hybrid, Harper Hybrid, Gold Star, Salicy

**MUSTARD —** Tendergreen, Green Wave

**OKRA —** Dwarf Green Long Pod, Clemson Spineless, Emerald

**ONION:** (Sets) — Ebecher; (Transplants) — Sweet Spanish; (Seeds) — Spartan Era, Downing Yellow Globe, Spartan Gems; (Bunching) — Buttsville Bunching, White Portugal.

**PARSLEY —** Perfection, Curled Dwarf

**PARSNIP —** All America, Model

**PEAS —** Freedom, Greater Progress, Little Marvel, Frosty, Perfected Freer, Wanda (heat tolerant); (Edible Podded) — Dwarf Gray Sugar.

**PEPPER:** (Sweet) — Canape, Vinedale, Peter Piper, Spartan Emerald, California Wonder, Delaware Belle, Bell Boy, Keytime Resistant Giant, Yolo Wonder; (Hot) — Hot Portugal, Rumanian Wax, Hungarian Wax, Large Red Cherry.

**POP CORN —** Michigan Hybrid No. 1A (white), Purdue 213, (Yellow), loop 7 (white)

**POTATO:** (Early) — Onaway, Irish Cobbler, Norland, Superior, Hag; (Midseason) — Norgold Russet, Chipewa, Cherokee, Norchip, Jewel; (Late) — Katahdin, Sebago, Russet Rural, Kennebec, Merrimack, Russet Burbank; (For Muck Soils) — Cherokee, Chippewa, Katahdin, Norland, Sebago, Superior, Kennebec.

**POTATO, SWEET —** Acadian, Centennial, Copperskin Goldrush

**PUMPKIN:** (Small) — Small Sugar, Spookin; (Medium) — Cheyenne Bush, Young's Beauty; (Large) — Connecticut Field, Jack-O-Lantern; (Very Large) — Big Max, Mammoth.

**RAISIN —** Cavalier, Cherry Belle, Icicle (white), Champion

**RHUBARB —** Canada Red, MacDonald, Valentine, Victoria

**RUTABAGA —** Macomber, American Purple Top

**SALSIFY —** Mammoth Sandwich Island

**SPINACH —** Viking, Long Standing Bloomsdale, America, New Zealand (not true spinach)

**SQUASH:** (Summer Yellow) — Seneca Prolific Hybrid, Seneca Baby Crookneck, Seneca Butterbar, Early Prolific Straightneck, (Summer Green) — Zucchini, Goccevole, Chieftain, St. Pat Scallops; (Winter-storage) — Gold Rugel, Table Queen, Butterbar, Wax Hubbard, Buttercup, Kindred, Delicieux, Hubbard

**SWEET CORN:** (Early) — Royal Crest, Seneca 60-II, Seneca Beauty, Earliking, North Star, Spring Gold; (Midseason) — Morning Sun, Golden Beauty, Northstar Belle, Tastyvue, (Main Crop) — Carmicross, Gold Cup, Inchief, Golden Queen, Silver Queen (white), Burbank Hybrid, Honeycross, Golden Cross Bantam

**SWISS CHARD —** Fordhook Giant, Rhubarb

**TOMATO:** (Early) — Spring Set, Heinz 1548 VF; (Midseason) — Heinz 1350, Campbell 1327, Jet Star, Xoma VF (paste), (Late) — Heinz 1370, VF Hybrid, Ace 55VF; (Yellow) — Sunray, Jubilee; (Cherry) — Small Fry, Large Red Cherry, Yellow Pear, Yellow Plum, Yellow Cherry.

**TURNIP —** Tokyo Cross, Purple Top White Globe, Just Right

**WATERMELON —** Summer Festival, Seedless Hybrid 312, Sweet Princess, Crimson Sweet

## Control of Insects, Nematodes, and Diseases

Since most bacterial, fungi, and nematodes (microscopic, eel-like worms) and some home garden insects live in the soil from one growing season to the next, much of their damage can be avoided by relocating the garden or rotating the crops.

Closely related crops like melons and cucumbers — or tomatoes, potatoes, peppers and eggplant — should not succeed each other because, in many cases, they all are damaged by the same parasites.

Also, if a garden is to be planted on sod land with high populations of white grubs and wireworms, wait at least 2 years after plowing or spading the land before planting; otherwise it is necessary to treat the soil with a chemical. (See following instructions.)

### Seed and Transplants

Since important fungus and bacterial diseases (sometimes virus diseases) may be carried on or under the seed coat, plant only seed bought from a reputable supplier. If possible, use only certified, disease-free bean and potato seed.

Transplant — Accept only vigorous plants of good color, free of spots on the foliage (leaves and stems) and with clean, white roots. Discard those with discolored, rotted, or swollen roots.

### Chemical Treatment of Seed and Soil

To avoid fungal and bacterial diseases carried on the seed, and maggot damage to the seed of cucumbers and sweet corn, put a pinch (less than ¼ teaspoon per half pound of seed) of *Thiram* or *Captan 75%* seed protectant, plus a pinch of 40 percent wettable *chlordane* powder in the package and shake the contents, coating all the seeds with the dust. *Diazinon*, 50 percent wettable powder, may be used instead of *chlordane* as a treatment for corn seed. Follow the same instructions. Sift the excess dust from the seed through a fine mesh screen. Do not treat seed already treated by the seedsman and do not use treated seed for food. Do not plant moldy or spotted peas and beans or seed infested with weevils. Buy new seed.

### Redish and turnip maggots

Apply 3 level tablespoons of 5 percent *chlordane* dust over the seed of a 25-foot row before the furrow is closed or ½ teaspoon of 50 percent diazinon in 1 pint of water to 20 feet of row.

### Cabbage maggot

The roots of cabbage, cauliflower, broccoli, and other plants of this group are damaged by the cabbage maggot. The maggots are white or dirty gray; when full grown, they are ½ inch long. Their heads are pointed. The adult is a small grayish fly. Control: Before planting, dip the roots of cabbage, broccoli, or cauliflower in a mixture of 2 level tablespoons of 40

percent wettable *chlordane* powder to 1 gallon of water, or ½ teaspoon of 50 percent wettable *diazinon* powder in 1 gallon of water. Instead, if desired, pour ½ pint of this same mixture on the soil next to the stems. Note: Keep the mixture stirred while dipping the roots or when pouring it around the plants. Do not apply *chlordane* to the edible parts of the plants.

### Onion maggot

Apply 3 level tablespoons of 5 percent *chlordane* dust over the seed of a 25-foot row before the furrow is closed, or ¼ teaspoon of 50 percent diazinon in 1 pint of water to 20 feet of row.

### Cutworms

To protect cabbage, cauliflower, broccoli, and Brussels sprouts, apply 5 percent *methoxychlor* plus 5 percent *malathion* dust to the soil the same day these plants are set in the garden, preferably in the evening. Sprays of these same materials may be used also.

### White grubs and wireworms

For control of these insects where land was in sod within the last 3 years, apply 5 ounces of 40 percent wettable *chlordane* powder (or 5½ teaspoons of a *chlordane* emulsion containing 6 pounds of actual chemical per gallon), or 3 ounces of 50 percent wettable diazinon powder, or 10 ounces of 14 percent granular diazinon to 1,000 square feet of soil surface. Work immediately into 4 to 6 inches of soil before planting the garden. "Working in" means sifting through the soil, not merely turning over or spading. Note: Do not apply *chlordane* where carrots are grown.

### Nematodes

Problems caused by these minute, wormlike animals can be severe since many home gardens are not rotated and most vegetables are highly susceptible to plant parasitic nematodes. Roots of nematode-infected plants may be galled, have surface lesions and/or be greatly reduced in number and vigor. Such plants may appear stunted and exhibit a nutrient deficiency. Certain nematodes may attack above-ground plant parts, causing foliar necrosis and distorted leaves or buds. The effort and expense in controlling nematodes in the home garden are compensated by improved quality and yields.

Crop rotation, and relocating the garden site help reduce nematode damage. If these cultural practices are not feasible or nematode populations are high, consider fumigating the soil with DBCP (Nemagon or Fumazon), or dichloro propenes.

### Scab disease

Scabby lesions often appear on potato tubers and on beet roots. High soil fertility, adequate soil moisture and acid soil conditions (pH 5.0 or less) reduce scab damage.

### Wilt diseases

Tomatoes, potatoes, eggplant, muskmelons, and cucumbers are very susceptible to wilt. In most cases wilt is caused by fungi which enter through the roots. The fungi destroy the plant's ability to take up and transmit water and nutrients to the foliage. As a result, wilting occurs. Nematode damage to the roots permits infection. Bacterial wilt of cucumbers, melons, squash, and pumpkins, which also affects the movement of water and nutrients, is carried in the body of the cucumber beetle and is transmitted when the insect feeds on the plant.

Planting available resistant varieties is the most satisfactory control practice. Rotation with non-susceptible crops is useful in the case of the fungus wilts, reducing the population of the organisms. Fumigating the soil under a clear plastic cover with highly volatile chemicals such as *Vorlex* or *Vapam* rids the soil of all diseases, insects, and nematodes. Chemicals, plastic covers, and application equipment are purchased through agricultural chemical dealers. When using these chemicals, follow manufacturer's directions carefully.

### Club root

This disease affects cabbage, cauliflower, broccoli, and Brussels sprouts, causing root swelling, dwarfing, and yellowing of plants. To control it, use lime to neutralize or alkalinize the soil (pH 7.0 or above) and apply 1 cupful of *Terraclor* (1 ounce 75% wettable powder per gallon) around the roots of the plants when they are set. (Note: If a starter solution is used, *Terraclor* may be combined with it in place of water.)

### Foliage and Fruit Treatments

Vegetables are damaged by insect and disease-causing organisms throughout the growing season. When weather and other conditions favor these pests, a large part of a garden crop may be destroyed before harvest. Chemicals applied properly prevent most of these insect and disease losses.

Spray vegetables each week with a fungicide and/or a bactericide, plus 1 or more insecticides. Start application when the plants emerge and continue through the growing season. Some chemicals have limitations on their use close to harvest. Therefore, read the package label before using any chemical; follow directions carefully.

Fungicide and insecticide dust combinations may be used instead of sprays. Buy dusts ready-mixed. Fungicides and insecticides for spraying may be bought separately or ready-mixed. *Pyrethrum* for sprays is usually available in liquid form, and *Rotenone* either as a wettable powder or as a liquid concentrate. Two other insecticides than those listed in the chart

of "All-Purpose Insecticide-Fungicide Spray Mixtures For Vegetables" on page 4 may be used for control of insects on foliage and fruit. They are diazinon and endosulfan (*Thiodan*). For specific directions for their use, READ THE LABEL. All suggested fungicides and insecticides are available at most agricultural or garden supply and hardware stores.

When slugs, corn borers, and earworms are special problems in the vegetable garden, consult MSU Extension Bulletin 312, "Chemical Control of Insects and Diseases on Commercial Vegetables". However, if *malathion-methoxychlor* emulsion spray is applied directly on the ear area of sweet corn 1 week before silking and then every 4 days until the silk begins to turn brown, you can expect reasonable control of corn borer and corn earworm.

Many types of hand-operated equipment are available. Whatever its kind, use it to apply treatments to both the top and underside of the leaves. Anything less than this coverage often gives inferior results. Spray all parts of the plant to a point of run-off. One quart should cover 50 feet of row when plants are young and about half that distance when full grown. When dusting, apply only a light coating. Approximately 1 ounce of dust is enough for 50 feet of row early in the season, while 2 ounces or more will be required later.

NOTE: A last warning—read the label before using any pesticide.

### INGREDIENTS FOR MIXING YOUR OWN ALL-PURPOSE INSECTICIDE-FUNGICIDE VEGETABLE SPRAY

CHEMICALS	Form of Chemical Purchased (the label will show which form and its percent of concentration)	
	Wettable Powder (WP)	Emulsifiable Concentrate (EC)
	Amount to use per gallon of water	
TO: Fixed Copper <sup>1</sup> to control diseases of fungus and bacteria	2 Tbs (53% WP)	—
ADD: Maneb <sup>2</sup> to control fungus diseases	1½ Tbs (80% WP)	—
ADD: To the above, one of the following to control insects:		
1. Malathion	5 Tbs (25% WP) or 2 tsp (50% EC)	
and Methoxychlor	2 Tbs (50% WP) or 4 tsp (25% EC)	
OR 2. Rotenone	2 Tbs (4.5% WP)	—
and Methoxychlor	2 Tbs (50% WP) or 4 tsp (25% EC)	
OR 3. Malathion alone	5 Tbs (25% WP) or 2 tsp (50% EC)	
OR 4. Rotenone alone	2 Tbs (4.5% WP)	
OR 5. Pyrethrum alone	—	1 tsp (1% EC)

<sup>1</sup> The Fixed Copper primarily to control bacterial diseases of tomatoes, peppers, beans, cucumbers, cabbage, also mildews on spinach and cabbage. It may be omitted on other vegetables. Fixed Copper is sold under the following trade names: Tri-Basic Copper Sulfate, Copper A, Basic, Ortho Copper, Kocide 101, and Copper oxide.

<sup>2</sup> Other trade names are: Manzate, Manzate 200, Dithane M-22, and Dithane 45.

# Vegetable Planting Chart

VEGETABLE	Planting Times*	Weeks from Seeding to Transplanting	Depth to (inches)	Amount of Seed	Maturity Days to	Planting Distances (inches)		New Length (feet)	Estimated Production
						In Row	After Thinning		
Asparagus	Apr. 20-Jun. 1		6 to 8	12 plants	2 to 3 yrs.	18 to 24	60	20	6 pounds
Bears Ears	Apr. 20-Jun. 30		1 to 2	50 to 60		6 to 8	24 to 30	50	4 pounds
Beets	Apr. 20-Jun. 30		1 to 2	18 pound		3 to 4	18 to 24	15	7 pounds
Bok Choy	Apr. 20-Jun. 30		1 to 2	12 plants		2 to 3	30 to 36	25	20 pounds
Boston Sprouts	Apr. 20-Jun. 30		(plants)	15 plants		18 to 24	24 to 30	25	8 pounds
Broccoli	Apr. 1-20; Jun. 20-30		4 to 6	6 plants		15 to 24	24 to 30	12	4 heads
Brussels Sprouts	Apr. 1-20; Jun. 20-30		4 to 6	5 plants		15 to 24	24 to 30	12	12 heads
Cabbage	Apr. 1-20; Jun. 20-30		4 to 6	6 plants		15 to 24	24 to 30	12	12 heads
Chard	Apr. 1-20; Jun. 20-30		4 to 6	6 plants		15 to 24	24 to 30	12	12 heads
Chicory	Apr. 1-20; Jun. 20-30		4 to 6	6 plants		15 to 24	24 to 30	10	6 plants
Celery	Apr. 1-20; May 20-30		10 to 12	14 plants		6 to 8	30 to 36	15	30 stalks
Chinese Cabbage	Jun. 20-Jul. 30		(plants)	30 plants		4 to 6	30 to 36	15	15 heads
Chives	Apr. 20-Jun. 30		4 to 6	1/2 pint.		10 to 12	24 to 30	25	20 plants
Cucumbers	Apr. 20-Jun. 30		1 to 2	50 plants		6 to 8	24 to 30	10	6 plants
Eggplant	May 20-Jun. 1		8 to 10	3 plants		24 to 30	30 to 36	6	12 fruits
Endive	May 20-Apr. 20; Jun. 20-30		4 to 6	10 plants		8 to 12	12 to 18	1	4 heads
Garlic	May 20-Apr. 20		4 to 6	1/2 bushel		3 to 4	12 to 18	1	4 heads
Kohlrabi	Apr. 20-Jun. 30		4 to 6	1/2 bushel		4 to 6	18 to 24	12	24 stalks
Leeks	Apr. 20-Apr. 20; Jun. 20-30		4 to 6	24 plants		1 to 2	15 to 18	10	30 plants
Lettuce (leaf)	Apr. 20-Apr. 20; Jun. 20-30		4 to 6	1 pint.		8 to 15	15 to 18	15	15 heads
Lettuce (head)	Apr. 20-Apr. 20; July		4	18 plants		6 to 12	6 to 12	5	24 plants
Mushroom	May 20-Jun. 1		4	1 to 2		3 to 6	48 to 64	18	18 fruits
Okra	Apr. 20-30		1 to 2	1/2 pint.		3 to 6	18 to 24	10	5 pounds
Onion (sets)	May 20-Jun. 1		1 to 2	1/2 bushel		12 to 15	12 to 18	8	4 pounds
Onion (seedlings)	May 20-Apr. 20		4 to 6	1 to 2 (plants)		2 to 3	12 to 18	30	4 pounds
Onion (sets)	Apr. 20-Apr. 10		4 to 6	1/2 bushel		2 to 3	12 to 18	30	20 plants
Parsley	May 20-Jun. 1		4 to 6	1/2 pint.		6 to 8	24 to 30	15	3 bunches
Peas	Apr. 20-Jun. 30		1 to 2	1/2 bushel		3 to 4	24 to 30	15	12 plants
Peppers	Apr. 20-Jun. 30		8 to 10	4 plants		14 to 18	18 to 24	10	20 plants
Potatoes	Apr. 20-Jun. 1		8 to 10	1 bushel		14 to 18	18 to 24	10	20 plants
Radishes	Apr. 20-Jun. 1		4 to 6	1 bushel		10 to 12	24 to 30	25	1 peck
Spinach	Apr. 20-Jun. 1		4 to 6	5 plants		10 to 12	24 to 30	25	50 pounds
Spinach (Summer)	Apr. 20-Jun. 1		4 to 6	25 plants		10 to 18	36 to 48	25	50 pounds
Squash (Winter)	Apr. 20-Jun. 1		4 to 6	5 plants		10 to 12	24 to 30	25	2 plants
Sheet Cabbage	Apr. 20-Jun. 20		4 to 6	100 to 120		22 to 28	72 to 96	2 bunches	30 pounds
Swiss Chard	Apr. 1-20		4 to 6	1 pint.		24 to 28	48 to 64	12	8 pounds
Tomatoes	May 20-Jun. 1		4 to 6	3 plants		36 to 48	48 to 64	9	8 pounds
Turnips	May 20-Jun. 1		4 to 6	10 plants		4 to 6	18 to 24	20	12 plants
Watermelons	May 20-Jun. 1		4	1 to 2		72 to 96	72 to 96	2	4 melons

\* Planting times are based on conditions at East Lansing. Change these times to suit your location.