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4-H

GARDEN CLUB MANUAL

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4-H Garden Club Manual

by

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Select A Good Location

The factors to consider in selecting a location for the garden are soil fertility, moisture condition, convenience, and protection.

A rich sandy loam type of soil is best suited to the home garden. It is essential that the soil be well drained, of good depth, and well supplied with decayed organic matter. Good growing conditions are necessary for high quality vegetables.

A garden that is conveniently located is likely to receive better care than one that is some distance from the house.

The location that is protected from drying winds is more valuable than one fully exposed, other factors being equal.

A Plan Saves Labor

A well thought out garden plan will save time and labor when planting season arrives. The value of a plan depends upon its accuracy. To make an accurate plan it will be necessary to measure the length and width of the garden, in feet, and draw an outline of the garden on paper. The outline should be drawn to scale by allowing a fraction of an inch to represent 1 foot of garden measurement.

The next step is to make a list of all the varieties of vegetables to be grown and estimate the amount of each to be planted. Table 1 was designed to help in determining the amount of space to allot to each kind of vegetables and the quantity of seed needed.

After having decided upon the kinds of vegetables and the amount of each to be planted, the outline map can be filled in with lines and the lines labeled to represent the number of rows of each kind of vegetables to be grown.

TABLE 1—PLANTING ... AND YIELDS

Crop	Varieties	Days to Maturity	Seeds or plants required per 100 ft. of row	Depth to plant seed (inches)	Spacing of Plants: In row (inches)	Spacing of Plants: Between rows (inches)	Approx. yield per 100 feet of row
SNAP BEANS (Bush)	Stringless green pod	50					
	Tender green	51					
	Pencil pod wax	55	½ lbs.	1	3–4	18–24	50 lbs.
SNAP BEANS (Pole)	Oregon Giant	71	½ lbs.	1	36 hills 12 drill	36	60 lbs.
BEETS	Detroit Dark Red	68	1 oz.	1	1–3	12–18	100 lbs.
BROCCOLI	Calabrese	70	1 pkt. seed or 50 plants	½	24	30	50–100 lbs.
CABBAGE (Early)	Golden Acre	64					
	Copenhagen Market	69	65-80 plants	....	15–18	30	150 lbs.
CABBAGE (Late)	Danish Ball Head	104					
	Penn State Ball Head	105	50 plants	....	24	30	150–200 lbs.
CARROTS	Chantenay, Red Core	72					
	Nantes Half Long	70	½ oz.	¼	1–3	15–18	100 lbs.
CAULIFLOWER	Snowball	55	65	....	18	30	50 heads
SWISS CHARD	Lucullus	50					
	Fordbrook	55	1 oz.	½	6	24	100 lbs.
SWEET CORN	Marcross	72					
	Golden Bantam	80	¼ lb.	1–2	12	36	100–150 ears
CUCUMBERS	Early Fortune (slicing	64					
	Davis Perfect (slicing)	65					
	Chicago Pickling	58	½ oz.	½	48	48	50–75 lbs.
EGG PLANT	Black Beauty	80	66 plants	....	18	24	125 fruits
ENDIVE	Green Curled	65	½ oz.	½	6–10	18	50 lbs.
KOHLRABI	White Vienna	55	½ oz.	½	4–6	18	75 lbs.
LEAF LETTUCE	Grand Rapids	45					
	Black-seeded Simpson	45	¼ oz.	½	3–6	12–18	40 lbs.
MUSTARD GREENS	Tendergreen	45	1 oz.	½	2–4	12–18	40 lbs.
ONION, SETS	Yellow Globe	50–98	2 qts.	....	2–3	12–18	50–75 lbs.
ONION, SEED	Yellow Globe	98	½ oz.	½	3	12–18	75 lbs.
ONION, TRANSPLANT	Sweet Spanish	110	400 plants	....	4	12–18	100 lbs.
PARSNIPS	Hollow Crown	90	½ oz.	½	3–4	18	75–100 lbs.
PEAS	Thomas Lipton (wrinkled)	62					
	Laxton's Progress (wrinkled)	62					
	Perfection (wrinkled)	70					
	Alaska (smooth)	57	1 lb.	1	2	24	20 lbs.
PEPPERS	California Wonder	75	80 plants	....	15	18–24	150 fruits
PUMPKIN	Small Sugar	108	1 oz.	1	72	72	50–75 fruits
RADISH	Early Scarlet Globe	23					
	Crimson Giant	28					
	White Icicle	27	1 oz.	½	½	12	100 bunches
POTATOES	Bliss Triumph	80–120					
	Netted Gem	115–140	10 lbs.	3–4	12–18	38–42	2 bu.
RUTABAGA	American Purple Top	90	¼ oz.	½	6	18	100 lbs.
SPINACH	Bloomsdale Long Standing	42	1 oz.	½	3–4	12–18	50 lbs.
SQUASH (Summer)	Zucchini	60	1 oz.	1	48	48	100 fruits
SQUASH (Winter)	Green Hubbard	105					
	Buttercup	100	1 oz.	1	72	72	50 fruits
TOMATOES	Harkness	65					
	Bonney Best	73					
	John Baer	75					
	Bounty	65	35–50 plants	....	24–48	36–48	150 lbs.

1. _____ Spinach (Follow with turnips) _____
2. _____ Leaf Lettuce, 20 ft._____: *Radishes, early variety, 20 ft._____
3. _____*Radishes, later planting, 20 ft.:_____ Onions, sets or transplants_____
4. _____ Onions, transplants or seed _____
5. _____ Peas, early variety _____
6. _____ Peas, later variety _____
7. _____ Beets _____
8. _____ Carrots _____
9. _____ Snap beans _____
10. _____ Peppers _____: Swiss chard _____
11. _____ Cucumbers _____
12. _____ Early cabbage _____: Cauliflower _____
13. _____ Late cabbage _____: Broccoli _____
14. _____ Tomatoes _____
15. _____ Early sweet corn: Late sweet corn: Squash or Pumpkin _____
16. _____ Early sweet corn: Late sweet corn _____
17. _____ Early sweet corn: Late sweet corn _____
18. _____ Early sweet corn: Late sweet corn _____
19. _____ Early sweet corn: Late sweet corn _____
20. _____ Potatoes _____

FIG. 1.—Suggestion for arrangement of vegetables in garden 40 ft. by 50 ft. *Note: Radishes may be followed with mustard greens or a fall crop of spinach.

Prepare Seed Bed Carefully

Most garden crops, especially the root crops, require a deep mellow seed bed. Heavy soils plowed in late fall receive greater benefit from freezing action during the winter than when left unplowed. Fall plowing disturbs the winter quarters of those insects that burrow into the soil and many of them will be destroyed. Land turned over in the fall should be left rough over winter. Soil subject to blowing should not be fall plowed.

It is generally advisable to replow the garden in the spring. Light sandy loam soils on dry land farms may be prepared by thoroughly disking in place of plowing.

Immediately after spring plowing and before the surface has a chance to dry, the soil should be firmed by disking and harrow-

ing. The disk is an excellent implement to pulverize and firm the soil below the surface. The spike-tooth harrow is useful for pulverizing and leveling the surface, and the plank drag serves to smooth and firm the surface. Too much emphasis cannot be placed on a thorough preparation of the seed bed for vegetables.

Of all the suggestions that could be made as to what to do and what not to do regarding the preparation of the seed bed, the most important one to observe is not to work the soil when it is too wet. To determine when the soil is dry enough to work take a handful and squeeze it into a ball. If the ball of dirt can be crumbled easily the soil is dry enough to work.

A Fertile Soil Is Necessary

Garden soils are improved by annual applications of partly rotted manure. Fresh manure that contains a considerable amount of straw or coarse material is not desirable for the garden. Manure that is partly decayed and fairly free from coarse material is preferable. The best time to apply manure is just before plowing in the fall. It may be applied at the rate of 25 to 30 loads per acre on irrigated gardens; 12 to 15 loads per acre will be sufficient on dry land gardens. Lighter applications of well rotted manure may be made just before spring plowing. If manure from the poultry house is used it must be applied sparingly.

Manure adds plant food and humus to the soil. Humus improves the physical condition of soils. It makes heavy soils more mellow and increases the moisture holding capacity of all soils. Soils that are high in humus do not pack so hard or bake so readily as soils without humus.

Soils that are deficient in certain plant food elements will be benefited by commercial fertilizers carrying those elements. Heavy applications of manure will generally supply a sufficient amount of nitrogen to most soils. A deficiency of phosphates exists in some sections of Montana. Deficiencies are determined by field tests and by laboratory analysis. Increased yields of sugar beets resulting from the use of phosphates indicate that most crops will be benefited by applications of this fertilizer in those sections. Treble super acid phosphate may be applied where needed at the rate of 150 to 250 pounds per acre.

Plant At The Right Time

A definite planting date cannot be set that is applicable to all parts of the state. One should be guided by soil and weather conditions. Some vegetables may be seeded as soon as the ground can be prepared in the spring, others require a warm soil for germination.

It is essential that the seed bed be finely pulverized, mellow, and in a moist condition for best results. The seed in order to germinate must come in intimate contact with moist soil. A light roller or packer run over the row immediately after covering the seed usually improves the chances for a quick and even germination of seed. Garden drills are equipped with packers.

For hand seeding, trenches can be opened with a small hoe, using a garden line as a guide. After opening the trench the seed should be sown and covered as quickly as possible to prevent the soil from drying.

The depth to plant depends upon the character of the soil, moisture condition, and the kind of seed (see planting table).

With small seeds, like radish, turnip, carrot, and lettuce, it is advisable to plant at the rate of 3 to 4 seeds to the inch. Beans, peas and corn should be seeded so that thinning is unnecessary. Vine crops may be planted in hills, 10 to 12 seeds to the hill. Cover 1 inch deep. After they have made a good start, thin to 3 plants per hill.

Use Water When Transplanting

It is better to do the transplanting on cloudy days or in the evening if possible. Plants that are to be lifted from the hotbed should be thoroughly watered a few hours before moving. When lifting them from the seed bed, handle carefully so that as much soil as possible will adhere to the roots. Firm the soil well but not too hard about the roots in the process of transplanting. Leave a small depression at the surface of the soil for water. Give each plant a cupful of water, and after that has soaked away level off with loose soil. Sometimes it becomes necessary to shade newly transplanted plants. This can be accomplished in different ways. One method is to stick a broad shingle up on the southwest of each plant.

Hotbeds Lengthen Season

The growing season in Montana is too short for some vegetables to be grown from seed planted directly in the garden. Such plants must either be purchased or grown to the proper size for transplanting under glass or started in boxes in the house. The manure-heated pit hotbed is commonly used for this purpose on the farm.

The manure-heated pit hotbed is made by digging a pit 30 inches deep and whatever width and length are needed to fit the sash to be used. The frame may be constructed out of 1- or 2-inch lumber and should be 18 inches high at the back and 12 inches in front.

Fresh horse manure containing straw about equal to a third its total bulk is used to fill the pit to a depth of 24 to 26 inches. It is essential that the manure be firmly packed in the process of filling. Manure for this purpose should be placed in a pile about ten days prior to filling the pit. Turning the manure a couple of times will insure a more uniform fermentation and even heat.

After the pit has been filled with manure to the desired depth the frame is put in place and 6 inches of good garden loam or compost soil is placed on the top of the manure. The frame should be well banked with manure to help hold the heat. The sash is put in place and the bed allowed to stand until the temperature has reached its highest point and receded to about 85° F. before sowing the seed. The time to start the hotbed depends upon the locality. Usually 8 to 10 weeks are required for seedlings to reach the proper size for transplanting to the garden.

It is essential that careful attention be paid to ventilation and watering. The amount of ventilation needed depends upon outside weather condition. It is preferable that water be applied in the morning.

Cultivate To Kill Weeds

Weed control is the most important function of cultivation. Weeds are most easily destroyed just as they are breaking through the soil. Shallow working of the soil is effective while they are small. Weeds rob the growing crop of both moisture and plant food. Timely cultivation checks the loss of plant food and moisture.

Cultivate as often as is necessary to keep down weed growth. There is no need for working the soil in the absence of weeds and when there is a good soil mulch established. Gardens should be cultivated as soon as the ground is dry enough to work after each heavy rain or after irrigating. Shallow cultivation should be practiced so as to avoid injuring the roots of vegetable crops.

Water to Keep Plants Growing

Well water that does not contain too much alkali can be used for this purpose. The common way to use well water is to pump it into a tank or reservoir and then apply it in shallow drills alongside each row. Some 4-H club members are installing sub-irrigating systems. 4-H club members should see their county extension agent for instructions on installing sub-irrigation systems.

Plants grow best when the moisture is kept at a point where the soil is in good workable condition. Irrigate as often as necessary to keep it in that condition.

The moisture situation can be very materially improved on dry land gardens by putting up snow fences in the late fall. Any kind of an obstruction that will start snow piling up is helpful. Old boards, brush, and ricks of manure may be used if regular snow fence material is not available. Even farm machinery that is left outside over winter can be put to work by placing it on the north and west side of the garden. Two or three rows of caragana and Russian olive trees planted so as to enclose the garden will save the necessity of putting up snow fences each fall. A series of low dikes or ridges thrown up with the contour of the land will help hold the water from melting snow on the garden. An ordinary breaking plow can be used in making the dikes. It is necessary that this be done in late fall just before the ground freezes. The dikes should be leveled down when preparing the seed bed in the spring.

Simple Insect Control

Insects must be kept under control, otherwise the garden may be a partial or even a total loss. Stomach poisons, such as arsenate of lead, Paris green, and calcium arsenate, are used to control the leaf eating insects. Directions for using them are given on the packages.

Plant lice are sucking insects and they often do serious damage in gardens. It is necessary to use a contact spray, such as Blackleaf 40, rotenone sprays or dust and pyrethrum, for the control of sucking insects. Directions for using these materials are furnished with the package in which they are sold. The stomach poisons are not effective for sucking insects.

Care should be exercised in the use of poison sprays or some member of the family may become poisoned. They should not be used on edible portions of plants. There are non-poisonous sprays on the market that can be used on spinach, cauliflower, lettuce, kale, Swiss chard, etc. Pyrethrum powder, powdered hellebore and rotenone are listed as non-poisonous sprays. There are other non-poisonous sprays available on the market.

When soap is added to liquid sprays it serves as a spreader and improves the sticking qualities. One ounce of soap is sufficient to add to a gallon of spray.

4-H club members should consult their club leaders and county extension agent in case of severe outbreaks of insects.

Plant diseases rarely damage garden plants as seriously as do insect pests. Old plant refuse should be burned in late fall or early spring. This is just an additional measure for control of insects and diseases.

Vegetables For Next Winter

Many vegetables can be stored and kept fresh for winter use. Potatoes, root crops, and cabbage require moist cool storage conditions. The temperature of the storage should be held between 32° and 38° F. so far as possible. The outdoor cellar or cave with a good ventilating system offers about the best storage possibilities on the farm for these crops. Careful ventilation is a means of controlling the temperature of storage cellars. Products selected for storage should be clean and free from disease and mechanical injury. A raised floor with boards spaced at least 1 inch apart is recommended for potatoes. Cabbage may be stored in narrow bins with raised floors or placed on shelves.

Onions keep best in a dry, cool storage place. A temperature range of 35° to 40° F. is satisfactory for onions. They should be

well cured and the tops removed before being placed in storage. The outdoor cellar or cave is usually too damp to be suitable for storage of this crop.

Storage for pumpkins and squash should be kept dry with a temperature range between 40° and 50° F. for best results. Select well matured sound fruits for storage.

Green tomatoes harvested just before the first killing frost will ripen when stored in the root cellar or in the basement of the house.

Celery may be stored in cool cellars or pits. It should be lifted with a considerable amount of soil adhering to the roots and reset in soil in the cellar or pit. An occasional watering will be needed to keep the soil in a moist condition. When watering, avoid wetting the tops or crowns. A small amount of head lettuce may be stored by the same method.