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Variety and Pesticide Recommendations for the Home Vegetable Garden

Michigan State University

Cooperative Extension Service

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RECOMMENDED VARIETIES

ASPARAGUS — Mary Washington.

BEANS, LIMA: (Large seeded) — Fordhook 242; (Small seeded) — Thoroughgreen, Thaxter; (Pole) — King of the Garden.

BEANS, SNAP: (Bush Green) — Provider, Contender, Spartan Arrow, Tenderette, Tendercrop, Improved Tendergreen, Bush Blue Lake, Romano; (Bush Yellow) — Cherokee Wax, Eastern Butter Wax, Kinghorn Special; (Horticultural) — French Horticultural; (Pole) — 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) — C-C Cross, Stonehead, Yellows Resistant Golden Acre, Badger Market; (Midseason) — Market Prize, Market Topper, Greenback, Marion Market, Red Acre; (Late) — Chieftain (Savoy), Savoy King F₁ Hybrid, Badger Ballhead.

CARROTS — Nantes, Danvers, Spartansweet, Spartan Bonus.

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

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

CHINESE CABBAGE — Michihli.

COLLARDS — Vates.

CUCUMBERS: (Slicing) — Burpee Hybrid, Gemini, Marketmore, Triumph, Saticoy, Meridian; (Pickling) — Wisconsin SMR 58, Crusader, Pioneer, Spartan Champion.

EGGPLANT — Black Magic, Black Beauty, Classic.

ENDIVE: (Escarole — Smooth Leaved) — Florida Deep Heart, Full Heart Batavian; (Curled) — Green Curled, Salad King.

GARLIC — Creole, Italian.

KALE — Vates.

KOHLRABI — Early White Vienna.

LEEKs — American Flag.

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

MUSKMELON — Burpee Hybrid, Harper Hybrid, Gold Star, Saticoy.

MUSTARD — Tendergreen, Green Wave.

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

ONION: (Sets) — Ebenezer; (Transplants) — Sweet Spanish; (Seeds) — Spartan Era, Downing Yellow Globe, Spartan Gem, Abundance; (Bunching) — Beltsville Bunching, White Portugal.

PARSLEY — Perfection, Curled Dwarf.

PARSNIP — All America, Model.

PEAS — Freezonia, Greater Progress, Little Marvel, Frosty, Perfected Freezer, Wando (heat tolerant); (Edible Podded) — Dwarf Gray Sugar.

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

POP CORN — Michigan Hybrid No. 1A (white), Purdue 213 (yellow), Iopop 7 (white).

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

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

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

RADISH — 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, Cocozelle, Chefini; (Summer White) — St. Pat Scallop; (Winter — storage) — Gold Nugget, Table Queen, Butternut, Buttercup, Kindred, Perfection, Sweet Potato.

SWEET CORN: (Early) — Butter Vee; (Midseason) — Bravo, Silver Sweet, Trail Blazer, Golden Jubilee; (Main Crop) — Golden Queen, Silver Queen (white).

TOMATO: (Early) — Spring Set (VF*); (Midseason) — Campbell 1327 (VF), Heinz 1350 (VF), Supersonic (VF), Heinz 1439 (VF), Roma VF (paste); (Late) — Burpee VF, Royal Ace (VF), Manalucie, San Marzano (paste); (Yellow) — Golden Boy, Sunray; (Cherry) — Small Fry, Droplet, Large Red Cherry, Yellow Pear, Yellow Plum, Yellow Cherry.

TURNIP — Tokyo Cross, Purple White Globe, Just Right.

WATERMELON — Summer Festival, Seedless Hybrid 313, Sweet Princess, Crimson Sweet, Market Midget, Fordhook Hybrid, Sweet Meat.

*(VF) — Verticillium and Fusarium Wilt Resistant

Vegetable Varieties and Sources

Most of the new vegetable varieties released each year yield better and have better quality than older varieties. However, excellent older or standard varieties should not be discarded just because newer ones are available. Try out a few varieties each year to see how they perform before discarding proven varieties.

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

Many other excellent varieties besides those listed in this bulletin are available through seed catalogs.

For additional cultural information, write for Extension Bulletin E-529, "Home Vegetable Garden", available from: MSU Bulletin Office, P.O. Box 231, East Lansing, Michigan 48823.

Pest and Disease Control

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 the garden crop may be destroyed before harvest. Proper application of chemicals prevents most insect and disease losses.

Insecticides and fungicides, although effective in controlling a large number of garden pests, will not eradicate all insects or cure all diseases. Plant diseases can rarely be cured, but must be controlled by prevention.

Chemical Treatment of Seed and Soil

Here is an effective way to avoid fungal diseases carried on the seed, and maggot damage to the seed of cucumbers and sweet corn. Put a pinch (less than $\frac{1}{4}$ teaspoon per half pound of seed) of *Thiram* or *Captan* 75 percent 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.

Underground Root-Feeding Insects

The roots, stems, bulbs, tubers and other underground parts of garden plants are often damaged by insects. To control these insects, chemicals must be properly applied to the soil. Some of these insects go through 3 or more generations per year (maggots), others have 1 generation per year (cutworms) and still others require 3 years (white grubs) to 6 years (wireworms) to complete one generation.

Maggots — Maggots are the immature stage of flies. They are whitish or yellowish-white and about $\frac{1}{3}$ inch long when mature. There are onion maggots, cabbage maggots and radish and turnip maggots. The adults of these maggots are grayish flies with numerous black bristles on their abdomens.

Onion Maggot — Apply $\frac{1}{4}$ teaspoon of 50 percent diazinon in 1 pint of water to 20 feet of row or 3 level teaspoons of 5 percent chlordane dust over the seed of a 25-foot row before the furrow is closed.

Cabbage Maggot — Before planting, dip the roots of cabbage, broccoli, or cauliflower in a mixture of $\frac{1}{2}$ teaspoon of 50 percent wettable diazinon powder in 1 gallon of water or 2 level tablespoons of 40 percent wettable chlordane powder to 1 gallon of water. Or, pour $\frac{1}{3}$ pint of the diazinon 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.**

Radish and Turnip Maggots — Apply $\frac{1}{3}$ teaspoon of 50 percent diazinon in 1 pint of water to 20 feet of row or 3 level tablespoons of 5 percent chlordane dust over the seed of a 25-foot row before the furrow is closed.

Cutworms — Cutworms are the immature stage of moths. They are usually fat and spongy in appearance, dark colored with various light or darker markings. Adult moths are brown to gray with light and dark markings. The moths are often seen flying around lights at night in mid summer. Apply 5 percent *methoxychlor* plus 5 percent *malathion* dust to the soil the same day plants are set in the garden, preferably in the evening. Sprays of these same materials may also be used. NOTE: Do not use methoxychlor on celery.

White Grubs and Wireworms — White grubs are the immature stage of the June beetles. They are white, "C" shaped with brown heads, have 6 long thoracic legs and the tip of the abdomen is dark brown or purple. Wireworms are the immature stage of click beetles. They are dark brown, have 6 short thoracic legs and are very tough skinned.

For control of these insects where land was in sod within the last 3 years, apply the following to 1,000 sq. ft. of soil surface: 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 sq. ft. 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 have galls, 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 aboveground plant parts, causing foliar necrosis and distorted leaves or buds. The effort and expense of controlling nematodes in the home garden will be compensated by the 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 Fumazone) or dichloro propenes (D-D, Telone, Vorlex, Terr-O-Cide) or SMDC (Vapam, VPM).

Aboveground Foliage-Feeding Insects

For best control of insects and diseases, spray vegetables each week with a fungicide and/or 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. Fungicide 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 insecticides other than those listed in the chart of "All-Purpose Insecticide-Fungicide Spray Mixtures For Vegetables" 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.

Many types of hand-operated equipment are available. Whatever its kind, use it to apply treatments to *both the top, and especially the underside*, of the leaves. Anything less than this coverage often gives inferior results. Spray all parts of the plant to the point of runoff. 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.

The bacteria, *Bacillus thuringiensis*, is an effective biological (non-chemical) control for the cabbage looper and imported cabbageworm on cabbage, cauliflower, broccoli, and other crops. It is sold under the trade names of Biotrol, Dipel, and Thuricide. Read the label for the amount to use and other directions. It will not control other pests such as aphids, leafhoppers, grasshoppers, tarnished plant bug and others. For those and other common insects, use the "ALL-PURPOSE SPRAY". Read the label before using any pesticide.

For additional information, write for U.S. Department of Agriculture Home and Garden Bulletin No. 46, "Insect and Diseases of Vegetables in the Home Garden", available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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 ¹ to control diseases of fungus and bacteria	2 Tbs (53% WP)	—
ADD: Maneb ² 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)

¹Use 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, Basicop, Ortho Copper, Kocide 101, and Copper oxide.

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

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Vegetable Planting Chart

VEGETABLE	Planting Times*	Weeks from Seeding to Transplanting	Depth to Plant (inches)	Amount of Seed	Days to Maturity	Planting Distance (inches)			Row Length (feet)	Estimated Production
						In Rows After Thinning	Between Rows	Row		
Asparagus	April		6 to 8	12 plants	2 to 3 yrs.	12 to 18	36 to 60	20	6 pounds	
Beans, Lima	May 20-Jun. 1		1 to 2	1/2 pound	65 to 90	3 to 4	18 to 24	50	4 pounds shelled	
Beans, Snap	Apr. 20-Jun. 30		1 to 2	1/8 pound	50 to 70	3 to 4	18 to 24	15	7 pounds	
Beets	Mar. 20-Apr. 20		1/2 to 1	1/4 ounce	60 to 80	2 to 3	18 to 24	25	25 pounds	
Broccoli	Mar. 20-Apr. 20, Jun. 20-30		(plants)	1/2 plants	55 to 75	18 to 24	30	25	10 pounds	
Brussels Sprouts	Apr. 1-20, Jun. 20-30		(plants)	15 plants	90 to 95	18 to 24	30	25	8 pounds	
Cabbage	Apr. 1-20, Jun. 20-30		(plants)	6 plants	65 to 100	18 to 24	24 to 30	12	6 heads	
Carrots	Apr. 1-10		1/2 to 1	1/2 pkt.	65 to 85	1 to 2	18 to 24	15	15 pounds	
Cauliflower	Apr. 1-20, Jun. 20-30		(plants)	5 plants	60 to 95	18 to 24	30	10	5 heads	
Celery	Apr. 1-20		1/2	1/6 pkt.	120	4 to 6	18 to 24	10	6 pounds	
Celery	Feb. 20-30, Apr. 20-30		(plants)	30 plants	100 to 125	4 to 8	18 to 24	15	30 stalks	
Chinese Cabbage	Jun. 20-Jul. 30		1/2	1/4 pkt.	60 to 80	12	24 to 30	10	12 heads	
Collards	Apr. 1-20		1/2	1/2 pkt.	75	6 to 8	18 to 24	25	20 pounds	
Cucumbers	May 20-Jun. 20		1 to 2	1/2 pkt.	50 to 70	12	48 to 72	10	6 pounds	
Eggplant	May 20-Jun. 1		(plants)	3 plants	70 to 80	24 to 30	24 to 30	6	12 fruits	
Endive	Mar. 20-Apr. 20		1/2	10 plants	80 to 100	8 to 12	12 to 18	6	10 heads	
Garlic	Mar. 20-Apr. 20		1 1/2	4 cloves	115	3	12 to 18	1	4 bulbs	
Kale	Jun. 20-Jul. 30		1/2 to 1	6 plants	55 to 60	8 to 15	18 to 24	6	6 heads	
Kohlrabi	Mar. 20-Apr. 20, Jun. 20-30		1 to 1 1/2	24 plants	55 to 65	4 to 8	18 to 24	12	24 stems	
Leeks	Mar. 20-Apr. 20		1/2	1 pkt.	130	2 to 3	12 to 18	15	30	
Letuce (head)	Mar. 20-Apr. 20, July		1/4 to 1/2	18 plants	70 to 85	8 to 15	18 to 24	10	15 heads	
Letuce (leaf)	Mar. 20-Apr. 30, July		1/4 to 1/2	1 pkt.	45 to 55	6	12 to 18	5	2 1/2 pounds	
Muskmelon	May 20-Jun. 1		1 to 2	1/2 pkt.	80 to 90	36 to 48	48 to 60	16	18 fruits	
Mustard	Apr. 20-May 20, August		1/2	1/4 pkt.	35 to 45	6 to 8	18 to 24	10	5 pounds	
Okra	May 20-Jun. 1		1/2	1/4 pkt.	50 to 60	12 to 15	24 to 30	8	5 pounds	
Onion (sets)	Mar. 20-Apr. 20		1 to 2	1/2 pound	90	2	12 to 18	10	5 pounds	
Onion (transplants)	Mar. 20-Apr. 20		(plants)	120	90 to 115	2 to 3	12 to 18	30	25 pounds	
Onion (seeds)	Mar. 20-Apr. 10		1/2	1 pkt.	105 to 130	2 to 3	12 to 18	30	25 pounds	
Parsnips	Apr. 1-20		1/2	1/2 pkt.	100 to 120	3 to 4	18 to 24	15	15 pounds	
Peas	Mar. 20-May 15		1 to 2	1 pound	55 to 70	2 to 3	12 to 18	100	28 pounds	
Peppers	May 20-Jun. 1, July 15		(plants)	6 plants	60 to 80	14 to 18	24 to 30	10	6 pounds	
Pop Corn	May 20-Jun. 1		2 to 2 1/2	1/5 pkt.	90 to 120	10 to 12	30 to 36	25—2 rows	1 peck	
Potatoes	Apr. 20-Jun. 1		4	5 pounds	100 to 120	10 to 12	24 to 36	50	50 pounds	
Potatoes, Sweet	May 20-Jun. 1		(plants)	25 plants	150	12 to 18	36	25	10 pounds	
Pumpkins	May 20-Jun. 1		1/2	1/5 pkt.	100 to 120	36 to 48	60 to 96	3 hills	30 pounds	
Radishes	Mar. 20-Apr. 20, July		1/2	1 pkt.	25 to 30	1 to 2	6 to 12	12	8 pounds	
Rhubarb	Mar. 20-Apr. 30		(plants)	3 plants	1 to 2 yrs.	36 to 48	48	9	8 pounds	
Rutabaga	Jun. 1-20		1/2	1/2 pkt.	90 to 95	4 to 6	18 to 24	15	15 pounds	
Salsify	Apr. 1-20		1/2	1/5 pkt.	120	3 to 6	18 to 24	5	15 pounds	
Spinach	Mar. 20-Apr. 20, July		1/4 to 1/2	1/6 ounce	40 to 50	3 to 6	12 to 18	10	5 pounds	
Squash (Summer)	May 20-Jun. 1		1 to 1 1/2	1/2 pkt.	45 to 60	36 to 48	36 to 48	2 hills	24 fruits	
Squash (Winter)	May 20-Jun. 1		1 to 1 1/2	1 pkt.	85 to 110	48 to 60	60 to 72	4 hills	10 fruits	
Sweet Corn	Apr. 20-July 1		2 to 2 1/2	1/4 pound	65 to 95	10 to 12	30 to 36	25—2 rows	40 ears	
Swiss Chard	Apr. 1-20		1/2	1/4 pkt.	50 to 60	6 to 8	18 to 24	8	7 pounds	
Tomatoes	May 20-Jun. 1		(plants)	10 plants	60 to 90	24 to 36	36 to 48	40	3 bushel	
Turnips	July		1 to 1 1/2	1/6 pkt.	40 to 60	4 to 6	18 to 24	20	20 pounds	
Watermelons	May 20-Jun. 1		1 to 2	1/2 pkt.	85 to 95	72 to 96	72 to 96	2 hills	4 melons	

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