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EC1274 Revised 1959 Garden Vegetables

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E.C. 1274-59 REVISED

garden vegetables



EXTENSION SERVICE

UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
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TABLE OF CONTENTS

Introduction	•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	3
Soil Preparation																		3
Soil Fertility																		3
Recommended Variet	ie	s																5
Controlling Diseases																		8
Insect Control																		9
Planting Table			•															13
Plan Your Garden .																		14

GARDEN VEGETABLES

Wayne Whitney, Clinton Hoover, Bob Roselle and John Weihing $\frac{1}{2}$

A good garden is the result of careful planning and much work. The garden should be of a size that can be cared for properly. You can have more vegetables from 100 square feet of garden that is given good care, than from several hundred square feet of garden that is neglected. A well planned garden of adequate size results in benefits that can be enjoyed throughout the year. It is desirable to locate a small garden near the house, where spare time can be used in its care. If the garden is near the house it is also easier for the housewife to procure fresh vegetables for each meal.

In planning the garden, include only those vegetables the family will use, and plant only enough of a given kind to satisfy the family needs. Where the space is very limited you should grow those vegetables that produce the greatest nutritional value for the space used. These include carrots, potatoes, onions, beets, broccoli, cabbage, winter squash, turnips, spinach, snap beans, tomatoes, radishes and lettuce. Some space can be conserved by trellising vine crops, by pruning and staking tomatoes, and by planting rows closer together where additional water and fertilizer can be applied. It is desirable to grow those vegetables that are usually more expensive on the local market.

SOIL PREPARATION

The garden should be plowed 6 to 8 inches deep if the soil is heavy; a depth of 5 to 6 inches will do if the soil is sandy. The plowing should be done late in the fall just before hard freezes generally occur. In this way cutworms and other insects are brought to the surface, exposed to natural enemies, and killed by cold weather. The surface of the soil is left rough to catch snow and to increase the mellowing effect of freezing and thawing. Where the soil is sandy and likely to blow the plowing should be delayed until early spring unless steps are taken to prevent wind erosion. These might consist of a windbreak on the north and east or a light top-dressing of manure following plowing.

SOIL FERTILITY

Vegetable crops require good soil fertility as well as good tilth. A low state of fertility results in slow growth and stunted plants. Unless the soil is quite fertile, manure or suitable commercial fertilizers should be applied each year.

USE OF MANURE

Barnyard manure is the best garden fertilizer for use on most soils, except where the land is already oversupplied with organic matter. An application of 100 to 200 pounds of well rotted barnyard manure per

1/ Extension Horticulturist, Assistant Extension Agronomist, Assistant Extension Entomologist, and Extension Plant Pathologist, respectively.

square rod (8 to 16 tons per acre) per year is recommended, or about half this amount of chicken manure or sheep manure. The time of applying the manure will vary, but as a rule it should be spread in fall or winter. The manure will increase the supply of available nitrogen, phosphorus, and other necessary elements in the soil, add to the waterholding capacity, and improve the physical condition of the soil. Excessive use of manure should be avoided.

USE OF COMMERCIAL FERTILIZERS

On gardens where no manure has been used or where the manure is of low quality, commercial fertilizers are recommended.

Phosphate fertilizers. Where manure has been used regularly there will be adequate phosphate in most soils for the garden crops. Where no manure has been used, the soil may be low in phosphate. On phosphate-deficient soils the following rates of phosphate are suggested.

Phosphate fertilizer	Per cent of available phosphate	Lbs. per sq. rod
Superphosphate	20	4 - 6
Double or treble superphosphate	45	2 - 3

Nitrogen fertilizers. Nitrogen fertilizer should be applied each year on gardens where little or no manure is used and in addition to the manure on tomatoes, cabbage, onions, sweet corn and lettuce. The amount of a particular nitrogen fertilizer to apply will depend upon the percentage of nitrogen in the fertilizer.

	Pounds recommended per square						
Nitrogen fertilizer	In addition to the manure	Where no manure has been applied					
30% to 40% nitrogen Urea (Uramon, Nugreen)	p-dressing of mast						
Ammonium nitrate	of Bea budg stroogs	1 to 2					
20% to 30% nitrogen Ammonium sulfate Calnitro, ammonium sulfate-							
nitrate	1 to 2	2 to 3					
10% to 20% nitrogen	selvent and adjust	Darwerd manage					
Sodium nitrate	2 to 3	3 to 4					

Mixed fertilizers. Where both nitrogen and phosphate are needed, a mixed fertilizer may be used instead of the straight materials. The first number in the fertilizer formula indicates the percentage of nitrogen, the second the percentage of available phosphate, and the third the percentage of water-soluble potash. For example, a 10-20-10 mixed fertilizer would contain 10 per cent nitrogen, 20 per cent available phosphate, and 10 per cent water-soluble potash.

Rate of application for some of the more common mixed fertilizers:

Mixed fertilizer formula	Lbs. per square rod
16-20-0	2 - 3
10-20-0, 10-10-5, 9-7-4	4 - 6
6-2-0, 6-10-0, 6-9-7	6 - 8
4-16-0, 5-10-5	8 - 10
4- 4-4	10 - 12

Method of application. The nitrogen and phosphate fertilizers are best applied in the spring just prior to planting the garden. The fertilizer should be broadcast evenly on the surface and worked into the soil. If manure is used, the nitrogen on tomatoes, cabbage, and sweet corn may be applied as a side-dressing after these plants are up. In this case the nitrogen should be placed in a band about 4 to 8 inches away from the plants and 2 inches deep. If no manure is used, some of the nitrogen fertilizer may be applied before planting the vegetable crop, and the remainder after the plants are up. Too much nitrogen at planting will result in excessive top growth of potatoes and tomatoes.

ACID SOILS

Gardens, particularly in eastern Nebraska, may be acid in reaction and need lime for the most successful growth of vegetable crops. The only way to find out whether lime is needed is to have your soil tested. Some soils already contain an excess of lime and the application of more lime would be harmful. Send soil samples to the Soil Testing Service at the College of Agriculture, There is a charge of \$1.50 per sample for testing. More information on soil testing and soil cartons may be obtained at your county agent's office.

Limy or alkaline soils are usually very deficient in available phosphate. A commercial fertilizer should be used each year on these soils. Iron deficiency may also occur on alkaline soils, resulting in yellow chlorotic plants, particularly in strawberries and tomatoes. Chlorosis can be corrected by spraying the plants with a dilute solution (1 level teaspoon in a gallon of water) of ferrous sulfate (copperas).

RECOMMENDED VARIETIES FOR NEBRASKA

Following is a list of the varieties of vegetables found to be the most satisfactory over the state.

Other varieties have done well in some localities, so if you have one that has been satisfactory, continue to use it. Perhaps some of the suggested varieties would be superior to your local varieties, and hence should be included for trial in future plantings.

ASPARAGUS

*Mary Washington
*Paradise

*Washington 500

BEANS

(Bush-green)
*Contender
**Top Crop
*Logan
*Wade

(Bush-wax)

*Pencil Pod Blackwax

*Cherokee *Top Notch

(Pole-green)
*Improved Kentucky Wonder
*Blue Lake

(Horticultural Shell) Red Shellout Shelleasy

LIMA BEANS

*Peerless Bush Lima *Henderson Bush Lima *Jackson Wonder

BEETS

*Detroit Dark Red *Baby Canning

BROCCOLI

*Green Mountain *Waltham 29 *Jealousy

CABBAGE

Viking - early
Marion Market (yellowsresistant)
Golden Acre - early
Copenhagen Market
Flat Dutch
Chieftain Savoy

CHINESE CABBAGE

Chihili Michihili

CARROTS

French Forcing (early) Chantenay Nantes Golden Pak

CAULIFLOWER

*Snow Ball *Snow Cap

CHARD

*Lucullus

CUCUMBERS

(Pickling)
Mosaic Resist #17
Chicago Pickling
National Pickling
(Slicing)
Burpee's Hybrid
Sure Crop Hybrid
Marketeer

EGGPLANT

*Ft. Meyers Market *Black Beauty *New Hampshire

KOHLRABI

White Vienna Purple Vienna

LETTUCE

(Leaf)
Early Curled Simpson
Prizehead
Bibb
Salad Bowl

(Head)
Penn Lake
Premier Great Lakes
Cosberg

MUSKMELONS

Honey Rock Iroquois Early Sunrise Hearts of Gold Granite State Delicious 51

SQUASH & PUMPKINS

(Winter)

*Table Queen

*Buttercup *Butternut

*Hubbard *Sweetmeat

*Delicata

(Summer)

Carsetta

Yankee Hybrid

Black Zuchinni Hybrid

Early Prolific Straightneck

SWEET CORN (arranged by season)

*Golden Cross Bantam

*Golden Bantam

*Golden Bounty

*Tendermost

*IoChief

*Ioana

POPCORN

K4

Purdue 31

Purdue 32

SWEET POTATOES

Kandee

Ranger

Orange Little Stem

Nancy Gold

Nema Gold

Lakan

TOMATOES

Early Wonder Red Cloud (early)

Sioux (midseason)

Hybrids (X)

Rutgers (very late)

WATERMELONS

Early Kansas

Black Diamond

Hybrids (X)

Dixie Queen

Winter Queen

Charleston Grey (wilt

resistant)

(Midget Type)

Sugar Baby

New Hampshire Midget

ONIONS

Utah Sweet Spanish

Early Grano

Pilot Hybrid

Autumn Glory Hybrid

PARSNIPS

Hollow Crown

PEAS

Alaska

*Little Marvel

*Thomas Laxton

*Laxton's Progress

*Frezonia

PEPPERS

Merrimack Wonder

Ruby King

Yolo Wonder

Morgold

POTATOES

(Eastern Nebraska)

White

White Cloud

Irish Cobbler

Red

Red Warba

Dazoc

(Western Nebraska)

White

Haig (scab resistant)

Red

Progress

Redbake

Red Lasoda

Excel

RADISHES

Cherry Belle

French Breakfast

RUTABAGAS

American Purple Top

SPINACH

*New Zealand

America

Viking

Northand

- (X) Some hybrids may be very well adapted for Nebraska conditions. Because of the lack of adequate tests, it is not possible to recommend hybrid varieties for your specific locality.
 - * Varieties that freeze well

CONTROLLING GARDEN DISEASES

Plant diseases are caused by many different micro-organisms. Therefore, no one measure will control all plant diseases. Following are practices which will help minimize disease losses in the garden.

Cultural Practices. Our best method for combating garden diseases is through good cultural practices.

- Plant disease-free seed. Obtain the seed from reliable seed concerns.
- 2. Plant those varieties known to be resistant to some of the common diseases, as for example, wilt-resistant tomatoes and watermelons and mosaic-resistant beans.
- 3. Rotate the different vegetables by groups (carrots, beets, radishes, etc.) (Cauliflower, cabbage, lettuce, etc.) (Cucumbers, watermelons, muskmelons, etc.) -within the garden area each year. If possible rotate the garden area itself. This will aid in controlling those diseases carried over winter in the decaying plant parts.
- Garden soil should be well drained. This will help control root rot diseases.
- 5. Thin seedlings to proper spacing while they are small. This allows proper airing and will help reduce leaf-spot diseases.
- 6. Destroy weeds. Weeds sometimes may be overwintering hosts of the common garden diseases.
 - Keep the vegetables well watered and fertilized so that they grow vigorously. A weak plant is more susceptible to disease than a healthy one.

Seed Treatment. Treat all vegetable seed. This practice will materially assist in giving a better stand and more vigorous seedlings.

Dusting or Spraying. Spraying is much superior over dusting for the control of plant diseases. The chemicals used for disease control (called fungicides) are protective agents and are not curative. It is necessary that the plants have a complete surface coating of the fungicide. If the coating is incomplete the microscopic disease organisms will be able to produce infection in the unprotected areas.

A wetting agent such as household detergent should always be added to the spray solution. Otherwise the solution tends to run off the plants as droplets and surface coverage is not obtained. Add enough detergent so that when the solution hits the plant it spreads instead of stands in droplets.

Several good garden fungicides are Captan, Zineb, Maneb, and Copper containing materials. Sulfur is good for control of rust and mildew diseases.

Control the insects. Some insects are disease carriers. For example, cucumber wilt is carried by the cucumber beetle and the control of this disease is the control of the beetle. Most of the virus diseases are spread by various aphids, leafhoppers, and thrips. Therefore, insect control is an integral part of general disease control of the garden.

Soil Fumigation. Some garden soils become infested with a parasitic nematode which is capable of attacking a large number of different kinds of plants. If this occurs it will be necessary to fumigate with a nematicide such as methyl bromide, D-D, or nemagon in order to restore the soil for immediate general garden use. Growing a nonsusceptible crop for a number of years would perhaps alleviate the nematode problem, but this practice is not particularly appreciated since garden sites are not always movable, especially in the city.

INSECT CONTROL

EQUIPMENT

Many insects and mites live and feed mainly on the underside of leaves. To be most effective, insecticides must be applied with equipment that will cover the under as well as the upper surface of the foliage. Dusting is increasingly popular because it is much quicker and easier than spraying and about as effective.

Dusters. The best duster for the average home garden is an all-metal, plunger type of hand duster of 1- or, preferably, 2-quart capacity.

If a duster is not available, a cloth bag serves fairly well as a substitute in small gardens. A small bag or a foot-square piece of old sugar-or flour-sack cloth or some similar material is suitable. A double thickness of cheesecloth is also satisfactory. The bag duster is shaken over the plant for uppersurface dusting and is swished back and forth through the foliage of plants such as beans to coat the under surface. Shaker-top cans are inefficient and wasteful.

Sprayers. The best type of sprayer for the average-sized garden is a compressed air sprayer, equipped with an extension rod and angle nozzle for spraying the undersurface of the foliage. Sprayers of 2- to 3-gallon capacity are the most practical. Fair results in small gardens can be obtained with the type of hand sprayer that gives a continuous spray and that has a two-way, or adjustable, nozzle to direct the spray upward. This requires working in a stooped position. These sprayers hold from 1 to 3 quarts. The small, single-action atomizer type of hand sprayers, such as those used for fly sprays, are unsatisfactory.

VEGETABLE INSECTS

	INSECT :	INSECTICIDE & FORMULATION	: AMOUNT PER 1 GALLON OF WATER	: REMARKS
		Malathion, 50% EC Malathion, 4% dust Rotenone, 0.75% dust	: : 2 teaspoons : Apply as dust : Apply as dust	: : Do not eat green beans for 7 days. : " " " " " " " " " " " " " " " " " " "
		Nicotine sulfate, 40%	: 2 teaspoons + small handful of soap (not	detergent) powder.
	Bean leaf beetles	Methoxychlor, 5% dust Methoxychlor, 50% WP Rotenone, 0.75% dust	: Apply as dust : 3 tablespoons : Apply as dust	Do not use snap beans for 7 days.
	Leafhoppers	DDT, 10% dust Rotenone, 0.75% dust		Do not use DDT after pods form. Use rotenone after pods form.
	Grasshoppers	Chlordane, 45% EC Methoxychlor, 50% WP Prepared poisoned baits		Treat only the margins, do not apply to edible plants.
10	Mexican bean : beetle :	Same as for bean leaf beetles.		
	Ped spider mites :	Malathion, 50% EC Armate, Dimite & Ovatron		Spray undersides of leaves. Spray undersides of leaves.
		DDT, 10% dust Rotenone, 0.75% dust Malathion, 4% dust.		
	CABBAGE CAULI-:			
		Methoxychlor, 5% dust Rotenone, 0.75% dust	: Apply as dust : Apply as dust	Use rotenone after heads form.
	Cabbage worms	Same as for flea beetles		
	Cutworms	Chlordane 5% dust DDT, 5% dust		Use cardboard collars to protect young plants.
		Methoxychlor, 5% dust. Methoxychlor, 25% EC	: Apply as dust : 2 tablespoons.	

INSECTS	: INSECTICIDE & FORMULATION	: AMOUNT PER 1 GALLON OF WATER	: REMARKS
CUCURBITS			
Aphids	Malathion, 50% EC: Malathion, 4% dust: Rotenone, 0.75% dust: Nicotine, 40%	: 2 teaspoons : Apply as dust : Apply as dust : 2 teaspoons	: Apply to undersides of leaves. : Do not apply malathion dust when : vines are wet.
		:	: Add soap powder to nicotine sulfate.
	: Methoxychlor, 5% dust : Methoxychlor, 50% WP : Rotenone, 0.75% dust	: Apply as dust : 2 tablespoons : Apply as dust	Begin treatment when plants first come through soil, repeat every week.
Squashvine borer	Same as for cucumber beetles.	Freat weekly at base of plants during July	: Burn all dying vines.
THE RESIDENCE OF	Methoxychlor, 5% dust Methoxychlor, 50% WP Malathion, 4% dust	: 4 tablespoons	: Cover plants thoroughly with dust. :Trap adult bugs under boards. Pick :eggs from leaves.
POTATOES (Garden)	Designation, 15 and		to his organizations -
Colorado potato	DDT, 5% dust DDT, 50% WP	: Apply as dust : 3 tablespoons	Total Assessment from better man
	Methoxychlor, 5% dust Methoxychlor, 50% WP	: Apply as dust : 3 tablespoons	Post ben folia ming
Blister beetles	Same as Colorado potato beetle.		the charmond notice his sweet
Aphids, flea beetles	DDT, 5% dust	: Apply as dust	M-1-41
leafhoppers, plant : bugs & psyllids. :	DDT, 50% WP		Malathion sprays or dusts may be used for aphids in home gardens.
Sow bugs, wire- worms, cutworms.	Chlordane, 5% dust	: 5 - 10 pounds per 1000 square : feet of garden area.	: : : Apply before planting and rake or
SPINACH & BEETS			spade into soil.
	Malathion 4% dust Malathion 50% EC Rotenone, 0.75% dust.	: Apply as dust : 2 teaspoons : Apply as dust	Do not dust or spray within 10 days of harvest
	Rotenone, 0.75% dust.	: Apply as dust	
Webworms	Same as for Aphids.		

I	NSECTS	INSECTICIDE & FORMULATION	: AMOUNT PER 1 GALLON OF WATER	: REMARKS
Г	OMATOES Aphids	Same as cucurbits	I reconside i strett mindre strette (Armedy between standards and rather ev-
		: :Methoxychlor, 5% dust :Methoxychlor, 50% WP	: Use as dust : 3 tablespoons :	: Do not apply within 7 days of :harvest or wash fruit before :using.
		: : Chlordane, 5% dust : DDT, 5% dust :		: Apply to soil surface around plants. : Use cardboard collar for small : plants.
		DDT, 5% dust Methoxychlor, 5% dust		: Wash fruit before using.
12		: Methoxychlor, 50% WP : Methoxychlor, 5% dust	: 3 tablespoons	: Apply weekly, wash fruit before using. : Apply early in morning.
	Tomato hornworms	: Same as for fruit worms		Talking and the public or think to produce the facility
		: : DDT, 5% dust : Methoxychlor, 5% dust : Rotenone, 0.75% dust	est weekly et dest of plants aspired, Ant Apply on that	Stern 4th dynag where. Cover plants there gain 4 th mer.
(CARROTS	Statement of the state of the s	military and transfer	Language or complete down to take our or out his
	Carrot weevil	DDT, 5% dust or 10% dust	: 1 lb. to 100 feet of row.	: First application when carrots are : about 1" tall. Repeat every 10 days
	Caterpillars	: Methoxychlor, 5% dust	: Apply as dust	: for 3 applications.
		Bullion of This state	Application design	An experimental service of the control of the contr

PLANTING TABLE FOR THE VEGETABLE GARDEN

Kind of vegetable	Feet of row	Distance apart in row	Depth of planting	Amount of seed *
Asparagus	150	2 ft.	5-6 in.	75 roots
Beans—greenpod	100	3 in.	1-3 in.	1 lb.
Beans—wax	150	3 in.	1-3 in.	1½ lb.
Beets	150	4-5 in.	$\frac{1}{2}-1\frac{1}{2}$ in.	1½ oz.
Cabbage early	50	18 in.	½ in.	1 pkt.
Cabbage midseason	50	18 in.	½ in.	1 pkt.
Cabbage late	150	2 ft.	½ in.	1 pkt.
Carrots early	75	3-4 in.	$\frac{1}{2} - \frac{3}{4}$ in.	1/4 oz.
Carrots late	75	4-6 in.	$\frac{1}{2} - \frac{3}{4}$ in.	1/4 oz.
Cauliflower	50	18 in.	3/4 in.	l pkt.
Celery	150	6 in.	1/4 in.	½ oz.
Cucumbers	38	5 ft.	1-2 in.	l pkt.
Eggplant	75	18 in.	½ in.	l pkt.
Horse radish	19	18 in.	4-6 in.	10 roots
Kohlrabi	150	4-6 in.	½-1 in.	1/8 OZ.
Lettuce	75	6 in.	$\frac{1}{2} - \frac{3}{4}$ in.	½ oz.
Muskmelon	50	5–7 ft.	½ in.	1 pkt.
Onions early (seed)	150	3 in.	2-3 in.	3 lbs. sets
Onions late	150	3 in.	½ in.	1½ oz.
Parsley	10	3-6 in.	1/4 in.	1 pkt.
Parsnips	75	6 in.	½-1 in.	½ oz.
Peas, early	75	1-2 in.	1-3 in.	½ 02. ¾ lb.
Peas, medium	75	1-2 in.	1-3 in.	3/4 lb.
Peas, late	150	1-2 in.	1-3 in.	1½ lb.
The state of the s	38	18 in.	1-3 III. ½ in.	1 pkt.
Peppers	150	8-15 in.	3–4 in.	15 lbs.
Potatoes, early	75	2-3 in.	3-4 in.	3/4 OZ.
Radishes	102	2-3 in. 2 ft.	5-6 in.	50 roots
Rhubarb	65	4-6 in.	3-6 in. ½-1 in.	24
Salsify	150	The second second		
Spinach		6 in.	1-1½ in.	1 1 2
Squash, summer	50	10 ft.	1-2 in. 1-2 in.	
Squash, winter	50	10 ft.		½ oz. 2 lbs.
Sweet corn (drilled)	900	8–12 in.	1-2 in.	
Swiss chard	50	6-12 in.	$\frac{1}{2}-1\frac{1}{2}$ in.	2 pkt.
Tomatoes	150	4-5 ft.	1/4 in.	l pkt.
Turnips	200	4-6 in.	$\frac{1}{2} - \frac{3}{4}$ in.	21/4 oz.

^{*} These seed quantities, except with potatoes, onion sets and perennial crops, are somewhat excessive when soil conditions are ideal and the seed germinates well.

14

PLAN FOR VEGETABLE GARDEN-100x150 Ft.

Permanent vegetables	Asparagus	
vegetables	Herbs Rhubarb Horse radish Winter onions	
	Parsley Salsify Parsnips	
Plant	Lettuce	
April 1-15	Carrots Beets with	
	Turnips Kohlrabi bean	
	Early cauliflower Early cabbage Swiss Chard	
	Early peas Late peas	
	Early potatoes	
	Onions (field-sown or sets)	21272
	Onions	
	Late cabbage	
	Peas	
Plant	Beets Carrots Kohlrabi	
May 1-15	Sweet corn	
	Sweet corn	ELEVALE.
	Tomatoes	
Transplant	Eggplant	
May 15-31		
Plant July	Turnips	
15-Aug. 1		• • •
		• • • •
Plant	Sweet corn	
June 15		
,	Sweet corn	
	Sweet corn	
	Summer squash	



GARDEN VEGETABLES