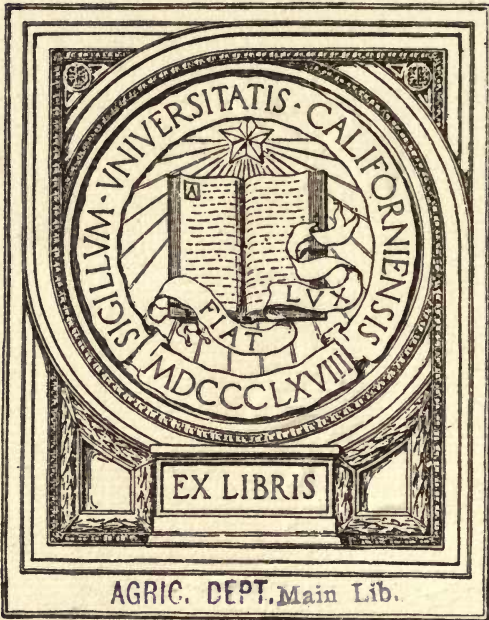


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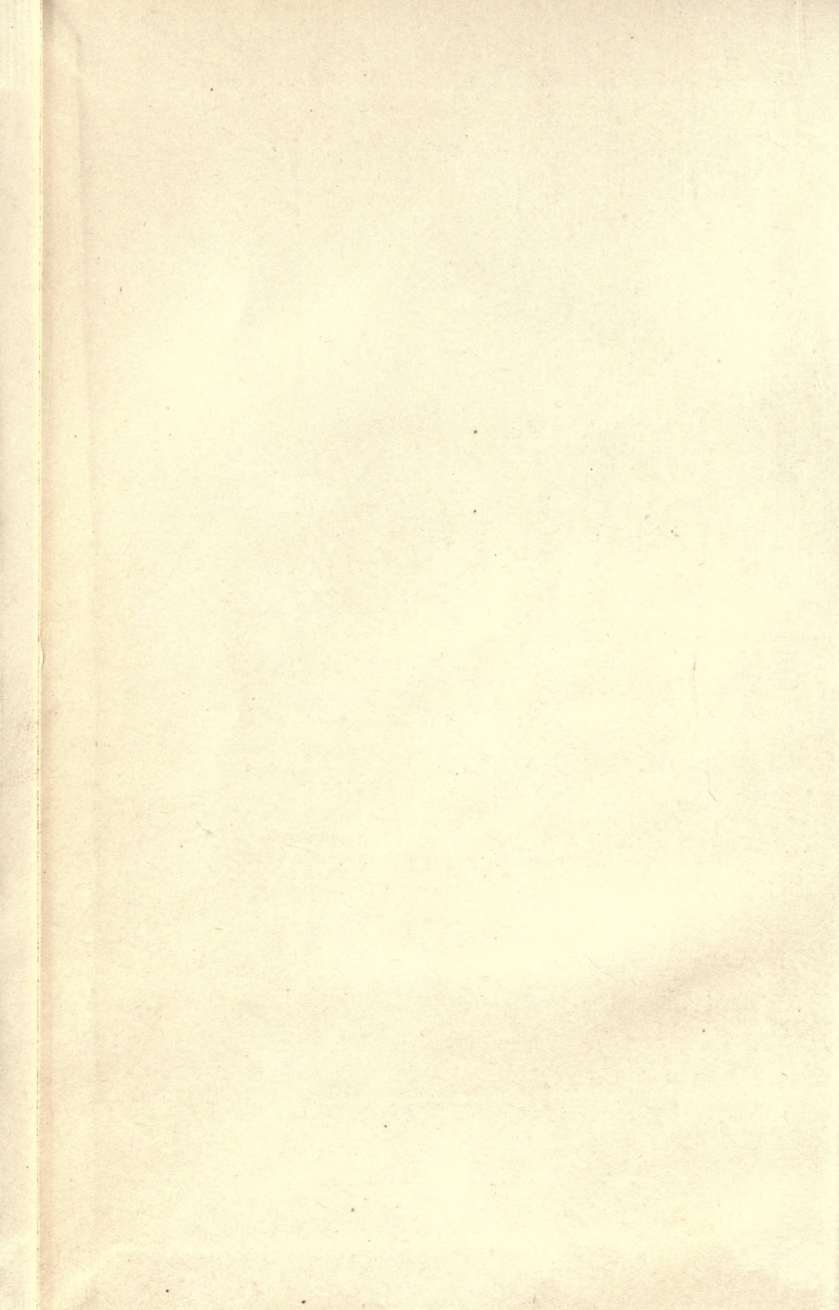
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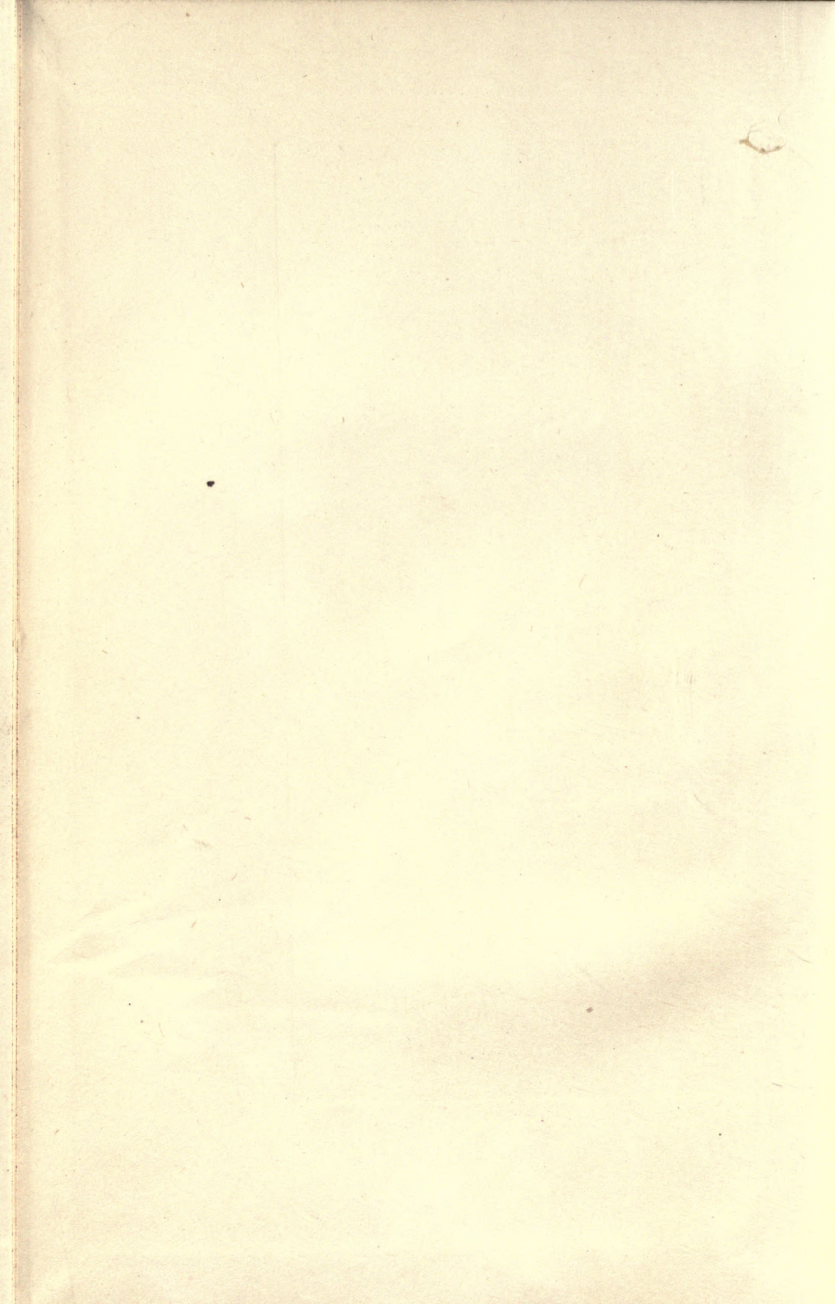












*C. Johnson*

# HOW TO PLANT

AGRICULTURAL AND

WHAT TO DO WITH THE CROPS.

TOGETHER WITH VALUABLE HINTS FOR THE

FARM, GARDEN, AND ORCHARD.

BY

MARK W. JOHNSON,

PRACTICAL HUSBANDMAN, HORTICULTURIST, AND FRUIT-GROWER.

ILLUSTRATED.



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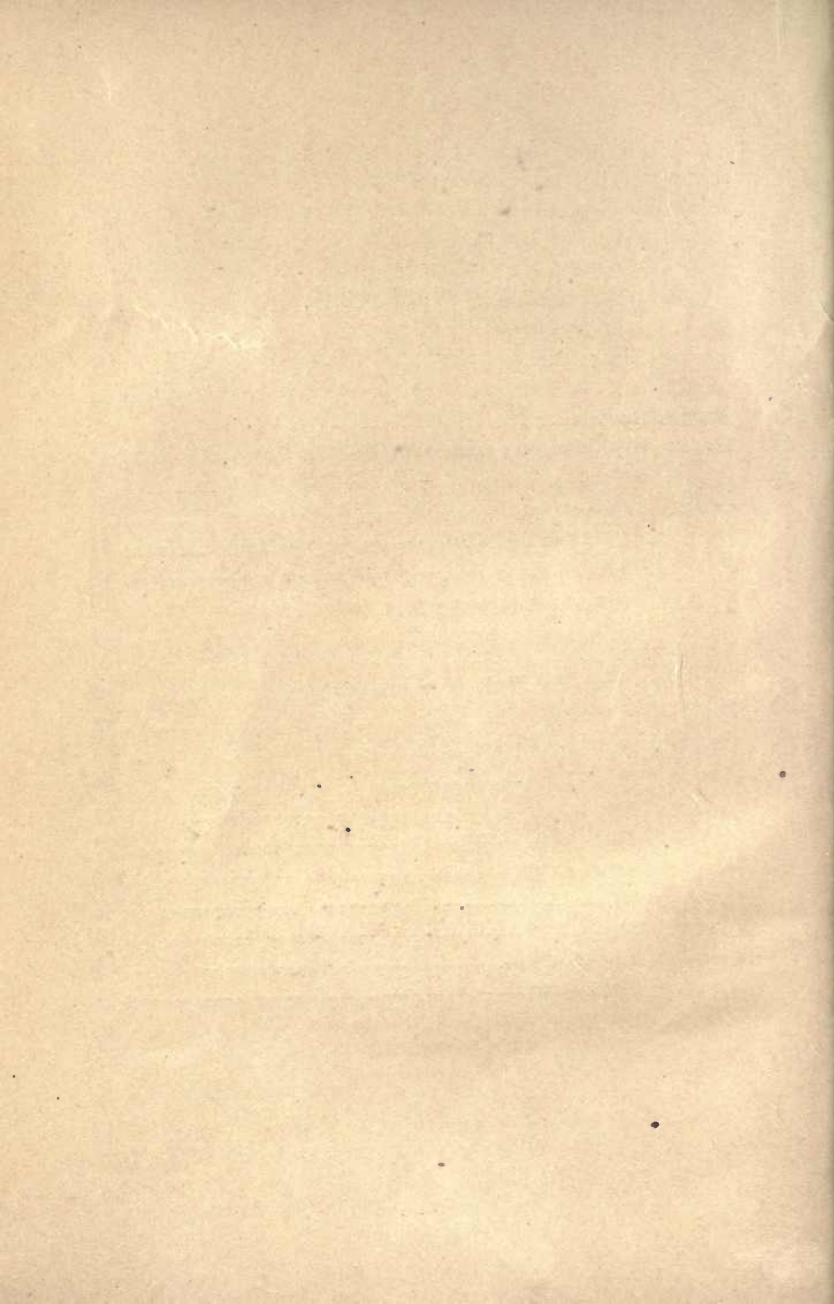
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## INTRODUCTION.

A book giving brief and simple directions for planting all field and garden crops, trees, vines, roots, etc., seems to be generally needed, judging from the numbers of enquiries the writer has for something of the kind during the planting season of each year. The writer has been unable to find a full and comprehensive work of the sort, hence takes upon himself the task of writing such a book. He promises the reader that in these pages he shall find instructions sufficient to guide him in planting every seed and tree or vine known to the field, orchard, or vegetable garden. The author does not propose to give a full description of varieties and their uses, as this volume would then become too large. The object is to give brief and correct instructions as to when and how to plant and sow. Every human being should devote a part of his or her time to producing something from the soil, even if it be only some lovely flower. The poet sōmmands us to sow, after the following manner :

“Sow in the morn thy seed,  
At eve hold not thy hand.  
Thou knowest not which shall thrive,  
The *late* or *early* sown.

“And duly shall appear,  
In verdure, beauty, strength,  
The tender blade, the stalk, the ear,  
And the *full corn* at length.”

The Supreme Architect of the universe, our Great Creator, in Holy Writ, commands us to sow and till the ground, for in His revealed word we find, viz. : “In the

sweat of thy face shalt thou eat bread.”—Gen., 4th Ch., 19th v. “The Lord God sent him forth from the Garden of Eden to till the ground.”—Gen. 3 Ch., 23 v. “Noah planted a vineyard.”—Gen., 9th Ch., 20th v. “And Isaac sowed in that land and found in the same year an hundred fold,” etc.—Gen., 26 Ch., 12, 13 v. “Elisha plowed with twelve yoke of oxen.”—See 1 Kings, 19th Ch., 19th v.

Elisha no doubt was a good and successful planter, for he evidently broke his land deep. “The ploughman shall overtake the reaper,” etc.—Amos, 9th Ch., 13th to 15th v. “But they shall sit every man under his vine, and under his fig tree,” etc.—Micah., 4th Ch., 3d and 4th v. “Behold, the sower went forth to sow,” etc.—Math., 13 Ch., 4th and 5th v., 31st and 32d v.

# HOW TO PLANT.

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## SOME PRELIMINARY REMARKS.

### TIMES FOR SOWING AND PLANTING—COVERING THE SEED.

It is the wish of the author to make this work national in its scope and useful in all parts of the country. Being primarily designed to aid his fellow cultivators in the Southern States, the times for sowing and planting the various crops are indicated by naming the months proper for these operations. Of course, while February or March may be a suitable time for sowing a certain seed in Georgia, in the Northern States the ground in these months is usually frozen solid. The difficulty in indicating the times for planting in a manner that will answer for both extremes of climate, may be overcome by the planter if he considers a few simple facts. All the plants of cultivation, whether in the field or garden, fall into one of two classes: Tender and Hardy, and if one knows to which class a given plant belongs, there will be no difficulty in ascertaining the proper time for sowing or planting it. If the seeds of tender plants are sown before the soil is well warmed, they will make a poor stand, or fail to appear at all, all the seeds having rotted in the cold soil. Beans, bush and pole, melons, squashes, and all of that family; the tomato, okra, and others are tender plants. Our chief tender plant is Indian corn, which is cultivated throughout the country. Each locality, whether in the far East or far West, whether upon

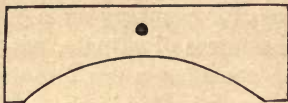


the Gulf of Mexico, or on the borders of the great Lakes, has its time for planting corn, fixed by years of observation and experience, and which, in a series of years, varies but very little. Corn requires a dry and warm soil, the weather should be well settled, and the season of cold storms past. Wherever these conditions are found, without regard to the month, corn may be safely planted, and with it, all other tender plants.

It is more difficult to fix upon the time for hardy plants. Cabbage, and all of its family, peas, turnips of all kinds, beets, parsnips and others are hardy. Whenever the frost is out of the ground and the soil is dry enough to work, the seeds of hardy plants may go in. In all the Northern States, "as soon as the ground is in good working order" is a sufficiently definite time for planting the seeds of all.

#### COVERING THE SEEDS.

The proper covering of the seeds, after they have been deposited in the drill or row, has much to do with the success of the crop. If in covering the seeds are buried



BOARD FOR COVERING SEED.

so deep that the germ, the little plant within the seed, can not reach the surface, it dies. Though the seed may have been perfectly good, there will be no crop. Among the various devices for covering seeds, is one principally in use by cotton planters, and is the one referred to in this work, when after sowing seeds it is directed to "cover with a board." This implement is made of strong, tough timber, one inch thick, about eighteen or twenty inches long, and six inches wide, slightly curved underneath as in figure 1. This board is attached to any

common, single one-horse plow stock, by using the same heel bolt that is used for fastening on the plow steels (scooters, shovels, bull-tongues, etc., as we call them.) When the soil is fine and free from rocks, stumps, etc., this board covers beautifully by running it over a furrow in which cotton seed or corn has been dropped or sown. If the soil be of a tenacious nature and liable to bake or harden after a rain, it is not best to use this board, but in its stead use a two-pronged or forked plow, which straddles the furrow, leaving a slight ridge over the seed, and in case of baking, this can be knocked off, leaving a loose soil for the seed to come up through.



## FIELD CROPS.

We commence with suggestions as to the planting of field crops.

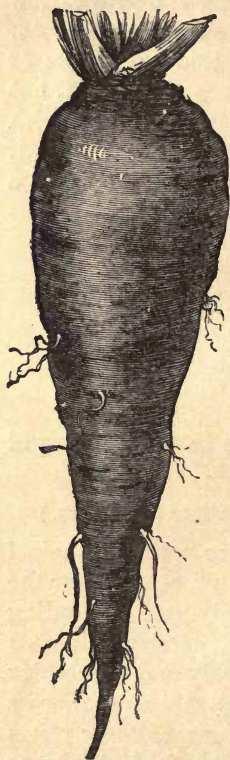
### ARTICHOKE, JERUSALEM.—(*Helianthus tuberosus*.)

The White French and Red Brazilian are the principal varieties. The plant is cultivated as a root crop, for the sake of its tubers, which are principally used for feeding swine. Ground that will bring good potatoes will suit this crop. Break the ground thoroughly and deeply, lay off rows three feet apart, break the artichokes into pieces containing three or four eyes, drop one of these pieces every eighteen or twenty inches in the drill, and cover three to four inches deep. Plant early—as soon as the soil is in working condition. Cultivate the same as Indian corn. The tubers may be dug after frost or may be left in the ground to be dug as needed. They keep better in the ground than any where else, provided the soil does not freeze over three or four inches deep. The tubers are

good for pickles, and not bad cooked as Irish potatoes, and seasoned in the same manner.

THE BEET.—(*Beta vulgaris*.)

Among the many varieties of the beet, the Mangel-



Wurzel may be regarded as a field crop. Plant in February, March, or April, as soon as the soil is in working order. Pulverize the soil fine and deep, manure highly unless naturally rich, lay off rows two feet apart and one to two inches deep; in these rows drill the seed thinly, about four pounds per acre, and cover half an inch to an inch deep. When the plants are up, thin out to five to eight inches apart. Cultivate and keep the ground clean until the plants are old enough to take care of themselves. Before winter, dig, and at the South, bank the same as sweet potatoes. In the colder states they must be pitted and covered with sufficient straw and earth to exclude frost. Good for man or beast. Non-ammoniated, or old, thoroughly decayed manure, or non-ammoniated fertilizers are best for this crop. Use as other beets while young. For cattle, boil or cut to pieces and feed.

MANGEL-WURZEL BEET.

BEANS, BUSH.—(*Phaseolus vulgaris*.)

The dwarf, or bush beans are also called White Marrow, Kidney, Navy or "Yankee" beans.

Plant during May or June, or whenever it is safe to plant corn, in rows two feet apart, dropping three or



four beans every six to eight inches in the row ; cover one to two inches ; cultivate and keep clean. Ground rich in potash and phosphoric acid is best suited to the bean crop. Therefore, wood-ashes, or those from the cotton seed hulls, and ground bone would be good fertilizers to use.

#### INDIAN CORN.—(*Zea mays*.)

This important crop may be divided into three classes : The common, or late field kinds, the early kinds, or the green corn varieties, and the sweet or sugar corn, of which there are many kinds.

FIELD CORN.—The large, late corn, such as is usually planted throughout the Southern States for the main crop, should be given a greater distance between the plants than the early and sugar varieties. Corn needs a rich soil. Do not plant it unless you have either a rich soil, or plenty of manure. Commercial fertilizers act finely on corn crops. The richer the land, the more the corn can be crowded, but the most approved plan for planting large, late varieties, is : to lay off furrows six feet apart and four inches deep, then drop the seed eight to ten inches, covering two or three inches deep so as to leave the corn plant a little below the surface when it comes up. Thin out the corn sixteen to twenty inches apart ; after the first working cultivate shallow and level. Corn will very well bear crowding in the furrow, provided it is given sufficient distance between rows. Leave the land level when laid by. Plant a row of beans between the rows of corn in June. Another plan is, to check the land off three and one-half to four feet each way, according to the strength of the soil. Drop three or four kernels in each check and cover two or three inches deep. At the first plowing thin out to one stalk in a hill. When planted in this manner, plowing may be done both ways, thereby avoiding hoeing. The yield, however, will

not be so heavy as when planted according to the method given above. Begin planting just as soon as frosts are over in the spring, say from the 20th of February to the first of April, the earlier the better.



INDIAN CORN.

In the Northern States, each locality, in the older states at least, has its "corn planting time," fixed through a long series of observations. It may be remarked here that, whenever the season in a given locality is favorable

for planting corn, all other tender plants may be safely planted.

**EARLY FIELD CORN.** — These varieties will stand thicker planting. Begin planting, say March 1st, and this may be followed by others made at intervals of two or three weeks until July 1st.

Lay off rows five feet apart, drop the grains every five to ten inches in the row ; when up, thin to ten to twenty inches apart, or plant in checks, about three and one-half feet each way, dropping a sufficient number of kernels to secure a stand, say three to four in each check, or hill. Thin to one stalk in a hill at the first working, unless the soil is very rich, in which case two may be left in a hill.

**SUGAR OR SWEET CORN** is used altogether for roasting ears, or eating in a green state, and for this purpose is far superior to the hard, white or yellow field varieties.

In planting, follow the directions given for the early field varieties, observing that the earlier the variety the thicker it may be planted. Bear in mind that corn may be planted very much thicker in such rich soils as the Mississippi bottoms, and the rich prairies of the Northwest.

**POP CORN.**—This is a small variety and is solely used for popping. Being small it may be planted thickly.

Lay off furrows two or three inches deep, in rich, well prepared soil thirty to thirty-six inches apart, and drop the corn four to six inches apart in the drill. Cover one to two inches deep, and keep clean until tassels and silks appear.

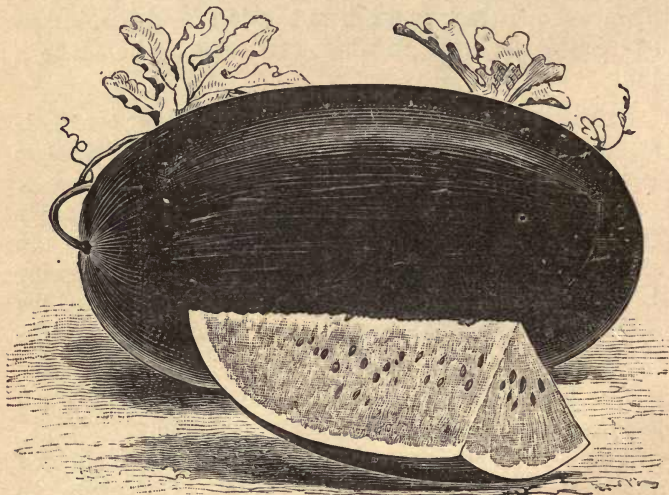
**ENSILAGE OR FODDER CORN.**—Any kind of large, vigorous growing Indian corn may be planted for the silo, or to be cured as fodder corn. Mark out in very rich or well fertilized soil, some four feet apart and drill in the seed quite thickly, averaging a kernel to every two inches.



Plant from March 1st to June 30th, the earlier the better. Cultivate shallow until waist high; cut after the tassel and silk appear, and cure as you may see proper. There is no better rough food for stock than this. Ensilage, as curing or preserving green fodder in pits, as it is called, is highly recommended.

WATERMELON—(*Citrullus vulgaris*.)

To grow watermelons as a field crop, break the land thoroughly, and manure freely with either old lot manure, or commercial ammoniated superphosphate, contain-

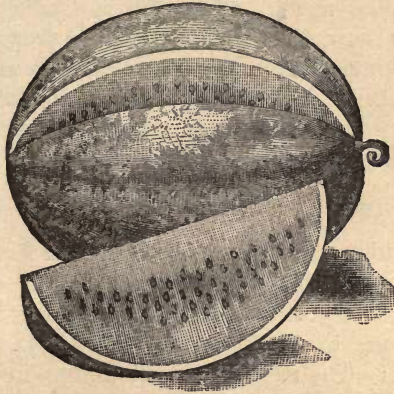


WATERMELON.—“THE BOSS.”

ing a high percentage of potash. Plant as soon as danger of frosts is over. Check off the ground eight feet each way, make a fine, soft hill in each check, drop three to four seeds to each hill, and cover one to two inches deep. When up, thin to two vines to each hill, keep clean by frequent cultivation until the vines occupy the ground.



A good manure is two to six spadefuls of well rotted stable manure, the same quantity of hard wood-ashes,



WATERMELON.—KOLB'S GEM.

and of muck or swamp earth thoroughly mixed and applied to each hill. Plantings for a fall crop in the Southern States may be made in June.

#### MUSKMELON, OR CANTALOUPE.

Prepare and manure the same as for watermelons, except that the land should be checked off four feet apart each way. When danger of frost has passed, plant four or five seeds to the hill; when up, thin to two plants to the hill. Keep clean by shallow and frequent cultivation until the vines occupy the ground. Some sow in a continuous drill, the rows being four feet apart. Late plantings are apt to be destroyed by worms.

#### CARROT—(*Daucus Carota*.)

The large Belgian and Long Orange are the best to plant for stock, and properly belong among field crops. Select a piece of rich land, or make it rich, and break it up ten to eighteen inches deep, and thoroughly pulverize the soil. Lay off rows eighteen to twenty-four inches apart, and one inch deep, in which drill the seed thinly,

and cover about half an inch deep. Four pounds of seed will plant an acre. Thin the young plants to three or four inches apart. Plant during March and April. This carrot is one of the most profitable crops, and in the Southern States will remain sound in the ground throughout the entire winter. It is important to plant early, as carrot seed will not germinate well after the weather gets warm and dry.

PEAS.—THE SOUTHERN COW PEA.—(*Dolichos, Sp.*)

These, which are also called Southern Field or Stock peas, form one of the most useful of all field crops. The varieties are very numerous, yet there is not much difference among them. They may be divided into two classes, viz.: The running or climbing kinds, and the dwarf or bunch sorts. Plant soon after the spring weather gets warm. Any kind of soil will produce peas, if not too damp or too rich. If the object be to produce a crop of peas for seed or winter use, break up the land thoroughly, and, for the running varieties, check off the ground two by four feet, dropping six to eight peas in each check; cover one to two inches deep. The dwarf varieties may be planted in rows three feet apart, dropping four to six peas every twelve inches in the row. Cultivate until they begin to bloom, or until the vines cover the ground.

If the object is to make hay, sow broadcast one bushel of the running kinds or two bushels of the dwarfs to the acre, and plow in with a light cultivator or "scooter"; cut and cure when the young pods upon the vines are half grown.

Some varieties of this pea are very desirable for table use, such as the "Crowder," the "Lady," the "Couch," the "White with Black Eye," the "Coffee," etc. The "Whip-poor-Will," "Coffee" and "Small White Davis" are dwarf, and the "Clay," "Black," "Tory," "Red,"

“Red Ripper,” “Crowder,” “White with Black Eye,” “Purple,” “Calico,” and other fancy colored kinds are runners.

Peas may be planted in growing corn to good advantage; about the first of June plant a row of peas between the rows of corn.

The “Small White,” “White Crowder,” “White with Black Eye,” and “Coffee” peas are best varieties for table use.

#### HEMP.—(*Cannabis sativa.*)

Select a moderately tenacious soil, or what is much better, a rich alluvial loam, and thoroughly pulverize it by plowing and harrowing. Sow broadcast four to six pecks of seed per acre, as early in spring as possible to avoid frosts. Harvest when the blooms turn yellow and the leaves begin to drop. The fibre of the inner bark is used in the manufacture of cordage. If the object is to raise seed, then plant in checks three and one-half feet each way, leaving at least three plants to a hill; cultivate thoroughly.

#### FLAX.—(*Linum usitatissimum.*)

Sow early in the spring, about three pecks per acre, broadcast, on finely pulverized land, and cover lightly with harrow or brush. It does well on any good, thoroughly drained soil, but does best upon rich sandy loams. The filaments obtained from its fibrous covering are used in the manufacture of linen and linen thread. Linseed oil is made from the seeds. The oil cake is good cattle food. The seed is also employed in medicine.

#### SWEET POTATO.—(*Ipomœa Batatas.*)

During February or March, dig out a bed of any size that may be needed, six or eight inches below the surface. Fill up with fresh stable manure or something equally heating, press the manure down firmly; spread rich top



soil over the manure, about half an inch to one inch thick. On this bed lay the potatoes thickly, but so as not to touch one another. Scatter lightly some thoroughly rotted manure over the potatoes, and cover about four or five inches deep with top soil. After frosts are over rake off this soil to two inches in depth, and soon the sprouts will begin to appear, and in a few days will be ready for transplanting to the field. To prepare the field, plow the land thoroughly, six to eight inches deep, lay off rows three feet apart, apply well rotted manure, or ammoniated superphosphate, in this furrow (two to four hundred pounds of the latter per acre). Cover by running a turn plow on each side of the rows, so as to make a good soft bed. Draw the plants or slips, and plant them about eighteen inches apart, on the ridge you have prepared. Keep the crop clear of grass, by plowing and hoeing, until the vines begin to run freely, then hill up and lay by, being careful not to permit the vines to take root between the rows. Dig and house after the first frost. Banking them out of doors in the Southern states, is as good a plan as any.

PUMPKINS.—(*Cucurbita Pepo.*)

Common field pumpkins may be profitably planted about in the growing corn. From the latter part of May until the last of June plant three or four seeds to the hill; make hills ten to fifteen feet apart, and on about every fourth or fifth row. Pumpkins may also be similarly planted by themselves on rich ground.

BROOM CORN.—(*Sorghum vulgare*, VAR.)

Broom Corn requires good strong land, well prepared, and on which water will not stand. Plant about the first of March, or as soon as all danger of frost is over. Lay off rows four to four and one-half feet apart, in which drill the seed thinly and cover about one inch deep. When up, thin to two or four inches apart and cultivate



well until it shows signs of heading, then it will take care of itself. Special instructions will be needed for curing it and preparing it for brooms.

COTTON, UPLAND.—(*Gossypium herbaceum.*)

Upland, or short staple cotton is the greatest agricultural product of the Southern States, and one of the most important crops of the world, yet one of the easiest grown. It will grow upon any kind of soil if naturally well drained. The duty of the planters of the Southern States is first to plant a sufficient provision crop for home use, and only for home use, and then put the balance of their energies into a cotton crop.

Prepare the land by thorough breaking with the plow. Plant when all danger of frost is over. Cotton delights in a warm soil. From the first of April to the first of May is perhaps the best season for planting. The distance between the rows and the hills depends upon the poverty or fertility of the soil; usually the rows are laid off from thirty to forty-two inches apart; on rich bottoms or very strong soils the rows should be five to six feet apart, and the stand left to three to four feet in the row. After laying off the rows with a straight shovel plow, throw two furrows each side of it to the row with "twisters" or small turn shovels, either with one horse or a two-horse sulky, or walking cultivator. When ready to plant, open the bed thus made with a straight shovel plow, and in this furrow apply the manure or ammoniated superphosphate of lime. Some then drill in the seed at once, upon the fertilizer, but a better plan is to cover the furrow after applying the fertilizers and then re-open, after which you are ready to plant.

Drill thinly but continuously one to one and one-half bushels of seed per acre in the furrow, then cover with a board or forked plow, about one to two inches deep, according to the nature of the soil. Hard, baking soils

should be covered lightly. After the cotton plants come up, run round with a narrow cultivator, and with a hoe chop out the superfluous plants, leaving three to four plants every six to ten inches. After the plants attain four to six leaves, run a cultivator between the rows again, and with the hoe cut out to two stalks to the hill, after which cultivate, as often as may be necessary, making sure that the crop is kept perfectly clear of grass and weeds until the ground is pretty well shaded by the plants, when it may be laid by.

Cotton does not need deep plowing ; after planting, let the cultivation be shallow. As near as it may be practicable, let the rows run east and west, so that the sun may shine through them all day. Cotton will not succeed upon damp soils. Fertilizers containing potash and phosphoric acid are best adapted to the plant. An excess of ammonia produces an excess of weed at the expense of the staple. On very rich lands leave the plants about two to three feet apart in the row. Use a cotton planter in drilling in the seed.

SEA ISLAND COTTON.—(*Gossypium Barbadosense*.)

Sea Island, or Long Staple Cotton, is planted in about the same manner as the upland. It is, however, useless to plant it away from the sea. Its home seems to be on the islands and along the sea coasts of Georgia, South Carolina and Florida.

BARLEY.—(*Hordeum vulgare*.)

There are two kinds of this valuable grain, viz., spring and winter. The former is adapted to extreme cold climates, and the latter to the Southern States or warmer climates. In the South, prepare the land finely by plowing ; sow broadcast, in September or October, two to three bushels per acre ; cover one to two inches deep with a plow or cultivator. Cut and feed to stock when the seeds are in the milk state, or let stand to ripen for seed.

Barley requires very rich land. The winter variety to be sown in the Southern States during the fall, and the spring variety to be sown in the Northern States during early spring.

BUCKWHEAT.—(*Fagopyrum esculentum.*)

There are two varieties of Buckwheat, the common Black and the Silver Hull; both are good and there is but little difference between them. Sow one bushel per acre, broadcast, in April, May, June, July or August, and plow or harrow in lightly. It grows freely on any kind of soil.

OATS.—(*Avena sativa.*)

In the Southern States sow from August 15th to October 15th, and from February 15th to March 15th. If sown between the above dates the crop is liable to be killed by freezing in winter. In the Northern States sow in the spring only, and as early as possible, and yet avoid freezing. Prepare the land well by thorough plowing six to eight inches deep. Sow from one to three bushels per acre, broadcast, and cover lightly with the harrow or cultivator. Oats require rich soil. Commercial fertilizers are well suited to this, as well as to all grain crops. On very rich land, excessively large crops have been made by sowing six bushels of seed to the acre. Harvest when the heads begin to turn brown, and before the seed is ripe.

RYE.—(*Secale cereale.*)

There are two varieties of rye, viz., spring and winter. Winter rye is the only one at all suited to the Southern States. Either spring or winter rye may be sown in the Northern States. Rye will grow on land too poor to produce barley; yet the better the land the better will be the rye. Sow from August 15 to November 15th in the Southern States. Plow the land thoroughly and broadcast one to three bushels of seed per acre; plow or harrow in lightly. It may also be sown in drills twenty to thirty inches



apart, and cut and fed green to stock. Several cuttings may be made during the season.

In the Northern States sow the winter rye in August and September, and the spring rye in March and April.

RICE.—(*Oryza sativa.*)

For a sure crop, select low, moist soils, which must be rich, and so situated as that the land may be irrigated at will at any time. It is a good plan to cover the growing crop with water the most of the time, as this prevents the growth of grass and weeds, but does not interfere with the growth of the rice. By this means, a vast deal of hand-picking and hoeing is avoided. The White Upland Rice succeeds very well on the valley or second bottom lands of middle and upper Georgia, even as high up as White County. Irrigation does not appear to be necessary with this variety on the uplands. Sow as early in the spring as possible, and yet avoid frost. Lay off rows three or four inches deep, thirty to thirty-two inches apart, in which drill the seed rather thickly, averaging three or four to the inch. Cover with a beard or harrow. Keep clear of weeds and grass.

WHEAT.—(*Triticum vulgare.*)

This is the most important bread crop in the world. Select high and dry land if possible, and if not naturally rich make it so. Pulverize the soil thoroughly by plowing and harrowing. It is not so necessary to plow deeply for wheat as it is to make the soil fine. In the Southern States sow from October 1st to December 1st, the earlier the better. Sow in September in the Northern States, unless where the climate is too cold, when spring sowing will be safest. Sow broadcast or with a grain-drill, from four to five pecks per acre. Cover lightly; also roll after sowing, if practicable. Wheat delights in a compact soil. Bone dust and hard-wood ashes make a complete fertil-

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izer for wheat. Too much highly ammoniacal manure will destroy the crop. Cotton seed meal and acid phosphate is good. Before planting, soak the seed in a solution of blue stone (sulphate of copper) for at least twelve hours in order to destroy the smut germ.

SUGAR CANE.—(*Sacharum officinarum*.)

Plant in February or March in very rich ground. Sandy loam is to be preferred. Procure well matured, sound canes; lay off rows five feet apart and five or six inches deep, with a wide one-horse shovel-plow. Lay the canes in the furrows, one after another continuously; cover four or five inches deep; cultivate same as corn.

SORGHUM.—(*Sorghum vulgare*, VAR.)

This is a most useful and staple crop, and is adapted to every section of the United States of North America. Every farmer may easily grow his own sugar and syrup at home. Plant from March 10th to May 10th. Lay off rows in well plowed soil four feet by two feet apart, six to eight seeds in each check. Cover lightly with the harrow or board; let four to five plants grow to the hill. Cultivate shallow; keep the crop clean of all grass and weeds until three to four feet high, when it may be laid by.

Some prefer planting in a continuous drill, leaving the plants one to two inches apart. Sorghum prefers gray soils naturally well drained. Heating manures are not suited to it. Ammoniated superphosphate, bone dust and hard wood-ashes are good, also acid phosphate and cotton seed meal. Harvest when the seed is half ripe.

MILLO MAIZE.

This new and most wonderful forage plant is now generally introduced, and is a valuable acquisition. Plant as early as possible after frosts are over, on any kind of soil, on high or low lands. Prepare the land very thoroughly, making it finely pulverized; the richer the land the

heavier will be the yield. Lay off shallow rows four to five feet apart, in which drill the seed lightly, and cover from half an inch to an inch deep. Some prefer planting in checks, three feet by four or five feet, according to the richness of the soil—dropping five or six seeds to the hill ; cultivate carefully while young, until waist high, when it may be left alone. It may be cut green three times or more during the season, or be left to bear seed ; cut off the seed heads, and after a few days strip off the fodder, and before frost cut down the stalks and store under cover for winter feed. The heads, fodder and stalks are all good food for cattle or horses. The yield is enormous on rich soils. To raise seeds, plant thinly, in rows five feet apart, and with the plants one to two feet apart in rows. Let the crop remain standing until the seeds mature.

#### SUGAR MILLET.

Take the early amber sorghum and sow thickly in drills three and one-half to four feet apart. This will make a good forage to feed, either green or cured for winter. Plant from May 15th to June 15th ; cut when the seeds are about half ripe. Make into shocks and cure it.

#### TEOSINTE.—(*Euchlæna luxurians.*)

This is a newly imported forage plant, which yields a greater weight of rich, succulent feed than any other plant of which I have any knowledge. It, however, does not produce seed in this country, which is unfortunate. The seeds must be procured from seedsmen, who import them annually from the East Indies. Plant only on rich ground. Prepare the soil well, and so soon as frosts are over, check off the land four-and-a-half feet square, and drop three or four seeds in each hill ; cover one to two inches deep. Cultivate carefully, the same as corn, until it about covers the ground. It may be cut and fed green, or be allowed to remain until just before frosts, then cut and cure for winter use in same manner



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as fodder corn ; or it may be used as ensilage. One pound of seed will plant an acre. The yield is enormous.

CAT-TAIL MILLET.—(*Penicillaria spicata.*)

The Cat-tail millet of the Southern states is also known as Pearl millet, and is called by some, Egyptian millet, Horse millet, etc. Select very rich land, or fertilize the land highly, and make it smooth and fine. Sow immediately after the weather becomes warm in the spring. Lay off shallow rows, four feet apart, in which drill the seed, thinly, and cover half an inch deep, using great care to cover with fine light soil. After the plants are well up, thin to one plant every ten or fifteen inches. Keep clear of weeds and grass while young ; after the plant has reached the height of about three feet, cut and feed to horses or cows. It continues to grow up rapidly after cutting, and may be cut several times during the growing season. If it is desired to raise seed, thin out the plants to three feet apart.

GERMAN MILLET.—(*Panicum Italicum*, VAR.)

This is sometimes called Golden millet. Sow broadcast, from May first to July fifteenth, one half a bushel to one bushel to per acre, according to the strength of the land. Harrow or brush in the seed on finely pulverized soil. Harvest when the seed are in the milk state, and cure for hay.

HUNGARIAN MILLET.—(*Panicum Italicum*, VAR.)

This, which is also called Hungarian grass, may be sown according to the directions given for German millet, save as to the quantity of seed to sow per acre. From twelve to twenty-four pounds of seed is sufficient for an acre. Hungarian grass has not so large a growth, and it matures a little earlier than German millet. It makes a fine hay, and is the quickest crop known to the catalogue.

DHOURRA CORN.—(*Sorghum vulgare.*)

There are brown and white seeded varieties. Plant in March or April, or after frosts are over. It requires a rich or well manured soil, which is well plowed or pulverized. Lay off rows four-and-a-half feet apart with a row plow, in which drop the seed thinly, so as to average one seed every two to four inches. Cultivate shallow and frequently, and at first cultivation thin to one plant every eight to twelve inches. The seed when ripe are very fine for fowls, good to parch, and good for bread. Requires the full season to mature it.

## EGYPTIAN RICE CORN, OR IVORY WHEAT.

This, which is a variety of the foregoing, is planted, cultivated and treated in the same manner as Dhourra. It matures much earlier. A desirable crop.

## RURAL BRANCHING SORGHUM.

Similar to Dhourra. Plant and cultivate in same way.

## FODDER OR FORAGE CORN.

Indian corn, either the field or sugar varieties, makes an excellent forage. Plant on any rich and thoroughly prepared soil, from March first to July first, in drills four to five feet apart, sowing about three bushels of seed per acre. Cover two to three inches deep. Cultivate it with plow or cultivator until waist high. It is ready to cut and cure when the tassels and silks have appeared.

## KAFFA CORN.

From Kaffa, East Africa, south of Abyssinia and west of Somanh. This plant very much resembles Millo Maize, and Rural Branching Sorghum. It is planted in same manner and at the same time. It is more desirable, as it is much earlier. It matures an abundant crop of seed in August and September. Makes excellent bread. Very desirable.

SPANISH CHUFA.—(*Cyperus esculentus*.)

This is a very rich, sweet, nut-like tuber, growing at the root of the plant. It is healthful and nutritious, and is good for the table or as food for hogs and fowls. It is very productive. Old land, destitute of vegetable matter, will not answer for the Chufa. The plant requires a rather dry, sandy loam; one that is naturally rich or that has been manured the previous year. Plant in March or April; plow up the land thoroughly; throw two furrows together with a small turn plow, two feet apart; re-open this bed with a narrow scooter or bull tongue. Having first soaked the Chufas twenty-four to thirty-six hours in water, drop two every foot in the furrow and cover two to three inches deep. Cultivate lightly until the plants nearly occupy the ground. Immediately after frosts, the nuts may be gathered, washed, dried carefully and housed. Ammoniated superphosphate with potash is a good fertilizer for this crop. The tops may be cut and fed to stock once or twice during the season.

## PEANUTS.

Also known as Goobers, Ground Peas, Pinders, etc. Soils naturally rich in lime suit the peanut. Plant in March or April. Lay off rows three feet apart with a small turn plow, throw two furrows to the row, one on each side; re-open with a narrow plow; drop two seeds every fifteen to eighteen inches, cover two inches deep. Cultivate lightly but cleanly. Put no earth on the vines. After frost dig, wash and dry carefully, and house the crop. Superphosphate of lime is a good fertilizer for this crop.

CLOVERS.—(*Trifolium*.)

There are several kinds of clover, some being annual, while most are perennials. The same preparation of the soil, and the same treatment answers for all. In sowing clover and grass seeds, it is a good plan to mix the seeds



with ashes or dry earth before sowing, as this insures a uniform distribution of the seeds. The land for clovers should be well pulverized, especially on the surface; deep plowing is not required, as the clovers like a close subsoil. If the soil is not rich, apply from twenty-five to one hundred two-horse wagon loads of horse or cow manure, or two to six hundred pounds of ammoniated superphosphate per acre, as may be convenient; harrow or plow in lightly.

**RED CLOVER OR KENTUCKY RED CLOVER.**—The soil being properly prepared sow ten pounds red clover per acre broadcast, cover with brush, then roll if convenient. Sow perennial clovers from September 1st to October 15th, and from February 1st to April 1st. Red clover is ready to cut when most of the blooms begin to turn brown. Select tenacious soils for clover; sandy or light gray soils are not suited to these plants. They need a clay subsoil.

**SAPLIN CLOVER.**—Directions for Kentucky red clover apply to this variety also.

**WHITE CLOVER.**—Observe same directions as for red clover, except as to quantity of seed per acre. Three to five pounds of this kind per acre is sufficient.

**ALSIKE CLOVER.**—Directions for red clover are same for this.

**CRIMSON ANNUAL CLOVER.**—Sow from ten to fifteen pounds of seed per acre, from August 15th to October 15th; otherwise observe same direction as for red clover.

**SPOTTED MEDIC.**—California or Burr Clover, plant only in early fall, from August 15th to October 15th; sow sixteen to twenty-four pounds per acre; harrow or brush in, then roll if convenient. The plant is an annual, and if not grazed too late it re-seeds the ground annually—very hardy.

LUCERNE OR ALFALFA.—A hardy perennial, which requires the same preparations as for red clover. Sow ten to twelve pounds of seed per acre, in shallow drills about twelve to fifteen inches apart, either in September, October or February and March. Some April sowings have done well. Keep clean of weeds and grass for the first summer, after which it will take care of itself; cut as soon as it begins to bloom, and feed to cattle or horses. Repeated cuttings may be had during the spring and summer. Lucerne prefers a mellow soil, does not succeed well on a hard pan subsoil; makes a very rich hay. One sowing stands a number of years, will flourish in sandy soils and climates too warm for clover.

JAPAN CLOVER.—(*Lespedeza striata*)—A spontaneous growth of some value as a pasture, but not worth cultivating where other clover or grasses will grow. It produces but few seeds, and we know not how to propagate it other than to take up the surface soil where it has just grown and scatter it where the plant may be wanted. Do this in August, September or October. It is an annual. It rarely grows high enough to cut for hay.

There are other varieties of clover, such as Bokhara, Sweet Melilot, Cow-grass, Yellow Trefoil, etc., but they are not so valuable as the above. Sweet Melilot may be worth something as a bee pasture, or as a renovator of the soil, but is not in our opinion, worth planting for any other purpose.

#### GRASS SEEDS.

Nearly every kind of grass requires the same preparation of the soil before sowing the seeds. The most important thing to do is, to thoroughly plow and finely pulverize the surface soil. Deep plowing is not at all necessary. Grass sown on cotton land through which the sweep has been run, frequently takes root as beautifully as upon land with any other preparation. Break the land and

cross plow it with any kind of plow that may be found convenient. Apply the manure, or 200 to 400 pounds of ammoniated superphosphate per acre broadcast, harrow thoroughly several times, thus finely pulverizing the soil; then sow the grass seed broadcast, and cover very lightly with a brush or press them into the ground with a roller.

ORCHARD GRASS.—(*Dactylis glomerata.*)

A hardy perennial; sow twenty-eight to forty-two pounds per acre broadcast, in September, October, February and March. Soil comparatively free from sand is best; makes fine pasture, also good hay.

KED-TOP.—(*Agrostis vulgaris.*)

Called Herd's grass in Pennsylvania, while Timothy is the Herds grass of New England. Sow seven to fourteen pounds per acre broadcast, on bottom land and damp lands, during September, October, February and March, for hay or pasture.

TALL MEADOW OAT GRASS.—(*Arrhenatherum avenaceum.*)—Sow twenty-four to thirty-six pounds per acre broadcast, on any kind of good rich land during August, September and October, very fine for hay or pasture.

KENTUCKY BLUE GRASS.—(*Poa pratensis.*)—Sow twenty-eight to forty-two pounds per acre broadcast on good closesoils with clay foundation, during September and October, or February and March. Very ornamental for yards, or lawns, and excellent for pasture, a fine winter grass. English Blue-grass. See Meadow Fescue.

TEXAS BLUE GRASS.—A new candidate, meeting with considerable favor; perfectly hardy, grows from September to May, when it seeds and dies down, to come again annually. Propagated from seeds or plants, the latter preferred. Seeds are difficult to procure and are very light and troublesome to sow. Sow the seed thinly on a finely prepared rich bed during the fall, the earlier the



better; press in firmly. As the plants grow large enough, draw them and transplant where you wish the grass to remain, say in checks two feet square. It spreads rapidly, hence will soon cover the ground. Sets should be transplanted from September to January, in hills two to three feet square. Pasture it or cut for hay as soon as the bloom appears. No degree of cold appears to injure it at all. Sow twenty pounds of seed per acre.

JOHNSON GRASS.—(*Sorghum Halepense*.)—Some advise the sowing of this grass in August and September, but spring is beyond doubt the best time. Sow twenty-five pounds per acre, during March, April or May, broadcast; cover with the harrow or brush. It will grow on any kind of soil, and it will never forsake you. Cut for hay as soon as the seed heads appear; very nutritious, perennial rooted. When once established there is no way to get rid of it, but to pasture closely. Grows three to six feet high.

BERMUDA GRASS.—(*Cynodon Dactylon*.)—Seeds are very rarely to be found so far, and very difficult to procure. When they can be obtained, sow two to four pounds per acre broadcast in May or June. Brush in lightly. The roots are safest to propagate from, and can always be obtained. This grass spreads rapidly, hence it may be planted any distance apart that one may see proper. If roots are plentiful they may be scattered broadcast and plowed in lightly, or the land may be checked off, say in squares of three to four feet, and a root set in each check, It will soon take possession of the ground, and comes to stay. Set the plants or roots at almost any season of the year when the weather is not freezing or too dry. The spring and early summer months are preferable. It dies down in the winter, but comes again in early spring and laughs at a drouth. I think I can safely say that ten acres of Bermuda is of more value for summer pasturage

than ten acres of any other grass known to the catalogues. It also makes very fine hay.

**TIMOTHY.**—(*Phleum pratense.*)—This well known hay grass may be sown in either September, October, February or March, and in some of the Northern States in April. Sow twelve to twenty-four pounds broadcast ; cover with brush ; cut and cure when in bloom. Perennial.

**SWEET SCENTED VERNAL GRASS.**—(*Anthoxanthum odoratum.*)—Sow this mixed in with the seeds of hay grasses, say one to three pounds per acre. It gives the hay a sweet smell and a fine flavor, hence the horses and cattle will relish it. It is to hay what nutmeg or lemon is to some dishes that go upon our tables.

**VELVET GRASS, MEADOW SOFT GRASS.**—(*Holcus lanatus.*)—Sow fourteen to twenty-one pounds per acre broadcast in September or October, February, March or April, cover with brush ; good pasture or good hay.

**CRAB GRASS.**—(*Panicum sanguinale.*)—Annual introduced grass, widely distributed throughout the Southern States. This grass generally comes spontaneously during the month of June. To obtain a good crop, plow the land and harrow nicely about June 1st ; it will come beautifully, and be ready to cut from August to October. It makes an excellent hay, not much inferior to timothy. Should the land not bring this crop spontaneously, procure the seed in October and sow June 1st, two to four pounds per acre broadcast. It will continue coming annually.

**MEADOW FESCUE GRASS.**—(*Festuca pratensis.*)

Called by some English Blue-grass, Randall-grass, etc. Sow broadcast one to two bushels of seed per acre during September, October, February or March ; brush under ; excellent for pasture, or to cut for hay when in bloom.

A mixture of grasses may be sown for lawns, pastures, or for mowing. Sow twenty-eight to forty-two pounds per acre in September, October, February or March ; cover with brush. If for hay, cut when in the bloom ; if for ornamental purposes keep it mowed as fast as it becomes four or five inches high. Use the finest mixtures if for a lawn. Most seedmen furnish these mixtures.

There are many other kinds of grass seeds, such as Creeping Bent, Rhode Island Bent, Hassock, Wood Hair, Meadow Foxtail, Slender Foxtail, Reed Grass, Yellow Oat Grass, Soft Brome, Meadow Brome, Rescue, Crested Dog-tail, Lyme, Hard Fescue, Tall Fescue, Various-leaved Fescue, Sheeps' Fescue, Purple Fescue, Slender Fescue, Italian and English Rye Grasses, Water Meadow, Wood Meadow, Rough-stalked Meadow, etc., all which may be planted after the general directions heretofore given, and out of which farm lawn mixtures may be prepared.

WILD RYE GRASS.—This grass is considerably called for, but it is from ignorance of its nature. It grows spontaneously in fence corners and such places. It is coarse and not worth cultivating.

WILD RICE.—(*Zizania aquatica.*)

Also called water rice. Sow the seed in a pond or lake. It is useful as a food for some species of fishes. The seeds are also good for fowls and birds. Indians use it as we do common rice. It seldom makes its appearance before the second season after being sown ; sow during spring.

SUN FLOWER.—(*Helianthus annuus.*)

Very careful preparation of the soil is not necessary for the sun flower. It grows freely on any kind of upland, whether poor or rich ; the richer, however, the better ; plow the land thoroughly, check off three by four feet, drop three or four seeds in each check, cover one to two



inches deep, thin out to one or two stalks to the hill, cultivate clean until blooms begin to appear, then let it take care of itself. Plant during March, April and May, gather the seed when ripe. They are fine food for chickens, horses, etc. The plant is said to be an absorbent of malaria, and therefore healthful to cultivate about the premises. It may be planted in fence corners, hedge rows, groups on the lawn or almost anywhere.

TOBACCO.—(*Nicotiana Tabacum.*)

Sow the seed in February or March. A good plan is to burn a brush-heap on a piece of fresh land. This kills weed seeds and furnishes ashes, which is what the tobacco needs; after the brush-pile has burned, prepare the spot by forking or digging up fine and manuring thoroughly, then sow the seed and cover scarcely at all; watch the young plants that the bugs don't destroy them; when large enough to handle transplant to rich, well prepared land where you wish to grow the crop. Lay off rows four feet apart, and set out the plants eighteen inches to two feet apart in the row. Tobacco likes fresh land, and likes manure or fertilizer containing a large per cent of potash; cultivate carefully, keep clean of all weeds and grass. Do not permit the worm to destroy the crop. They will be sure to do this if you fail to watch the plants daily and hand-pick the worms. As soon as signs of blooming appear, top the plants to force the growth into the leaf; also pinch off the branches that appear in the axils of the leaves. The stage at which tobacco should be cut is determined by the color and feel of the leaf. Get some practiced man to aid you in this and in curing it.

POPPY.—(*Papaver somniferum.*)

This plant is grown for the opium it contains. Sow the seed in a good, fine, rich bed in early fall; transplant as soon as the plants are large enough, in rows three by

three feet, or on borders, or in groups as may suit your fancy. There are different colors, and the flowers are very showy. The white is best for opium.

VETCH.—(*Vicia sativa*.)

There are several varieties of this plant, either of them more or less useful as forage or for pasture. The English Spring Vetch should be planted after frosts are over. The English Winter Vetch should be planted in August, September or October. The native or American Vetch (*Vicia Americana*) is by far the best for all purposes, and should be planted in August, September and October. This crop partakes somewhat of the nature of the pea, and will enrich the land upon which it is planted. It is also good for hay and good for pasture. If not pastured too late in the spring it will re-seed itself, and thereby continue coming year after year. It is a good substitute for clover and will grow luxuriantly on sandy lands and in southern climates where clover will not succeed. Sow broadcast, one peck per acre, on well prepared land, and cover half to one inch deep. It luxuriates on the sandy soils of the sea coast also.

HOP SEED.—(*Humulus Lupulus*.)

Plant in March or April, in cold frames in the most careful manner, and in only very finely pulverized soil, barely covered and slightly pressed down; when plants are sufficiently large, transplant to permanent ground. Cuttings are preferable to seeds. Plant say four by six feet in checks; arrange poles or trellis for them to climb on.

PRICKLY COMFREY.—(*Symphytum asperrimum*.)

Procure the roots during November, December, or January; prepare very rich land by plowing or forking up thoroughly six to twelve inches deep. Plant a piece of the root in four feet checks; cover two or three inches deep. The roots may be cut into pieces half an inch to

one inch long. Plant during late fall or early winter. It is among the first green feeds to appear toward spring, a fine food for milch cows, produces enormously under favorable conditions. The plant is not in general cultivation, it is generally conceded that it should not be allowed to produce seed.





## GARDEN OR VEGETABLE SEEDS.

ARTICHOKE—GLOBE.—(*Cynara Scolymus.*)

This is the true Artichoke, and often called the Bur Artichoke to distinguish it from the Jerusalem Artichoke. There are two varieties, viz.: Large Green Globe and Large Paris. The Large Globe is best for general culture. Sow the seed in April in rich soil, transplant the following spring to permanent beds in hills two by three feet. The plant is perennial and will last for years if protected in the winter by a covering of leaves or coarse manure. The part used is the pulpy receptacle in the flower heads, termed the "bottom," freed from the bristles, or seed down, and the lower portions of the scales which surround the head. Boil and dress with butter, salt and pepper, and it is very nice.

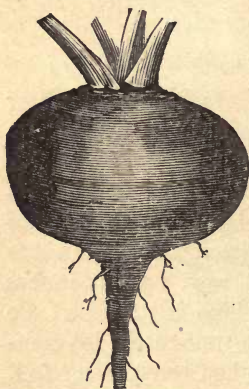
ASPARAGUS.—(*Asparagus officinalis.*)

Plant the seed in early spring, soaking it in water twenty-four hours before planting. Drill thinly in rows twelve inches apart, in rich, mellow soil, well drained; cover about one inch deep; thin out three or four inches apart, and cultivate well. When plants are one or two years old, transplant to permanent grounds in rows three feet apart, and two feet apart in the row, and six inches beneath the surface; strong, loamy land is the best. Be sure to make the land very rich with well-rotted lot manure, and manure the surface of the bed freely every fall. An application of salt every fall as a top dressing is necessary; cover the bed say one-quarter to one-half inch with the salt. The old idea of making a rock bottom bed for this vegetable was a great mistake, and required immense labor for nothing. Plants may be procured from seedsmen and nurserymen, and planted out at once, thus avoiding the slow process of obtaining them from seeds.

Small beds may be established in the garden in a convenient manner about as follows : After forking in about six inches of well-rotted lot manure, open out three furrows, eighteen inches apart, any desired length. Plant one root every eighteen inches in the furrows, and cover the crown six inches deep. The sprouts are cut just below the surface when young and tender. When boiled and buttered, and peppered, it is perfectly delicious, surpassing the English pea. No one should be without an asparagus bed. Transplant in November, December, and January, the earlier the better. This is a profitable market crop. The plant is perennial.

BEETS.—(*Beta vulgaris*.)

Beets require rich soil, mellow and deeply broken, but never use green manure. Lay off rows three feet apart, one to two inches deep. Soak the seed twenty-four to thirty-six hours in water; drop them so as to average one to every inch; cover about one inch deep; when up, thin to one plant every six to eight inches; cultivate clean and well. Some check the land off eight inches square, drop two seed in each check, thin to one plant, etc. Plant from February 14th to May, and again in August.



TURNIP BEET.

BROCCOLI.—(*Brassica oleracea*, VAR.)

Sow in seed bed the middle of spring; when plants are eight to twelve inches high, transplant to open ground in rows four feet apart, and setting the plants two feet apart in the row. Cultivate clean and well; use when the head forms. Plants may be left out during winter

to head in the spring. Use same as cabbage. Plant also in September for late use.

BRUSSELS SPROUTS.—(*Brassica oleracea*, VAR.)

Follow same directions as for broccoli. The small heads produced upon the stalk are the eatable portion. When these are well developed they are cooked like larger cabbages.

BEANS, SNAP SHORTS.—(*Phaseolus vulgaris*, VAR.)

Bunch or Bush beans. Commence planting the middle of February and make successive plantings until August. On rich soil, lay off rows three feet apart, four inches deep, in which drop the beans so as to average one every inch; cover two or three inches deep; cultivate clean, but not when the plants are wet. The pods are used while still tender.

POLE OR RUNNING BEANS, SNAP SHORTS.—Plant from May first to July fifteenth, on thoroughly plowed and harrowed land, in hills four feet apart, five or six beans dropped in a circular drill in each hill. Cover two to three inches deep. Place good poles, eight feet high, in the middle of each hill for the beans to run on. Also plant amongst Indian corn; the corn stalks answer for poles.

WHITE BEANS FOR WINTER USE.—The best of these are the Royal Dwarf, White Marrow, the Tree, Navy and the White Kidney. Plant the latter part of May and through June, in rows three feet apart and six inches apart in the drill. Drop two to three beans in a hill, cover about two inches deep. Ashes and ground bone, or acid phosphate, mixed, are good fertilizers for beans. Gather the beans after the pods are ripe and put away for winter.

LIMA OR BUTTER BEAN.—(*Phaseolus lunatus*.)

Also the Carolina or Sieva bean, Scarlet Runners, &c. Plant on good, rich, mellow, well-drained land, but not



what is called "thirsty" land. Do not plant in cold ground as the beans will rot. Plant after the weather gets warm, say from May tenth to the middle of June. Manure with ashes, bone dust, and well rotted lot manure. Check off the land four feet square ; in each check make a circular furrow about two inches deep, drop five or six beans in this circle, with the hand turn the bean's eye down, and press lightly into the soil and cover. In the center of this circle place a pole, eight feet high, on which the beans will run.

Some plant in a continuous row to run on a trellis, but they do not bear so well as when in hills and on poles.

#### ENGLISH DWARF BEANS.—(*Vicia Faba.*)

Broad Windsor is the best variety. Plant in September and October. Check off land two feet square, drop two beans in each hill ; cover two inches deep. Requires rich land. Shell and cook while green in same manner as Lima or Butter beans. Requires no poles.

#### JACK BEAN.

This is a great runner and very ornamental. Plant during April and May to run on arbors, front verandas, etc., for shade, from spring until frosts. There are two varieties, the purple and white bloom. They make a pretty and luxuriant shade.

#### CABBAGE.—(*Brassica oleracea.*)

This is doubtless the most universally popular vegetable known to the catalogue, yet there are more failures in its cultivation than with anything else. The failure is generally attributed to the climate, season, and seeds, while in fact it is nine times out of ten due to want of proper preparation and fertility of the soil, and lack of proper culture.

Sow the seeds of the early varieties in September, October, November, December or January. Transplant to

permanent grounds as soon as large and stout enough. They will head in May and June. Plant the earliest varieties two feet apart each way; the second early or medium, three feet, the late varieties four feet apart. Sow the seed moderately thick, in drills half an inch deep and eighteen inches apart. Late varieties should be sown in May, transplanted in July, to head up during the fall for winter use.

Select none but the richest soil, or make it absolutely rich, or you had better not undertake to grow the cabbage. One hundred two-horse wagon loads of good stable manure, or 125 loads of cow lot manure, is a very light application per acre for cabbages; never use less than this, and run it up to 400 loads if practicable, or in lieu thereof 2000 pounds of ammoniated superphosphate of lime per acre. Plow in thoroughly and deeply; plow and cross plow and harrow until the soil is thoroughly pulverized; plow as near eighteen inches deep as possible. The cabbage must have moisture, and deep plowing will give it to you and retain it.

It is useless to plant more than four varieties. You will find twenty to thirty varieties named in the catalogues, but three or four will comprehend every class. Select one of the earliest, one second early or summer, one late or winter, and one of the Savoys. This crop is profitable when properly managed; cultivate frequently and always shallow, and keep scrupulously clean until the heads begin to appear—unless the plants lap between the rows sooner.

Perhaps the best way to plant the seed is in a cold frame under glass. This protects the young plants from severe cold during winter, as well as from the destructive insects of spring or summer. Always in transplanting, set the young plants down to the leaves, no matter how long the shank.

COLLARD.—(*Brassica oleracea*, VAR.)

Plant the seeds in open ground in the spring or early summer, in June or July; some plant in May. Sow thickly in drills two feet apart in moderately rich soil. As soon as the plants are large enough, transplant into rich ground, three by four feet. Keep clean by cultivation. Before freezing weather comes, pull up the collards, root and all, and heel in in trenches, laying them as close together as possible, with heads inclining on the ground toward the south, and shelter in some rough manner. Pine tops are used by many for this purpose. During the winter boil them with bacon, corn beef, or alone, and dress with butter, etc. They are superior in flavor to cabbage, although they do not produce hard heads. They will blanch beautifully when covered with straw and earth.

CARDOON.—(*Cynara Cardunculus*.)

Sow early in the spring where the crop is to remain, in drills three feet apart, an inch and a half deep. When up, thin out the plants to a foot apart in the drills. Keep properly worked. The soil should be good. The midrib of the leaf is used, which requires to be blanched in same manner as celery.

CARROT.—(*Daucus Carota*.)

A rich, sandy loam is best. Sow in the spring as soon as the frosts are over. Lay off rows fifteen to twenty-four inches apart and about one inch deep, in which sow the seed thinly; cover about half an inch deep. At first working, thin out to three or four inches apart, work deeply and carefully until the plants have about made their growth. In Georgia and other States not colder than this, the roots may remain out in the open ground and will keep sound all the winter. Begin to use them in December when other vegetables are scarce.



CAULIFLOWER.—(*Brassica oleracea*, VAR.)

See cabbage and follow the same directions there given, except that in the Southern States it is useless to plant any in the spring. Plant in cold frame in fall and transplant, setting deeply, in December or January.

CELERY.—(*Apium graveolens*.)

Select a moist, but not wet, sandy loam, very rich, or make it rich; let it be as convenient to water as possible.



WHITE PLUME CELERY.



HALF DWARF CELERY.

Sow the seed in April or May in open ground. Cut off the tops of the plants once or twice before transplanting, so as to make them stocky. Transplant in June or July. Mark off rows three feet apart, and set the plants six inches apart in the row, being careful to press the earth firmly about the roots. Nothing further need be done but to keep down weeds and grass until six or seven weeks, then begin the earthing up, which is necessary for the blanch-

ing of that which is wanted for use. The first operation is that of "handling," *i. e.* after the soil has been drawn up to the plant with the hoe, then with the hands further draw it close around each plant, so as to keep the leaves in an upright position. As the frosts of fall draw near, take the spade and bank the soil up to the plants, clear to the top on each side. Rows might do better four feet apart for very large growing varieties. Water the plants if the weather becomes too dry; when blanched it is ready to eat. In very cold weather, it may be dug and banked in some protected and convenient place.

#### CELERIAC.

A turnip-rooted variety of celery of much easier growth than ordinary celery. Sow seeds in early spring in shallow drills eighteen inches apart; cover with fine earth one-half inch deep. Thin out to three or four inches apart; keep clean by cultivation until roots are pretty well developed. It may be cooked and sliced, and used with vinegar, making a most excellent salad.

#### CHERVIL.—(*Anthriscus cerefolium.*)

Sow thinly in May, in drills half an inch deep and fifteen inches apart. A sowing might be risked in March or April. This is an aromatic sweet herb; the young leaves are used in soups and salads.

#### CORN SALAD.—(*Valerianella olitoria.*)

A vegetable used as a salad, very hardy; sow in September, and treat about as turnips.

#### CRESS, OR PEPPER GRASS.—(*Lepidium sativum.*)

Sow in drills thickly, and barely cover. Have drills twelve to eighteen inches apart. Sow at intervals of two weeks, beginning March first. This is an agreeable, pungent salad. Sow also in September.

WATER CRESS.—(*Nasturtium officinale.*)

A hardy, perennial, aquatic plant. Has a pleasant pungent taste and is an excellent salad. Plant along the margin of running streams, ponds and ditches. Sow the seed in September or in March and April, and cover in the lightest manner ; it takes care of itself afterward.

CUCUMBER.—(*Cucumis sativus.*)

The soil best suited to the cucumber is a warm, sandy, rich loam, though it will grow on any soil if the preparation is proper and the season propitious. Plant the seed after all danger of frost is over, and the spring settles down warm. Deep and thorough preparation of the soil is necessary. Make hills four feet apart each way, add a shovel or so of well rotted stable manure to each hill and mix it well with the soil. Drop five or six seeds in each hill, cover half an inch to an inch deep, press the soil on the seed lightly. After the plants get strong, thin out to two or three in a hill. Keep the crop clear of weeds and grass until the vines begin to run freely. Gather the cucumbers as fast as they become large enough to use, or the vines will not continue to bear well.

Cucumbers may also be planted around a barrel of water. The most prolific crop I ever saw was produced from seeds sown in a continuous drill, the plants left standing three or four inches apart in the drill.

DANDELION.—(*Taraxacum Dens-leonis.*)

Sow the seeds in April or May, in drills twelve inches apart ; cover half inch deep. Rich and finely pulverized soil is necessary. Blanch the leaves and use for salad.

EGG PLANT.—(*Solanum Melongena.*)

Plant the seeds in hot-bed, under glass, in February or early March. Harden or toughen the plants as much as possible by transplanting, and opening the hot-bed every fair day when not too cold. About the fifteenth of May



to June first, when the plants become stout, transplant into the open ground, four feet apart each way, on rich soil. Cultivate well and they will afford plenty of fruit, surpassing the squash, until frost.

ENDIVE.—(*Cichorium Endivia.*)

Sow about last of March for spring and summer use, and in July and August for fall and winter use. Lay off shallow drills twelve or more inches apart in rich, mellow soil, in which drill the seed thinly; cover very light. Thin out to four inches; cultivate well. Blanch the leaves by tying up in a conical form or by covering with slats or sticks. Use as salad.

GARLIC.—(*Allium sativum.*)

Select light but rich soil; prepare finely. Early in March lay off rows twelve inches apart, in which drop the sets, two or three inches apart, and place upright with the hand. Cultivate well. Used for flavoring soups, stews, etc. When ripe, harvest the same as onions.

KALE, OR BORECOLE.—(*Brassica oleracea*, VAR.)

Kale luxuriates in any rich soil. It is the richest and most delicate of any of the cabbage family, and the greens may be eaten by those who dare not touch cabbage. In the Northern states plant in April and May. In the Southern States plant also in spring; but fall planting is more desirable, as it is during winter and spring that greens are mostly sought after, and the varieties of kale being perfectly hardy, make one of the most reliable sources for this much desired and delicious dish. Fall planting should be done in August and early September. Drill the seeds thinly in shallow rows, and cover about half an inch deep; have the rows three feet apart. Thin out to fifteen to twenty inches apart in the row, and extend your crop with the thinned plants. Cultivate well. The greens are better after frost falls on them. There are several varieties, all of which are good.

KOHLRABI.—(*Brassica oleracea*, VAR.)

This is also known as the Turnip Rooted Cabbage. Sow any time from March to September, thinly, in rows two feet apart; cover half inch deep. When up, thin out to six or eight inches apart. Boil and slice, and eat with butter, pepper and salt.

LEEK.—(*Allium Porrum*.)

Sow the seeds in February, March and April, in very rich, mellow soil, in rows fifteen inches apart; cover about one inch deep. When seven or eight inches high, transplant in rows two feet apart, and six inches apart in the rows. Plant as deep as possible, so as to blanch them. The leek is eaten like the onion, it being sweeter and more delicate. Plant also in September.

LETTUCE.—(*Lactuca sativa*.)

A well-known green salad, and relished by everybody. It is of easy culture, but requires rich soil to force its growth, so that the cuttings may be crisp and tender. Plant seeds in shallow drills, fifteen inches apart; cover half an inch deep; when up, thin out to six inches apart. It may be easily transplanted whenever necessary. In the Southern States, sow either in March or April, or in August and September. A little straw or brush around the plants will protect them in winter. Sow in cold frames at any other time you may desire during the winter. In the Northern States, protect the plants under glass until cold weather ceases.

MARTYNIA.—(*Martynia proboscidea*.)

The fruit is used for pickles while young and tender. Sow in drills in April or May; cover very lightly. When plants are large enough, transplant two feet apart each way.

MUSHROOMS.—(*Agaricus campestris*.)

The chief conditions to obtain a satisfactory result in growing mushrooms, is a rich soil under a genial temper-

ature. To secure the latter, the culture is often carried on in cellars; but any locality, such as frames, out-houses, etc., will do, provided the temperature does not exceed eighty degrees, or fall lower than fifty. They can be grown in barrels sawn in two to form tubs, or upon the floor. Obtain good garden mould, and mix one bushel of soil to two bushels of horse dung, as free from straw as possible, and fill up the tubs solid with the mixture; or lay down a bed three or four feet wide and twelve inches thick, and press it solid with the spade. As it will likely get too hot, it is best to let the heat recede until it is not over ninety degrees, then insert small pieces of spawn, lumps two inches through, in holes twelve inches apart, and cover firmly over. Let the bed remain in this condition twelve or fifteen days, then cover with an inch or more of good garden mould, which can be slightly moistened. If the bed is exposed, and subject to great changes in temperature, it is best to cover it with about four inches of hay or straw. In six or ten weeks, according to the temperature, the mushrooms will appear. In gathering them, care should be taken to fill up the holes with soil. The bed should bear two months. An occasional watering with warm water about seventy-five degrees is beneficial, with a little fertilizer or manure water added with salt. One pound of spawn is enough for a bed three feet by four. Beware of the poisonous ones in gathering wild mushrooms.

MUSTARD.—(*Brassica alba* and *B. nigra*.)

One of the best of salads and useful medicinally; sow the black mustard if seeds are wanted for medicine. The White, the Creole and the Southern Giant Curled, are the best for greens, and the last named is the best of these three. In the North, sow in the spring as soon as frosts are over. In the South, sow in March or April, and in August and September, either broadcast or in



drills fifteen inches to two feet apart. If it be desired to make seed, thin out to one foot apart in the row and cultivate. The young leaves make healthful and palatable greens.

NASTURTIUM.—(*Tropæolum minus* and *T. majus*.)

Plant in May; lay off rows two feet apart, one inch deep in which drop the seed about one to two inches apart; cover lightly, keep clean. Gather the seed pods while young and succulent, and pickle and use as capers. Very pretty bloomer. The tall kind should be provided with brush or other support to climb upon.

OKRA.—(*Hibiscus esculentus*.)

This is one of the finest, most nutritious and healthful of all vegetables; strictly a southern plant; easily grown on any kind of soil. Plant in April or May. Lay off rows four feet apart, two inches deep. Soak the seed in sweet milk or water twenty-four hours; drop three or four in a hill, three feet apart. When up, thin to one plant to a hill; cultivate nicely. The pods are used when young and tender for thickening soups, etc. They are also delicious when boiled and seasoned with butter, pepper and salt, or boiled and then fried brown in sweet fat. The pods are also cut and dried, and used during the winter for soups. Okra and tomatoes make beyond all question the finest vegetable soup known to the cook book. There ought to be a great demand for dried Okra in sections where it cannot be grown.

ONION.—(*Allium Cepa*.)

There need be no more difficulty in making a crop of onions than a crop of potatoes. I will, however, notify you in advance that your ground *must be rich*. Manure without stint. Apply from twenty-five to one hundred two-horse wagon loads of stable manure, or 1000 to 2000 pounds of ammoniated superphosphate per acre. The land should be deeply and finely plowed. It is well to

do this in the fall, and throw the land up in ridges so that it may be subjected to freezing in winter, thereby becoming thoroughly pulverized. In the Southern States planting may be done either in August and September, or in February and March. In the North, plant only in early spring after frosts are over.

Level and smooth the land over nicely and roll it. Lay off rows half-inch deep, eighteen inches apart, in which sow the seeds thinly, about four pounds per acre; cover one-half inch deep, press down firmly or roll lightly. When the plants are well up, thin out three to five inches apart; keep cleanly hoed, but throw no earth to the plants. Fine onions may be made as above from the seeds. If the object be to grow sets, then select rather thin soil, as free from grass and weed seeds as possible. Use ammoniated superphosphates, about 600 pounds per acre; stable manure contains too many seeds of grass and fowl weeds. Sow seeds about June first, thickly in drills, ten to twelve inches apart, or broadcast, as may suit your convenience. In this way small onions are produced, called "sets," which when transplanted, produce a large onion.

**SETS OR BUTTONS.**—When planting Sets and Buttons, prepare the land the same as for seeds. Check off the land eighteen inches one way, and six inches the other way; drop one set in each check, place upright, and lightly press into the soil; five to ten bushels will plant an acre. Afterward keep clean; throw no earth to the rows. Plant same time as seeds. Sets make a crop of large onions very quick.

**PARSLEY.**—(*Petroselinum sativum.*)

Sow thickly in drills twelve inches apart, in March, April or May and September; first soak the seed over night in warm water; for winter use sow under glass during September; cover half inch deep. Used for garnishing, seasoning, etc.

PARSNIP.—(*Pastinaca sativa*.)

Sow during February and March in mellow, rich soil, in drills fifteen or eighteen inches apart, cover about half an inch, when up, thin to two to three inches apart. They will remain sound in the ground all winter; good for the table, or for milch cows. Four pounds of seed will plant an acre.



PARSNIP.

PEAS—ENGLISH.—(*Pisum sativum*.)

The English or garden pea requires soil made rich the previous year, or the use of only thoroughly decomposed lot manure or ammoniated superphosphate. They will grow freely planted almost any way, and must be planted early so as to be ready before hot, dry weather, as they will not stand the heat. One of the best ways to plant is to lay off double rows just near enough together so the opening of one row does not fill up the other. If the bottom of the furrow could be broad and flat, it would be better, but not essential. Three to four feet from this first double row make another double row, and so on. In these double rows drill the seed thickly so as to average one seed every quarter of an inch; cover the seed three to four inches deep; stake the running varieties. In Southern States plant from the middle of January to the middle of April and in September. In the Northern States plant in February, March and April, and in August.

JAPAN PEAS.—Plant in April or May in rows three feet wide and two feet apart in rows. Good for stock.



**COUCH PEAS.**—Plant in May in hills two feet by six feet, three or four peas to the hill. Cover about two inches, cultivate until vines cover the ground ; good for shading and enriching the soil. Not much can be expected in the way of a crop from them ; they scarcely yield any peas in this state.

**PEPPER.**—(*Capsicum annuum.*)

Start the plants early by sowing seeds in a hot bed the latter part of February, or early in March. As soon as



GOLDEN DAWN PEPPER.

the weather becomes perfectly warm, transplant to eighteen inches to two feet square in rich mellow soil. The pods are used for pickling and for seasoning.

**POTATO—IRISH.**—(*Solanum tuberosum.*)

Plant in February or March in any naturally good soil, but a sandy loam is decidedly best. Use no fresh manure : very old thoroughly decayed manure will do. A compost made of land plaster, bone dust, ashes and leaf

mold is perhaps the best fertilizer to be found for potatoes ; apply freely in the hill or drill ; lay off rows three feet apart with a wide shovel plow, and eight to ten inches deep, in which drop the potato cuttings fifteen to eighteen inches apart, turn them cut part down, cover four to five inches deep. Cut the potatoes into four to eight pieces, according to size. A piece containing one or two buds or eyes does as well or better than to plant the whole potato. In the Southern States plantings may be made in July or August for a fall crop. Cultivate until signs of bloom-



IRISH POTATO.

ing appear, then hill up and lay by. The potato likes a cool moist bed to grow in—hence mulching with leaves or straw is very desirable, when convenient to obtain cheaply, and obviates the necessity of cultivating. Avoid low damp soils. I have raised enormous crops by opening trenches in rich garden soil, eight inches deep, dropping potatoes and covering with half rotted straw from oats, wheat or rye ; raise the straw several inches above the level so as to turn the water from the trenches.

SWEET POTATO.—(*Ipomœa Batatas.*)

Early in March (but much later if you are not ready so soon as this) bed the potatoes somewhat after this manner: out of doors in the South, under glass in the North. Select a spot where water will not stand, take out the soil about eight inches deep, three feet wide, and any length you please, fill in with good strong stable manure four or five inches deep, on which spread fine top soil one-half an inch to one inch deep, on this lay the potatoes as close together as possible and not to touch each other, press firmly down, then scatter lightly over them some thoroughly rotted lot manure, then cover about four inches deep with the top soil you threw out of the bed. Place a few boards over the bed to prevent heavy rains from falling on it too much. After frosts are over take off about two inches of the covering and the slips or plants will soon appear. From the latter part of May to July 4th, transplant to where you wish to make the crop. Break the land thoroughly, but not necessarily deep; low, level and damp lands will not do; high, dry, mellow or loamy soils are best, and the fresher the better. Lay off rows three and a half to four feet apart, and in this furrow apply two to four hundred pounds of ammoniated superphosphate, containing potash, per acre. If home-made manure is used, be sure that it is old and thoroughly decomposed, and if possible mix some ashes and acid phosphate with it. Cover this furrow by running on each side of it with a one-horse turn plow, thus making a narrow ridge; on which plant the slips eighteen inches apart, keep clear of weeds and grass until the vines begin to run freely, then hill up and lay by. It is well not to permit the vines to take root between the rows, as this will diminish the crop. Loosen up the vines occasionally. A fork hoe is good for the purpose. Just before, or soon after frost in the fall, dig the potatoes and store away in a dry, warm place for winter. A common-sense way to do



this is to select a spot on the ground where water will not stand, and throw up the earth, three or four inches above the natural surface, in a circular shape about four or five feet in diameter, press down firmly, and on this place twenty-five or thirty bushels of potatoes piled up in a cone-shape, sharp at the top, cover with corn stalks or grass two or three inches thick, then cover with earth six or eight inches deep. Place a few boards over the top to keep rain out. Make as many of these banks as you need. In the Northern States it is advisable to store in some good warm, dry cellar. Leave the top of the bank open a day or two, as the potato will sweat somewhat when first banked ; after this cover up entirely. Be sure to keep them warm. The vines make very good cattle feed. Most of the cultivation may be done with the plow.

RADISH.—(*Raphanus sativus*.)

Select light sandy loam, if possible ; lay off rows two inches deep, twelve inches apart, in which drill the seed, thinly ; cover about one inch deep. Sow at intervals, from February first to September first ; say three weeks between sowings, so as to have a succession of crops. Any good soil will produce them.

RAPE.—(*Brassica campestris*, VAR.)

Sow in September, either broadcast or in shallow drills, eighteen inches apart ; thin out plants to two feet apart ; transplant the same as cabbage. Used as greens during the winter, or it may be permitted to grow in drills, thickly planted, and rows four feet apart. The seeds are good for canary birds and for making oil.

ROQUETTE.

Plant in April or May ; lay off rows half an inch to an inch deep, eighteen inches apart, in which drill the seed thinly ; cover lightly.

RHubARB.—(*Rheum Rhaponticum.*)

Sow seed in March or April; select rich soil; lay off rows fifteen inches apart, in which sow the seed thinly. After they come up and become strong, say two or three inches high, thin out to eight to ten inches apart. In the fall, after frost, transplant into permanent ground, three feet apart each way; soil should be deep and rich. One planting lasts for several years. The leaf stalk is the part used. It is boiled and used in same way as green apples, which it is very much like in taste.

SALSIFY, OR OYSTER PLANT.—(*Tragopogon porrifolius.*)

Salsify requires rich mellow soil, broken eighteen inches deep. If the land is not naturally rich use old, well rotted lot manure, or good ammoniated commercial fertilizer, mixed well with the soil. Plant in March or April. Lay off rows, an inch and a-half deep, twelve inches apart, in which drill the seed thinly; cover about one inch deep. When well up, thin out to four to six inches apart; cultivate well. The roots will keep sound in the open ground all the winter. It is a delicious vegetable for soups, and for slicing and boiling and dressing like oysters, or frying in batter. Use it during winter.

SCORZONERA, OR BLACK SALSIFY (*Scorzonera Hispanica.*)—This is similar to salsify and requires same treatment.

SPINACH.—(*Spinacia oleracea.*)

Spinach is one of the hardiest and most delicate vegetables that we have for greens. Plant in September and October for winter use, and from March to July for spring and summer use. Spinach requires rich soil; sow thinly, broadcast, or in drills fifteen inches apart.

SEA KALE.—(*Crambe maritima.*)

Sow about April first, one inch deep, in drills two feet apart, and thin out to five or six inches, and the spring

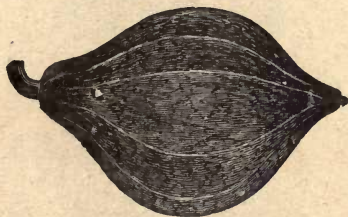
following transplant to three feet apart each way. Cover up the plants with leaves or straw, so as to blanch its shoots like celery. Cook same as asparagus. Transplant some closely in a warm cellar to force for winter use.

SORREL.—(*Rumex Acetosella.*)

Sow thinly in shallow drills during spring. Used as salad.

SQUASH.—(*Cucurbita maxima, etc.*)

Plant this well known and delicate vegetable in spring after weather gets fully warm. They will grow on any



HUBBARD SQUASH.

good soil, but a rich mellow loam fully exposed to the sun is best. Make hills four feet apart for the bush or bunch varieties, and six to eight feet apart for the running kinds. Drop six to eight seeds in each hill; thin out to two or three plants to the hill; keep nicely cultivated. Gather the fruit while tender, boil and dress with butter or cream, salt and pepper.

TOMATO.—(*Lycopersicum esculentum.*)

This is now perhaps one of the most popular of all garden vegetables, and one of the most delicious. It will grow anywhere one chooses to plant it, if fully exposed to the sun. Start the plants early by planting seeds in a hot-bed under glass, in February and March; for a late crop, plant in open ground in shallow drills after frosts are over. As soon as the plants are large enough



and the weather becomes warm, transplant with checks four feet each way; cultivate clean. The crop will be abundant.

For perfection in this fruit, keep the vines from the ground by laying brush between the rows, or tying up to stakes or frames. Very large and extra fine specimens



TOMATO TRELLIS.

may be obtained by pinching off all side shoots and training the main stem up to a stake.

The green tomatoes make an elegant pickle. When thoroughly ripe they are the most delicious relish ever placed on the table, and decidedly healthful. They may be eaten raw, alone, or with salt, vinegar, and pepper, or with sugar. They are good stewed, fried, or baked, and make the best of catsup. They may be dried in an

evaporator and used during winter for soups, for which there is nothing better. The tomato used to be known as the Love-apple, and was for a long time considered poisonous.

TURNIP.—(*Brassica campestris*, VAR.)

Plant from July fifteenth to October first, in very rich, deep soil; somewhat sandy soil is preferred. If not rich make it so with thoroughly decomposed lot manure or good ammoniated dissolved bone. After plowing and pulverizing the ground effectively, the seed may be sown either broadcast or in drills, at the rate of a pound and a half of seed per acre. If sown broadcast, cover with a brush; if drilled, lay off rows about one inch deep, eighteen inches or more apart, in which drill the seed thinly, and cover lightly. When up, thin out to five to eight inches apart and cultivate about twice. Plant Ruta Baga, and all of that type in July, the rough leaved, long rooted varieties in August, and the flat sorts in early September. The latter may also be planted in the spring. Southern grown seed produce the best salad or greens; northern grown produce the best turnip. Before freezing weather, take up the turnips, cut off the leaves about one inch from the top of the root and bury in a cellar or bank up for winter use. Some cover them in the patch and let them remain during winter or until used.

SWEET HERBS.

Sweet or aromatic, pot and medicinal herbs. No garden is complete without an assortment of these herbs, so useful in sickness and also for seasoning. There are quite a number of varieties, all of which are shown in the seedsmen's catalogues. Sow them in April or May, in shallow drills fifteen to twenty inches apart; when up, thin out to three or four inches apart and keep clean from grass and weeds. Gather them on a sunny day, just before

they come into full bloom, dry quickly and pack firmly away for use.

ELECOMPANE.—(*Inula Helenium.*)

Plant in hills a foot square. The roots are boiled and sweetened with sugar or syrup and used as a cough medicine.

CASTOR BEANS.—(*Ricinus communis.*)

Plant during March and April, on any fair soil, in hills four feet apart each way; cultivate until large enough to take care of themselves. The beans are used for making castor oil.

GOURDS.—(*Lagenaria vulgaris.*)

Soak the seed twenty-four hours, plant in rich ground very early in spring in some locality where the vines can climb on some brush or a fence, keep the weeds and grass down, but do not disturb the roots by deep tillage.

ARTICHOKE—JERUSALEM.—(*Helianthus tuberosus.*)

The Jerusalem (Hog) and white French Artichoke are planted somewhat after the manner of Irish potatoes. Plant in February or March; select a mellow rich soil, or manure with ashes and acid phosphate. After plowing the land well, lay off rows four or five inches deep, and three feet apart, in which drop a piece of tuber about every two feet, cover three or four inches deep. The plants will come voluntarily every year for a number of years; but the roots will not be large unless new plantings are made annually. Very productive, good for hogs. When baked they are nearly equal to a potato. The tubers or roots are perfectly hardy, and keep better in the ground than anywhere else. Dig them as they may be needed.

HORSE-RADISH.—(*Cochlearia Armoracia.*)

Propagated from roots. Plant from November to first



of March, in rich mellow soil, in rows three feet apart, twelve inches apart in the row, and four inches deep : break the roots into pieces one and a half to two inches long before planting. The roots when peeled and grated, are very appetizing, and there is nothing better as a relish. New plantings should be made every two years at least.

HOP VINES.—(*Humulus Lupulus.*)

Procure some cuttings and plant them in good rich ground about six by eight feet apart ; set poles for the vines to climb on. February or March is the best time for setting the cuttings. They may be planted to run on a fence or an arbor.

CHIVES.—(*Allium Schænoprasum.*)

This is something like a shallot, only much smaller, and is used for seasoning. Plant the same as shallots during September.

PAMPAS GRASS.—(*Gynerium argenteum.*)

This is one of the most beautiful of the ornamental grasses. Procure rooted plants and transplant in a good rich mellow soil in March or April ; protect during winter with a covering of straw.

TARRAGON.—(*Artemisia Dracunculus.*)

Tarragon roots may be procured and planted by those who like this herb. Plant two feet apart each way.

SOJA BEANS.—(*Soja hispida.*)

This is a coarse, bushy growing bean, good for stock feed, but not equal to the field pea where the latter will grow. Plant on any good soil in May or early June, in rows three feet apart, drop two or three beans every twelve inches in the furrow ; cultivate well.

LUPINES.—(*Lupinus albus.*)

Plant in same manner as field peas. Of no use whatever in the Southern States.

CHICORY.—(*Cichorium Intybus.*)

Plant and cultivate the same as the carrot. The root sliced, dried, roasted, and ground, is used in adulterating coffee.

SCOLYMUS.—(*Scolymus Hispanicus.*)

Follow the same directions as for carrot. Used the same as salsify, not worth planting.

WITLOOF.—(*Cichorium Intybus.*)

A new salad and culinary root, which is a variety of chicory and cultivated the same as parsnips. Sow two ounces seed to one hundred yards of row, in September. Eat the young leaves as lettuce, or boil as spinach.



## TREE SEEDS.

All hard-shelled tree seeds should be planted in the fall, from one to three or four inches deep. Soft-shelled seeds may be kept in some secure manner until early spring, when it is best to soak them in water over night, before planting. Many tree and shrub seeds need special and peculiar treatment. So it is safest to ask your seedsman for full instructions when you buy a particular seed.

OSAGE ORANGE.—(*Maclura aurantiaca.*)

Plant in February or March; procure the seed grown the previous year; pour hot water over the seeds and soak twenty-four hours, then mix them up in wet sand and

let remain four or five days, when they will show signs of sprouting. Lay off rows two or three inches deep in rich, well prepared, mellow ground, in which drill the seed thinly, and cover about two inches deep, pressing the earth firmly down on them. When the plants are one year old or more, transplant in such a manner as you may desire ; cut back severely if for hedges.

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#### JUTE.—(*Corchorus capsularis.*)

An annual fibre producing plant from Asia. Plant during spring, if for seed, in shallow drills, thinly sown, rows five feet apart ; cover lightly. It is also sown broadcast when the fibre is wanted. The bark or fibre is used for making gunny bagging.

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#### RAMIE OR CHINA GRASS.—(*Bœhmeria nivea.*)

A perennial and best propagated from sets, planted thickly in rows five feet apart, on rich, light, well drained soil in February and March. The fibre of the inner bark is used as a substitute for, or to mix with silk. The plant needs some protection from very hard frosts. Keep clean of weeds.

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#### FLOWER SEEDS.

As a rule, flower seeds require much more care in planting than vegetable seeds, and no general rule can be given, as many of them require specific directions, I will



however, state, that the best medium to plant most of them in is, thoroughly rotted, rich woods earth, from original forests. Cover the seeds generally about twice as deep as they are thick. See full instructions, which are usually printed on each packet of seeds that is sold. Pansies appear to do well with indifferent treatment. When sown in a box of coarse gravelly earth from the woods, rocky and lumpy, they seem to succeed best. Procure a flower seed catalogue for specific directions as to how and when to plant, etc.



## FRUIT TREES.

The transplanting of fruit trees is very simple and effective when properly understood. Trees should never be planted in a square or round hole, such as you would dig for setting a post. Many trees transplanted in this way die, much to the discouragement of the planter, who attributes his failure to the insects, drought, or anything rather than to the manner of transplanting. A good plan is to take a plow and break out the whole length of the row each way, checking fifteen, twenty to fifty feet each way, as you may elect, running five or six or more furrows each way, making sure to break the land as deep as you wish to set the trees. It is best to use a two-horse plow; then in each check, you can draw out the earth a sufficient width and depth to suit the roots of the tree to be planted. Trim all broken roots smoothly and straighten them out at full length in the hole; cover carefully so as to get the earth firmly around each root, then fill up the hole, and press the soil down firmly with the foot. Not one tree in a thousand will die if planted in this way, provided the tree was all right when it was set.

As a general rule, trees should be transplanted to the same depth that they stood in the nursery, or where they were grown. Dwarf pear trees are an exception to this rule, and should be planted deep enough for the union of the pear and its quince roots, to be below the surface of the ground, so that natural roots may shoot out from the pear in course of time, thereby converting the dwarf into a standard tree.

The object in breaking the land each way as above advised is, in order that the roots may have free access to loose, mellow earth, to run into in every direction from the tree. If only a small number of trees are to be planted, a mattock or spading-fork would suffice, using care to break the ground each way several feet from where the tree is to stand.

#### GRAPE-VINES.

Follow similar directions as for fruit trees. Permit none of the roots to be cramped; straighten them all out properly. Plant grape-vines eight to sixteen feet apart.

#### STRAWBERRIES.

Plant the strawberry on a perfect level with the surface of the ground, or a little below, never on a ridge or hill, as the plant has a tendency to rise up out of the ground at any rate. Plant eighteen inches apart each way, for a small patch. For field culture, plant in rows three feet apart and twelve inches apart in the rows.

#### DISTANCES APART FOR FRUIT TREES AND SHRUBS.

Raspberries should be four feet apart in mellow soil, and protected from the south-western sun.

Blackberries should be planted four feet apart.

Gooseberries, three feet apart.

Currants, three feet apart.

Fig trees, fifteen feet apart on the south side of some house or fence in the climate of Georgia.

Mulberry trees, twenty feet apart.

Pomegranate, six feet apart and covered in winter with pine tops or straw.

Quince trees, ten feet apart.

Nectarines, fifteen feet by twenty feet.

Peach trees, twenty feet apart.

Plum trees, fifteen feet apart.

Cherry trees, twenty feet apart.

Pear trees, thirty feet apart for standard, and fifteen feet apart for dwarf, or forty and twenty would be better.

Apricot, fifteen feet apart.

Apple, twenty-five feet apart.

Nut trees should be planted from twenty to thirty feet apart, according to the size the tree generally attains.

Use no fresh manures about the roots of the trees or vines, better apply it on the surface.

Always lay off the rows for your trees on a level if possible, so as to avoid plowing up and down hill.

A good, and I believe the best plan, for setting a large orchard is, to have your rows of trees fifty feet apart and and twenty feet in the row. This will admit of cultivating some such crop as cotton, potatoes, or peas, between the rows. All orchards should be cultivated more or less. Small grain crops and grasses are injurious to orchards, especially the former. After fruit trees attain their full growth, the ground might be sowed to grass or clover and hogs allowed to run on it. Hogs are generally advantageous to orchards, as they not only till the soil by rooting, but they destroy the worms by eating the fallen fruit.

As I wish this book to be beneficial to all who may read its pages, I shall give some words of caution now and then where I believe it necessary. In accordance with this view, I advise all who propose to plant out orchards, to first consult and advise with the oldest and most practical settlers of the vicinity, as to what varieties have



succeeded best in the locality. Such a plan as this will save much expense and disappointment. If the object be to grow fruit for market, then select the fewest number of varieties possible, you will often do better with only one than with a dozen. There are very few localities in this country, where the fruit crop is so certain as to justify one in depending on it alone for a support and to make money. Watch the trees at all seasons, during fall and winter; cut off all dead and broken branches and awkward limbs; cut off all water sprouts from the body and branches of the tree; dig up all sprouts around the roots and wash the tree-down twice a year at least, with lye soft soap, and scrape off all rough bark that might harbor insect enemies of the tree. The following is an excellent wash for fruit trees, which is easily and cheaply made :

Twelve quarts of soft soap; twelve gallons of water. Bring to a boil, then add one gallon of kerosene oil, and stir in thoroughly. Wash the trees down with this twice a year (spring and fall), and sprinkle the mixture over the tops of the trees also.

## PROFITABLE FARMING.

Some suggestions whereby farming may be rendered more profitable than many find it, will not be out of place in this book.

Take a hundred farms in Georgia, for instance, as you come to them, and probably not over one or two in this number can show a true type of any kind of Indian corn, or a true and distinct seed of any other crop. No one will deny that this is as it should not be. Let each farmer or planter see to it, that he grows a pure and distinct type of corn, fix it and establish it in peculiar characteristics, so that everybody will know "Jones' Little Red Cob, All Corn," or "Jordon Johnson's Large Cob, Pure White Bread corn." Then, when a demand for seed arises, he has it, and can realize a paying price for it, and there is always a demand for pure seed of all kinds. I have found it more difficult, in my seed business, to find a pure, well-developed variety of seed corn of Southern growth, than anyone might imagine. Do not try to plant some of Messrs. A, B, C, D, and E's corn; stick to your own, and select it, and bring it to, and keep it a pure type, and better than anybody else's, and Messrs. A, B, C, D, and E will have to come to you for seed.

These remarks concerning corn, apply as well to any other grain, or to any other crop. Take potatoes, for instance; very few farmers can show a strictly pure tuber, or a pure root of the Yellow Sugar Yam. I never knew the farmer who had a pure, early, prolific and good staple variety of cotton, but he could find ready sale for the seed at fancy prices. It is not well to plant many varieties of any one crop. Take not more than three, at the most; and these should be, one early and one late. They are then not apt to become mixed. Two types of corn (yellow and white, for instance), tasseling, silking and ma-

turing at the same time, when planted in proximity to each other, will cross and become mixed.

Melons, cucumbers, squashes, and others of that family, should not be planted near each other if the object be to save seed from the crops. They will mix, each vegetable will become tainted more or less with the others and consequently be ruined.

#### TURNING UNDER GREEN MANURING CROPS.

The practice of many farmers of turning under pea vines, buckwheat, clover and other green crops, for the purpose of enriching land, is a useless expenditure of labor. Such crops, when permitted to mature and decay upon the surface, are far more enriching to the soil than if turned under green. Turning up soil to the heating rays of the sun does not benefit it. Shade it if you wish to enrich the soil. Break deep during the winter and throw it up in ridges, that the freezing and thawing may act upon it, thereby disintegrating, decomposing and rendering it friable and mellow.

#### ROOT CROPS, ETC.

All such crops as beets, turnips, carrots, parsnips, sweet potatoes, and Jerusalem artichokes, are exceedingly valuable as stock food during winter. It is as easy to make a hundred bushels of either one of the above named crops as it is to make ten bushels of corn. Carrots in the Southern States, and parsnips, both North and South, may be left in the open ground the entire winter, and will keep perfectly sound. They may be fed to horses, as well as to cows, and also to hogs, to very great advantage. Fruits and melons are as necessary for the health and good condition of your horses, cattle, etc., as for yourself. Give them some occasionally; they will never forget you for it.

It is frightfully expensive to cultivate and harvest



Indian corn for the purpose of feeding it to horses. Oats, wheat, rye, barley, millet, and hay crops, are much cheaper and also much better for the horse. I have known work-mules to be kept in fine condition on clover hay, with a feed of corn only three or four times a month. I have known five or six months' time of a man, a horse, a plow, and an extra hoe hand occasionally, spent in cultivating ten or twelve acres in corn, and barely harvesting corn enough to feed the horse. How much better it would be to plant the land in oats, and devote your spare time and labor to something else until harvest, if only to go a fishing.

My idea as to how success may be attained at farming is, to concentrate your energies upon a specialty. That is to say, direct all your efforts toward making a certain crop your main dependence. If equal attention is devoted to every crop planted upon the farm, the result will be something of everything and not much of anything. But to be more specific, suppose your inclinations lead you toward the cotton plant; then bend all your efforts toward making that crop a grand success. Plant of vegetables, melons, fruits, potatoes, corn, oats, wheat, etc., merely enough to supply your family, and then make a "ten strike" for cotton. Study it, improve it, humor it, pet it, and bring up the yield from one to three bales per acre. This can be readily done, and success will certainly crown your efforts. Cotton is, beyond all question, the crop for the Southern States. Some might choose fruits, or others grain, or some particular root crop for a leader; and in the Northern States, such would have to be the case of course, for cotton cannot be cultivated there; but by all means have a specialty. The successful lawyer or doctor, while he attends to everything in his line, generally makes a specialty of some particular line of practice in his profession. The avoidance of debt, strikes me as being of the greatest importance to every farmer.

There is no occupation so pleasant and independent as that of the intelligent, successful farmer. Many do not believe that independence can be reached upon the farm. A distinguished United States Senator said to me on one occasion, that he did not believe a comfortable living could be realized at farming. The Senator, as well as all who labor under such an impression, is mistaken, of course. I can name a hundred farmers now, who are decidedly successful at farming, who are accumulating money year after year. I wish I could feel at liberty to give their names here, so that all doubting Thomases might visit them and see for themselves.

It is of the very greatest importance to know when and how to plant. An intelligent gentleman once called upon me for some southern stock peas, or field peas, saying he wished to plant them for the purpose of enriching his land. It was during February that he purchased the peas, as near as my memory serves me, I presume he was making his purchase thus early in order to have them at home in readiness to plant when the time came. Much to my amusement and surprise, he came in after three or four weeks, complaining that the frost had destroyed his crop of peas. I had a good laugh at my friend's expense. He had presumed that because the garden, or English peas, were perfectly hardy, therefore all other peas were equally so. This book would have saved him many times its cost in that one instance.

## FORAGE PLANTS.

We give here a list of such plants as may be utilized as forage crops, viz: Millo Maize, Dhourra Corn, Ivory Wheat, or Egyptian Rice Corn, Cat-tail or Pearl Millet, Indian Corn, including the Sugar varieties; Sorghum Cane, Prickly Comfrey, Teosinte (*Euchlœna luxurians*), Rural Branching Sorghum, Field or Stock Peas, Soja Beans, Lupines, Lucerne or Alfalfa, Kaffir Corn, Pop Corn, Rye, Barley, Oats, Wheat, German Millet, Sweet Potato Vines, Rice.



## WHAT TO DO WITH THE CROPS.

To the skillful and experienced farmer, the following hints as to what to do with a crop after it is made, are unnecessary, but to those who are entirely unfamiliar with such matters, some suggestions as to when and how to harvest crops, and the uses to be made of them, will not be out of place—it being as important to properly save a crop as it is to plant it right.

## JERUSALEM ARTICHOKEs.

Under this head we include all varieties of artichokes that produce edible tubers or roots. In the Southern States let the tubers remain in the ground, or dig and bank as directed for sweet potatoes. Pursue the latter method altogether in the colder States. Cook and eat the same as Irish potatoes; also pickle like cucumbers. They are fed to hogs and cattle either raw or boiled.

## ASPARAGUS.

Cut the young sprouts when tender and from three to six inches long. Cut about one inch under ground.



Boil in clear water ; when done, some sweet milk may be added. Season with pepper, butter and salt to suit the taste. Very healthful and delicious.

#### BEETS.

These may be pulled for table use when quite young, from one and a half to three inches in diameter. Boil in clear water until soft. Slip the skins from them, slice and serve hot, with butter, salt and pepper, or let become cold and serve with vinegar and sugar to suit the taste. They may be used as feed to milk cows, sliced raw, or boiled.

#### BEANS—SNAP SHORTS.

Boil with nicely cured, sweet bacon until quite tender. Serve with pepper and salt ; also pickle when young.

#### CORN.

Indian corn of the field varieties should be allowed to remain on the stalk until thoroughly dry, then gather and store away in the shuck or husk, in a tight dry barn. It will keep freer from weevils in this way than in any other. Strip from the shuck, or husk it as needed for use. When ground into meal, it makes a most healthful and delicious bread and cakes ; when coarsely ground, it makes excellent hominy or grits. It is the richest of all feed for stock of all kinds. When green, it is pulled and boiled and eaten, with butter, and in this way is unsurpassed by any dish that comes to the table. For fattening hogs, it is unequalled by any grain under the sun. Our new citizens, who come from countries where corn is not known at all, will appreciate the above remarks upon this grain, though old residents, being familiar with it, do not need them.

#### BROCCOLI—BRUSSELS SPROUTS—BORECOLE, OR KALE.

These are all varieties of the cabbage. The first is boiled until tender and dressed with drawn butter ; the other two are treated the same as cabbage or greens.

## BEANS—SHELLED.

Green or dry shelled beans are generally boiled with a piece of sweet bacon or pork, and seasoned to the taste with salt and pepper. One of the most nutritious and substantial of all dishes.

## CABBAGES.

Those which head up in the summer should be used with as little delay as possible, as they will not keep long. Those that form heads late in the fall, should be sold, or heeled in near together with heads inclining southward, and covered with loose straw or something of the sort. A rough shelter over them would be advisable; they will keep a long time in this way. Boil with bacon or corned beef, or in clear water, and season with butter, salt, pepper and vinegar. Cabbage may be chopped fine and eaten raw with vinegar, mustard, hard-boiled eggs, etc. They also make good pickles, and they are excellent food for cows; hogs, etc.

## CARROTS.

The carrot being perfectly hardy in the South, may be left standing where it grew, until used. Or they may be pulled or lifted, and banked as directed for sweet potatoes. In colder climates they would be injured if left in the ground, and they must be banked or pitted, or stored in a cellar. Carrots are excellent for the table when boiled and seasoned to suit the taste, and there is nothing better for cows or horses.

## ONIONS.

As soon as a larger share of the tops die down, the onions should be pulled up and left lying on the ground for a day or two to dry off. Afterward they should be laid away in a cool, dry place, or sold at once.

## IRISH POTATOES.

Dig when the tops die down, dry in some cool and shady place, and store them in a dry, cool cellar. They must be cool, or they will not keep. Under the center of a board floored house is a good place to keep them during warm weather. They must not be permitted to freeze.

## SWEET POTATOES.

See under directions for planting.

## BROOM CORN.

As soon as the heads have fully formed, break down the stalks about a foot below the head and let the straw hang down so as to keep it straight. After it has matured, cut and take it to some shelter and keep dry. If it becomes wet, the straw will be stained, rendering it unsalable. When dry, strip off the seeds, then bale the straw, being careful to keep it straight. Now sell it to best advantage. The seed may be ground and fed to cattle.

## CLOVER HAY.

As soon as most of the blooms assume a brownish color, the clover is ready to cut. All that is cut during the day, should be raked up into small heaps before night and opened out again after the dew dries off in the morning, then throw up again the following evening, and as soon as cured, put into a permanent stack, securely covered, or haul to the barn. Do your best to prevent it from getting wet.

## GRASS HAY.

Follow about same directions as given for clover.

## COTTON.

The staple should be picked as fast as it is fully opened, and stored under some dry shelter, as free from dirt and dust as possible. Have it ginned ; put as near 500 pounds



in a bale as practicable ; never under 300 pounds, if possible to avoid it. Cotton is easily harvested, easily preserved ; no danger of its spoiling in any way. It meets with a ready sale, and never fails to bring in the cash.-

#### CASTOR BEANS.

The fruit, or pods, are borne in large pyramidal clusters ; if left upon the plant until quite ripe, the pods will burst open and scatter the seeds, which, by the elasticity of the pods, are thrown to a great distance, and lost. The pods ripen unequally upon the clusters, and these mature in succession upon the plant. As soon as the pods upon the lower, or broad end of the clusters turn brown the harvesting should begin. The clusters are cut, thrown into a wagon and taken to the "popping pen." This is a piece of firm ground, enclosed by a high board fence ; the clusters of pods are spread on the ground, and as the pods ripen they throw out the seeds. When all the pods likely to do so have popped, the refuse is removed and the beans swept up and bagged, in strong, one or two bushel bags for market.

#### BUCKWHEAT, BARLEY, OATS, RYE AND WHEAT.

These grains are all harvested in pretty much the same manner, but as soon as the heads assume a yellowish color, tie in convenient bundles, set up into shocks of about twelve bundles including the cap. Do this in a substantial manner, so that the shocks will not fall down, and place the caps on in such a way as to protect the grain from the rains and heavy dews. After three or more weeks of good warm weather, the grain becomes cured and is ready to thresh. Store in some good dry place in not too great a bulk, or sell it in your nearest market. Buckwheat is not worth planting for the seed in the Cotton States, but it is very valuable as a bee pasture and as a soil renovator.

## RICE.

Rice must be harvested similarly to wheat, etc. It requires the promptest attention. It must not be cut until the grain is ripe, but must be cut immediately after it is ripe. If permitted to stand longer, the seed will fall off in harvesting, causing a very great loss. Thresh it in a machine similarly to wheat. When threshed the rice is ready for the mortar and pestle; by this operation the husk and inner coat are broken off of the grain, after which it is polished or scoured, and is then ready for use.

## GERMAN MILLET.

Harvest this as soon as the heads are fully out, or about the time the seeds are in the milk, that is, if the object be to make hay. It cures very quickly. Throw up into heaps before night so as to protect it from the dew; spread out again next day. Repeat this operation daily for about three days, when the hay will be cured and ready to store away. It is perhaps the easiest of all hay crops to cure, and one of the richest.

If it is desired to save seed, then let the crop stand until the heads become ripe. Then cut and thresh.

## HUNGARIAN MILLET.

This is also called Hungarian grass, and is to be treated in the same manner.

## CAT-TAIL MILLET.

This, often called Pearl Millet, is better fed green than in any other state. When three feet high, cut within an inch of the ground, and feed to cattle or horses. It will soon come again, and may be cut three to five times during the season. A few hills may be left uncut for seed.

## SORGHUM FOR FORAGE.

When sorghum is planted for forage, cut as soon as the seed-clusters are fully formed. Shock it securely and let

it stand a month or more to become well cured. It must be thoroughly cured before housing or it will spoil.

#### MILLO MAIZE.

If the object be to make fodder only, then cut it when five or six feet high, before it begins to head. Shock securely, and let it remain until cured. It may be utilized to still greater advantage by treating it after the following manner: As soon as the heads appear, break or cut them off; preserve the heads, as they are good feed. Then, after eight or ten days, strip the fodder from the stalks, and cure and save it. After a few days more, new shoots will appear from every joint on the stalks that were left standing; just at this stage the stalks are considered very sweet and nutritious. Now cut them down and store in some sheltered place at once; they will not spoil. Chop and feed through the winter.

#### SOUTHERN FIELD OR STOCK PEAS.

If it is desired to use the vines for hay, cut and cure them when the pods are just about grown and before they begin to ripen in the least. Throw into small heaps as fast as cut, and let them remain until cured; then haul up and put away. Never pull up the vines by the roots, as the roots will not be eaten by cattle; besides they are of great benefit to the soil if permitted to remain and decay therein. If seeds are wanted, let the pods become thoroughly dry and ripe; gather and store, and thresh at leisure. If the planting is for the purpose of enriching the soil, then they may be plowed under at the same stage as for making hay. It is extremely doubtful, however, if it pays to turn under any green crop, merely for the purpose of fertilizing the ground. My opinion is, that it is as good, if not better, just to permit such a crop to mature and die upon the surface of the ground. The labor of plowing under is saved, which is no small item.



## SORGHUM FOR SYRUP OR SUGAR.

Let the crop stand until the seeds are grown ; it is thought that the cane is sweetest at about this stage ; also taste the cane, and if found quite sweet it is ready to cut and grind. Strip the fodder from the canes ; save the heads, as they make good feed ; cut the canes and grind as soon as possible, though the canes may be kept with safety for several days, if stored under a dry shelter.

## CUBAN CANE.

The Cuban or East Indian Sugar Cane will not fully mature in Georgia and other similar climates, therefore it must be permitted to grow as long as possible, being sure to cut it before a killing frost. Strip the fodder and store it, and grind the canes as soon as possible.

## SUNFLOWER.

The only part of this plant worth saving is the seed. Gather when matured and store them, but be sure that they are dry, or they will spoil. The seeds are excellent food for horses, chickens, etc.

## TEOSINTE.

This being a tropical plant of long, continued and prodigiously rapid growth, it does not reach maturity in this and more northerly climates, but grows on all through the summer, increasing in foliage and stalk ; so the longer it stands the heavier the yield. Cut it down before the least frost comes on it, and shock up securely, and cure same as fodder corn.

## TOBACCO.

After being cured, tobacco is manufactured into segars and plugs, and powdered, and packed into large and small bags and boxes and placed upon the market to be consumed by those who like to smoke and chew the weed. It is also an excellent insecticide, and is sometimes used medicinally. It is also a very fine fertilizer.

## INDIAN CORN.

If wanted for forage, cut it when the silk and tassel appear. Shock it upright in the field, spread it out at the bottom, giving it a broad base so as to prevent it from being blown over, and let it stand until thoroughly cured. This is very nutritious rough food for stock. The sugar varieties are considered richest.

## DHOURRA CORN.

This is also known as Chicken Corn. When it is planted for forage, it should be drilled thickly in the row; make the rows three feet apart, cultivate it, cut it as soon as the heads appear, and cure the same as forage corn. It is the latest maturing of all the dhourras, except it be the Millo Maize. When planted thinly, say four by two feet, and cultivated the same as Indian corn, it produces considerable grain, which is much used in some countries as a food for man, domestic animals and fowls.

## IVORY WHEAT OR EGYPTIAN RICE CORN.

This may be treated in the same manner as the Dhourra corn. It is the earliest of all the dhourras, and produces an abundant yield of ivory-like grains, shaped similar to wheat, only not so long. After the first heads are ripe and cut, it continues to shoot out heads from each joint along the cane, until checked by frost.



## THE ROTATION OF CROPS.

A great deal may be said upon the subject of the rotation of crops, as it is one of considerable importance to the planter who desires to keep his lands always in a productive state. It is, however, not necessary to make any very extended remarks here—a few brief hints or

suggestions will suffice. The rotation for the Southern States must necessarily be different from that of the Northern States, or the States where cotton does not grow. We will, therefore, begin by stating our plan for the South. If the soil be entirely new, *i. e.* just cleared of the forest, let the first crop be corn; the second may be potatoes or cotton; the third, wheat, oats, rye, or barley; the fourth, stock peas or clover; the fifth, rest; then corn again, etc.

If the soil be old, worn land, then begin with stock peas, sown broadcast, or oats and clover sown together, or rye, sown very thick. In either case, turn under the crop, or permit it to die down on the surface. The second year, plant cotton, using commercial fertilizers upon it. The third year, sow oats, followed soon after these are harvested, with stock peas. The fourth year, plant corn, followed in September of the same year with oats and clover. The fourth year let it rest in the clover, and continue it in clover as long as the growth and stand is good, beginning again with corn. Use stable, or lot manure, in every case when it can be conveniently obtained. For more northerly sections, where cotton and stock or southern field peas will not mature, commence on new ground with corn, followed the next season with oats or some small grain. Next, sow down with clover or grass, or both mixed, and let remain as long as the growth is luxuriant. Follow them with potatoes, and so on, giving a year's rest now and then.



## VARIETIES.

It is puzzling to many who take up a seed catalogue, to determine what variety they ought to plant, when they note the almost endless number of varieties that are catalogued. Close investigation and experiment shows comparatively few varieties in reality. To state it more plainly, there is a great variety in names but very few in fact. For instance take the turnip. The catalogue gives a list of valuable winter turnips, excellent for the table, as follows: Hanover, Prussian, Long French, Sweet German; four varieties, but in reality *only one*. Whoever orders the good old-fashioned Hanover, will get all the balance of them also.

It is even worse with the cabbage. The catalogues name from thirty to fifty varieties, but whoever plants pure seed of the Early Jersey Wakefield, Winningstadt, Early Flat Dutch, Early Drumhead, Late Flat Dutch, Late Drumhead, and Drumhead Savoy, will get the cream of the catalogue. And so on we might go through the whole catalogue, but we trust we have said enough: a hint to the wise is sufficient.



## BIRD SEEDS.

The following seeds are largely used for feeding Canary and other birds: Canary, Hemp, Rape, Millet, Lettuce, Rice unhulled, Maw. Birds are more fond of Cat-tail or Pearl Millet than of any other variety of the Millets. It is more costly than any other, therefore not so much used, but the birds should be treated to a repast of it occasionally.

## STANDARD SEEDS.

It may not be amiss here to give a list of thoroughly reliable and desirable seeds, alphabetically arranged.

*Artichoke*—Large Globe or Bur.

*Artichoke Roots*—Jerusalem and White French.

*Asparagus*—Conover's Colossal.

*Beets for Table*—Bassano, Eclipse, Half Long Blood, White Sugar, Early Blood, Turnip-rooted.

*Beets for Stock or Table*—Long Blood, White Sugar, Mangel Wurzel, Long Red Mangel Wurzel, Golden Tankard Mangold Wurzel, Red Globe Mangold Wurzel, Yellow Globe, Golden Yellow Mammoth.

*Broccoli*—Large Early White.

*Brussels Sprouts.*

*Cabbage*—Early Jersey Wakefield, Early Winningstadt, Early Drumhead, Early Flat Dutch, Late Flat Dutch, Late Drumhead, Drumhead Savoy, Green Curled Savoy.

*Cardoon*—Puvis.

*Carrots for Table*—Early Scarlet Horn, Orange, Danvers.

*Carrots for Stock*—Long Orange, Yellow Belgian.

*Cauliflower*—Early Dwarf Erfurt, Early Snowball.

*Celery*—Large White Solid, Dwarf White, White Plume, Celeriac or Turnip Rooted.

*Chervil*—Curled.

*Collard*—Native Southern, Landreth's Marrow.

*Corn Salad*—Broad Leaved.

*Cress*—Broad Leaved.

*Cress*—Water.

*Cucumber*—Early White Spine, Short Prolific; for Pickles, Long Green Turkey; Telegraph, for hot house.

*Corn for Roasting Ears*—Adams' Early, Early Mammoth Sugar, Landreth's Sugar, Stowell's Evergreen Sugar, Late Mammoth Sugar, White Dent, Golden Dent, Blount's White Prolific.

*Corn for Field Culture*—Early Golden Dent, Early White Dent, Blount's White Prolific, Champion White Pearl, Large White Flint, Mammoth White Surprise, Etowah Valley White, Eureka White, large; Little Red Cob All Corn, Johnson's Large White; Pop Corn, Rice; Ensilage Corn, the common, large growing, late varieties; Chester County Gourd Seed.

*Beans, Bush or Bunch*—Early Red Valentine, Early Dwarf German Wax, Early White Valentine, Early Golden Wax, Ivory Pod Wax, Crystal Wax.

*Beans, Bush or Bunch, for Shelling*—Royal Dwarf White Kidney, Navy White, Red French; for winter, Dwarf White Marrow.

*Beans, Pole*—Large Lima, Carolina or Sieva, White Dutch Case Knife, Southern Prolific Green Pod, Snap Short, Crease Back, Corn-field.

*Beans, English*—Broad Windsor.

*Beans*—Jack, for arbors.

*Dandelion*—Cabbaging.

*Egg Plant*—Large Round Purple.

*Endive*—White Curled.

*Kale*—Dwarf German, Tall Scotch, Sea.

*Kohl Rabi* or Turnip Rooted Cabbage, White Vienna,

*Leek*—Large London, Musselburgh.

*Lettuce*—Early Curled Silesian, Early Cabbage, Early Summer, Prize Head, Heat-Resisting Cos, Bloomsdale Reliable, Oak Leaved.

*Melon, Water*—Rattlesnake, Ivy, Ice Rind, Kolbs' Gem.

*Muskmelon*—Citron for preserving or Cantelope, Extra Early Citron, Netted Nutmeg, Casaba, California, Reed-land Giant, Nixon.

*Mushroom*—Spawn.

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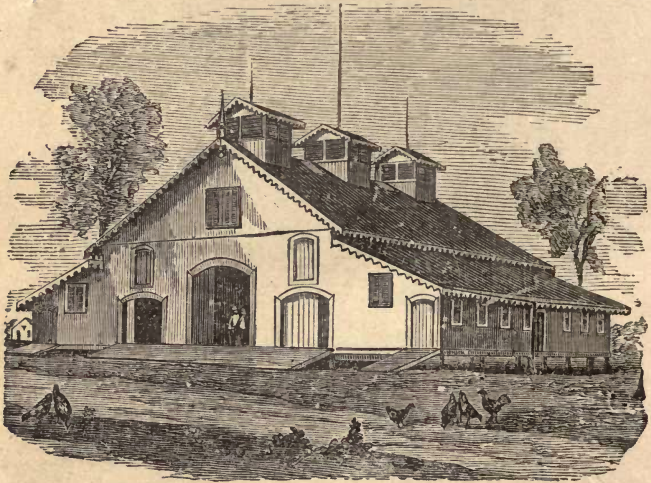
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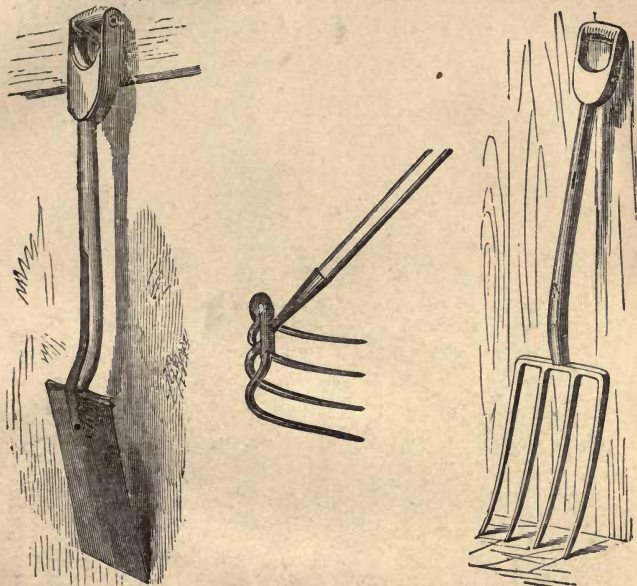
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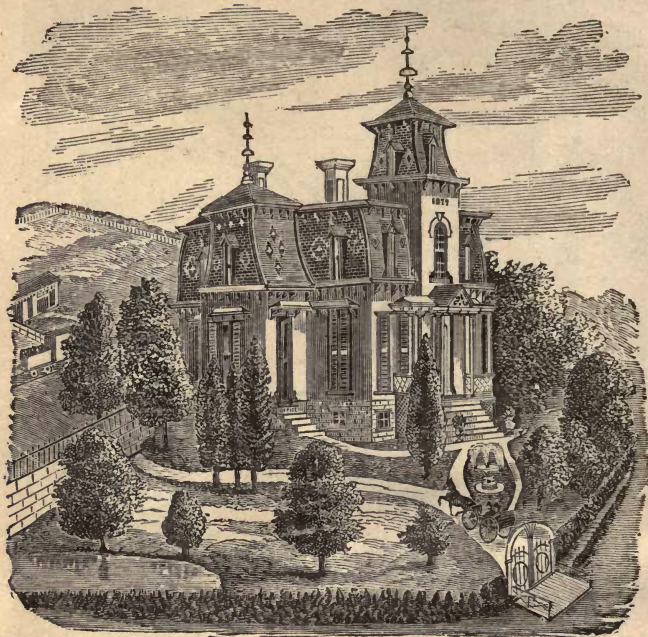
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