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Selections for reading

Agriculture

Gardening

1919-1920

State board of education
Hartford Connecticut

U. S. of M.
JAN 6 1920

31

Standards v-vi

Calendar for gardening 1919-20

- Pupils 1 Cut pictures and articles from farm papers about the subject listed below
2 Paste into note-books according to monthly topics

month	lesson	subject	month	lesson	subject
September	1	exhibiting garden produce	March	1	garden planning — seed order
	2	exhibiting farm stock and poultry		2	mapping out the garden
	3	seed corn		3	seeding testing — small seeds
October	1	insects		4	seed testing—large seeds
	2	weeds	April	1	preparing the garden—use of fertilizer
	3	potatoes		2	how to prepare the seed bed
	4	types of potatoes		3	how to plant seed
November	1	plant diseases		4	how plants are multiplied
	2	storage of vegetables	May	1	how to control insects
	3	judging corn		2	control of diseases
	4	storing corn		3	weeds
December	1	farm accounts		4	canning
	2	the farm wood lot	June	1	thinning vegetables
	3	Connecticut weather		2	why and how to cultivate the soil
January	1	types of soils		3	tomatoes and potatoes
	2	the movement of water in soils		4	succession cropping
	3	how humus affects soils	July	1	intercropping and companion cropping
	4	how lime affects soils		2	seed saving—annuals
February	1	families of crops—the potato family	August	1	summer insects
	2	families of crops—the cabbage family		2	selling vegetables
	3	families of crops—the pulse family		3	judging gardens
	4	families of crops—other families and groups		4	seed saving—biennials

Gardening Supplementary reading

The bulletins listed below may be secured free of charge by writing to the addresses given. Order by name and number

1 Farmers' bulletins and publications of U S department of agriculture—send to your congressman at Washington D C

2 U S school garden bulletins—send to Director Francis department of interior Washington D C

3 State bulletins—send letter addressed to state college of state from which bulletins are requested

4 War garden bulletins—National war garden commission Washington D C

General gardening

1	canning cold pack method	farmers' bulletin 839
2	canning and drying	national war garden commission
3	canning tomatoes	farmers' bulletin 521
4	city and suburban gardening	farmers' bulletin 936
5	frames as a factor in truck growing	farmers' bulletin 460
6	garden leaflets	U S bureau of the interior
7	gardening war	U S war garden commission
8	garden home vegetable	farmers' bulletin 255
9	garden school	farmers' bulletin 218
10	garden small vegetables	farmers' bulletin 818
11	hotbeds and cold frames	Colorado bulletin 221
12	hotbed construction	State of Washington popular bulletin 98
13	marketing cantaloupes	farmers' bulletin 707
14	marketing parcels post	farmers' bulletin 703
15	propagation of plants	farmers' bulletin 157
16	saving seeds	farmers' bulletin 884
17	testing seeds	farmers' bulletin 428

Crops

1	beans	farmers' bulletin 289
2	cabbage	farmers' bulletin 433
3	cabbage and cauliflower	State of Washington popular bulletin 110
4	early cabbage	Ohio bulletin 252
5	carrots	State of Washington series I No 12
6	celery	farmers' bulletin 282
7	cucumbers	farmers' bulletin 254
8	onions	Washington popular bulletin 66
9	tomatoes	farmers' bulletin 220

Potatoes

1	hints on growing	Connecticut extension bulletin
2	lessons on potatoes	U S department of agriculture bulletin 784
3	good seed and how to produce	farmers' bulletin 533
4	truck crop potatoes	farmers' bulletin 407

Corn

1	how to grow an acre of corn	farmers' bulletin 537
2	borer layer corn stalk	farmers' bulletin 1025
3	harvesting and storing	farmers' bulletin 313
4	meat corn as a food and ways of using it	farmers' bulletin 565
5	pop corn (home)	farmers' bulletin 553
6	pop corn (market)	farmers' bulletin 554
7	planting a more profitable method	farmers' bulletin 400
8	school lessons on corn	farmers' bulletin 617
9	seed corn	farmers' bulletin 415
10	production of good seed	farmers' bulletin 229
11	rag-doll seed tester	farmers' bulletin 948
12	testing and germination of seed corn	farmers' bulletin 253

Diseases

1	bean diseases	Colorado bulletin 226
2	cabbage diseases	farmers' bulletin 925
3	cedar rust	West Virginia circular 15

4	celery root rot	Ohio circular 72
5	chestnut diseases	farmers' bulletin 467
6	handbook of diseases
(very excellent bound)	Ohio circular 214
7	onion smut	Massachusetts circular 21
8	potato tuber diseases	544
9	tomato diseases	Massachusetts bulletin 138
10	watermelon diseases	farmers' bulletin 821
11	white pine bluster rust	farmers' bulletin 742
- Insects*
1	melon aphid	farmers' bulletin 914
2	asparagus miner	U S bureau entomology U S department of agriculture circular 135
3	bean and pea weevil	farmers' bulletin 983
4	European corn borer	farmers' bulletin 1046
5	corn root worms	U S bureau entomology U S department of agriculture circular 59
6	corn stalk borer	U S bureau entomology U S department of agriculture circular 116
7	chestnut borer	U S bureau entomology U S department of agriculture circular 24
8	diseases and insects	Connecticut extension circular 15
9	garden slugs	farmers' bulletin 959
10	army worm	farmers' bulletin 731 752
11	gypsy moth	farmers' bulletin 845
12	insects of forest trees	U S bureau entomology U S department of agriculture circular 125
13	onion thrips	farmers' bulletins 1007
14	squash vine borer	668
15	common white grub	543
16	white pine weevil	U S bureau entomology U S department of agriculture circular 90
- Spraying*
1	Bordeaux	farmers' bulletin 994
2	charts
(excellent)	Kentucky tobacco products company
Louisville Kentucky
3	cucumbers and melons
spraying	farmers' bulletin 231
4	materials for control of insects and diseases	Massachusetts extension circular 6
5	potato insects and diseases	Massachusetts extension circular 8
6	spray practice in garden	Iowa circular 129
- Forestry*
1	chestnut uses killed by disease	farmers' bulletin 582
2	marketing woodlot products	Ohio circular 302
3	nurseries forest for schools	farmers' bulletin 423
4	planting forest in Connecticut	Connecticut agriculture extension station New Haven
5	ponder post	farmers' bulletin 778
6	preservative treatment for farm timber	farmers' bulletin 744
7	primary of forestry	farmers bulletins' 358 and 173
8	trees	
	"Facts for farmers"	M A C Amherst Massachusetts
	a directions for planting trees shrubs and flowers about home	volume v No 8
	b street and roadside planting	volume iv No 9
	c lawns	volume v No 1
	d shade trees planting	volume iii No 10
	e civic improvement	exterior circular 11

9	memorial trees	American forestry association
Washington D C
10	trees New England in winter	Connecticut bulletin 69
11	Christmas trees	Michigan special bulletin 78
12	windbreaks as a farm asset	farmers' bulletin 788
13	wood lot care and improvement	farmers' bulletin 711

Miscellaneous

1	Connecticut weather review	Connecticut bulletin 64
2	collection and preservation of plant materials for use in study of agriculture	farmers' bulletin 586
3	collection and preservation of insects for use in study of agriculture	farmers' bulletin 606
4	Canada thistles	farmers' bulletin 1002
5	larkspur or poison weed	farmers' bulletin 988
6	weeds and how to control them	farmers' bulletin 660

School and home grounds

1	annual flowering plants	farmers' bulletin 195
2	autumn in the flower garden
lesson 128 flower series	Cornell reading course Ithaca New York
3	beautifying the home grounds	farmers' bulletin 185
4	lawn soils and lawns	farmers' bulletin 494
5	roses for the home	farmers' bulletin 750
6	shrubs and woody vines	Vermont bulletin 145
7	spring in the flower garden
volume v No 106	Cornell reading course Ithaca New York
8	tree planting on rural school grounds	farmers' bulletin 134

Start children distributing bulletins to neighboring farmers. Start reading clubs for farmers to be held at the school as has been done through agency of Cornell university Ithaca New York

Projects

Garden and field produce

- 1 unit garden
- 2 one or more square rods of
 - corn
 - potatoes
 - onions
 - soy beans
 - any vegetable
 - hay
 - clover
 - alfalfa
- 3 one or more square rods of any one of the following grains
 - wheat
 - rye
 - oats
 - millet
 - buckwheat

Farm stock projects

- 1 feeding and care of a horse for four months
- 2 raising of a colt (2 years)
- 3 raising of a calf (2 years)
- 4 milk record with Babcock tester for one or more cows for three months

- 5 care and feeding of one or more pigs (one season)
- 6 care and feeding of one or more lambs (one season)
- 7 making 25 pounds butter (project for girls)
- 8 making 25 pounds cottage cheese (project for girls)
- 9 care and rearing of one pair of rabbits
- 10 raising of bees

Those who have no opportunity for the above may do extra notebook work and reading. Possibly models of farm stock equipment may be made

An accomplishment certificate in agriculture will be given for the successful completion of each of the above projects

Standards v-vi

Gardening facts

- 1 Good vegetables must be perfect and true to variety type
- 2 Animals for exhibition must be carefully selected cleaned and housed
- 3 Select in the field seed corn that matures early and bears two or more ears to a stalk
- 4 In the fall destroy by burning if possible all garden refuse that will protect insects
- 5 Permit no weed to go to seed. Hoe it up or mow it down
- 6 Select seed potatoes from the hill in order to secure high yielding strains
- 7 Select a good market potato with good seed type
- 8 Diseased vegetables carry disease to those that are healthy
- 9 Different kinds of vegetables need different degrees of temperature moisture and air for storage
- 10 Select healthy mature ears of corn that are true to type to be stored for seed
- 11 Store corn so that it is protected from weather rats and danger of moulding
- 12 Accurate accounts show sources of profit or loss
- 13 Land not adapted to agriculture should be planted to wood
- 14 Natural phenomena are good indicators of seasonal progress
- 15 The types of soil are sand silt clay loam gravel and muck
- 16 Lime increases the water holding capacity of sandy soil
- 17 Humus not only adds plant food to the soil but also improves structure and water holding capacity
- 18 Lime overcomes soil acidity and improves soil structure
- 19 Crops of the same family need practically the same care and cultivation
- 20 The pulse family is the only family to gather nitrogen from the air
- 21 Plants of the same family are usually attacked by the same insects and diseases
- 22 Write all orders for supplies in a complete and legible manner

- 23 Plan the garden to avoid shading and to group plants of similar nature. Make long straight rows all running in one direction
- 24 Test seeds to find their germinating power
- 25 The replanting of a corn-field is often caused by planting untested seed
- 26 A garden is properly fertilized when it has sufficient plant food humus and the soil is free from acid
- 27 A well prepared seed bed is loose and smooth
- 28 Plant seeds deeper in dry weather
- 29 Use the method of multiplying plants that is quickest and most profitable
- 30 Start early to kill the first insects. Birds are the best insect destroyers
- 31 Plant diseases may be prevented never cured
- 32 Weeds waste soil water and shade the crops
- 33 Successful canning depends on killing all bacteria in the can and keeping all others out
- 34 Thinned vegetables have less competition for their needs
- 35 Stir the soil often to preserve a dust mulch and to prevent evaporation

Summer facts

- 36 Two stake method is best for tomatoes
- 37 Do not hill potatoes. Spray as long as vines are green
Cultivate weekly
- 38 Succession plant to maintain continuous supply of vegetables
Replant to utilize land during entire summer
- 39 Intercropping insures maximum use of land
- 40 Seed saving is a means of improving varieties by selection and saves money in buying seeds
- 41 Stomach poisons kill chewing insects only
- 42 Honest selling is the best policy
- 43 A good garden provides food for the home food to can and food to sell

Season practice chart i

Review chart for gardening

a fall

- 1 how prepare for exhibits
- 2 how select field seed corn
- 3 how combat insects
- 4 how combat weeds
- 5 how improve potato crop
- 6 how grade potatoes
- 7 how combat diseases in fall
- 8 how store vegetables
- 9 how cull seed corn
- 10 how store seed corn

- b winter
 - 11 why have accounts
 - 12 use of wood lot
 - 13 weather facts
 - 14 kinds of soil
 - 15 kinds of soil water
 - 16 movement of soil water
 - 17 humus
 - 18 lime

Season practice chart ii

Review chart for gardening

- c spring
 - 1 families of crops
 - 2 how make out seed order
 - 3 how map out garden
 - 4 how test seeds
 - 5 how fertilize garden
 - 6 how prepare seed bed
 - 7 how plant seed
 - 8 how plants are multiplied
- d summer
 - 9 how combat insects
 - a types
 - b methods of control
 - 10 how combat diseases
 - 11 why kill weeds
 - 12 how to can
 - 13 why thin
 - 14 how thin
 - 15 why the soil mulch
 - 16 how make soil mulch

Season practice chart iii

Insect control chart for agriculture

Animals

Poultry

Fruit

Vegetables

Domestic pests

How insects feed

- 1 things attacked
- 2 results of attacks (kinds of holes made)
- 3 results how attained (method of feeding)

How insects are killed

- 4 Poisons that kill
- 5 insects killed
- 6 how poison acts
- 7 method of combat

Control of any insect

- 8 what holes are made
 - 9 method of feeding
 - 10 method of combat
 - 11 names of poison to use for particular insect
- Inductive method to be used with this chart

Season practice chart iv

Succession chart

Diagram showing vegetable succession

vegetable	May	June	July	August	Sept	Oct
radish						
cress						
green onions						
lettuce						
spinach						
beet greens						
peas						
early beets						
early potatoes						
string beans						
cabbage						
early carrots						
sweet corn						
tomatoes						
lima beans						
peppers						
parsley						
summer squash						
cucumbers						
muskmelons						

The horizontal lines show the dates and weeks through which the harvesting periods extend. Peas would be harvested before tomatoes would need the land and would in turn be harvested

(To be used with February March April May June and summer lessons)

Season practice chart v

Review chart for planning gardens

- i Names of vegetables
varieties of each
- ii Seed selection
hill crops
drill crops
field crops
hardy crops
tender crops
half hardy crops
crops of the same family
high growing crops
low growing crops
- iii Testing seeds
small seeds
large seeds
- iv Planning
direction of the rows
grouping of plants of similar culture
high and low crops
vine crops
interplanting
succession cropping
amounts of seeds

- v Diagram
 - distance apart of rows
 - planting dates
- Season practice chart vi*
- Review production chart
 - i Location of garden
 - soil
 - site
 - distance from dwelling
 - ii Preparation of the land
 - fall
 - spring
 - fertilizing
 - liming
 - iii Planting
 - season
 - successions
 - drill crops
 - hill crops
 - field crops
 - iv Special practices for crops
 - v Care
 - cultivation
 - weeds
 - thinning
 - watering
 - hilling vs level culture
 - vi Insects and diseases
 - sucking insects
 - chewing insects
 - fungous diseases
 - spray materials
 - spraying
 - dusting
 - vii Harvesting
 - when
 - method
 - viii Saving seeds
 - annuals
 - perennials

First September Lesson

Exhibiting Garden Produce

Probably the largest display in every school fair is the vegetable section. Three important things must be remembered about this class of products. They are when to gather products what to pick and how to prepare products

Vegetables should be picked when in prime condition for eating provided crops gathered are not out of season. An instance of this out-of-season harvesting is picking summer squash or sweet corn for an October exhibit. In this event those specimens best suited for seed would be placed first. As to the hour of the day vegetables should be gathered when not wilted and as near the hour of entering the exhibit as possible

Only the best products should be gathered but a few extra ones should be selected to allow for grading and to replace those injured by accident. Uniformity is of great importance. Products must be uniform in size shape color texture degree of ripeness and if a root crop in length of leaf stem. They must be true to type. By this is meant that if a tomato is a Bonny Best it must have Bonny Best characteristics and not have large size and rough green shoulders like the Ponderosa nor irregular lobes like the Earliana. In the case of corn if there are a few kernels of yellow seed in an ear of Stewell's Evergreen it is probable that the ear is partly Stowell's and partly Golden Bantam. Another point is the matter of blemishes. Products injured by weeds diseases harvesting or preparing should be culled out. Last but not least is quality. Products that have made slow growth are woody tough or bitter. Those making too rapid growth tend to be too soft and tender. Overgrowth causes lack of flavor. Overripeness or wilting leads to loss of good eating qualities

The number of specimens will vary as shown in the following table and may vary according to the demands of different catalogues. How each is prepared varies also. In general however washing is done with a sponge or cloth never with a brush before the dirt dries on. Stems are invariably left on. With the root crops about two inches of the stems are left on. Clipping should be done with shears or sharp knife. With leeks and radishes the entire top is left on. If late in the season the entire tops of root crops are removed and the sear neatly trimmed. In the case of corn the husk is removed and the butt nearly cut down. The greens and garnishes are generally left with root on but the roots however must be as carefully washed as the tops

Group i	Several specimens	Group ii	Dried products
	20 each		$\frac{1}{2}$ pt each
	a string beans		a peas
	b peas in pod		b beans
	c brussels sprouts		
Group iii	Single specimens	Group iv	Root crops
	1 each		5 each
	a cabbage		a carrots
	b cauliflower		b kohlrabi
	c celery		c leeks
	d chard		d onions
	e cucumber		e parsnips
	f egg plant		f radishes
	g melons		g rutabagas
	h pumpkins		h salsify
	i squashes		i turnips
Group v	Plates	Group vi	Greens and garnishes
	5 each		1 plant each
	a okra		a kale
	b peppers		b lettuce
	c tomatoes		c parsley
	d sweet corn		d sage
			e spinach

Fact Good vegetables must be perfect and true to variety and type

Words to be defined

specimens uniformity characteristics garnishes
flavor

Assignment in preparation for next lesson

- 1 Topic Exhibiting farm stock and poultry
- 2 Aim To learn how to prepare farm stock and poultry for the fair
- 3 Home questions
 - a What special care is taken of farm stock or poultry in preparation for exhibiting
 - b What qualities are considered in selecting animals for exhibition
 - c How are they housed and fed
 - d What animals can you exhibit
- 4 Work for home or school activity
 - a Make clippings of farm stock and poultry which has won prizes
- 5 For reading and study
Exhibiting farm stock Readings in Agriculture Gardening

Second September Lesson

Exhibiting Farm Stock and Poultry

Rabbits and poultry may be brought to the school fair. See to it that the best animal or bird has been selected with regard to breed type individual excellence and coat or feathers

An exhibitor may bring as many rabbits as desired. Before the show keep the hutches or boxes in which the rabbits are to be exhibited carefully cleaned so that the fur may be in the best possible condition of cleanliness and order. Shavings and coarse straw should be the litter at this time. A rabbit is a cleanly animal and will slick its coat if given the opportunity. A little linseed meal in the grain feed will help to give a gloss to the animal's fur

Good standard hutches or boxes such as are described and illustrated in the June lesson will help to show the animal to the best advantage. The floor of the hutch should be covered with clean shavings or cut straw on the day of the fair. The water can should be fastened to the side of the hutch so that the animal can not overturn it and soak the litter. Food for one day should be provided

A card must be nailed to each cage stating the name of the exhibitor the breed of the animal and its age

All entries should be in the hall at noon on the day set for the fair

Several weeks before the fair the exhibitor of poultry should begin to select and care for the birds which are to be

shown. Select pictures of the pure bred type of bird and try to select the specimen which most nearly approaches the perfect type. Special attention should be given to the comb to see that it has the proper characteristics and to the legs that they are feathered and unfeathered when necessary. If the birds have plumage peculiar to breed the specimen most nearly approaching the standard for coloring and marking should be selected. Remove all dead broken and defective feathers. No bird having scaly legs should ever be exhibited. It is cured by scrubbing the shanks with soap and water with a tooth brush drying and rubbing with sweet oil or linseed oil

White birds should never be shown with dirty feathers. They are washed with soap and water of 85-90 degree temperature. Rinse in warm water which has a trace of blueing in it to whiten the feathers. Thoroughly dry in a warm room. A little corn starch sprinkled among the feathers when thoroughly dry will give an added gloss to them. The poultry cages may be similar to the rabbit hutches described and should be cared for and marked in the same manner

Fact Animals for exhibition must be carefully selected cleaned and housed

Words to be defined

hutches	litter	entry	comb	plumage	scaly
shanks	rinse				

Assignment in preparation for next lesson

- 1 Topic Seed corn
- 2 Aim How to select seed corn for next year
- 3 Home questions
 - a Find when your father or a neighbor selects corn for seed
 - b When should corn be harvested
 - c From what kinds of stalks should corn be taken for seed
 - d What kind of ears should be saved
 - e Where should ears be placed after picking
- 4 Work for home or school activity
 - a Make clippings on corn harvesting and paste in note-book
 - b Select a boy to bring several stalks of corn with ears attached to use for discussion in next class period
- 5 For reading and study

"How to select seed corn for next year" Readings in Agriculture Gardening

Third September Lesson

Seed Corn

In selecting seed corn we should take into consideration the kind of plant that bears the corn. To do this requires that the selection be made just before harvesting starts. The best type of plant to pick out should have strong stalks which should be

shorter than the average growing under normal conditions. There must also be good clean thrifty leaf development

The position of the ear on the stalk is of more importance than generally considered. It has been found that ears four to five feet from the ground mature better than those at a greater height. Such ears should be held upright although ears that droop slightly so that rain will not run down into the husks may be picked for seed. Special care should be taken to search out all stalks having two or more ears

Ears taken from desirable plants must be mature and not too late in ripening. Strong symmetrical ears are always preferred. Because of the fact that we wish at a later date to make a more critical selection of ears we pick more ears than will be really needed

As the corn intended for seed is gathered each day it should be hung up in a dry place not in bunches out under the veranda roofs or on the sides of the corn crib as was done in our grandfathers' day but in such a manner that no two ears will touch each other. The two young scientific farmers in the accompanying picture are demonstrating how this should be done

The importance of this field selection should never be forgotten. A well selected and preserved bushel of seed may be worth \$25.00 more in its producing power than a bushel selected from the crib in the spring when we consider that it will easily give us 10 bushels more per acre when planted

Fact Select in the field seed corn that matures early and bears two or more ears to a stalk

Words to be defined

thrifty	development	stalk	mature	husks
symmetrical	critical	acre		

Assignment in preparation for next lesson

- 1 Topic Insects
- 2 Aim To find how to destroy insects in the fall
- 3 Home questions
 - a What insects do you find hiding away in the fall under rubbish boards and crevices?
 - b Find out what farmers do in the fall to kill insects that might live over winter
- 4 Work for home or school activity
 - a Have each child select five or more ears of field corn and hang it up at home
 - b Children make clippings on insects and paste them in note-books
 - c Write story "How I select seed corn"
- 5 For reading and study
 - "Insect lessons that we should remember" Readings in Agriculture Gardening

Boys using binder twine to suspend ears of corn to dry.
By this means two boys can quickly suspend the seed
ears in a well-ventilated place

First October Lesson

Insects

Why not have a garden clean up week in every garden in town this fall and start the battle against next year's weeds and insects

The potato stalk borer was one insect that doubtless troubled many gardeners and farmers too. The eggs were laid singly at the base of the stem. The larvae hatched in a few days and bored down into the stalk. The pupae developed and were found in the stalk near the surface of the ground. From these infested stalks the adults emerged in August and September and hid among the dying vine tops. If the vines are raked up and burned as soon as the potatoes are dug many of these pests may be destroyed

Another old enemy that has been with us for several seasons is the aphid or plant louse. Every one remembers the hard work all summer long spraying them with nicotine or other smothering poisons. Were they all killed? The chances are that they were not. Here again we can kill another enemy if we burn our potato vines and dying plants. Fall plowing will also kill many of these mischievous pests but should we do this a crop of rye must be sown to prevent the land from washing away

Carefully hiding himself away under some shingle that we used to protect a tomato plant in the spring we may find squash bugs starting to sleep the winter through

Many insect pests are found on weeds in garden refuse and too much cannot be said on the importance of destroying them by burning all garden litter in the fall. If you allowed weeds to grow in or near your garden this year they were probably affected with plant lice and other pests. You sprayed your potatoes and other crops but gave no thought to the weeds growing nearby. The season for spraying is over but remember there are still some insects left and that millions can be killed by burning all weeds and refuse and by plowing the land so that grubs and insects will be killed

Fact In the fall destroy by burning if possible all garden refuse that will protect insects

Words to be defined

borer	larvae	pest	aphid	nicotine
smothering	poisons	refuse	litter	

Assignment in preparation for next lesson

- 1 Topic Weeds
- 2 Aim To find how we can start the battle this fall against the weeds of next spring
- 3 Home questions
 - a What kinds of roots do Canada thistles have
 - b Why is it hard to kill quack grass
 - c What weeds live several years
 - d What weeds live one year only
 - e How can you prevent weeds from going to seed
 - f How can you prevent weed seed from being brought onto the farm
 - g How can you kill quack grass
- 4 Work for home or school activity
 - a Burn all refuse about the garden spade and sow to rye
 - b Gather samples of weed seeds bottle and label
 - c Note-book work with weed clippings and pictures
- 5 For reading and study

"How we can start the battle this fall against the weeds of next spring" Readings in Agriculture Gardening

Second October Lesson

Weeds

When any one asks "What is a weed?" it is often difficult to answer. Some people tell us that it is a plant out of place. But this is often incorrect as many weeds poison the land as no otherwise useful plant will do. Really a weed is a wild plant that has the habit of intruding where it is not wanted

Like the "poor" we are almost always bound to have weeds with us because even under adverse conditions weeds are able to maintain themselves. Some of them are able to do this by producing large quantities of seeds while others possess roots or root stocks that live from year to year (and often for several years)

Weeds are not always useless. Sometimes they are the means by which organic matter is restored to the soil and generally a soil is more productive when it contains larger amounts of organic matter. Then too they may be useful at times in preventing soil washing especially during the winter months. Weeds are useful in collecting and holding nitrates and other valuable salts during the periods when crops are not being grown thus preventing these valuable nutrients from being washed from the soil. Ordinarily however all these benefits may be realized through the use of proper rotation of useful crops in which case it is a serious mistake to let weeds grow. It would be much better to burn our gardens over in the fall and after plowing them up to plant winter rye

We find in harvesting our crops that the presence of weeds makes the work difficult. They may even prevent some crops from curing or maturing properly

Upon examining many weeds we find that some live only one year and are called annuals while others that live two or more years are called biennials or perennials. In view of this fact our methods of destruction must vary. Some methods can be applied right away this fall whereas others can be employed when we study weeds again in the spring

Far more important than to kill weeds is to avoid having weeds to kill. In other words the farmer should aim to prevent rather than cure the evil. A farm can be made almost free of weeds by strictly observing the following principles

- 1 Prevent weeds from going to seed
- 2 Prevent weed seeds from being brought on to the farm
- 3 In cases of perennials prevent them from making top growth and thus finally starving the underground roots

We saw how well the third principle worked out when we kept the green blades of quack grass hoed down but it is the first principles with which we should concern ourselves at this time. Should we decide to have a different garden spot next spring it would be well to try to clean that spot this fall

Diagram showing the characteristic root growth of Canada thistle, a perennial weed

A plant of crab-grass, an annual weed

Fact Permit no weed to go to seed. Hoe it up or mow it down

Words to be defined

organic matter
annual

nitrate
biennial

nutrient
perennial

rotation of crops
quack grass

Assignment in preparation for next lesson

- 1 Topic Potatoes
- 2 Aim To find how to improve next year's potato crop by hill selection
- 3 Home questions
 - a Find how farmers select next year's seed potatoes
 - b At what time of year do they select their seed?
- 4 Work for school or home activity
Note book work and picture chart work of clippings and pictures on the harvesting of potatoes Farmers' bulletins 428 and 460
- 5 For reading and study
"Improving the potato crop by hill selection" Readings in Agriculture Gardening

Third October Lesson

Potatoes

Many farmers make a practice of planting all their small potatoes and this practice has caused much controversy. We shall decide for ourselves as to what we should do

Potatoes are grown from tubers and not from seeds although we call the cut tubers "seeds." Every potato that comes from the same plant will then have exactly the same ancestry. A small potato then is in reality a part of the same plant as a large potato from the same hill. Consequently all of the potatoes from a hill can be used for seed. The thing to be done is to find which hills are the high producers

Where a farmer grows his own seed a good way is to dig each hill separately by hand. The hills that produce the highest yields should be saved. If the product from each hill be kept separate and planted separately in the spring the product from each high producing hill will grow considerable seed that is very productive. In this way each boy who carefully watches the yield of each hill of potatoes as he digs is in reality a young scientific plant breeder

Fact Select seed potatoes from the hill in order to secure high yielding strains

Words to be defined

tubers ancestry high producers yield scientific

Assignment in preparation for next lesson

- 1 Topic Types of potatoes
- 2 Aim How to select good types of potatoes
- 3 Home questions
 - a What size shape color and kinds of skins are preferred for potatoes?
 - b What shape is preferred for "French fries"
 - c What size is preferred for baking?
 - d What are the names of some good quality potatoes?
 - e What are the names of some poor quality potatoes?
 - f What is a red variety?
 - g What is a white variety?
 - h What is an early variety?
 - i What is a late variety?

- 4 Work for home or school activity
 - a Composition
"How to hill select potatoes"
 - b Seasonal home project work
Have several boys hill select and bring yields of separate hill for observation at next class
 - c Clippings and note-book work
Have children make clippings on harvesting potatoes
 - d Materials to gather
Have boys bring potatoes illustrating their answers to the home questions
- 5 For reading and study
"How to choose good types of potatoes" Readings in Agriculture Gardening

Fourth October Lesson

Types of Potatoes

Whenever one is sorting over his potatoes in the fall the primary thing of which he is thinking is "How much will they bring?" He thinks of many things which will bring a high price among which are size shape color and the kind of skin. The tubers must have rather thick tough skins or else they will not ship well. These skins must be smooth however and free from dirt or injuries that will spoil their appearance. Generally the color of potatoes is white. When this is not true one may find it a little harder to sell his crop. Last but not least the potatoes must be of medium and uniform size and shape a slight oval shape being preferred

Such potatoes even when they are as perfect as those mentioned above do not always meet with favor after they reach the cook. It may happen sometimes that she wishes extra large ones for baking or extra long ones for "French fries." These cases are exceptional however. What she does want always are potatoes that have shallow eyes so that little will be wasted in peeling. If she is a really good cook she will insist that the potato be of good texture when cooked. They are often spoken of as being "mealy." Some varieties such as "Green Mountain" will always be mealy when cooked. One that will not be mealy as a rule is the "Double Yelder"

Very often it happens that the farmer decides that he may wish to increase his acreage the next year and intends to save good seed out while sorting. To be sure he will consider the things the market man and cook would desire but he must also pick out tubers that will grow the next spring. With this in mind he selects those that are free from rot scab or disease true to variety characteristics or type as it is called fresh and with good healthy eyes capable of sending out strong sprouts

If any potatoes are to be exhibited they must answer to the needs of the "butcher the baker and the potato crop maker"

Fact Select a good market potato with good seed type

Words to be defined

texture mealy acreage sorting French fries

Assignment in preparation for next lesson

- 1 Topic Plant diseases
- 2 Aim To find fall methods of disease control
- 3 Home questions
 - a Look up the definition of "disease"
 - b Find out how diseases are spread
 - c How do farmers control diseases
 - d What vegetables are spoiled in storage by disease
 - e What diseases cause this spoiling
- 4 Work for home or school activity
 - a Composition
"How to grade potatoes"
 - b Clippings and note-book work
Have children make clippings on diseases of vegetables and on storage
 - c Materials to gather
Have boys bring vegetables that are diseased
For use in January have boys gather $\frac{1}{2}$ pk each of
sand clay loam gravel leaf mold
- 5 For reading and study
"Plant diseases" Readings in Agriculture Gardening

First November Lesson

Plant Diseases

During the summer we saw plants die not because of insects or dry weather but because they seemed to grow weakly. This was because they were sick. Plants as well as animals may become sick provided they do not have proper surroundings or nourishment to resist diseases

Often there is a question as to what disease is. Disease is really any change in a plant towards reduced vigor or condition from the average or ordinary behaviour. Several reasons may bring about this change. Tiny plants without leaves called fungi may grow on the vegetables and cause them to die

Still smaller plants with only one cell called bacteria may also cause sickness. At times bacteria or fungi work only on the surface of plants. Such feeders are often the mildews such as occur on lettuce melons or cucumbers. Other fungi may work within the tissues as does the bean anthracnose potato blight and scab. Some of the diseases caused by bacteria are the black rot of cabbages bean blights and melon wilts

All diseases are by no means caused by tiny plants growing on the vegetables. Very often the plant is overfed and swellings result on certain parts of the plant. This condition is called "oedema" and although no germ has attacked the plant it is diseased. In some cases the coloring matter of the plant changes and as a result the plant through its inability to carry on its

ordinary behaviour of gathering plant food dies. So we see plants may have sicknesses very much like heart disease and other organic sicknesses peculiar to man

Fungous diseases are spread by means of spores corresponding to the seeds of higher plants. These spores are carried by wind water man implements insects and even by the soil itself. Bacteria are carried in much the same manner. (These facts can be illustrated by sticking a tooth pick into a decayed apple and then into a healthy apple. It will be remembered that potatoes are more scabby when they are grown on soil that has had a previous crop of scabby tubers.) Often times the mere contact of a diseased specimen with a healthy one may be a means of carrying the disease from one to the other

Diseases may be prevented in various ways

- 1 By taking preventive measures such as the application of sprays before the presence of disease germs
- 2 Burning or destruction of diseased material
- 3 Use of clean seed that will produce vigorous plants that tend to withstand infection
- 4 By other methods such as the removal of diseased parts of the plant rotation of crops on infested soil use of varieties not susceptible and the selection of seeds from resistant plants

Some of these things can be done only next spring but much can be done this fall. In storing our root crops all specimens that show the least speck of disease should be thrown aside. In packing the roots soil that has grown diseased roots of the same kind as are being stored should never be used

Too little thought is given to sanitation in laying aside the potatoes in storage. Not infrequently diseased potatoes having dry rot germs are lying about. Barrels that have held potatoes having the germs of blight and its resulting rot are often carelessly used without ever being cleaned

Many more things could be said about culling and destroying diseased vegetables and burning diseased refuse. It will be for each young gardener to use his thought and care in fighting against dreaded diseases and waste. Next spring more can be said about controlling diseases

Fact Diseased vegetables carry disease to those that are healthy

Words to be defined

nourishment	fungi	bacteria	mildew	blight
spores	sanitation	culling		

Assignment in preparation for next lesson

- 1 Topic Storage of vegetables
- 2 Aim How to care for the winter supply of vegetables

3 Home questions

- a What vegetables can be stored for winter
- b How are beets carrots rutabagas etc stored
- c How are parsnips horseradish chicory stored
- d How are cabbage and celery stored
- e How are potatoes stored
- f How are onions stored
- g How are squash and pumpkins stored

4 Work for home and school activity

Clippings and note-book work

Have children make clippings on storing vegetables

5 For reading and study

"Storage of vegetables" Readings in Agriculture Gardening

Second November Lesson

Storage of Vegetables

The home garden should be planted with an idea of furnishing a large assortment and continuous supply of vegetables not only during the growing season but for winter use as well. Of course this would make it necessary that we have a garden of several units. Most people have no idea of the number of common vegetables that may be kept for winter use. This list includes about thirty different kinds. There are about twenty kinds parsnips potatoes beets carrots horseradish winter radishes rutabagas salsify turnips kohlrabi cabbage celery leeks chicory dry beans pumpkins squashes and sweet potatoes that may be easily stored in the fresh state

In order to secure the best results in storage it is generally necessary to regulate the time of planting so that crops will be at the proper stage of maturity at the time for storage. For example beets sown extremely early in the spring would hardly make desirable roots for winter storage because of their being overgrown and woody. Later planting would produce smaller beets of better quality for winter keeping

The time for harvesting where crops are to be stored is just as late as possible avoiding any possible chance of injury by freezing. This time will vary slightly with different vegetables for instance turnips may be allowed to remain in the ground longer than beets they being more hardy and beets slightly longer than carrots. Only vegetables free from blemishes or injuries should be used

Vegetables to be stored for winter use should be harvested and handled with care. Root crops such as beets carrots winter radishes rutabagas turnips and kohlrabi may usually be harvested by pulling the tops. In case the vegetables are long rooted digging with a fork may be necessary

Horseradish parsnips salsify and chicory usually require digging in order to get the root out without injury and should be removed so that the tip is not more than a quarter of an inch in diameter in case it is broken off

Cabbage and celery are taken up by the roots and both with the soil clinging to them. Only injured parts are removed. Root

tops should be removed carefully cutting about three-fourths of an inch from the crown of the vegetable so that no ordinary injury will occur. Otherwise the roots are subject to bleeding and soon wither because of loss of moisture. The portion of the leaf remaining on the crown soon withers and falls off with no injury to the root

Onions for winter storage are harvested when the necks begin to wither. The tops are removed and the onions placed in a well ventilated place preferably under cover to "cure"

Nearly all the common vegetables are satisfactorily stored under one of four conditions

- 1 Cool moist conditions and no circulation of air
 - 2 Cool dry conditions with a circulation of air
 - 3 Cool moist condition of roots and a circulation of air about the top
 - 4 Warm dry conditions with a free circulation of air.
- Most of the common vegetables are stored under the first condition of coolness moisture and no circulation of air namely potatoes beets carrots horseradish parsnips winter radishes rutabagas salsify cabbage and kohlrabi

The conditions for the first group may be met in several ways. Where only a limited supply is to be stored the best method is to place the vegetables in a box of moist sand or soil in layers. Where larger quantities are to be put away they may be stored in what is known as an out-of-door pit

Parsnips salsify and horseradish being perfectly hardy are not injured by freezing and may be left in the ground over winter but it is often difficult to secure them when wanted under these conditions. They may be placed in a conical pile in a well drained place and covered with about six inches of earth which may be chopped away at any time it is desired to get at the vegetables

Cabbage pit also good for root crops

Beets carrots winter radishes rutabagas turnips and kohlrabi are not hardy and must be protected from freezing. The vegetables are placed in a conical pile on a well drained piece of land covered with a layer of from six to eight inches of straw and about the same amount of earth leaving some of the straw protruding at the top to provide ventilation as the vegetables are likely to develop some heat when first covered. As soon as cold weather sets in the earth may be thrown over the top to completely seal the pit. In extremely cold sections a layer of strawy manure is sometimes put on the top of this after the earth covering has become frozen

Where a considerable quantity of vegetables is to be stored in this way a series of pits one adjoining the other may be made with only the amount of vegetables in each pit that can be economically used at one time. In this way no pits are opened until the vegetables are to be used

Cabbages are stored by placing them head down three in a row and two on top making a tier of five cabbages the roots extending in the air. The pile may be as long as necessary. Several inches of straw or leaves should then be put over the cabbage and the same amount of earth thrown on them. Cabbage may be kept frozen solid without injury to the head providing it is thawed out very gradually

Onions in limited amounts may be easily stored in a cool place where there is a free circulation of dry air about them the main point to bear in mind is that they require a low temperature as they sprout readily where there is any heat. A bushel or so may be hung up in a basket suspended from a rafter in a cool cellar. Larger quantities are usually stored in slatted crates one piled on top of the other allowing a free circulation of air between the crates

Celery leek brussels sprouts and chicory vegetables that continue their growth after storage are transplanted with soil clinging to their roots

Celery leek and chicory in a small way may be transplanted into a box with holes in it for ventilation and the roots covered with moist sand or soil the air being allowed to circulate through the tops. Watering will be frequently necessary and should be applied to the roots and not the tops otherwise disease is liable to start and decay soon follows

Celery leek and chicory if a hotbed is available may be transplanted into the bottom of the bed and kept for a considerable length of time if additional covering is put on during severe weather

Dry beans sweet potatoes squashes and pumpkins in a limited way may be stored on a shelf in a furnace room or in a warm place where they may be kept dry and free from moisture. In order to insure squashes and pumpkins keeping satisfactorily

they should be harvested with the whole stem and part of the vine attached otherwise they are likely to start decaying on the stem end

The second group includes only the onion

The third group includes such vegetables as dry beans sweet potatoes pumpkins and squashes

Fact Different kinds of vegetables need different degrees of temperature moisture and air

Words to be defined

assortment storage blemish pit crate
transplanted

Assignment in preparation for next lesson

- 1 Topic Corn
- 2 Aim To learn how to judge corn
- 3 Home questions
 - a How can you tell matured corn?
 - b What do a few white kernels on an ear of yellow corn indicate?
 - c Which ears are best matured long or short
 - d Why do farmers like ears with well filled out tips and butts?
- 4 Work for home or school activity
 - a Composition
"How to store vegetables"
 - b Seasonal home project work
Children should store at least one type of vegetable according to methods prescribed in reading lesson
 - c Clippings and note-book work
Have children make clippings on corn
 - d Materials to gather
Children should bring ten ears of corn each for judging
- 5 For reading and study
"Judging corn" Readings in Agriculture Gardening

Third November Lesson

Judging Corn

We have already learned about harvesting our seed corn. If we followed directions the corn became perfectly mature in the field before harvesting. After the corn had been taken from the field great care was used in drying it out well before it was in danger of freezing. Corn when taken from the field contains from 20% to 35% moisture. Freezing in this condition usually ruins it for planting purposes

We picked more than we really need for planting and now we shall make a very critical selection or "judging" as it is called

Numerous score cards have been devised for corn judging. Necessarily each varies with the ideas of the different persons who compile them. A score card however aids the judges in keeping all the important points in mind. It establishes a uniform basis for study and comparison and prevents laying undue

stress on certain points to the exclusion of others. The use of a corn score card requires judgment the same as for fruit live stock milk or other products

points	Score card	Flint corn perfect score	points	Score card	Dent corn perfect score
1	maturity and seed con- dition *	20	1	maturity and seed con- dition	25
2	uniformity	15	2	uniformity	15
3	kernels	15	3	kernels	15
4	weight of ear	10	4	weight of ear	15
5	length and proportion	10	5	length and proportion	10
6	butts	10	6	butts	5
7	tips	5	7	tips	5
8	space between rows	10	8	space between rows	5
9	color	5	9	color	5
		<hr/> 100			<hr/> 100

- 1 Maturity and seed condition. This is perhaps the most important point on the score card. Corn is worthless economically speaking if it will not grow. The ears should be firm (try twisting in the hands) and free from mould. They should have a bright lustre. There should be no chaff or silks adhering. The germs should not be shrunken or blistered and the sample should show an all-round healthy vigorous appearance
- 2 Uniformity. Uniformity and trueness to type are usually considered together. Few types are recognized in the west. It is hard to determine what a "type" of New England corn is. The ears should be similar in length shape size and color indentation of kernels etc. Uniformity in an exhibit would go to show that the corn was sufficiently developed so that the type had become somewhat fixed and stable
- 3 Kernel. Of course here again an entirely different basis must be used for dent and flint corns. The kernels should be uniform and slightly wedged shaped. (Judges remove a few kernels from different parts of the ear to determine this.) The shape of the kernel determines to a great extent the amount of corn on the cob lost space between rows also chemical composition. Kernels with much starch are rich in carbohydrates those having a larger germ are rich in oil. The kernels should possess germs of good size. Kernels of uneven size do not work through corn planters with uniformity. The edges of the kernels should be straight and fit closely together they should be of uniform thickness. The rows also should be straight
- 4 Weight of ear. In this score card this item takes the place of "proportion of corn to cob" in other score cards. Dry cobs do not vary much weight and it is much easier for a judge to weigh the ears than to have two or three out of ten shelled and the proportion of corn to cob determined in this way. The weight of shelled corn per acre is the important

part. Here again there is a wide difference between dent and flint corn. Dent ears may weigh sixteen ounces or more and are usually produced one on a stalk. Flint ears weigh eight to ten ounces and more than one ear is commonly produced on a stalk

- 5 Length of ear and its proportion. The size of ears of corn vary considerably with the locality soil etc so it is hard to fix a standard of length. Dent varieties should be $9\frac{1}{2}$ inches to 10 inches long. Flint varieties may be 11 inches to 12 inches long. Some varieties of both types may be smaller. In dent corn the circumference of the ears taken two inches above the butt should be about $\frac{2}{3}$ the length. Ears with too large a circumference for their length are slow to mature. Ears should not be too tapering. Nearly cylindrical ears are desirable. Ears should be full and strong in the central portion
- 6 Butts. Large yield to the acre depends on having the butts and tips well filled out. The kernels should be uniform in size and well arranged around the butt surrounding a cup shaped cavity. The butt of the ear should not be too large neither should it be so small as not to support the ear well when it is hanging on the stalk. Butts should be somewhat expanded but not too large
- 7 Tips. Should be well covered with kernels of uniform size and in rows which are a continuation of those on the ears. Poor tips may be caused by an unfavorable season. Tips well filled out show good breeding and a larger amount of shelled corn to the acre
- 8 Space between the rows. Much space between the rows reduces the proportion of shelled corn. The shape of the kernels the straightness of the rows both at the base end of the kernel and on the exterior should be carefully noted
- 9 Color. The color of the kernels should be uniform and of a bright lustre showing good condition. White or black kernels in yellow corn should be severely cut and vice versa. Too many mixed kernels may disqualify the exhibit. Missing kernels may be taken to mean that those originally occupying the vacant space were off color. The cobs should all be of the same color. Usually white corn has white cobs. Red cobs in yellow corn are preferred. Variation in color of cobs shows mixture and poor breeding

Fact Select healthy mature ears of corn that are true to type to be stored for seed

Words to be defined

score card	uniform basis	economically speaking
adhering	uniformity	indentation
kernels	carbohydrate	butt
variation		

Assignment in preparation for next lesson

- 1 Topic Storing of corn
- 2 Aim To learn how to store seed corn
- 3 Home questions
 - a How have you seen corn hung up for winter storage
 - b Where was the corn hung
 - c What differences have you seen in the way the corn sprouted in the spring depending on where it hung
- 4 Work for home or school activity
 - a Clippings and note-book work
Have children make clippings on how to improve the corn crop
 - b Materials to gather
Boys should bring corn to illustrate method of hanging. Materials mentioned in reading lesson should be brought to make into racks
- 5 For reading and study
"Storing seed corn" Readings in Agriculture Gardening

Fourth November Lesson

Storing Seed Corn

After the corn has been properly culled great care should be taken in storing it. It should be dry by the first of December and must be protected throughout the winter from all sudden and extreme changes of temperature or humidity and must be kept above the freezing point until thoroughly dry

Where kitchen or furnace room can be used for curing corn small hanging devices may be used for the holding of the corn. A simple and practical method is to use cord tying the ears so they are a safe distance apart for drying as shown in picture. Another device is to use double cord placing ears between them so that they can be held securely and hung on a nail or hook by the loop as shown in the left of the picture. Two persons can conveniently put up a large quantity of corn in a short time by the use of the double cord. One person holds the cords while the other places the ears in position

Small movable racks such as are shown in the first picture are often used in which sufficient corn to plant five or six acres can be placed and the rack put up in the kitchen until the corn is well dried. Another device is the "corn tree" shown in accompanying picture which is now recommended by many as a convenient device for curing small quantities of seed corn. Often this portable device for curing corn can be placed in a doorway or window where there is a strong current of air to help carry off moisture from the corn. Such a tree six feet high will hold enough corn to plant fifteen acres

This corn tree holds sufficient corn to plant 15 acres on the check row system. A smooth pole six feet long and eight inches in diameter is fitted with a base to hold it upright. Rows of long, headless finishing nails are driven into the post $2\frac{1}{4}$ to 3 inches apart. The ears of corn are thrust upon these nails and stand apart for curing.

Boards may be fastened together in panels and finishing nails driven in on both sides at the proper distance apart so that the ears of corn when placed on the nails will not touch. By having the panels fastened about two feet apart at top and bottom a large quantity of corn can be stored in a convenient way to let the air circulate freely through it

An attic which can be ventilated and has a chimney passing through it or is located directly over a heated room so that it can be kept at a fairly uniform temperature through the winter is an exceedingly good place to cure corn. The attic is usually the driest portion of the house and if corn is stored on racks or hanging devices in the early fall it will cure out exceptionally well. During the warm fall weather the attic is usually heated to a fairly high temperature and the effect upon the corn would be equal to that of fire drying provided the quantity is limited. If a large quantity of corn is to be dried within the attic it will be necessary to set up a small stove to cure it in the best manner

Four devices for curing seed corn. At the left the double cord is shown. The rack in the center consists of a square frame of 2x4 inch strips on each side of which wires have been stapled two inches apart each way. The ears of corn are laid upon these two sets of wires. Next is shown the single cord method of tying and at the right hangs a rack made of heavy wire in which the ears are laid

Underneath the roof of the corn crib is an exceedingly good place to cure corn during the early fall. It should be hung where there is a strong circulation of air through the crib. After corn has hung under the roof of the corn crib for four or five

weeks it can be taken out and put into the attic or dry room to be kept through the winter

Fact Store corn so that it is protected from weather rats and danger of moulding

Words to be defined

humidity device rack attic curing corn

Assignment in preparation for next lesson

- 1 Topic Farm accounts
- 2 Aim To learn the use of farm accounts
- 3 Home questions
 - a Find out the names of farmers that keep accounts
 - b Find out the reasons why farmers keep accounts
- 4 Work for home or school activity
 - 1 Clippings and note-book work
 - Have children make clippings on farm accounts
 - Draw up a model form for farm accounts
- 5 For reading and study
"Farm accounts" Readings in Agriculture Gardening

First December Lesson

Farm Accounts

Farming is a business the same as banking or running a department store. It is a business which involves the production and sale of several kinds of products. Several important points must be considered

- 1 What does it cost to produce these products?
- 2 By selling at market prices what profit is made?
- 3 How much does a farmer get for his year's labor after all his expenses have been paid and interest has been paid on the amount of money that he has invested in the farm? To be sure many farmers "are making a living off the farm" but if business records were kept and accounts taken each year of the condition of the farm as years go by not a few farmers would be receiving little or nothing for their work

Those farmers who have tried to keep books have generally used systems devised by city bookkeepers who do not know conditions on the farm. The reasons why farm accounts are different from those of the city are many. The storekeeper deals with actual figures that is he knows definitely what each article costs him and what he receives for it. His records are not nearly so subject to estimates or variation in values from time to time as is the case with the farmer. Farm records deal largely with estimated values are influenced by particular conditions on the farm considered and pertain not only to one enterprise but perhaps to a dozen. If a farmer has 160 acres of land and is selling nothing from it except corn and has no expenses except labor the question of bookkeeping need not be considered but when

this same farmer with 160 acres is growing corn potatoes wheat oats hay truck crops and fruit and is feeding some of these crops to cattle horses sheep hogs and poultry there is urgent need of determining what each one of these lines is costing and contributing to the net income of the farm

There are different types of accounting. Probably the most common type is where a record is kept of those who owe you and those whom you owe. This is called personal accounting

Accounting may be a means of studying a business. This is called cost accounting which is an investigation into the internal organization and management of the business. It differs from simple bookkeeping where only debits and credits are kept. The interpretation of results and their application call for a thorough understanding of the business itself. People frequently criticize the former but they confuse bookkeeping with cost accounting. The result of the cost accounting should show where the greatest income is made and where the biggest outgo lies. Still further if the farmer understands the art of farming his accounts will point out where costs may be cut down or where receipts may be increased

There are many accounts that may be kept. One of the best examples of accounting is found in dairy records on cows. If a feed record is kept and also the record of the amount of milk each cow produces with the percentage of butter fat it will be clearly pointed out which cow is the most unprofitable. She may be sold for beef or disposed of while the others more profitable may be kept to produce high grade calves

In analyzing garden accounts it may be helpful to find out which crops in the garden brought the largest cash returns. The gardener may then decide as to whether he can increase his sales of this crop the next year and also if he can increase the amount of this particular crop at a reasonable cost. This would be a feature that would lead to business expansion

On the other hand he might find out the sources of greatest costs. It may be possible that some costs may be eliminated almost entirely without decreasing the returns from the garden as a whole. Many other things may be found out by the inquisitive mind and success awaits the boys and girls who can keep good accounts when they become farmers

Fact Accurate accounts show sources of profit or loss

Words to be defined

invest	estimate	truck crops	debit	credit
analyze	eliminate	source	expansion	

Assignment in preparation for next lesson

- 1 Topic The farm wood lot
- 2 Aim To learn of the production and use of wood on the farm

3 Home questions

- a What are the uses of wood on the farm?
- b What kinds of lumber are cut in this town?
- c What kinds of trees grow in this locality?
- d What are some of the products other than lumber from the forests?
- e At what period of year is it easiest to find time to work in the wood lot?

4 Work for home or school activity

- a Seasonal home project work
Every teacher should have a copy of farmer's' bulletin 586 and have children collect specimens of woods
- b Clippings and note-book work
Have children make clippings on the wood lot
- c Picture charts experiments etc
Have children make picture card using Farmers' bulletin 173 358 715

5 For reading and study

"The farm wood lot" Readings in Agriculture Gardening

Second December Lesson

The Farm Wood Lot

Many many times we hear disgruntled farmers criticizing farming saying there is no money in farming. Very often it is a poor business manager who says this. Every business man knows that the majority of enterprises must keep the labor employed the whole year around. The care of the wood lot is one way to provide winter work

There are many places on the farm that make good wood lots. Low wet places steep hillsides and small irregular tracts of land may be made to produce certain if not immediate returns. The demand for the wood that these places will provide is ever increasing because of the losses of wood elsewhere through fires insects diseases close cutting and the wasting of the timber that is cut

The products of the wood lot are many depending upon what is grown. Every farmstead needs posts poles firewood and lumber for buildings. At the same time the wood lot may be a source of beauty and value provide shade for animals and furnish food and protection for birds. Many other uses may be made of the wood lot oil of sassafras spruce gum sugar syrup nuts and paper stock are products of the forest

The demand for wood will regulate the planting of a forest. Such woods as maple elm oak locust ash fir basswood hickory walnut box elder yellow poplar pines and catalpas are among the most widely planted

In starting the forest seeds may be planted or trees may be set. Whenever a planting is to be made the advice of the state forester should be secured

Some of the returns may come soon after growth starts. The first cutting may be used for fuel barrel hoops broom or rake handles or rustic furniture

Other means of winter employment may be found but the wood lot deserves careful consideration and no farmer should find an excuse for a winter's "loaf"

Knolls on which timber may possibly be the most profitable crop

Fact Land not adapted to agriculture should be planted to wood

Words to be defined

disgruntled	enterprise	post	pole	state forester
fuel	rustic			

Assignment in preparation for next lesson

- 1 Topic Connecticut weather
- 2 Aim To find things worth remembering about Connecticut weather
- 3 Home questions
 - a What should be the condition of the oak trees when corn is planted
 - b What is the date of last killing frost in spring
 - c What is date of first killing frost in fall
- 4 Work for home or school activity
 - a Composition
"The farm wood lot"
 - b Clippings and note-book work
Have children make clippings on weather observations and keep record of temperature and direction of wind at 9 a m 12 m and 4 p m for a week
- 5 For reading and study
"Connecticut weather" Readings in Agriculture Gardening

Third December Lesson

Connecticut Weather

Most every boy and girl delights in being a good weather prophet. This is a very worthy and profitable aspiration if one is to be a successful farmer

Each spring the young gardener is wondering as to when to plant his beets or his beans. Many of the books tell him the

middle of April or the middle of May. If the season is late or early either date may be wrong. What is he to do then? Old Dame Nature is probably his best advisor in that case. Every one knows that the trees seldom get leaved out until all danger of injury by frost is over

When the plum and peach trees are in blossom or when the silver maples put forth their leaves it is time to sow in open ground the following things: lettuce radishes parsley beets turnips cabbage cauliflower carrots round seeded peas and onions. When the apple trees are in blossom and when dogwood buds unfold the heat loving plants such as cucumbers beans sweet corn pumpkins and squash may be planted. A very safe rule to follow in planting corn is to wait until the white oak leaves are as big as squirrel's ears

Occasionally there are irregularities that may cause considerable damage. Frost is the most common. There are dates after and before which frost seldom if ever occurs. These dates regulate the growing season. This is a period between the last killing frost in the spring and the first killing frost in the autumn. The general limits of it are from May 1st to October 1st. The specific limits are May 5th to October 8th. A killing frost means that the temperature falls below 32°. It does not mean occasional frost in low swampy places. Sometimes a cold wave or cold snap may come in the middle or last of May and cause a killing frost. In the fall this may occur about the middle of September

Fact Natural phenomena are good indicators of seasonal progress

Words to be defined

weather prophet frost killing frost swamp
cold snap

Assignment in preparation for next lesson

- 1 Topic The types of soils
- 2 Aim To learn to recognize the different types of soils
- 3 Home questions
 - a What are the types of soils?
 - b What types are easiest to plow?
 - c What types are hardest to plow?
 - d What is the difference in the size of the soil particles
 - e What soil do cabbages like?
 - f What soil do beans like?
- 4 Work for home or school activity
 - a Composition
"Connecticut weather"
 - b Clippings and note-book work
Have children make clippings on farming on different soils
- 5 For reading and study
"Types of soils" Readings in Agriculture Gardening

First January Lesson

Types of Soils

After the bells of New Year's stop ringing every boy and girl is glad that a new year has begun and that in a short while it will be time to be digging the ground for fish worms or sowing

the first radishes. In the remaining days of winter considerable time can be profitably spent reflecting about next spring's garden spot

To grow good crops requires good soil. This soil is a good sandy loam. However we are not always fortunate enough in having the ideal soil. It may be that the texture is too fine or too coarse causing it to be too heavy or too loose

But what is texture? By texture is meant the degree of fineness or coarseness of the particles. The finest will remain in suspension clouding the water for hours. This soil is called clay. The next coarsest is silt which will settle in about an hour. The sand and gravel will settle almost at once. The type of soil that you will have depends on which of these is in greatest abundance. When we have determined what the kind of soil is we can tell more about what it will do. Soils behave differently. Soil structure refers to the way soil behaves

By soil structure is meant the way in which the particles adhere to one another. Clay is heavy dense clinging difficult to break and hard to plow. Loams and sands are not so adhesive. All soils tend to be more dense hard and resisting when they lack decaying vegetable or animal matter

It is interesting to note what causes the difference in the way particles cling. Water surrounds each particle in a tiny film and when these films unite it causes the particles to cling together in clusters. The greater clinging power of clay is caused by the fineness of the films and the greater amount of surface on the particles. Sandy soils do not lump because the surface of the soil particles is not great enough in proportion to the bulk of the particle to supply the necessary films for binding

These are important things to remember and should be kept in mind when we are studying soil moisture and how to improve soils

Fact The types of soil are sand silt clay loam gravel and muck

Words to be defined

suspension silt particles dense film adhesive

Assignment in preparation for next lesson

- 1 Topic The movement of water in soils
- 2 Aim To learn the action of soil water
- 3 Home questions
 - a In which soils does water rise fastest
 - b In which soil does water rise more slowly
 - c Which soil dries out most quickly
 - d Why do crops sometimes wilt more quickly on clay soils
 - e In which type of soil does water drain through more quickly
 - f In which type of soil does water drain through more slowly
 - g Which soil warms up sooner in the spring
- 4 Work for home or school activity
 - Clippings and note-book work
 - Have children make clippings on growing potatoes
- 5 For reading and study
 - "The movement of water in soils" Readings in Agriculture Gardening

Second January Lesson

The Movement of Water in Soils

Water is a very important factor in the growth of plants. How it acts and how it is controlled are very important things in the cultivation of the soil

When you fill a lamp chimney with soil over the end of which has been tied some gauze to keep in the soil and then pour in water so that some runs out through the bottom the water that runs out is called gravitational water. Most of the water that soaks into the soil after heavy rains becomes gravitational water and is stored up deep down in the ground until the soil dries out and soaks it up

The rate of rapidity with which this gravitational water flows through the soil varies with the different types of soils as we shall see later in the agriculture lesson. In sandy soils it moves through very rapidly and little is retained. Clay soil on the other hand lets the water pass through very slowly and it also retains much of it. Loam is intermediate between sand and clay in its action. It is found that by mixing humus with a sandy soil the water moves less rapidly through it and more is retained while the reverse is true when humus is added to clay

Not all of the water drains through the soil but remains clinging to the soil particles. As the soil dries out the water stored below is soaked up in the same manner as a blotter soaks ink. This soaking process is called capillarity

As has been said less water remains clinging to the sand particles and hence the sandy soil holds less water than clay

When the soils start soaking up the water by capillary action the water moves more slowly in the clay because in its climb it has a greater soil particle surface over which to climb. It climbs to a greater height also due to the fact that the arcs of film water between particles in the sand are so wide that the weight of the hanging water drops break them down

The agricultural significance of the above things is important. For early quickly growing crops the soil must drain out quickly yet water must rise rapidly to the crops when needed. Where this sandy piece of land is located is of great importance. If it is in a low place not high above the water table of reserve water below the water can easily climb the distance but if the piece is on a knoll the distance between the level of the stored water and the place where it will be needed is very great it will be doubtful if all of the water that the plants need will reach them. This may lead us to wonder why plants die for lack of moisture in the summer on some clay soils. It is simply because more water evaporates from the surface than can rise in a given length of time. These are very simple principles about a very common thing water but many important things can be traced back to simple reasons or principles

Fact Lime increases the water holding capacity of sandy soil

Words to be defined

gauge humus capillarity knoll evaporates soil

Assignment in preparation for next lesson

- 1 Topic How humus affects soils
- 2 Aim To learn how humus affects soils
- 3 Home questions
 - a Look up definition of humus
 - b Why do decayed leaves improve the soil
- 4 Work for home or school activity
 - a Composition
"How water acts in the soil"
 - b Clippings and note-book work
Have children make clippings on fertilizing the soil
- 5 For reading and study
"How humus affects soils" Readings in Agriculture Gardening

Third January Lesson

How Humus Affects Soils

Humus is a very uncommon word but a very important one in agriculture. No soil will produce crops without it no matter how much fertilizer is applied. Humus is a form of plant food but more important than that it aids certain very useful bacteria to live in the soil and also has some of the beneficial effects that lime has although it does not overcome an acid condition of the soil

This very strange substance is no more or less than partly decayed animal or vegetable matter such as leaves old hay muck manure and animal refuse

In the wild state of nature the leaves and bits of plants fall to the ground and keep the soil supplied with humus. While part of the humus is being taken up by the plants more leaves and refuse are falling and decaying. This has gone on for ages because nature has kept just the right balance

However when man clears the land and grows crops he continually takes away the plants that grow on the soil and as a result no humus falls to the ground. After this has gone on for some time the soil gets hard so that it bakes and plants refuse to grow in it

A careful farmer applies plenty of manure to his land to take the place of the crops that he has removed. When he does not do this he carefully grows some crop like rye and then plows it under always insuring that he has sufficient humus in the soil

Fact Humus not only adds plant food to the soil but also improves structure and water holding capacity

Words to be defined

fertilizer lime acid

Assignment in preparation for next lesson

- 1 Topic How lime affects soils
- 2 Aim To learn the effect of lime in soils
- 3 Home questions
 - a What is lime
 - b What are the kinds of lime
 - c Why do farmers use lime on the land
 - d What is the effect of lime on crops
 - e What is the effect of lime on potatoes

- 4 Work for home or school activity
 - a Clippings and note book work
Have children make clippings on lime
 - b Materials to gather
Have children get samples of lime for inspection in class
Each sample should be named as to kind of lime that is hydrated slacked air slacked caustic or ground lime stone

Fourth January Lesson

How Lime Affects Soils

Lime is a very common white powder that does not interest us unless we know much about how useful it may become

Sometimes the soil is very sour and plants do not like this any more than little boys and girls like sour things. If lime is added to the soil this sourness is overcome. About one ton of lime to the acre will benefit the soil for about five years. Not only will the large plants like the limed soil but the very tiny ones called bacteria which do a great deal of good are benefited. Certain other kinds of tiny plants such as cause club root on cabbages do not like this lime and die

We can tell whether a soil is acid or not by taking pieces of blue litmus paper and placing them in the soil to be tested. If they turn red the soil is acid. One can sometimes tell when soil is acid by whether or not the coloring in cabbage leaves is red when the proper color should be blue

Lime will also affect the particles of clay soil and the films of water about them so that the clay particles have a more porous structure. This permits the gravitational water to flow more readily through it thus giving the roots of plants more chance to get air and making the soil warmer. This change in structure also makes plowing easier. The way that lime binds these particles together may be seen by pouring some lime water or lime powder into some muddy water. The granules will settle to the bottom of the glass and leave the water clear

In sandy soil the particles are too loose so that water runs down through too rapidly and air moves freely through it. The lime also binds the particles of this soil together in groups in such a manner that the water is retained and the movement of air that dries out the soil is less

One other important thing lime does is that it corrodes the soil and puts certain plant foods in such a form that they can be used by the plants

Fact Lime overcomes soils acidity and improves soil structure

Words to be defined

litmus paper porous granules corrode

Assignment in preparation for next lesson

- 1 Topic Families of crops—the potato family
- 2 Aim To learn special treatment of potato family

- 3 Home questions
 - a Should potatoes be hilled
 - b Should fertilizer be put under or over the seed
 - c How often should potatoes be sprayed
 - d What insects trouble potatoes? How controlled
 - e Are tomatoes hardy or tender to frost
 - f Is it better to stake tomatoes or let them lie on the ground
 - g How are tomatoes staked
- 4 Work for home or school activity
 - Composition
 - How lime and humus affect soils
- 5 For reading and study
 - The families of crops—the potato family Readings in Agriculture Gardening

First February Lesson

Families of Crops — The Potato Family

Vegetables like human beings belong to families and while each plant family may not all be artists or workmen the relatives have something in common that show relationship. It is always profitable to study the family traits of a plant as it may help us to better understand its cousins aunts and uncles

The first family that we shall discuss is the potato family and in that family we shall consider first the potato. The potato is the only member of the family that can be planted early in the spring and will thrive in cool weather. Cut-pieces of the tubers each weighing about two ounces and containing two eyes are planted in furrows three feet apart and with fifteen inches between the pieces. The seed are placed in the furrow that should be four to six inches deep and there is drawn in about two inches of soil upon which is spread a good fertilizer at about the rate of 1600 pounds to the acre. As the potatoes grow out of the furrow the remaining soil should be drawn into the unfilled furrow to choke the weeds. It is *all important* that potatoes be never hilled or mounded up. Level culture is the best. Potatoes must be sprayed with a fungicide and insecticide about every ten days until the tops die completely

The best late variety of potato is the "Green Mountain" and the best early variety is the "Irish Cobbler"

Tomatoes are cousins of the potato but they are lovers of warm weather. The seeds are started under glass and the plants set in furrows in the open field after the last killing frost. In setting a deep hole should be dug so that the top of the plant is just level with the surface. Enough soil should be drawn into the hole to cover the roots. As the plants grow out of their holes the dirt can be drawn in and the buried stalks will start more roots. Fertilization is slightly lighter than for the potato. These plants should be set $1\frac{1}{2}$ ft apart in rows that are 3 ft apart. The plants should be kept growing to two main leaders and all suckers should be "nipped out" of the axils or "crotches" of the leaves when small. Each leader should be tied to a four foot stake. In cultivating *no hilling or mounding* of the earth about the plant should be done. The vines must be sprayed the

same as the potatoes with a fungicide to kill blight and also with the same insect poisons to kill the aphid and flea beetles that attack both. The best variety of tomato is "Bonny Best"

The second and more distant cousin is the egg plant another heat lover and victim to insect pests of the potato and tomato

The tobacco is still another cousin

Although not a member of the potato family the pepper should be considered along with this family as it is a heat lover and its needs are much the same as the potato cousins

Tomato plants give best results when staked

Fact Crops of the same family need practically the same care and cultivation

Words to be defined

furrow fungicide insecticide flea beetles

Assignment in preparation for next lesson

- 1 Topic Families of crops the cabbage family
- 2 Aim To learn how to protect and raise cabbage family
- 3 Home questions
 - a What plants are related to the cabbages
 - b What diseases affect the roots of cabbages
 - c What are the insects affecting cabbages
 - d Find out the name of one variety of each member of the cabbage family
- 4 Work for home or school activity
 - a Composition
How to raise potatoes
 - b Clippings and note book work
Have children make clippings on vegetable crops
- 5 Reading and study
Families of crops the cabbage family Readings in Agriculture Gardening

Second February Lesson

Families of Crops — Cabbage Family

We must pay special attention to the cabbage family as club root (which is one of the worst diseases) attacks all members of the family and hence one member should not follow another on the same piece of soil for several years

The same insects attack the whole family. In the spring tarred felt discs must be placed flat on the ground around each plant to prevent the root maggot from laying its eggs at the base of the plant. Another serious pest is the green cabbage worm which eats large holes in the leaves. Heavy sprays of arsenate of lead or Paris green will kill this insect. A new insect to attack the cabbage family is the aphid which can be controlled by combining nicotine with the arsenate

The important members of the family are cabbages cauliflower kale rape Brussels sprouts kohlrabi and turnips. While kohlrabi and turnips are root crops they also are attacked in the same manner as other cabbage cousins

All cabbages are lovers of cool weather and do best in the spring or fall. They are also partial to heavy clay loams which is very important because we are sometimes at a loss to know how to use the heavy spots of the garden

A list of the best varieties of each member of the family follows

Cabbage	Early Jersey Wakefield
early	All Seasons
midseason	Danish Ball Head
late	Danish Dry Weather
Cauliflower	Dwarf Erfurt
	Snow Ball
Brussels Sprouts	Danish Prize
Kohlrabi	White Vienna
Turnips	
early	Flat White Dutch Purple Top Strap Leaf
late	German Sweet Rutabagas White Egg
	Turnips
Kale	Imperial Long Standing

Plant protector
Tarred felt plant protectors
Plant Protector Company
31 South Water Street
Rochester N Y

Fact Crops of the same family need practically the same care and cultivation

Words to be defined

club root arsenate of lead sprouts maggot

Assignment in preparation for next lesson

- 1 Topic Families of crops the pulse family
- 2 Aim To learn facts concerning the pulse family
- 3 Home questions
 - a Are peas hardy or tender to frost
 - b Are beans hardy or tender to frost
 - c Name variety of
 - early dwarf peas
 - midseason or late bush peas
 - dwarf wax beans
 - dwarf green beans
 - pole wax beans
 - pole lima beans
 - bush lima beans
 - bush field beans
- 4 Work for home or school activity
 - a Clippings and note-book work
 - Have children make clippings on farm crops
 - b Materials to gather
 - Let the children collect all the varieties of beans that they can find. Have children send for seed catalogues
 - Fottler Fiske Rawson Co Boston Massachusetts
 - F W Eberle Co Albany N Y
 - Stokes Seed Co Moorestown N J
- 5 For reading and study
 - "Families of crops the pulse family" Readings in Agriculture Gardening

Third February Lesson

Families of Crops — The Pulse Family

The pulse family includes all those plants that have blossoms looking like little butterflies. One should pick a pea blossom and note this resemblance. Included in this family are the peas beans and peanuts

These plants are very important as they gather part of their food from the air. Living on the roots in small bunches or "nodules" are tiny bacteria which take nitrogen from the air and put it in a form that the pulse crops can use. All other classes of plants do not have this power and must get all of their nitrogen from the soil. The only nitrogen that we should give peas and beans is a little that the plants will need to get started in the spring

Other than the peas this family is very tender to cool weather and frosts

All of the pulse crops are planted in drills that are 28-36 inches apart. Never should any hilling or mounding of earth about the plants be done

The best variety of each member of this family follow

Peas

dwarf early	Notts Excelsior
bush midseason	Alderman
or late	Telephone

Beans

dwarf wax	Wardwell's Wax	Curries	Rust Proof
dwarf green	Bountiful	Refugee	
pole wax	Wax	Kentucky Wonder	
pole green	Case	Knife or Creaseback	
pole lima	Leviathan		
bush lima	Fordhook		
bush field	Navy	Yellow Eye	

Fact The pulse family is the only family to gather nitrogen from the air

Words to be defined

nodules nitrogen resemblance

Assignment in preparation for next lesson

- 1 Topic Families of crops other families and groups
- 2 Aim To learn other family crops and groups
- 3 Home questions
 - a What crops are related to the cucumber
 - b Name varieties of each of these crops
 - c What insects affect cucumbers and squashes
 - d How combatted
 - e What are the best varieties of onions
- 4 Work for home or school activity
 - a Composition
How to raise the cabbage family
or
How to raise peas and beans
 - b Clippings and note-book work
Have children make clippings of farm crops
- 5 For reading and study
Families of crops other families and groups Readings in
Agriculture Gardening

Fourth February Lesson

Families of Crops — Other Families and Groups

In this lesson we will briefly consider other families of plants the first being the vine or cucumber crops

The vine crops are low growers that spread over much ground and grow only during warm weather

The members of this family are cucumbers gourds squashes melons and pumpkins

The same diseases such as the wilts and mildews attack all of these plants as do the same insects such as the squash bug which is a ravenous sucking pest and the cucumber beetle

In saving seed it is important that the seed be taken from plants that have been so separated from their cousins that there has been no chance for cross fertilization or mixing of pollen

The best varieties of this family are as follows

Cucumbers	Arlington White Spine
Squash	
summer	Yellow Summer Crook Neck
winter	Hubbard
Pumpkin	Sugar
Melons	
musk	Rocky Ford
water	Fordhook

The next family that occupies our attention is the onion. Included in this family are the onions leeks garlics chives and shallots

The most important onion varieties are as follows

Yellow	Danvers Yellow Globe
Red	Wethersfield
White	Southport White Globe
Pickling	White Barletta
Multiplier	White or Yellow

Fact Plants of the same family are usually attacked by the same insects and diseases

Words to be defined

ravenous beetle pollen fertilization

Assignment in preparation for next lesson

- 1 Topic Garden planning seed order
- 2 Aim To learn how to make up a seed order
- 3 Home questions
 - a What crops do you wish to raise in your garden
 - b What crops do you wish to raise to be eaten as soon as grown
 - c What crops do you wish to raise for canning
 - d What crops do you wish to raise that can be stored for winter
- 4 Work for home or school activity
 - a Seasonal home project work
Teachers should arrange to buy all vegetable seeds in bulk and divide up among pupils. This is more satisfactory than buying 5¢ packets of questionable local supplies. Orders should be sent as soon as possible
 - b Clippings and note-book work
Have children make clippings on any garden topic
- 5 For reading and study
Garden planning seed order Readings in Agriculture Gardening

First March Lesson

Garden Planning — Seed Order

The vegetable garden so far as possible should supply the needs of the family. The practicability of doing this depends of course on many things but chiefly on the size of the garden and the number in the family. In a general way it is possible to estimate the needs in advance and to make up the seed list accordingly

Here is a table that shows the amount of seed needed to supply a family of four with vegetables throughout the year

bean				
bush lima	1	pt	onion sets	4-6 qts
pole lima	1	"	pea garden	4-6 "
snap	1	qt — 2 qts	parsley	1 pkt
beet	4	oz	parsnip	$\frac{1}{2}$ oz
cabbage			radish	1 oz
early	1	pkt	spinach	
late	$\frac{1}{2}$	oz	in spring	$\frac{1}{4}$ lb
carrot	1	oz	in fall	$\frac{1}{2}$ lb
celery	1	pkt	squash	
corn sweet	1	pt — 2 pts	hubbard	1 oz
cucumber	1	oz	summer	1 "
eggplant	1	pkt	tomato	
kale	2	oz	early	1 pkt
lettuce	$\frac{1}{2}$	oz	late	$\frac{1}{4}$ oz
			turnip	2-3 "

It is not supposed that any family will use all the vegetables listed nor will all families require the same amount of any crop. The pupil should select his seed from this list and make successive plantings

The individual tastes of the family must be taken into consideration. Also those crops in which freshness is important such as peas beans corn asparagus must not be overlooked. Such specialties as okra and parsley that are hard to get should be included. Due consideration must be given to the crops for canning and for storage

Fact Write all orders for supplies in a complete and legible manner

Words to be defined

vegetables crop successive plantings

Assignment in preparation for next lesson

- 1 Topic Mapping out the garden
- 2 Aim To learn to make a garden map
- 3 Home questions
 - a List the root crops
 - b List the vine crops
 - c List the tall growing crops
 - d List the drill or continuous row crops
 - e List the hill crops
 - f How far apart are carrots beets and turnips planted
 - g How far apart are corn potatoes beans and peas planted
 - h Why is it a poor practice to have a crop follow the same crop on a piece of land for two years in succession
 - i What are the quick growing crops
 - j What are the slow growing crops
- 4 Work for home or school activity
 - a Seasonal home project work

Leaves hay manure pieces of turf and vegetable refuse should be piled up and moistened so that it will rot. About every week the pile should be forked over. This material when partly decayed will be called humus

All children should make final selection of their garden plots if not already done
 - b Clippings and note-book work

Have children make clippings on spring garden work

5 For reading and study

Mapping out the garden Readings in Agriculture Gardening

Second March Lesson

Mapping Out the Garden

Among boy and girl gardeners the making out of the garden plan is the most important thing during the garden year. And the second important thing is carrying out the plan. A garden that is planted helter-skelter is unattractive and consequently no one takes an interest in it and it is neglected.

The location must be first selected. It must be near the house have the proper soil and have plenty of sunlight and no shading from trees or buildings.

A plan is a valuable thing to keep for future reference as a gardener is able to tell what is needed from his experiences of former years. Sometimes it is best to make a garden plan large enough so that notes can be written between the lines. Once the notes are written in it will be seen where crops have grown and where they should not be grown for several years. This plan should include the names of the main companion and succession crops rotations dimensions and distances apart of crops.

The main crops are those that occupy a strip of land the whole or greater part of the season. Companion crops are those that are grown between the main or succession crops and are harvested before the latter need all of the land. Succession crops are those that are planted on the same land from which others have been harvested. Successive planting should be made of some crops of vegetables that is dividing a row up to be planted in sections at different dates so that the harvest may be prolonged.

In making the plan a list of vegetables should be gone over and then grouped according to their habits of growth and the cultural methods needed.

The next step is to draw the lines to represent the rows. The rows of root crops should be 14-18 inches apart and the rows of field crops 28-36 inches apart. Between the rows of main crops there may be room to grow companion crops such as lettuce between carrots radishes between beets early turnips between cucumbers early string beans between corn lettuce between cabbages winter squash between corn. Some of the main crops may be harvested early enough to plant succession crops and the names of these should be written on the main crop line in the diagram in brackets. The low growing crops should be planted on the south side of the garden.

The following lists may be helpful in planning out the main and succession crops

1 Crops occupying the ground all season

asparagus	salsify	egg plant	rhubarb
peppers	beets late	cucumbers	onions (seeds)
melons	leeks	squash	okra
carrots late	pumpkins	parsnips	tomatoes
corn late	beans pole lima	beans pole snap	rutabagas
	potatoes main crop		

2 Successive crops

radish	peas	turnips	spinach
kohlrabi	lettuce	parsley	beans dwarf

3 Early crops which may be followed by others

onion sets	turnips early	corn early	beets early
carrots early	cabbage early		

4 Late crops which may follow others

beets late	spinach	peas late	celery
kale	endive	flat turnips	cauliflower
cabbage late	brussels sprouts		

It is a very important thing to keep a record of the dates on which each crop is planted. This can be done by writing it in brackets under line representing each particular crop

In planting rotation of crops whether the rotations be during the same or in succeeding seasons certain general principles should be kept in mind. In type and character of growth the succeeding plant should differ as widely as possible from the plant which it follows. This is both for the purpose of avoiding attacks by insects and diseases and to insure that the second crop shall be properly nourished. A good plan is not to have root plants such as beets and carrots nor plants of the same family such as cabbage and brussels sprouts or tomatoes and peppers follow each other. It is well to divide the plants into root crops fruiting crops and foliage crops and have members of the different groups alternate

Fact Plan the garden to avoid shading and to group plants of similar nature. Make long straight rows all running in one direction

Words to be defined

helter-skelter	reference	dimensions	succession crops
foliage crops			

Assignment in preparation for next lesson

1 Topic Seed testing small seeds

2 Aim To learn how to test small seeds

3 Home questions

- a Find reasons why seeds sometimes fail to come up
- b Find what farmers test their seeds
- c Find how they test their seeds
- d How do methods vary for large and small seeds

4 Work for home or school activity

- a Seasonal home project work
All children should test their seeds. Testers should be made and used in school. Test out any old seeds left over from last year
- b Clippings and note-book work
If possible have children make clippings on testing seeds
- c Picture charts experiments etc
Have children make picture chart from F B 428 253

5 For reading and study

Seed testing small seeds Readings in Agriculture Gardening

Third March Lesson

Seed Testing — Small Seeds

Every year a large acreage of land is planted with seeds so poor in germinating quality that partial or complete failure of the crop is the result. Seed testing however is very simple and a number of practical home made germinators are here described

The plate germinator is made from two pie tins or dinner plates and some absorbent material such as blotting paper coarse wrapping paper or cloth. In the bottom of the tins or plates place several layers of the absorbent material wet it thoroughly and scatter on it the seeds to be germinated. If plenty of absorbent has been used it will not be necessary to place a paper or a cloth over the seeds. Invert the second plate over the first as a cover and see that the edges fit closely in order to make a moist chamber. This is a good germinator for oats wheat barley grass and clover seeds or corn

For small seeds such as grass or clover an ideal germinator can be made with a piece of glass a glass tumbler and some blotting paper. Cut two pieces of blotting paper so that they will just fit inside the tumbler. Lay these on top of each other on the piece of glass wet them thoroughly and scatter on the top the seeds to be germinated. Invert the tumbler over the blotting paper and set the germinator in a warm place. As a rule no more water is needed but if the blotting paper becomes dry a little can be added. This type of germinator interests children because they can watch the germination as it progresses from day to day

TWO TYPES OF HOMEMADE SEED GERMINATORS

On the left a germinator made by inverting a glass tumbler over two or three layers of wet blotting paper placed on a piece of glass. On the right a place germinator with blotting paper in the bottom as an absorbent

A SAWDUST GERMINATOR

A tin box with sawdust in the bottom and a sawdust pad in the top. This is a very convenient germinator for schools as it can be carried about

Fact Test seeds to find their germinating power

Words to be defined

germinating

absorbent

germinator

Assignment in preparation for next lesson

- 1 Topic Seed testing large seeds
- 2 Aim To find ways of testing seed corn and other large seeds
- 3 Home questions
Find out ways of testing seed corn
- 4 Work for home or school activity
 - a Seasonal home project work
Every child should test his father's seed corn either at school or at home
 - b Clippings and note book work
Have children make clippings on garden preparation
 - c Picture charts experiments etc
Have children make picture charts from Farmers' bulletin 818
- 5 For reading and study
"Seed testing large seed" Readings in Agriculture Gardening

Fourth March Lesson

Seed Testing — Large Seeds

All boys like to do things and here is a way they will find how to do something very useful and that is how to make a good seed corn tester. A convenient tester and the kind strongly recommended for every farmer to use is shown in the picture. It consists of a wooden tray about two inches deep two and a half feet long and two feet wide strung with light fence wire one and three-quarter inches apart each way and an inch and a half above the bottom and filled up to the wires with moist sand. The cross wires permanently mark off the surface of the sand into one and three-quarter inch squares. Each square serves to hold the kernels to be tested from a single ear. If much corn is to be tested several of these testers should be provided. They are easily made and with good care will last for many years. For the average farmer one will be sufficient as about three bushels of seed ears can be tested at one time

When making tests some convenient system of arranging the ears on a rack table or floor must be employed so that the ear corresponding to a certain square in the tester may be readily located. The test should be made with about five kernels per ear as shown in picture and they should be taken from various parts of the ear. One should look out for elevated or swollen spots when selecting kernels for the test because wherever these occur the cob is probably more or less spongy and retained moisture after the rest of the ear was dry and out of danger of being injured

After the kernels have been placed the material in the tester must be kept thoroughly moist. Sand is preferred because it is clean and easily kept in good condition. The kernels should be pressed well into the sand but they need not be buried out of sight. The important thing is to keep them thoroughly moist.

Some kind of cover for the tester must be provided so as to keep the surface from drying. A couple of panes of window glass make the most satisfactory cover. With the glass cover the soil needs to be moistened only once for each test as the evaporated moisture will condense on the under surface of the glass and drop back on the soil. The cover should not fit too closely as the germinating kernels must have quite a lot of air. When moistening is necessary after the kernels have been placed a towel or other cloth should be spread on the surface and the water poured gently on top. If this is not done the water poured on will move many of the kernels out of place

A filled tester ready to be covered and set aside for germination

The filled tester should be placed in a room where the temperature ranges around 70° F but not too near the stove. The ordinary living room is about right provided that it does not become colder than 55° during the night. All kernels which do not send out vigorous root and stem sprouts within four or five days under these conditions should be considered as too weak to germinate properly under ordinary field conditions and the ears from which they came should be discarded

Fact The replanting of a corn-field is often caused by planting untested seed

Words to be defined

tester temperature condense

Assignment in preparation for next lesson

- 1 Topic Preparing the garden use of fertilizer
- 2 Aim To learn how to fertilize the garden

3 Home questions

- a What kinds of plant food should be applied to the garden
- b How much of each should be used
- c What kinds make many leaves
- d What kinds make good roots and good growth of seed parts
- e What kinds of plants take nitrogen from the air and need little of this element in the fertilizing
- f How much lime should be applied and how often

4 Work for home or school activity

- a Composition
How to test seeds
- b Seasonal home project work
The compost pile of humus should be spread over the garden plot
- c Clippings and note-book work
Have children make clippings on fertilizers
- d Materials to gather
Have children collect samples of commercial fertilizers and put in bottles

5 For reading and study

Preparing the garden uses of fertilizers Readings in Agriculture Gardening

First April Lesson

Preparing the Garden — Use of Fertilizer

The food that plants use are the fertilizing materials that are given them. The kind and amount of fertilizer that is given a plant will determine what will be the character of the plant grown. If too much nitrogen food such as nitrate of soda is given the plant will grow thrifty leaves which may be desired in the case of such crops as lettuce spinach and swiss chard. If strong growth of roots such as beets carrots parsnips and turnips is desired and if growth of seed parts such as tomatoes squash and beans is the end to be reached foods with a large amount of phosphate and potash must be used. It is not always easy to get just the right amounts of foods of the right kinds for each plant because home gardens are often too small to call for different mixtures. If much leaf growth is made where roots and seeds are desired the gardener should be able to tell what is the matter. At other times the leaves are not thrifty enough and here again the gardener should be able to tell which food is not in large enough amount

We learned in the lesson "How humus affects the soil" that some form of decaying matter must be continually supplied as it is a part of the food for crops. In the home garden leaves may be raked in the fall and piled up to rot. Old hay or straw garbage and manures may be added to this pile making it very rich. After some of the crops are off the land in the late fall some rye may be sown on the garden to be turned under to make decayed matter

The following are the good fertilizer mixtures to use. Choose the one that is easiest to obtain never forgetting the need of supplying humus in some form

- 1 10 pounds nitrate to 1000 square feet (5 pounds at planting and 5 broadcast and raked in) and 30 pounds acid phosphate
- 2 1 ton manure and 50 pounds acids phosphate to 1000 square feet
- 3 5 pounds commercial fertilizer (containing 3-5% nitrogen 8-10% phosphoric acid) to 100 square feet

Fact A garden is properly fertilized when it has sufficient plant food humus and the soil is free from acid

Words to be defined

nitrate of soda	thrifty	broadcast	acid phosphate
phosphoric acid	commercial fertilizer		

Assignment in preparation for next lesson

- 1 Topic How to prepare the seed bed
- 2 Aim To learn how to prepare the seed bed
- 3 Home questions
 - a Find out how to tell when the soil is ready to prepare
 - b Find out which soil is easier to prepare sand or clay
 - c Which can be prepared the earlier
 - d Which can not be prepared soon after a rain
 - e How is manure applied to the land
 - f How is lime applied to the land
 - g How is fertilizer applied to the land
- 4 Work for home or school activity
 - a Seasonal home project work
Depending upon the season gardens should be broken up soon after the first of April
A unit garden should be started in some person's back yard near the school for purposes of observation
 - b Clippings and note-book work
Have children make clippings on spring garden work
- 5 For reading and study
"How to prepare the seed bed" Readings in Agriculture Gardening

Second April Lesson

How to Prepare the Seed Bed

One very wise old farmer said "A crop well planted is half grown" and he was right. Too much care can not be taken in preparing the seed bed

When the peepers are heard in the spring soil preparation should start. Soil preparation should have begun last fall by forking in plenty of old leaves or manure. What day is chosen

in the spring to do the digging will depend on how moist the soil is. This can be found out by moulding a few balls of earth with the hands. If the earth falls apart readily it is dried out sufficiently to prepare

The manure or rotted leaves applied in the spring should be spread over the garden and as each furrow is spaded it should be distributed over the side of the overturned earth in the furrow. This will insure its being evenly distributed through the ground. As the land is spaded all stones sods and rubbish should be raked back into the bottom of the furrow. All clods of earth should be broken up

After spading is finished a coat of lime and the commercial fertilizer should be broadcasted and carefully worked into the soil by raking

Fact A well prepared seed bed is loose and smooth

Words to be defined

peepers sods spade

Assignment in preparation for next lesson

- 1 Topic How to plant seed
- 2 Aim To learn how to plant seeds
- 3 Home questions
 - a Find dates for planting cabbage radishes potatoes turnips onions
 - b Find dates for planting beets lettuce carrots parsnips spinach peas corn
 - c Find dates for planting beans tomato plants
 - d Find dates for planting lima beans cucumbers squash
 - e What is date of last killing frost in spring
 - f What is depth for planting small seeds?
 - g What is depth for planting large seeds such as corn and beans
- 4 Work for home or school activity
 - a Composition
How to prepare the garden for planting
 - b Seasonal home project work
Groups 1 and 2 can be planted by this date in normal seasons
See next lesson
 - c Clippings and note-book work
Have children make clippings on how to raise different vegetables
- 5 For reading and study
How to plant seed Readings in Agriculture Gardening

Third April Lesson

How to Plant Seed

In our lesson in the winter on "Connecticut weather" we learned how to determine the proper times for planting. It is well if we study more carefully the group to which each crop belongs

Group 1 Consisting of early cabbage plants from hot bed or seed box radishes onions early smooth peas early potatoes turnips and mustard. The crops may be planted two weeks before the last killing frost

Group 2 Consisting of beets parsnips carrots lettuce salify spinach wrinkled peas cauliflower plants celery seed parsley and sweet corn. These crops may be planted about the date of the last killing frost

Group 3 Consisting of snap beans okra and tomato plants. These crops should be planted two weeks after danger of frost is over

Group 4 Consisting of lima beans pepper plants eggplant cucumbers melons squash and sweet potatoes. These crops can not be planted until all danger of frost is over which is about four weeks after the last killing frost

Find out the usual date of the last killing frost in your town

After having decided when each crop may be safely planted it is necessary to plant them at the proper depth. The larger seeds such as peas beans and corn may be planted by making shallow hills or furrows with the hoe and covering them with two inches of soil. Small seeds such as radishes and lettuce must be buried only $\frac{1}{2}$ inch to $\frac{3}{4}$ inch deep. The furrow for these may be made by simply laying the rake handle on the ground and pressing it to the required depth. These planting depths are for the spring or damp weather. In the summer when the soil dries out more they should be planted more deeply

The amount of seed will depend on the germination test of the seed. However slightly more seed should be planted in order that in thinning part of the plants may be removed and only the strongest left

In succession planting the ground should be respaded and raked before the new planting of seed

Fact Start early to kill the first insects. Birds are the best insect destroyers

Words to be defined

inevitably
dilution

implements
parasitic

concentrated solutions
kerosene emulsion

Assignment in preparation for next lesson

- 1 Topic Control of diseases
- 2 Aim To learn how to control plant diseases
- 3 Home questions
 - a What diseases damaged vegetable crops last year
 - b Describe appearance of diseases
 - c How could these diseases have been prevented or combatted
 - d How is potato scab controlled
- 4 Work for home or school activity
 - a Seasonal home project work
When cut worms start to do damage put a table spoonful of poisoned bran mask at base of each tomato plant or broadcast as fertilizer when for other crops
 - b Clippings and note-book work
Have clippings made on garden cultivation also diseases
- 5 For reading and study
"Control of diseases" Readings in Agriculture Gardening

FIG. 1 — Outline map of the United States, showing zones based upon the average date of the first killing frost in the autumn. The latest safe dates for planting vegetables in the autumn are determined by the dates given on this map.

LATEST PLANTING DATES

Latest safe dates for planting vegetables for the fall garden in the zones shown in figure 1*

Crop	Zone C	Zone D	Zone E	Zone F	Zone G
Bean					
Bush.....	Sept 15	Sept 1	Aug 15	Aug 1	July 15
Pole Lima.....	do	Aug 1	July 15	July 1	.....
Beet.....	do	Sept 1	Aug 15	Aug 1	July 15
Cabbage.....	Sept 1	Aug 15	July 15	July 1	June 15
Carrot.....	do	do	do	do	do
Cauliflower.....	do	do	do	do	do
Celery.....	Oct 1	Sept 1	Aug 1	do	May 15
Chard Swiss.....	Sept 15	do	Aug 15	Aug 1	July 15
Corn Sweet.....	Aug 15	Aug 1	July 15	July 1	June 15
Cucumber.....	do	do	do	do	.....
Eggplant.....	July 15	July 1	June 15	June 1	.....
Kale.....	Nov 1	Oct 1	Sept 15	Sept 1	Aug 15
Lettuce.....	do	Oct 15	Oct 1	Sept 15	Sept 1
Melons					
Muskmelon.....	June 15	June 1	May 15	May 1	.....
Watermelon.....	July 1	July 1	June 15	.....	.....
Okra.....	July 15	do	do	June 1	.....
Onion					
Seed.....	June 15	June 1	May 15	May 1	Apr 15
Sets.....	July 15	July 1	June 15	June 1	May 15
Parsley.....	Nov 1	Oct 1	Sept 1	Aug 1	July 1
Parsnip.....	.....	.....	May 15	May 1	Apr 1
Pea.....	Nov 1	Oct 1	Sept 1	Aug 1	July 15
Peppers.....	July 15	July 1	June 15	June 1	.....
Potatoes					
Irish.....	Aug 15	Aug 1	July 15	July 1	June 15
Sweet.....	do	July 15	June 15	May 1	.....
Radish.....	Oct 15	Oct 1	Sept 15	Sept 1	Aug 15
Salsify.....	June 15	June 1	May 15	May 1	Apr 15
Spinach.....	Oct 15	Oct 1	Sept 1	Aug 15	Aug 1
Squash					
Bush.....	Aug 15	Aug 1	July 15	July 1	June 15
Vine.....	July 15	July 1	June 15	June 1	.....
Tomato.....	Aug 15	July 15	July 1	June 15	.....
Turnip.....	Oct 15	Oct 1	Sept 1	Aug 1	July 15

*Zones A and B are sections in which many vegetables are planted late in the fall to form the winter garden or early spring garden.

GARDENER'S PLANTING TABLE.

Quantity of seeds or number of plants required for a row 100 feet in length, with distances to plant, times for planting, and period required for production of crop.

[Brackets indicate that a late or second crop may be planted the same season.]

Kind of vegetable.	Seeds or plant required for 100 feet of row.	Distance for plants to stand				Depth of planting.	Time of planting in open ground. North.	Ready for use after planting.
		Rows apart.		Plant apart in rows.				
		Horse cultivation.	Hand cultivation.					
Artichoke, globe.	1 ounce.	3 to 4 ft.	2 to 3 ft.	2 to 3 ft.	1 to 2 in.	Spring.	15 months.	
Artichoke, Jerusalem.	2 qts. tubers.	3 to 4 ft.	1 to 2 ft.	1 to 2 ft.	2 to 3 in.	Spring.	6 to 8 months.	
Asparagus, seed.	1 ounce.	30 to 36 in.	1 to 2 ft.	3 to 5 in.	1 to 2 in.	Early spring.	3 to 4 years.	
Asparagus, plants.	60 to 80 plants.	3 to 5 ft.	12 to 24 in.	15 to 20 in.	3 to 5 in.	Early spring.	1 to 3 years.	
Beans, bush.	1 pint.	30 to 36 in.	18 to 24 in.	5 or 8 to ft.	1 to 2 in.	April to July.	40 to 65 days.	
Beans, pole.	1 pint.	3 to 4 ft.	3 to 4 ft.	3 to 4 ft.	1 to 2 in.	May and June.	50 to 80 days.	
Beets.	2 ounces.	24 to 36 in.	12 to 18 in.	5 or 6 to ft.	1 to 2 in.	April to August.	60 to 80 days.	
Brussels sprouts.	1 ounce.	30 to 36 in.	24 to 30 in.	16 to 24 in.	1 in.	May and June.	90 to 120 days.	
Cabbage, early.	1 ounce.	30 to 36 in.	24 to 30 in.	12 to 18 in.	1 in.	March and April. (Start in hotbed during February.)	90 to 130 days.	
Cabbage, late.	1 ounce.	30 to 40 in.	24 to 36 in.	16 to 24 in.	1 in.	May and June.	90 to 130 days.	
Cardoon.	1 ounce.	3 ft.	2 ft.	12 to 18 in.	1 to 2 in.	April and May.	5 to 6 months.	
Carrot.	1 ounce.	30 to 36 in.	18 to 24 in.	6 or 7 to ft.	1 in.	April to June.	75 to 110 days.	
Cauliflower.	1 ounce.	30 to 36 in.	24 to 30 in.	14 to 18 in.	1 in.	April to June. (Start in hotbed during February or March.)	100 to 130 days.	
Celeriac.	1 ounce.	30 to 36 in.	18 to 24 in.	4 or 5 to ft.	1 in.	May and June. (Start in cold frame during April.)	100 to 150 days.	
Celery.	1 ounce.	3 to 6 ft.	18 to 36 in.	4 to 8 in.	1 in.	May and June. (Start in hotbed or cold frame during March or April.)	120 to 150 days.	
Chervil.	1 ounce.	30 to 36 in.	18 to 24 in.	3 or 4 to ft.	1 in.	Autumn.	1 year.	
Chicory.	1 ounce.	30 to 36 in.	18 to 24 in.	4 or 5 to ft.	1 in.	May and June.	5 to 6 months.	
Citron.	8 to 10 ft.	8 to 10 ft.	8 to 10 ft.	4 or 5 to ft.	1 to 2 in.	May and June.	100 to 130 days.	
Collards.	1 ounce.	30 to 36 in.	24 to 30 in.	14 to 18 in.	1 in.	Late spring.	100 to 120 days.	
Corn salad.	2 ounces.	30 in.	12 to 18 in.	5 or 6 to ft.	1 to 1 in.	March to September.	60 days.	
Corn, sweet.	1 pint.	36 to 42 in.	30 to 36 in.	30 to 36 in.	1 to 2 in.	May to July.	60 to 100 days.	
Cress, upland.	1 ounce.	30 in.	12 to 18 in.	4 or 5 to ft.	1 to 1 in.	March to May. [September.]	30 to 40 days.	
Cress, water.	1 ounce.	Broadcast.	4 to 6 ft.	4 to 6 ft.	On surface.	April to September.	60 to 70 days.	
Cucumber.	1 ounce.	4 to 6 ft.	18 to 24 in.	8 to 12 in.	1 to 2 in.	April to July.	60 to 80 days.	
Dandelion.	1 ounce.	30 in.	24 to 30 in.	18 to 24 in.	1 in.	Early spring.	6 to 12 months.	
Eggplant.	1 ounce.	30 to 36 in.	24 to 30 in.	18 to 24 in.	1 to 1 in.	April and May. (Start in hotbed during March.)	100 to 140 days.	

Endive.....	1 ounce.....	30 in.....	18 in.....	8 to 12 in.....	1 to 1 in.....	April. [July].....	90 to 180 days.
Horse-radish.....	70 roots.....	30 to 40 in.....	24 to 30 in.....	14 to 20 in.....	3 to 4 in.....	Early spring.....	1 to 2 years.
Kale, or borecole.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	18 to 24 in.....	1 in.....	August and September. [March and April.]	90 to 120 days.
Kohl-rabi.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	4 to 8 in.....	1 in.....	March to May.....	60 to 80 days.
Leek.....	1 ounce.....	30 to 36 in.....	14 to 20 in.....	4 to 8 in.....	1 in.....	March to May.....	120 to 180 days.
Lettuce.....	1 ounce.....	30 in.....	12 to 18 in.....	4 to 6 in.....	1 to 2 in.....	March to September.....	60 to 90 days.
Melon, muskmelon.....	1 ounce.....	6 to 8 ft.....	6 to 8 ft.....	Hills 6 ft.....	1 to 2 in.....	April to June. (Start early plants in hotbed during March.)	120 to 150 days.
Melon, watermelon.....	1 ounce.....	8 to 12 ft.....	8 to 12 ft.....	Hills 10 ft.....	1 to 2 in.....	May and June.....	100 to 120 days.
Mustard.....	1 ounce.....	30 to 36 in.....	12 to 18 in.....	4 or 5 to ft.....	1 in.....	March to May. (September Early spring.....	60 to 90 days.
New Zealand spinach.....	1 ounce.....	36 in.....	24 to 36 in.....	12 to 18 in.....	1 to 2 in.....	Early spring.....	90 to 100 days.
Okra, or gumbo.....	1 ounce.....	4 to 5 ft.....	3 to 4 ft.....	24 to 30 in.....	1 to 2 in.....	May and June.....	90 to 140 days.
Onion, seed.....	1 quart of sets.....	24 to 36 in.....	12 to 18 in.....	4 or 5 to ft.....	1 to 2 in.....	April and May.....	130 to 150 days.
Onion, sets.....	1 ounce.....	24 to 36 in.....	12 to 18 in.....	4 or 5 to ft.....	1 to 2 in.....	Autumn and February to May	90 to 120 days.
Parsley.....	1 ounce.....	24 to 36 in.....	12 to 18 in.....	3 to 6 in.....	1 in.....	September and early spring.	90 to 120 days.
Parsnip.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	5 or 6 to ft.....	1 to 1 in.....	April and May.....	125 to 160 days.
Peas.....	1 to 2 pints.....	3 to 4 ft.....	30 to 36 in.....	15 to ft.....	2 to 3 in.....	March to June.....	40 to 80 days.
Pepper.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	15 to 18 in.....	1 in.....	May and June. (Start early plants in hotbed during March.)	100 to 140 days.
Physalis.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	18 to 24 in.....	1 in.....	May and June.....	130 to 160 days.
Potato, Irish.....	5 lbs. (or 9 bu. per acre.).....	30 to 36 in.....	24 to 36 in.....	14 to 18 in.....	4 in.....	March to June.....	80 to 140 days.
Potato, sweet.....	3 lbs. (or 75 slips.).....	3 to 5 ft.....	3 to 5 ft.....	14 in.....	3 in.....	May and June. (Start plants in hotbed during April.)	140 to 160 days.
Pumpkin.....	1 ounce.....	8 to 12 ft.....	8 to 12 ft.....	Hills 8 to 12 ft.....	1 to 2 in.....	May to July.....	100 to 140 days.
Radish.....	1 ounce.....	24 to 36 in.....	12 to 18 in.....	8 to 12 to ft.....	1 to 1 in.....	March to September.....	20 to 40 days.
Rhubarb, seed.....	1 ounce.....	36 in.....	30 to 36 in.....	9 to 8 in.....	1 to 1 in.....	Early spring.....	2 to 4 years.
Rhubarb, plants.....	33 plants.....	3 to 5 ft.....	3 to 5 ft.....	3 ft.....	2 to 3 in.....	Autumn or early spring.....	1 to 3 years.
Rutabaga.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	6 to 8 in.....	1 to 1 in.....	May and June.....	60 to 80 days.
Salsify.....	1 ounce.....	30 to 36 in.....	18 to 24 in.....	2 to 4 in.....	1 to 1 in.....	Early spring.....	120 to 180 days.
Spinach.....	1 ounce.....	30 to 36 in.....	12 to 18 in.....	7 or 8 to ft.....	1 to 2 in.....	September or very early spring.....	30 to 60 days.
Squash, bush.....	1 ounce.....	3 to 4 ft.....	3 to 4 ft.....	Hills 3 to 4 ft.....	1 to 2 in.....	April to June.....	60 to 80 days.
Squash, late.....	1 ounce.....	7 to 10 ft.....	7 to 10 ft.....	Hills 7 to 9 ft.....	1 to 2 in.....	April to June. (Start early plants in hotbed during February and March.)	120 to 160 days.
Tomato.....	1 ounce.....	3 to 5 ft.....	3 to 4 ft.....	3 ft.....	1 to 1 in.....	May and June.....	100 to 140 days.
Turnip.....	1 ounce.....	24 to 36 in.....	18 to 24 in.....	6 or 7 to ft.....	1 to 1 in.....	April. [July].....	60 to 80 days.
Vegetable marrow.....	1 ounce.....	8 to 12 ft.....	8 to 12 ft.....	Hills 8 to 9 ft.....	1 to 2 in.....	April to June.....	110 to 140 days.

Fourth April Lesson

How Different Plants are Multiplied

Not all plants are grown from seeds as are radishes lettuce beets and carrots. It has been found easier and quicker to use other methods and the resulting plants will be more certain of being exactly like their parents of which they are a part

The potato is grown not from seed but from pieces of tubers. These pieces are scientifically called "cuttings." By using cuttings we are always sure to get potatoes exactly like the ones we planted because there has been no pollen brought from one plant to another

When we wish to create new varieties of potato we gather the seed balls from the tops where the flowers grew. These seeds are the result of the mixing of pollen from the separate plants of different characteristics and the plants grown from these real seeds will have some of the characteristics of both parents probably part Green Mountain and part Russet. The new potato would be neither Green Mountain nor Russet but if it is a desirable one we can give it a name and then perpetuate it by planting cuttings of the desired tubers

Sweet potatoes are grown differently. The potatoes are packed in beds and as the sprouts start they are picked off and transplanted. This is called root propagation

Rhubarb is multiplied in another way. The roots are dug up in the spring and broken apart in such a manner that each piece has at least one bud on it. These separated pieces are then planted. This is called crown division

Fact Use the method of multiplying plants that is quickest and most profitable

Words to be defined

cuttings
perpetuate

new varieties
root propagation

seed balls
crown division

Assignment in preparation for next lesson

- 1 Topic How to control insects
- 2 Aim To learn how to control insects
- 3 Home questions
 - a What insects attacked last year's crops
 - b What was the damage done
 - c What poisons were used for each
- 4 Work for home or school activity
 - a Seasonal home project work
 - In setting out cabbages use tarred felt discs to repel root maggots A B C plant protectors
 - b Clippings and note-book work
 - Have children make insect clippings
 - c Materials to gather
 - Have specimens of insects brought in for next lesson in order that mouth parts may be examined
- 5 For reading and study
 - "How to control insects" Readings in Agriculture Gardening

First and Second May Lessons

How Diseases are Controlled and Insects Combatted and the Help Given Us by Birds

Unfortunately the gardener is not assured of success when his plants have started to grow thriftily. He must count almost inevitably upon the presence in his garden of plant diseases and pests which if not combatted will interfere seriously with his yields or even destroy his plants. It is hard for some gardeners to realize the importance of making early provision to combat these enemies of plant life. It can not be too strongly emphasized however that such provision is of equal importance with other phases of gardening and that it should under no circumstances be neglected. The wise gardener does not wait for the appearance of insects and diseases but takes steps to combat them by spraying the plants at reasonable intervals from early spring until his crops have been harvested or by other protective measures. He thus insures himself against the likelihood of loss

The necessary implements and materials for protecting the home garden against insects and diseases should be assembled early in the season. These consist of a substantial hand sprayer and the necessary concentrated solutions which after dilution with water are to be sprayed on the plants

The diseases which affect garden plants may be divided into two groups parasitic and constitutional diseases. The parasitic maladies such as the blights are caused by fungi or germs and usually may be prevented or controlled by spraying with Bordeaux mixture. Little is known however of the so-called constitutional diseases and little can be done to prevent their ravages. If some malady which does not yield to treatment with Bordeaux mixture manifests itself on isolated plants in the garden it may be well to pull up these plants and burn them

The insects which attack garden plants may be divided into two groups—those which eat or chew the fruit or foliage and those which suck the plant juices. Eating insects may be killed usually by spraying poisonous solutions or dusting powders on the plants which they attack. Arsenate of lead is the poison in most general use for this purpose. This substance is poisonous to persons as well as to insects and must be used with care. It should not be applied to vegetables that are to be used soon. All vegetables should be washed carefully before they are eaten regardless of whether they have been sprayed

Most of the garden plants may be guarded against disease and at the same time protected from attack by eating insects by spraying at intervals of two weeks with a combination of Bordeaux mixture and arsenate of lead

Other methods of protecting plants from the larger eating insects are to pick the pests by hand or knock them with a stick into a pan containing water on which a thin film of kerosene is

floating. Insects collected by hand should be destroyed promptly. Young plants may be protected by setting over them wooden frames covered with mosquito netting wire mesh or cheesecloth. Cutworms may be kept from plants by setting tin or paper collars into the ground around the stalks

Sucking insects such as plant lice can not be killed by poisoning the surface of the leaves and fruit since they feed by puncturing the plants and extracting the internal juices. Poisons which will kill by contact or substances which envelop and smother the pests are therefore employed against the sucking insects. The principal remedies of this sort are nicotine solutions fish-oil and other soap solutions and kerosene emulsion

The following table lists the insects most likely to appear in the vegetable garden and furnishes information in regard to the plants attacked and the treatment recommended:

Principal insects and remedies.¹

Insect.	Plants attacked.	Treatment.
Eating type		
Tomato worms....	Tomato	Hand pick or spray with arsenate of lead
Cabbage worm ...	Cabbage group	Hand pick or apply arsenate of lead
Cucumber beetles..	Cucumber	Cover with frames. Apply tobacco dust or spray with Bordeaux mixture or arsenate of lead
Cutworms	Tomato cabbage onion..	Apply poison bait place tin or paper collars around plants hand pick apply Paris green or arsenate of lead
Potato beetle	Potato eggplant and tomato	Hand pick and apply arsenate of lead
Sucking type		
Squash bug	Squash pumpkin melons etc.	Hand pick spray with kerosene emulsion or nicotine sulphate
Aphids (plant lice)	Cabbage group and other plants	Spray with kerosene emulsion a solution of hard soap or nicotine sulphate

Gardeners desiring additional information in regard to insects affecting the vegetable garden should apply direct to the Bureau of Entomology United States Department of Agriculture but it should be understood that there is no publication covering the entire subject. Specimens of insects with some account of food plants and ravages should accompany correspondence.

Boys and girls have good friends to help them in this battle against insects. These friends are the birds. The Bobwhite that whistles so clearly about the meadows feeds upon all the potato beetles squash bugs and grasshoppers that he can find. The cuckoos destroy many of the harmful caterpillars grasshoppers beetles and moths. Red headed woodpeckers nighthawks bank swallows and grosbeaks also do their part

Fact Plant diseases may be prevented never cured

Words to be defined

blight fungi parasitic maladies constitutional diseases

Assignment in preparation for next lesson

1 Topic Weeds

- 2 Aim
 - a To learn why weeds are injurious
 - b To learn how weeds are controlled
- 3 Home questions
 - a List the ways in which weeds injure vegetables
 - b How often is hoeing necessary to keep down weeds
 - c How often should a garden be hoed to keep a good mulch
 - d Name insects that live on both weeds and vegetables
 - e How can weeds be kept down
- 4 Work for home or school activity
 - a Composition
 - How to control plant diseases and combat insect pests
 - b Seasonal home project work
 - Tomato plants may generally be set out this week
 - c Clippings and note-book work
 - Have children make clippings on growing tomatoes and on canning
 - d Materials to gather
 - Children may bring weeds for discussion of names and habits of growth
- 5 For reading and study
 - Weeds Readings in Agriculture Gardening

Third May Lesson

Weeds — Why They Are Injurious and How They May Be Controlled

About this time of year is when weeds are beginning to attract our attention. Last fall we learned of many of the great damages that weeds do and how really useless they are. In this lesson we will learn of the great injury they do our vegetables

Weeds are very vigorous growers. They are so vigorous that if they get an even start they will grow faster than our crops. We can not let them get this even start. If we plow our ground on the same day that the vegetables are planted they will start sooner than the weed seed that have just been turned up. If however the land has been lying idle for several days and the weeds have received a good start they should be hoed over and let dry out before the land is seeded

Weeds need moisture as well as plants and when there are so many of them a great deal of soil water must go to supply their needs. We need however every drop of soil water for our crops and must kill all of these robbers of water

Insects are not partial to vegetables. They attack weeds as well but this makes neither the weeds nor insects our friends. When we keep our vegetables free from insects the weeds provide food and shelter for all these little pests. Because of this we should not only kill all weeds in the garden but kill all weeds that befriend insects near our gardens

These trouble makers not only harbor insects but also cause many very injurious plant diseases

There is almost no end of things that weeds do. Some more of the troubles they cause are shading and choking of crops

Good farmers never have weeds in their gardens because they hoe or cultivate at least once a week and after every rain and these frequent cultivations never let the weeds get started

Fact Weeds waste soil water and shade the crops

Words to be defined

vigorous injurious cultivation insect weed

Assignment in preparation for next lesson

- 1 Topic Canning
- 2 Aim To learn important facts about canning
- 3 Home questions
 - a Why are products canned
 - b What products are canned
 - c What is the open kettle method of canning
 - d What is the cold pack method of canning
 - e Make a list of the steps in cold pack canning
- 4 Work for home or school activity
 - a Composition
Weeds a cause of waste in the garden
 - b Seasonal home project work
Children should start canning especially asparagus and spinach
 - c Clippings and note-book work
Have children make clippings on canning both fruit and vegetables
 - d Picture charts experiments etc
Have children make picture cards using canning bulletins issued by National War Garden Commission Washington D C
 - e Materials to gather
A canning demonstration should be held at close of session
- 5 For reading and study
Canning Readings in Agriculture Gardening

Fourth May Lesson

Canning

Not only from the standpoint of economy but also from the standpoint of health should vegetables and fruit be put up for winter use. The mineral salts and acids found in them together with the bulk they supply are essential to the well being of the system. They supply necessary building material assist in keeping the blood in good condition and in regulating body processes. Fruit and succulent vegetables every day in the year should be the slogan of every housewife. As much as possible of this material should be grown in the garden plot and canned at home

If canning is to be successful two things are essential

- 1 The can and contents must be sterilized
- 2 The cans must be hermetically sealed to prevent entrance of germs after sterilization

In the open kettle method of canning ordinarily used the sterilization presents the greatest difficulty. Cans having hot or even boiling water poured into them are not necessarily sterilized. In putting the material into the can there is a possibility that it becomes contaminated by the air in the room. If any air bubbles are allowed to remain in the can the germs in them may cause trouble. The spoon and other utensils used to put the material from the kettle into the can may introduce germs. These are some of the reasons that cans of fruit and vegetables put up in the ordinary way ferment and spoil. Occasionally the trouble is caused by using cans that are not air tight. As the contents of the can cools contraction takes place and unless the top is tight the germ-laden air will be drawn into the cans and may cause spoiling. Testing cans takes a little time but it more than pays in the long run. To test cans fill partially with water put on rubber tighten cover and invert for several minutes. If the can leaks it can usually be remedied by changing tops or adjusting rubbers. New rubbers of the best quality obtainable should always be used. It is far cheaper to buy a dozen rubbers than to have one can spoil.

Acids and canning compounds are sometimes used by people to insure the keeping of products. The use of such things by canning factories is prohibited by law because they are detrimental to health. Their use by individuals is equally as dangerous and at all times unnecessary and inexcusable.

Failures in canning may be reduced to a minimum by using the cold-pack process. In brief it consists of preparing the material packing it in clean cans covering it with syrup or brine and sterilizing the can and contents at the same time. Detailed directions for this are given later. If this method is followed and care taken to use new rubbers test the cans before filling regulate the time for sterilizing correctly no spoiling will be found. Some fruits and vegetables shrink leaving a space in the can. This need cause no alarm as the air in the can is sterilized and will do no damage.

Advantages of the cold-pack way

- 1 Fewer spoiled cans. Can and contents are sterilized together and no germs are introduced afterwards
- 2 Better flavor. Can is closed during sterilizing thus preventing the escape of flavoring substances
- 3 More pleasing appearance. Material is not handled so much
- 4 Less time and labor expended. One handling takes the place of two and the tedious part of the work is at the beginning rather than at the end

Steps in cold pack method of canning. By this method anyone can can any vegetable or fruit grown in his garden or orchard

- 1 Select a sound product. Wash thoroughly
- 2 Have a pan or pail of boiling water
- 3 Place vegetables in cheese cloth dripping basket or colander
- 4 Place in boiling water (after water reaches boiling point) and blanch according to time given later
- 5 Blanching eliminates (a) objectionable acids and acid flavors. (A vegetable may look good but have an acid flavor. This is removed by this process). (b) during this blanching a certain amount of shrinkage takes place and the can will be fuller at the end of the processing
- 6 Remove vegetables from hot water
- 7 Plunge at once into cold water. This hardens the pulp and also checks the flow of coloring matter
- 8 Have cans thoroughly clean but not sterilized because can and contents are sterilized at the same time
- 9 Pack vegetables into can leaving about $\frac{1}{4}$ inch at top of can
- 10 To each quart can add one level teaspoon of salt for flavoring and boiling water to fill the can within $\frac{1}{4}$ inch of top
- 11 Place rubber (always a new one) and lid. If a screw top is used use the little finger and thumb tightening. If a bale jar snap the bale only. When the contents of the jar heats steam forms and if the tops are too tight there is danger of the cans breaking
- 12 Place filled cans on rack in wash boiler lard can or pail. Cover with hot water. Have the water come an inch above the top of cans. There will be some evaporation of water during the processing. The water should at no time be allowed below the rubber. The cans are not tightly sealed and air would enter. After the water reaches the boiling point process according to time table given later
- 13 Remove cans from water at end of processing tighten the lid invert to test for leakage. Be careful not to let the can cool in a draft. The heat on the inside is so intense the room temperature so much lower they are easily broken

Time table

	Scald or blanch	Process in hot water bath
asparagus	5-10 minutes	60 minutes
beans (lima and string)	5 "	90 "
beets	6 "	90 "
corn	5-15 "	180 "
tomatoes	1-2 "	22 "
spinach	5-10 "	60 "
other greens	5-10 "	90 "
rhubarb	1-3 "	15 "
cauliflower	5 "	60 "

Fact Successful canning depends on killing all bacteria in the can and keeping all others out

Words to be defined

economy	mineral salts	slogan	succulent vegetables
sterilized	contaminated germ	hermetically sealed	

Assignment in preparation for next lesson

- 1 Topic Thinning vegetables
- 2 Aim To learn how to thin vegetables
- 3 Home questions
 - a Find out why vegetables should be thinned
 - b To what distance apart should root crops such as carrots and beets be thinned
 - c How many plants should there be to a hill of cucumbers or squashes
 - d How many stalks of corn to a hill? Why would drilling corn be better than hilling? (In the small garden drilling is preferable)
- 4 Work for home or school activity
 - a Composition
 - How to can vegetables
 - b Seasonal home project work
 - Roll call at next lesson for number of cans of produce canned
 - c Clippings and note-book work
 - Have children make clippings on summer care of gardens
- 5 For reading and study
 - "Thinning vegetables" Readings in Agriculture Gardening

First June Lesson

Thinning Vegetables

When we plant garden seeds we generally sow them thicker than we wish the plants to grow. All seeds do not sprout and therefore we sow many of them to get the desired number of plants. Then when the seeds do sprout and grow the mature plants will require more room for development than the seedling. In order to give the best plants room enough we remove the others. This removal of plants is called thinning

In the case of most crops it is important to make the first thinning early enough to avoid disturbing the roots of the plants left in the soil. At first each seedling has only a few short roots but as it grows these roots become longer and reach out in all directions. If two seedlings are close together the roots will mingle with each other so that one plant can not be pulled up without breaking off many of the roots of the other. Such a breaking off of roots is liable to injure the plant left and to check its growth

This early thinning is particularly important in the case of cucumbers and other vine crops. These plants are especially sensitive to the disturbance of their roots and if two are left close together until they are of good size it is difficult to pull up one without serious injury to the other

The final aim of thinning is to give to each plant plenty of room in the soil for adequate root development and plenty of room above ground for its leaves flowers and fruits to mature successfully. There is a constant struggle among all plants for food moisture light and air. The more crowded they are the fiercer is the struggle

The aim of the gardener is to give to each plant the most favorable conditions for growth. So he allots to each the space it needs to make the most of itself. If it is naturally a large plant he leaves the seedlings far apart and if a small one he leaves the seedlings nearer together thinning as may seem necessary for the best growth of each

Fact Thinned vegetables have less competition for their needs

Words to be defined

seedlings adequate development liable

Assignment for next lesson

- 1 Topic Why and how to cultivate the soil
- 2 Aim To learn how and why to cultivate and preserve dirt mulch
- 3 Home questions
 - a Find reasons for hoeing
 - b Lift a plant that has been lying on the ground
How does soil differ from that around it
 - c What happens when a pile of cut grass lies upon the lawn for a fortnight
 - d What is the difference in color between footprints in soft mellow soil and the surrounding soil several days after tracking
 - e From which soil is the sun able to drain more water the footprint or the other soil
- 4 Work for home or school activity
Composition Soil mulches
- 5 For reading and study
"Why and how to cultivate the soil" Readings in Agriculture Gardening

Second June Lesson

Why and How to Cultivate the Soil — Mulches and How to Use Them

Every living thing needs water. This is as true of plants as of animals. In many regions the greatest trouble in keeping the crops growing through the summer is to get water enough for the plants

In winter the soil gets saturated with water. As the days become warmer and the sunshine hotter this soil water begins to go off into the air—to evaporate as people say—just as steam comes out of the tea kettle when you put it on the fire

If the soil is not plowed or spaded in the spring the water evaporates rapidly and by early summer most of it is gone leaving the dry soil behind. Every time the ground is stirred it holds the moisture better and even a stirring of an inch or two of surface helps to save the soil water

Did you ever lift up a board in summer and find that the ground was moist beneath it? The board has held the moisture so it could not escape into the air. You will find much the same condition under an old bag or piece of carpet lying on the ground or even a pile of leaves or straw left upon the garden

When the boards or bags or old carpets or leaves or straw are thus left upon the soil surface each acts as a mulch. For a mulch is anything placed upon the ground to stop evaporation of soil moisture

A mulch of any kind prevents evaporation. Soil moisture is continually coming to the surface and evaporating into the air. The moisture passes up through the soil in the same way that oil climbs the wick of a lamp. This movement of soil moisture is called capillary attraction

This movement can not take place unless the soil particles touch one another. So it happens that if you stir the soil for an inch or two at the surface you get much air between the particles of soil and make a surface mulch without using straw or bags or anything but the soil itself

A shower of rain will destroy this surface mulch and so after each shower it is necessary to prepare another mulch. Even if no rain falls there is generally sufficient dew to destroy the mulch after a few days. The maintenance of a mulch throughout the growing season is best for most garden crops

Fact Stir the soil often to preserve a dust mulch and to prevent evaporation

Words to be defined

mulch saturated evaporate capillary attraction
particles

No assignment

First July Lesson

The Summer Care of Tomatoes and Potatoes

Summer is really here and the test as to whether we are good farmers or not will be determined by the care given the tomatoes and potatoes. It is easy to start a garden but it takes a good man to see it through

There are five methods of caring for tomato plants during the summer. They are tying to two stakes tying to one stake horizontal trelling propping and spreading on the ground

The last method is probably the most common and without a doubt the poorest. The plants are trodden under foot the fruits rot become dirty are eaten by pheasants ripen poorly and are harder to pick and the price of the crop is the lowest. Often times the plant sets more fruits than it can ripen before frost time

The easiest way to get the plants from the ground is to make a frame using two barrel hoops nailed one above the other on three foot stakes. This frame is placed over the plant and the stems and leaves let hang over the hoops. This overcomes all of the disadvantages of letting the plants lie upon the ground with the exception of letting the plant set too many fruit

Market gardeners wish to overcome this matter of late ripening by pruning off the suckers and tying the plants up to a trellise of horizontal wires placed $1\frac{1}{2}$ feet apart. Few children have the wire or size of plot to warrant using this method so we will pass on to the one stake method

In setting out a tomato plant it was noticed that the plant had one main leader. After this leader had grown to a considerable height it was noticed that in the crotches between each leaf and the stalks suckers or sprouts started. These sprouts differed from the sprouts that started on the bare stalk where there was no leaf crotch. These sprouts on the bare stalks were the fruit or blossom buds which must be saved

In the one stake method all the suckers are nipped out of the crotches of the leaves when very small. The main stalk is then tied up to a six foot stake which is driven down beside each plant. Tying should be done with a soft but very heavy cord or twine. In making the loop around the stake and stalk care must be used so that the plant is not choked by a too small loop

Many used the single stake method because it is easy and only requires one stake. However more fruit is produced by using the two stake method which is identical with the one stake method except for the fact that two stakes are used to each plant and one sucker is allowed to grow up and be tied to the second stake

The highest quality tomatoes are grown by pruning and tying up. The yield from the two stake method is equal to that

of letting the plants lie upon the ground because more fruit have a chance to ripen before frost

Pruned tomatoes ripen earlier and are harvested when the price is the best and before the unpruned tomatoes come on the market. When pruned and unpruned tomatoes are on the market together the pruned bring a better price because of higher quality

About the time pruning is done each plant should be given a top dressing of about $\frac{1}{2}$ fire shovel of poultry manure to each plant. The earth should never be mounted or hilled up about the plants as it dries out the soil about the roots

July is a very critical month for potatoes. The weather is either very wet or very dry and insects and diseases are exceedingly troublesome

Regardless of blossoming or time of year potatoes should be sprayed with Bordeaux once in every ten days to two weeks as long as the tops remain green. Home made Bordeaux is a great deal more effective than Pyrox. Directions for making can be found in the Farmers' bulletins issued by the United States Department of Agriculture

The spray must be applied with high pressure in order that it makes a fine mist reaching all parts of the foliage. It is very important that an angle nozzle be used in order that the spray can be thrown on the under sides of the leaves

If lice are plentiful a good contact poison such as nicotine sulphate or Black Leaf 40 must be added to the Bordeaux spray. When potato beetles are numerous a good stomach poison such as Paris green or arsenate of lead should be added to the Bordeaux to control them

Cultivation during the summer must be carefully and thoroughly done. Unless the land is very low and wet no hilling should be done. The surface must be cultivated once a week to preserve a dust mulch. As the season advances the cultivation must be very shallow in order that the roots and tubers will not be injured. Trouble may be encountered as the vines sprawl over the ground and are caught in the cultivator. The cultivator can be boarded over like a snow plow to prevent this injury

Three hundred bushel crops are those that are sprayed and cultivated as long as the tops are green

These summer months will prove as to whether local grown or northern grown seed produces the best crops. This can be judged in part by the number of missing hills

Facts

- a The two stake method is best for pruning of tomatoes
- b Do not hill potatoes. Spray as long as vines are green

Words to be defined

trelling	suckers	pruning	trellise	crotches
poison	cultivator			

Assignment in preparation for next lesson

- 1 Topic Succession cropping
- 2 Aim To learn succession cropping
- 3 Home questions
 - a What is best time to plant beets carrots and turnips for winter storage
 - b How is a continuous supply of vegetables kept going
 - c Name early crops and late crops that can follow early crops on the same land
- 4 Work for home or school activity
 - a Get out succession chart
 - b Home project directions
- 5 For reading and study
Succession cropping Readings in Agriculture Gardening

Second July Lesson

Succession Cropping

Succession cropping is very important as it makes the land produce during the entire summer. Often early crops are harvested and the land seeded to other crops to be harvested during the last part of the season. This is important not only because of using the land constantly but because the late planted crops are in the best condition in the fall for storing for winter

Succession sowings or settings of beets carrots cabbage plants cauliflower plants radishes and turnips should be made in June July and August for winter storage. This is important because the early planting are over grown and tough by the end of the summer

It is also important that planting be made every few days in order that a continuous supply of vegetables can be had for use during the summer. A row of lettuce may be divided up into four parts one part to be planted each week

In all replanting it must be kept in mind that the seed needs a good seed bed. To insure this the land should be respaded before each second crop is sown

The following list is a suggestion of reseeding

beets after early carrots
carrots after early beets
celery after spinach
turnips after peas
beans after peas
celery after onion sets

Facts

- a Succession plant to maintain continuous supply of vegetables
- b Replant to utilize land during the entire summer

Words to be defined

succession harvest reseeding respade
row of vegetables

Assignment in preparation for next lesson

- 1 Topic Intercropping and companion cropping
- 2 Aim To learn intercropping and companion cropping
- 3 Home questions
 - a What crops are sometimes planted among the corn
 - b Do pole beans ever grow elsewhere than on poles
 - c Where are turnips planted when intended for fall harvest
- 4 Work for home or school activity
Home project directions
- 5 For reading and study
"Intercropping and companion cropping" Readings in Agriculture Gardening

Third July Lesson

Intercropping and Companion Cropping

Intercropping is the art of growing early maturing crops between later maturing crops at a time when later crops do not need all of the room allotted to them or the growing of two crops together that do not interfere

Lettuce can be intercropped between carrots provided the seeds of both are sown at the same time. Radishes also grow well between beets

Companion cropping is the art of growing two crops together so that they will not interfere. Pole beans may be planted in the same hills with sunflowers. Late turnips between the potatoes is also a good practice. Every one knows about growing the squashes in the corn

Fact Intercropping insures maximum use of land

Words to be defined

maturing crops allotted interfere

Assignment in preparation for next lesson

- 1 Topic Saving seeds
- 2 Aim To learn how to save annual vegetable seeds
- 3 Home questions
 - a What is an annual plant
 - b What plants are annuals
 - c When and how secure bean lettuce and tomato seeds
- 4 Work for home or school activity
Home project directions
- 5 For reading and study
"Saving seeds" Readings in Agriculture Gardening

Fourth July Lesson

Seeding Saving — Annuals

There are two large groups of plants in which vegetables may be divided called perennials and annuals. The latter are the ones that mature seeds the same year they themselves are seeded. Vegetables that do this are beans corn cucumbers egg-plants lettuce melons okra peas pepper radishes spinach potatoes and tomatoes

In selecting seeds we should try to pick out the best individuals and improve the varieties if possible. The earliest maturing plants should be marked as should also those having characteristics that are ideal for the type

Beans peas and corn should mature and dry out on the plant. The peas and beans often contain weevils which bore holes through the seeds. These may be killed by fumigating with carbon bisulphide. The corn is generally left upon the ear and hung as described in one of the fall lessons

Cucumbers eggplants melons and tomatoes are left on the vine until fully ripe and then picked. Further ripening is developed by letting the fruits lie in a warm sunny place. When they are very soft they are split open and the seeds scraped out into tumblers to ferment. Fermentation lasts about two days after which the fermented pulp is beaten so that the seeds are free from the pulp. The seeds soon settle and the top which is pulp is poured off. One or two washings of the seeds will have them clean and ready to be spread out on cheese cloth frames to dry

The pods are probably the easiest from which to secure seeds. Lettuce okra radishes and spinach simply mature their seeds where they grow and are picked and shelled when fully dried out

Fact Seed saving is a means of improving varieties by selection and saves money in buying seeds

Words to be defined

perennials annuals variety pulp fermented

Assignment in preparation for next lesson

- 1 Topic Summer insects
- 2 Aim To learn control of summer insects
- 3 Home questions
 - a What insects are damaging vegetables
 - b What poisons are used for these insects
 - c How are these poisons applied
- 4 Work for home or school activity
 - a Materials to gather
 - Specimens of insects which attack vegetables
 - Specimens of vegetables injured by insects
 - Samples of poisons
 - b Home project directions
- 5 For reading and study
"Summer insects" Readings in Agriculture Gardening

Fact Plant seeds deeper in dry weather

Words to be defined

shallow furrows germination test

Assignment in preparation for next lesson

- 1 Topic "How different plants are multiplied" Readings in Agriculture Gardening
- 2 Aim To learn how plants are multiplied

- 3 Home questions
 - a How are potatoes prepared for planting
 - b What are potato balls and what will they produce
 - c How can the number of rhubarb plants be increased from the number a person already has
- 4 Work for home or school activity
 - a Composition
 - How and when to plant seeds
 - b Seasonal home project work
 - If soil has been firmed over the planted seeds the ground should be hoed between the rows
 - c Clippings and note-book work
 - Have children continue clippings
 - d Materials to gather
 - A boy should bring a rhubarb plant to school for next lesson to show crown division
- 5 For reading and study
 - "How different plants are multiplied" Readings in Agriculture Gardening

First August Lesson

Summer Insects

The insects that cause the most trouble year after year are those such as the potato beetles worms caterpillars and cabbage worms all of which can be killed by spraying with arsenate of lead or Paris green. Considerable question has arisen about spraying cabbages. No trouble need result when it is remembered that the portion of the cabbage that is eaten grows on the inside and is never hit by the spray. A new insect that eats the bean leaves is controlled by any of the stomach poison. The insect damaging the tops of the peppers after some of the peppers are fully grown is combatted by dusting with hellebore another very effective stomach poison

Sucking insects appear in varying numbers in different years but one must always be looking for them and preparing for their control. These insects will not eat the stomach poisons and must be killed by contact poisons which cause suffocation. Such poisons are nicotine lime dust and tobacco dust. It must be remembered that these poisons must reach the breathing pores of the insect to be effective. This will be difficult in the case of the plant lice on the under sides of the leaves. In such cases angle nozzles can be used to direct the spray

Lime is sifted upon the plants through a burlap bag when the dew is on the plants. Insects on cucumbers and spinaches are most effectively controlled in this way. The lice however on these two crops must be controlled with the nicotine although when on lettuce a heavy dusting with tobacco is sufficient for lice

Fact Stomach poisons kill chewing insects only

Words to be defined

lime dust nozzle nicotine

Assignment in preparation for next lesson

- 1 Topic Selling vegetables
- 2 Aim To learn how to sell vegetables
- 3 Home questions
 - a How are different vegetables prepared for market
 - b How are they measured
 - c How are they graded
 - d What is the reason for not putting the best vegetable on top
 - e Why should you be honest in selling
- 4 Work for home or school activity
 - a Materials to gather
See equipment Second August lesson
 - b Home project directions
- 5 For reading and study
"Selling vegetables" Readings in Agriculture Gardening

Second August Lesson

Selling Your Vegetables

After your own home table has been supplied with all the vegetables that it needs you should sell your extra products as fast as they are ready for the market. Your home needs should be supplied first before you attempt to sell to your neighbors. If you raise enough vegetables to supply the needs of your own family you are doing a patriotic duty because in so doing you are making it possible for other vegetables to go to hungry people

You should not only supply your family needs and pay for the cost of your garden but you should make a neat profit on the vegetables you raise. Don't you think it would also be a fine idea to invest your vegetable profits in thrift stamps

Most selling from our village or city gardens is done by peddling among our neighbors. This encourages thrift and business system on your part. It is a training that you boys and girls ought not to neglect. To sell your vegetables readily there are a few rules that should be followed

- 1 Gather all vegetables when they are ripe and ready for the market. Do not pick half-ripe fruits choose only those that are ready for a quick sale
- 2 Grade your vegetables according to size and quality. Do not have a mixture of large and small sizes and good and poor vegetables
- 3 Make your display of fruit attractive. Customers will buy more quickly and pay more if the goods offered for sale look neat and clean
- 4 Do not put the best vegetables on top while poorer ones are hidden beneath. It would be better to separate the kinds and sell them separately

- 5 Be honest. Do not claim for your goods what they will not show. Try to keep your customers by honest dealing
- 6 Whatever boxes or baskets are used for selling or displaying your vegetables make them attractive
Build up a reputation for yourself for honesty and fair dealing

Fact Honest selling is the best policy

Words to be defined

invest system attractive customer reputation

Assignment in preparation for next lesson

- 1 Topic Judging gardens
- 2 Aim To learn how to judge gardens
- 3 Home questions
What are the things that must be considered in comparing gardens
- 4 Work for home or school activity
Home project directions
- 5 For reading and study
"Judging gardens" Readings in Agriculture Gardening

Third August Lesson

Judging Gardens

The judging of a garden is often more difficult than one supposes. A garden upon first sight may be pleasing to the eye and after a minute's study will present a very poor appearance

The arrangement of the rows is of very great importance. They must be long very straight and far enough apart so that the crops do not crowd each other or cause undue shading

Weeds detract from the general appearance. Lack of even small weeds shows a habit of neatness upon the part of the gardener

At all times the surface soil must be loose and smooth

Thinning adds greatly to the appearance. Crowded plants do not grow vigorously and fail to look neatly. Good thinning is important

The choice of crops must be considered. Surely a whole garden of lettuce many miles away from a market would be sure to show poor judgment on the part of the gardener. There should be some crops for a fresh supply for the house. Provision should be made for a quantity for canning

There should be evidence to show that insect pests have been controlled. The best evidence is having the crops entirely free of pests. Presence of spray material on plants influence the decision of judges

The care in cropping shows the skill of the gardener and often the degree of profitableness of the garden. All of the land

should be growing something even if nothing more than a crop of rye to dig under the next spring as green manure. Companion and succession cropping must be carefully followed up

Sometimes a judge never needs to see a garden to tell its quality. If he sees tools carelessly taken care of he can form his own opinion as to what the gardener is doing. Shiftlessness in one thing is apt to indicate the same in other things. Clean well cared for tools are the signs of a thrifty and prosperous farmer

Garden records carefully kept are the better guide posts to success and failure. They show the sources of gain and loss. Good accounts show good business ability good records are as valuable as good books because they are the history of personal experiences good or poor

Fact A good garden provides food for the home food to can and food to sell

Words to be defined

judging detract shiftlessness thrifty prosperous

Assignment in preparation for next lesson

- 1 Topic Seed saving
- 2 Aim To learn how to save seeds of biennial vegetables
- 3 Home questions
 - a What is a biennial plant
 - b What vegetables are biennial
 - c How are beet and carrot seeds produced
- 4 Work for home or school activity
Home project directions
- 5 For reading and study
"Seed saving—biennial vegetables" Readings in Agriculture Gardening

Fourth August Lesson

Seed Saving — Biennials

All plants do not mature seed the same year that they themselves are planted. Some plants grow from seed one year live over winter and produce seed the second summer. Such plants are called biennials two year plants

Biennial vegetables include beets cabbages carrots kohlrabi onions parsley parsnips rutabagas salsify and turnips

The care of these differ. The salsify parsnip and parsley may remain in the ground during the winter without injury and produce seed upon the identical spots where they themselves were seeded the year before. On the other hand onions must be carefully harvested and stored in a dry place during the winter after which they may be set out in open ground to mature seed

Beets carrots kohlrabi rutabagas and turnips are carefully dug and packed in moist sand where they will not freeze during the winter

Cabbages must be carefully harvested with the root left on the head

In selecting plants from which to grow seeds the same care must be taken as with annuals in the matter of choosing variety type and early maturity

Fact Seed saving is a means of improving varieties by selection and saves money in buying seeds

Words to be defined

identical type mature seed

Assignment in preparation for next lesson

- 1 Topic The school fair
- 2 Aim To learn how to exhibit at the fair
- 3 Home questions
At discretion of teacher
- 4 Work for home or school activity
- 5 For reading and study
"The school fair" Readings in Agriculture Gardening

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