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The Balanced Garden

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The Balanced Garden

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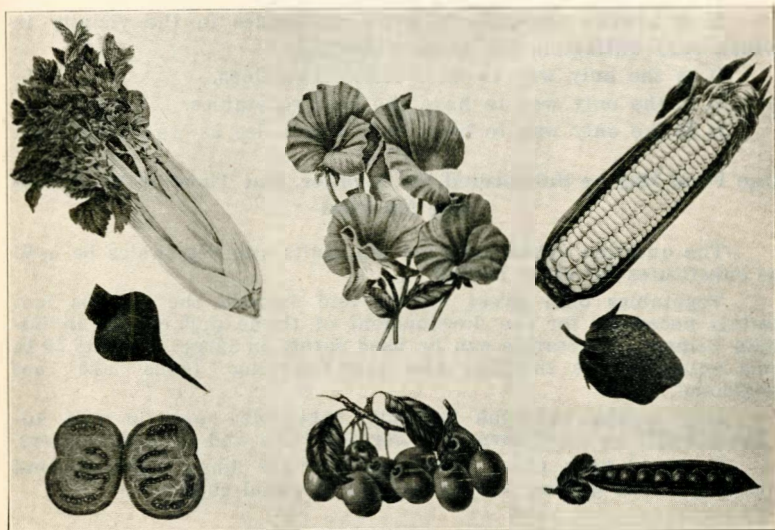


Fig. 1.—Vegetables and Fruits for Food—Flowers for Peace

EXTENSION DIVISION
SOUTH DAKOTA STATE COLLEGE OF
AGRICULTURE AND MECHANIC ARTS
C. LARSEN, Director

Cooperative Extension Work
in Agriculture and Home
Economics, South Dakota
State College and U. S. De-
partment of Agriculture Co-
operating

BROOKINGS, SOUTH DAKOTA

THE BALANCED GARDEN

Grow Vegetables at Home

It is always advisable to grow vegetables in the vicinity in **which** they ultimately are to be consumed.

It is the only way to have fresh vegetables.

It is the only way to have the best vegetables.

It is the only way to have such vegetables as we cannot buy.

One Food May be Substituted for Another, But There is No Substitute for Food

The question arises, how far can fruits and vegetables be used as substitutes for other foods?

Vegetables offer great variety and furnish the various materials necessary for the development of tissue and energy in human beings. Vegetables can be used safely in large amounts if in this generous use the fuel and body building foods are not neglected.

If a careful selection is made, vegetables may be used advantageously as meat savers, as cereal savers and as sugar savers.

It would be a great advantage if every home would depend more upon the garden for the bulk of the food supply.

Vegetables Meet Body Needs

The foods demanded by the body must supply:

a. Protein for tissue building and repair. Among the vegetables this is found in dried beans and peas.

b. Carbohydrates for heat and energy. Found in the starches and oils of fruits and vegetables.

c. Regulatory products. The bulk, fibre, minerals and water of vegetables are very necessary for the regulation of the bowels and the blood.

d. Elements of growth. The vitamins found in certain vegetables and fruit produce growth.

Balanced Gardens Necessary

The body needs protein, carbohydrates and fats in a quite well defined ratio. This ratio can be most easily provided if balanced meals are served.

It will be much easier to serve balanced meals if the foods containing the proteins, the carbohydrates and fats are produced in or near the right proportions.

If the garden is depended upon for the bulk of the food supply, then the varieties grown should be selected upon this basis.

WHAT IS A BALANCED GARDEN?

A balanced garden is characterized by:

1. The selection of vegetables from the standpoint of food value, quantity produced and for canning, drying or for storage qualities.

Were vegetables selected on the above basis, **FOOD VALUE, QUANTITY PRODUCED, CANNING, DRYING OR STORAGE QUALITIES**, the **EDIBLE SEEDS** such as beans, peas and sweet

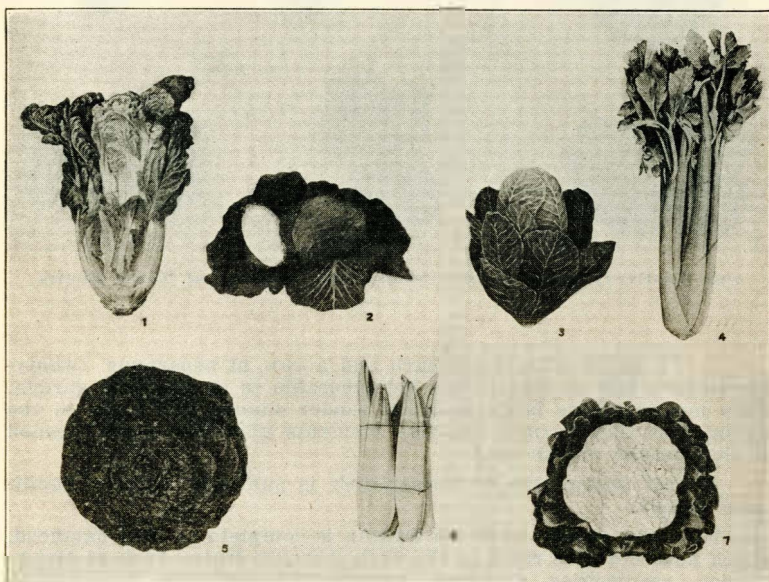


Fig. 2.—Leaf Vegetables Supply Mineral, Bulk and Water

corn would receive first consideration. Next would come the **ROOT CROPS** such as beets, carrots, parsnips, salsify, etc. Then the **GREENS** and **SALAD** crops such as lettuce, cabbage, celery, Swiss chard, etc., and last, but most delicious of all, the **VEGETABLE FRUITS** such as tomatoes, eggplant, squash, melons, etc.

There is no doubt that, at the season's end, the gross supply of necessary foodstuffs from the garden would be larger if the bulk of the crops were grown in the order suggested.

2. A continuous supply of fresh vegetables throughout the growing season with liberal quantities for winter storage. A continuous supply of fresh vegetables may best be obtained if plantings are made about every two weeks. For instance, Golden Bantam sweet corn, planted every two weeks from May 1 to July 15, will give fresh sweet corn until frost. In like manner all the quick maturing vegetables may be had throughout the whole growing season.

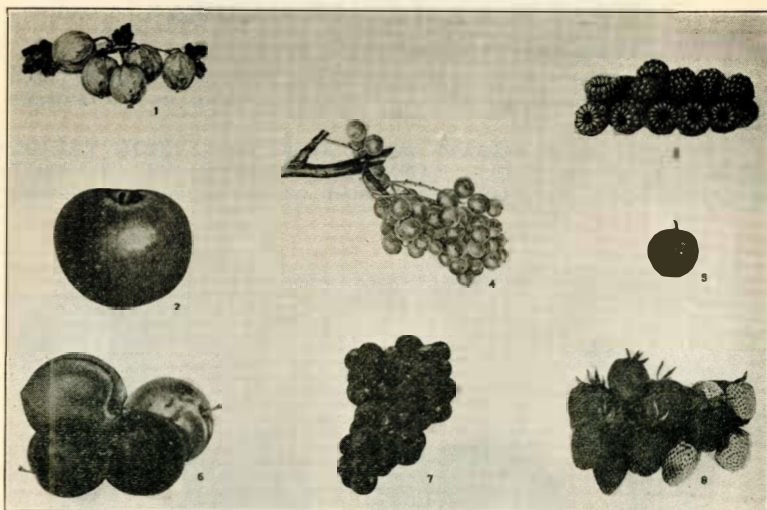


Fig. 3.—Every Home Garden Should Have Plenty of These Fruits

3. A dozen hills of rhubarb and a row of asparagus, twenty-five to fifty feet in length, are indispensable in every home garden. They not only give large yields of tender shoots very early in the spring, but they furnish laxative elements generally much needed at that season of the year.

A half dozen hills of horseradish is sufficient for the condiment supply.

No home garden in South Dakota is complete or well balanced, which does not give room to the early bearing fruits, such as strawberries, raspberries, currants, gooseberries and the sand-cherry hybrids.

All these fruits will bear the same or the year following planting.

The following is a list of varieties of small fruits suitable for South Dakota. (Numbers refer to illustrations in Fig. 3.)

Strawberries: Senator Dunlap, Progressive. (8)

Raspberries: Sunbeam, Ohta. (3)

Currants: Perfection, Victoria, Long Branch, Holland.

Gooseberries: Carrie (1)—Pearl, Houghton.

Sandcherry hybrids: Opata (6), Sapa (6), Sansota, Cherosota, Compass. See Fig. 1.

Grow Flowers

From the beginning of things it was intended that flowers should give us cheer. Our gardens should provide food for the soul as well as the body.

A WELL DEVELOPED PLAN IS A NECESSITY

The surest success in gardening is possible only when a plan is carefully worked out and religiously followed.

Efficient gardening consists in keeping every foot of ground occupied with the production of some food crop during the growing season. This means the use of one of the following methods:

1. Succession cropping or the growing of a late crop on the same ground from which an early one has been removed; for example, stringless beans followed by beets.

2. Successive planting. The planting at regular intervals of, say, two weeks, of a particular variety, such as Golden Bantam sweet corn.

3. Companion or double cropping, where two kinds of vegetables are planted on the ground at the same time. One crop matures early and is removed before the other fully occupies the ground; for example, tomato plants among radishes or lettuce.

Development of the Plan

Determine the family likings, then select varieties accordingly.

Estimate the number of feet of row necessary for each person, then determine the amount of each variety that should be planted. See planting table, column 6.

Know the length of time from planting until vegetables are ready for use. See table, column 4.

Know the length of time such vegetables are fit for use. See table, column 7.

Plant only such quantities as can be used while in the best condition for use.

Know the approximate yield of vegetables in a given space. See table, column 5.

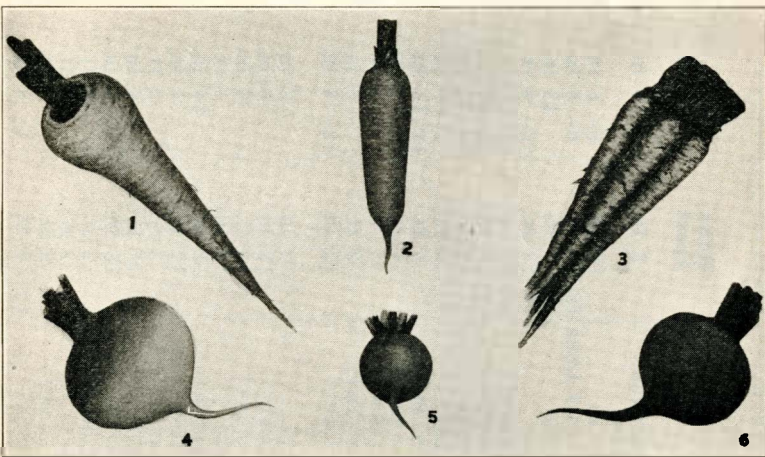


Fig. 4.—Root Crops Are Easily Stored

PLANTING TABLE

	Rows Apart	Apart in Rows	No. Plants or Amount for 50 ft. of Row	Ready for Use in Days	Approximate Yield per 50 ft. of Row	No. Ft. of Row Neces- sary for In- dividual	No. of Days Fit for Best Use
Asparagus	3 ft.	18 in.	33 plants	730		5	15
Beans,							
Bush	12 in.	5- 6 in.	1 lb.	45- 95	30 quarts	10	6
Dwarf Lima	12-24 in.	6- 8 in.	1 lb.	75- 90	10 quarts	5	6
Pole	2- 3 ft.	18 in.	1 lb.	90-100	10 quarts	5	8
Beets	12-18 in.	3- 4 in.	1 oz.	60- 90	3 bus.	10	15
Cabbage	18-24 in.	12-18 in.	35 plants	90-100	35 heads	20	Storage
Cauliflower	18-24 in.	12-18 in.	35 plants	100-125	35 heads	20	10
Carrots	12 in.	2- 3 in.	½ oz.	40-110	2 bus.	10	30
Celery	18-24 in.	3- 5 in.	100 plants	125-175	100 bunches	15	20
Corn, Sweet	3 ft.	12-18 in.	½ lb.	65-110	12 doz.	50	6
Cucumbers	4 ft.	4 ft.	½ oz.	60- 80	10 doz.	12	1
Egg Plant	3 ft.	2 ft.	25 plants	120-150	75 fruits	10	10
Kohl Rabi	2 ft.	6 in.	⅛ oz.	75-100	2 bus.	25	10
Lettuce	12 in.	2- 6 in.	¼ oz.	40- 90	75 heads	10	10
Onion	12 in.	3 in.	½ oz.	120-150	1 bu.	20	Early 10 das.
Parsley	18 in.	6 in.	½ oz.	125-150	4 bus.	1	Late Storage
Parsnip	18 in.	6 in.	½ oz.	100-120	1 bu.	10	All Season
Peas	18 in.	1 in.	1 lb.	40- 90	2 pecks	50	Storage
Peppers	2 ft.	18 in.	25 plants	100-140	1 bu.	10 plants	3
Radish	12 in.	1 in.	½ oz.	20- 60	75 bnch.	6	Storage
Rhubarb	3 ft.	3 ft.	16 plants	365	100 bnch.	6	4-8
Salsify	18 in.	6 in.	¾ oz.	130-160	1 bu.		All Season
Spinach	18 in.	6 in.	½ oz.	20- 60	1 bu.	10	Storage
Squash (Bush)	2 ft.	2 ft.	½ oz.	60- 80	75	5	6
Chard	2 ft.	1 ft.	¾ oz.	60- 90	2 bu.	5	15
Tomatoes	3 ft.	3 ft.	15-20 plants	100-140	2 bu.	4 plants	All Season
Turnips	12-18 in.	6- 8 in.	½ oz.	40- 80	2 bu.	10	10

THE FARM GARDEN PLOT



**Golden Bantam,
One of the Best
for the Home
Garden**

The farm garden should include the following small fruits: currants, gooseberries, raspberries, strawberries and sandcherry hybrids (Sapa and Opata).

There should be the perennial crops, rhubarb, asparagus and horseradish.

Ample room should be provided for all the staple vegetables, especially varieties best suited for canning, drying or storing.

Save Labor

The garden should be so planted that the bulk of the labor may be done with horse machinery.

This means that the rows must be wider apart than in the town garden plots.

The Farm Garden Plan

A suggestive plan for a farmer's vegetable garden.

Size of plot, 50x200 feet. Rows run the long way. 4 foot space.

Red raspberries, 100 feet of row, 5 trees each (Sapa and Opata hybrid plums) 4 foot space.

Currants, 12 bushes, gooseberries 12 bushes, asparagus 50 plants, and rhubarb, 25 plants, 4 foot space.

Strawberries, (matted row) one-half early, one-half everbearing, 3½ foot space.

Parsnips, 100 feet of row. Salsify 100 feet of row. 3½ foot space.

Peppers, 25 feet of row. Parsley, 10 feet. Eggplant, 40 feet.

Bush Squash, 40 feet. Swiss chard, 25 feet. Tomatoes, 60 feet. 3½ foot space.

Lettuce, 25 feet. Turnip radishes, 25 feet. Icicle radishes, 25 feet. Onion sets, 25 feet. Beets, 50 feet. Spinach, 50 feet. (Navy beans following.)

Early cabbage, 50 feet. Cauliflower, 50 feet. Early peas, 100 feet. (Navy beans following.) 3½ foot space.

Tomatoes, 150 feet. Kohl Rabi, late peas, 50 feet. 3½ foot space.

Early corn, 100 feet. (Followed by beets 50 feet and spinach 50 feet.)

Medium corn, 100 feet. (Followed by Kohl Rabi 50 feet and turnips 50 feet.) 3½ foot space.

Late cabbage, one row. 3½ foot space.

Remainder of garden to be planted in early potatoes and late sweet corn.

Hubbard squash to be planted in corn.

THE TOWN GARDEN

Economy of space is the first consideration in a town garden. In order to produce the largest amount of vegetables from a limited area, it is necessary to keep the ground at work through the growing period.

Inter-cropping, successive and succession cropping must be practised. Quality is of great importance in the town garden where room is so limited. It is merely throwing money away to grow low quality vegetables on a crowded town lot.

An analysis of the following plan shows that economy of space, succession planting and intercropping are provided for. The important crops are all suitable for canning or storing.

The Town Garden Plan

Rows two feet apart, except for corn and potatoes, which are three feet.

3 rows of early peas, followed by tomatoes, plants set out between the rows.

3 rows of snap beans followed by cabbage, plants set out between the rows.

1 row Kohl Rabi, followed by beets. 1 row early celery, followed by lima beans. Early radish between the rows.

3-4 row Swiss chard, 1-4 row peppers.

Early beets with bush squash every 3 feet in the row.

1 row parsnips. 1 row salsify. 1-2 row each of lettuce and onion sets between rows.

1 row onions (from seed).

1 row spinach and 1-2 row of turnips followed by corn.

4 rows of early potatoes followed by rutabagas, turnips, carrots and Kohl Rabi.

Remainder of garden in successive plantings of corn, peas and spinach.

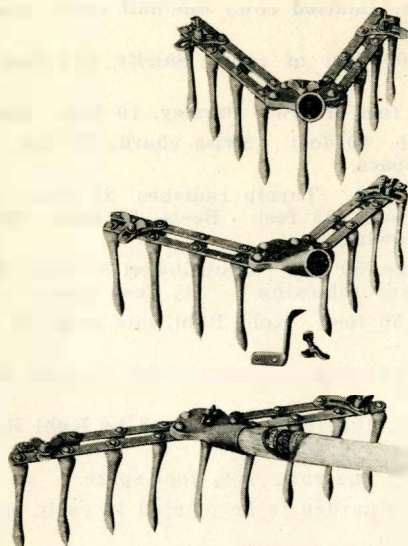


Fig. 6.—A Good Tool for Shallow Culture

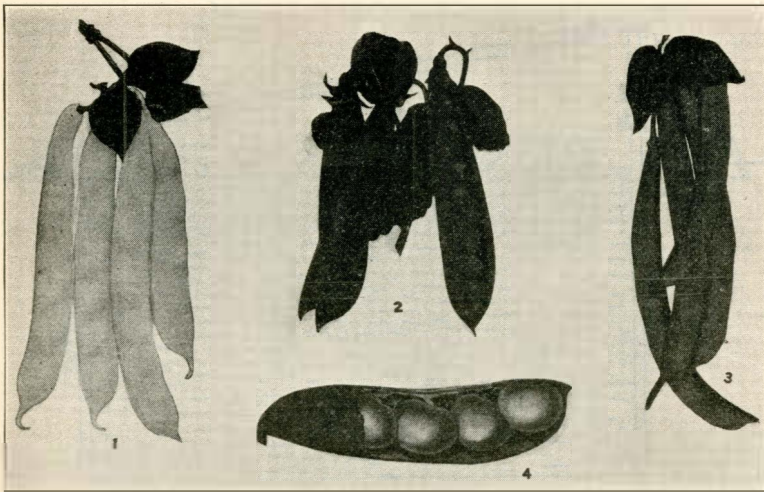


Fig. 7.—Legumes Give Large Yields of Protein Food

PLANTING SCHEDULE

The following table merely shows the approximate dates at which the indicated crops may safely be planted.

1. First planting made when the tree buds begin to swell; early cabbage (plants and seed), onions (both sets and seeds), parsnips, salsify, beets, peas, Kohl Rabi, carrots, lettuce, corn, parsley, spinach and Swiss chard.
2. Second planting, to be made when the apples are in bloom; Corn, beets, summer squash, beans, potatoes, pole beans, okra and lettuce.
3. Third planting, to be made when the ground is thoroughly warm, after June 1; lima beans, sweet corn, squash, pumpkins, tomatoes, egg plant, cucumbers, peppers, cauliflower and melons.
4. Succession planting to be made July 1; rutabagas, beets, cabbage, sweet corn and beans.
5. Peppers, egg plant, tomatoes, early head lettuce, cabbage, brussels sprouts and celery should be started in hot beds or forcing boxes about March 1 to 15.
6. On July 15, beets, lettuce and carrots may be planted.
7. On August 1, peas, lettuce, spinach and turnips may be planted if enough moisture is present, or if the garden plot can be watered artificially.

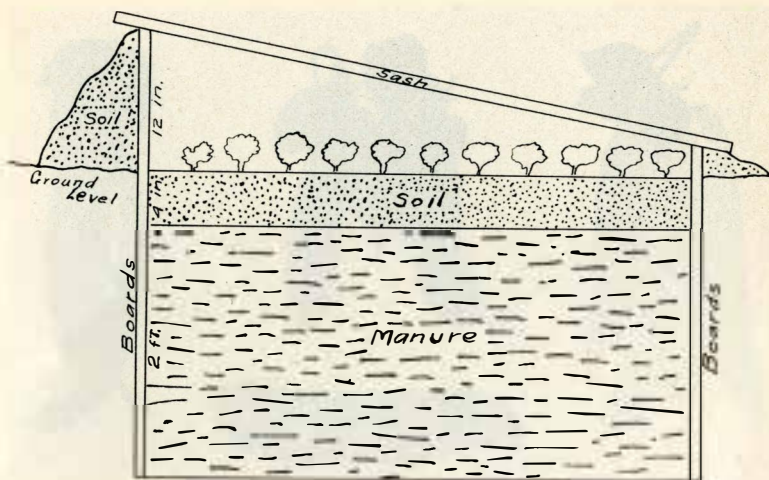


Fig. 9.—A Simple, Inexpensive Hot Bed

HOT BEDS AND FORCING BOXES

In this country where the growing season is short, hot beds and forcing boxes are indispensable if very early crops or the long season crops are grown.

Tomato, eggplant and peppers cannot be grown successfully unless started inside about March 1.

Early celery, cabbage, cauliflower, lettuce, etc., are very advantageously started in the hotbeds or forcing boxes in late February or early March.

Forcing boxes are made by placing rich, loamy soil about four to six inches deep in any kind of box having drainage. The soil should be fine and firm and kept moist, not wet. The box should be kept in a sunny place.

The diagram shown above illustrates the method of preparing a hotbed.

Fresh horse manure with plenty of litter should be used. It should be well tramped. Four inches of good, loamy soil should be added and thoroughly moistened. After the heat has subsided sufficiently, the seed should be planted. Keep moist, protect from frost and ventilate on warm days.

Cultural Pointers

It is best if the garden plot is manured and plowed in the fall. If this is not done, well rotted manure should be used, otherwise the plants will get very little benefit from it the same season.

Fall plowed ground can be worked early in the spring, just as soon as the top dries off. This means earlier crops.

Plants get water from the supply deep down in the ground as well as from the rainfall. Loose, coarse manure plowed under makes a space which prevents the water from coming up from below.

The seed-bed should be made fine and firm. The finer the seed-bed is made the more moisture it will hold, the better the moisture will come up from below, and the better the seeds will germinate.

In order to produce the highest quality vegetables they must grow quickly. This means their growth must not be checked by drouth or strangled by weeds.

If peas and tomatoes are staked up off the ground the pods or fruits are less likely to rot.

Timeliness Counts

It is well to keep in mind the old saying "A Stitch in Time Saves Nine." It is easier to destroy weeds just as they are germinating, or soon after, than when they have grown to considerable size.

Scratching the soil with a garden rake, crow-foot or any one of the various sorts of "toothed" weeders, every few days, will prevent weeds from becoming large.

Loosen the soil after every rain. If the crust remains unbroken, the soil moisture escapes rapidly into the air and the value of the rain may soon be lost.

Cultivate at least once a week, though twice a week is better.

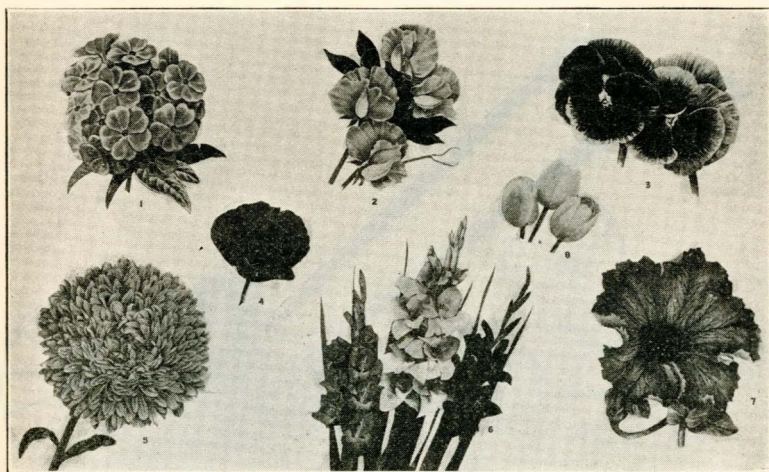


Fig. 8.—A Good Arrangement of Varieties Suited to South Dakota Home Gardens

Remember

Nature abhors a bare spot and tries to cover it over with some sort of growth, even if it be only noxious weeds.

Moral: Follow Nature, but keep the ground covered with food crops, instead of weeds.

Weeds unmolested in the garden act as parasites to the growing crop. They use the moisture and mineral plant food needed by the food plants.

Certain bacteria are beneficial to the soil. Cultivation improves the conditions under which they work.

Cultivation improves the appearance of the garden.

Equipment

In all cases use horse machinery whenever possible. For the preparation of the soil, have a plow or spading fork for turning the soil, a harrow garden rake for smoothing the surface and for making a firm seed bed.

For seeding, a combination seed-drill for planting, a garden rake to cover and a line to lay out the rows, are necessary.

For weeding, have on hand cultivators, a garden hoe and some of the adjustable "toothed" weeders. A wheel hoe with changeable attachments is a labor saver for medium sized gardens.

For protection, a compressed air sprayer, spray materials and a large wooden bucket for mixing the sprays should be provided.

Insects and Plant Disease

Myriads of insects and fungi attack the vegetable crops in all sections of the country. A great deal of the damage done by them is due to carelessness on the part of the grower. If the proper means of control are taken before they make inroads into the crop, garden pests can easily be kept in check.

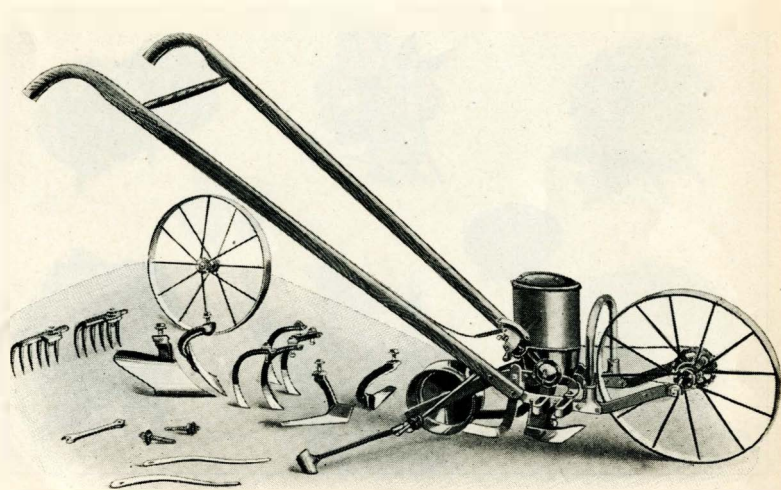


Fig. 10.—An Implement of This Kind Saves Both Time and Labor

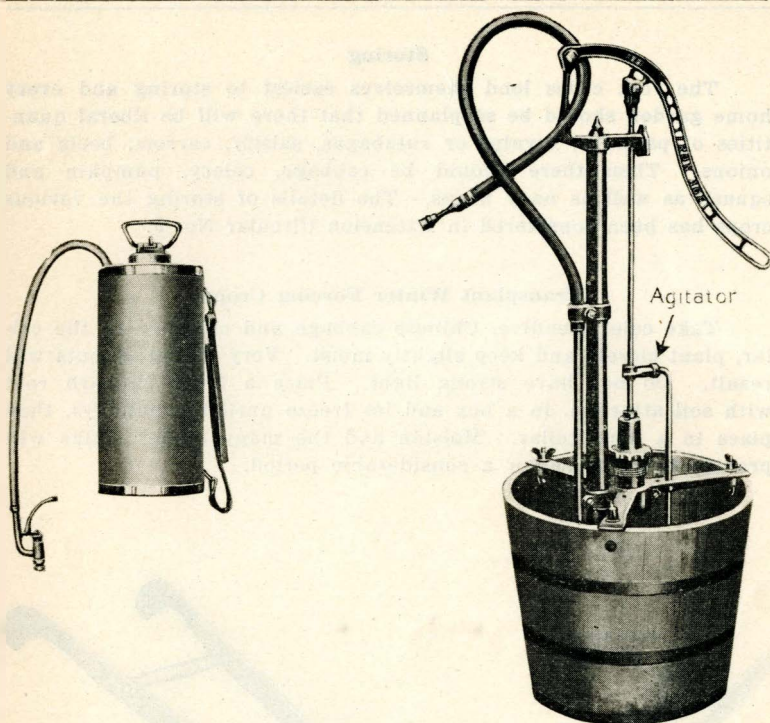


Fig. 11.—Inexpensive Sprayers Suitable for Garden Spraying

A spraying calendar is issued from this office which gives the proper means of control of the most common garden pests.

In order to be prepared it is well to have on hand sufficient quantities of arsenate of lead, blue vitrol (copper sulphate), fresh stone lime and some nicotine sulphate (black leaf 40).

Keep in Mind

Swiss chard and beet tops make excellent greens. Turnips, lettuce, peas and spinach thrive best as early spring or fall crops.

Many vegetables like lettuce and spinach must be used while young and tender, as they run quickly to seed.

The quality of radishes, beets, kohlrabi, carrots and cauliflower is enhanced if used while young and tender.

Cucumbers must be picked daily.

The total yield of peas, beans and cucumbers will be greatly reduced if the first pods or fruits are allowed to ripen.

A continuous supply of sweet corn can be had by planting every ten days, up to the middle of July.

Tomatoes, eggplant and peppers fail to set fruits when suffering from drought.

Onion, parsnip and salsify seed should be planted very early.

Peppers, eggplant and tomatoes need a great deal of heat and moisture and must be started inside.

Storing

The root crops lend themselves easiest to storing and every home garden should be so planned that there will be liberal quantities of parsnips, turnips or rutabagas, salsify, carrots, beets and onions. Then there should be cabbage, celery, pumpkin and squash as well as navy beans. The details of storing the various crops has been considered in Extension Circular No. 9.

Transplant Winter Forcing Crops.

Take celery, endive, Chinese cabbage and chickory to the cellar, plant closely and keep slightly moist. Very tender sprouts will result. Do not have strong light. Place a large rhubarb root with soil attached, in a box and let freeze until the holidays, then place in a dark cellar. Moisten and the many tender stalks will provide fresh sauce for a considerable period.

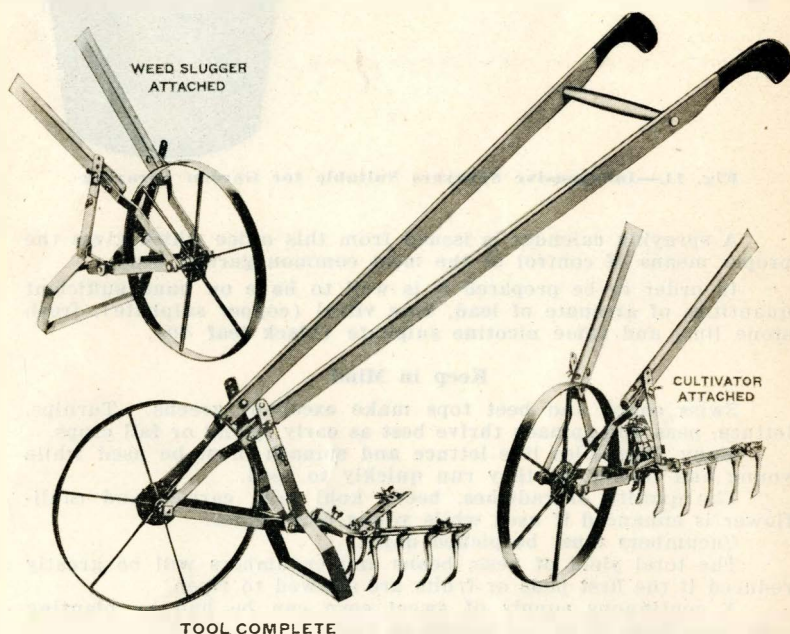


Fig. 12.—A Good Wheel Weeder for Shallow Culture

VARIETIES OF VEGETABLES WELL SUITED FOR SOUTH DAKOTA CONDITIONS

Perennial Crops.

Asparagus—Palmetto Colossal. (Plant one year old roots in the spring in well fertilized bed.)

Rhubarb—Victoria or Linneans (Divide old roots, plant in early spring in well fertilized beds.)

Horseradish—(Plant root cuttings in the spring six to eight inches deep.)

Annual Crops.

Beans—(Green) Stringless Green Pod. (see 3, fig. 7) Bountiful (Yellow) Golden or Kidney Wax (1, fig. 7) Bush Lime (4 fig. 7) (Pole) Kentucky Wonder.

Beets—Egyptian, Detroit. Improved Blood (see 6 fig. 4)

Cabbage—Early, Copenhagen Market, Jersey Wakefield (see 2 fig. 2) Late, Danish Ballhead, Holland.

Carrots—Half long, Chantenay (see 2 fig. 4)

Cauliflower—Snowball. (7 fig. 2)

Celery—Golden Self Blanching (See 4 fig. 2) Grand Pascal, Winter Queen.

Chickory—Large Rooted Brussels (see 6, Fig. 2)

Sweet Corn—(Early) Golden Bantam (See Fig. 5) Early Crosby, Black Mexican (Late). Country Gentleman, Stowell's Evergreen.

Cucumbers—White Spine, Long Green and small pickling sorts.

Egg Plant—Black Beauty.

Lettuce—(Loose Leaf) All Seasons, Prize Head and Black Seeded Simpson. (Head) Big Boston (See 5 fig. 2) Salamander.

Musk Melon—Gem, Rocky Ford, Honey Dew.

Water Melon—Kleckley Sweet, Tom Watson.

Onion—Globe Varieties.

Parsnip—Hollow Crown (see 1 fig. 4) Guernsey.

Parsley—Double Curled.

Peas—(Early) Little Gem (see 2 fig. 7) Marvel. (Main Crop). Thomas Laxton, Stratagem, British Wonder.

Pepper—Neapolitan Early, Chinese Giant, Ruby King.

Potatoes—Irish Cobbler, Early Ohio, Triumph, Rural New Yorker.

Radishes—Scarlet Turnip White Tip, (see 5 fig. 4) White Icicle, Chartier, Hansen's Siberian.

Rutabagas—White Flecked (see 4 fig. 4) Yellow Swede.

Spinach—Long Standing, Bloomsdale.

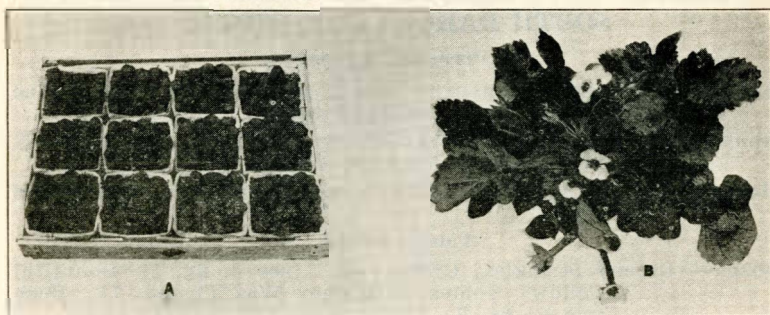
Salsify—Sandwich Island (see 3, fig. 4)

Squash—(Summer) White Bush, Yellow Crookneck, (Winter) Hubbard, Delicious, Table Queen.

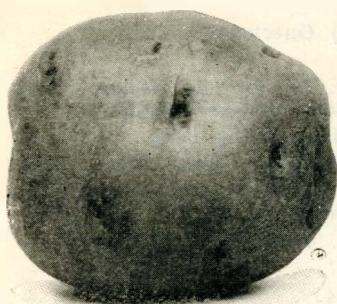
Swiss Chard—Large Ribbed White, Lucullus. (see fig. 2)

Tomatoes—(Early) Earliana, Bonney Best, John Baer, (see Fig. 1) Season too short for late varieties.

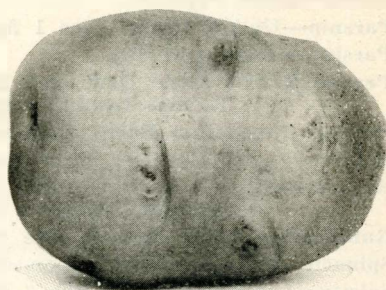
Turnip—Early Purple Top.



**Shall the Strawberries Your Family Uses Come From the Commercial
Crate or From Your Garden?**



Bliss Triumph



Early Ohio

**Only the Early Varieties of Potatoes Should Find Room in the Home
Garden**