Farmers' Families Need Fruit.—Every one of the farmer's boys, girls, baby and hired man need, and health demands that they should have, two bushels of strawberries, one bushel of raspberries, one bushel of dewberries one bushel of currants and goosberries, one bushel of blackberries, 120 lbs. of grapes, ten bushels of apples each and every year, and ten cans of preserved fruit for winter. How many of you supply your families with a pint apiece a week from June 1st to October 1st each and every year?

Didn't you, who have no strawberry beds, think and act as though one crate of fruit was all you could afford last year, and every year, for canning purposes? Now, which had you rather do, pay $25 for a generous supply of fruit or $25 to $50 in doctors' bills every year? The fruit tastes best to me.

A Fruit Contract.—Now, what are you going to do about it? I will enter into an agreement with you, and have your wife take one side of the contract. You are to furnish an acre, well manured, fitted and fenced, and $10 to the wife or children to buy plants, and you agree to pay them half price, say 5 cents a quart, for every quart of nice fruit they will raise for five years on that acre of ground. The family shall first be supplied with all they can use; after that you may sell the surplus, or let the wife have it for pin money. Let me suggest that this acre, to give the best results, run north and south, over a knoll 20x8 rods; that it be free from shade, well fenced from the chickens, manured with well rotted manure free from white grubs and weed seed, making the land able to produce 100 bushels of corn per acre; that it be well fitted by plowing and dragging as early in the spring as possible. If the ground is level, ridge it sufficient so that water will not stand on it in spring.

About Plants.—Now, a word about plants. If you want to make this a permanent garden, plant the west and north sides, six feet out from the fence, to grapes. For black, plant Moore's Early, Worden, Concord and Janesville; for red, Brighton and Delaware; for white, Lady and Niagara. These will cost from 5 to 25 cents each. Eight feet from the grapes (the rows running the long way of the garden, so that the horse may do most of the cultivating) plant a row of currants, gooseberries and pieplant.

Currants.—For currants, plant Red and White Dutch, White Grape, Victoria, Long-Bunched Holland and Fay's Prolific, any or all of these. Prices will be 3 to 5 cents each, except Fay which is higher; buy the best new variety.

Gooseberries.—Smith's, Downing, same price as currants, except this last novelty. I name this row of low-growing plants next the grapes, that the wagon may be driven over the row in drawing in manure.

Blackberries.—The next, third row, plant to blackberries—Snyder for early,
Stone's Hardy and Briton for late. Plant three feet apart in the row. These plants can be had at 1 to 2 cents each; don't buy of traveling men, at exorbitant prices, poor dead, worthless stock. Send direct to the nursery, then you can go for the man who fools you.

Dewberries—The best is Lucretia, for all soils. Bartell does well on clay. These can be bought from 1 to 5 cents each. Should be planted in the row.

Black Raspberries.—Tyler, Souhegan and Gregg, 1 to 2 cents each, for 5th row.

Red Raspberries.—Turner and Cuthbert, for 6th row, if you will keep down the suckers. If not, plant Shaffer's and Philadelphia. These reds cost $\frac{1}{2}$c to 2 cents each.

I have mentioned prices of these plants that you may not be imposed upon, either by traveling tramps, or those miserable nursery-men. Prices of new varieties get cheaper every year.

Keep Up Fertility.—Now, we have in the varieties of fruit that will remain on the same ground as long as you will probably care for them. Don't forget to keep up the fertility, as these plants yield you fruit. Keep them clean and well manured; all of them will bear some the year after planting; some will not come to their best until four years old.

Culture and Treatment—Grapes.
—I can give but few suggestions in the little time allotted me as to culture and treatment. Set the grape roots eight feet apart, and six to ten inches deep. Prune, or rub off, all the laterals and throw the growth into one cane. The first year, in November, cut it off eighteen inches above the ground and bend it up or down the row, and cover with earth. The following years train to one or more canes with spurs, and in November cut off three-fourths of all the new wood, lay down and cover. After the fruit is set, if you want to protect from birds, insects, mildew and rot, slip a small paper bag over the cluster and pin it about the stem.

Currants and Goosberries.—The currants and goosberries must be looked after early in the season, and when the currant worms first appear dust the leaves with fresh and pure white hellebore.

Blackberries.—Set the plants three feet apart; nip off the new shoots at three feet high, in June. In November loosen the earth about the plant and bend it in the root. Lay it over, up or down the row, always the same way, and cover with earth. In the spring remove the covering and get the earth out of the row or you will ridge the ground. Straighten up the plants, press the earth firmly about them, tie to a stake, or run one wire over the row 2$\frac{1}{2}$ feet up, and tie to that.

Dewberries.—The dewberries need covering in November with marsh hay. Lift them above it in the spring and leave the hay as a mulch. Be sure that there is no grass, clover or weed seed in any mulch you use in the fruit garden. Mulch everything liberally.

Black Raspberries.—The black raspberries can be easily covered, if you incline them all one way while they are growing. While they usually bear without, they will always do better with protection. Nip the new canes at three feet to form laterals and harden up the wood.

Red Raspberries.—Are easily covered, except Shaffer's, which should be trained to one side like the black. Those red that sucker must not be permitted to grow too thick. Treat the young plants as weeds. Plant all these rows six to eight feet apart.
Strawberries.—Now, we come to the strawberry rows, and it is best to follow corn or potatoes with strawberry planting, if possible, thereby avoiding the white grub.

You want a square rod of ground for each member of the family, and about as many more for visitors and friends. If four rows across the garden will be enough, plant two of perfect flowering kinds and two of pistillates. Between two rows of one kind you will get pure plants for next spring’s planting; so set 50 plants of a kind, 25 in each row side by side.

Varieties.—I will name for the perfect flowering kinds, Jessie, May King, Miner, Parry, Wilson and Mt. Vernon. Pistillates, Bubach, Crescent, Manchester, Jewel and Windsor Chief. From these you may select, or plant them all. You can have 25 of a kind at hundred rates and have early and late, large and small. If I could have but two they would be Jessie and Bubach; next May King and Crescent, next Wilson and Manchester. The first two are worth 4c., apiece; the others 1c., each.

Keep the Garden Clean.—Plant best kinds, and be sure you get plants pure and unmixed, and keep them so. Set a new bed every year; if the old bed does not get too grassy, leave it for 2d and 3d crops, but for the 1st., year after planted hoe that strawberry bed every Monday morning, just as sure as the washing is done. Keep the whole garden clean by frequent cultivating and hoeing. Cultivate shallow, but often; this is very essential in time of drouth, and after every rain.

Plant your strawberries 4 ft. by 1, 2 or 3 ft., as you choose, in the row, for matted rows. In hoeing train them up and down the rows. Keep picking off all blossoms the first year, giving the strength to the plants.

Large Berries—Mulching.—If you want fancy berries, a good many of which will fill a tea cup, plant two feet apart each way and keep off the runners. Don’t hoe or cultivate about the strawberry more than a half-inch deep. In November if the matted rows are too thick, take a knife and cut out all the small and puny plants before freezing up. As soon as the ground is frozen one inch deep, cover the entire bed and paths with marsh hay, or cut corn stalks just so you can’t see the foliage; don’t put on too much. In spring leave the mulch all on, opening up if plants don’t get through. This mulch makes a clean bed for clean fruit and protects in time of drouth. Hand weed what is necessary before fruiting.

Do not plant pistillate varieties alone. While set beside perfect flowering kinds, they are the most productive of any. Every strawberry catalogue should be marked so that you may know which are pistillate and which are not.

Successful Returns.—In summing up this question of small fruit, I will name some instances of successful returns with good culture:

C. Roue, of Iowa, 1886, with Crescent, Wilson, Manchester and Sharpless, from 16 rows, 29 rods long, picked 3030 qts., which is 26½ qts., per square rod. This was a dry season.

Thos. E. Root, of Illinois, 1888, 1½ acres of Crescent and Miner, set 3½ ft., picked 2,500 qts., 31½ per square rod.

Jewell strawberry, in 1885, gave 80 qts. per square rod, Bubach, in 1885, gave to one boy, in two hours’ picking, before breakfast, 72 qts. One hundred Crescent plants, the following year, yielded 500 qts. of fruit, while one picker, at Minneapolis, picked 239 qts. of Countess in one day.

B. S. Hoxie, of Evansville, in 1886, had 112 qts. from a patch 16x24 feet, 37½ qts. per square rod.
W. T. Scott, Boscobel, in 1885, from 90 rods took 126 bu., 1½ bu. per rod. These were Crescent and Wilson.

Levi Chase, Madison, Wis., grew over 4 bu. per square rod of Wilson, Crescent and Winder Chief.

J. C. Jenkins, Janesville, when Wilson did better than now, grew 4½ bu. on 1 square rod, and Mr. J. F. Morse, the same year, grew 5 bu. per rod.

Mr. Loudon reports Jessie in hills as yielding 600 bu. per acre.

Now there is no need of any one who has a spare rod of ground doing without strawberries. The returns of black raspberries are from 3 to 8 qts. per hill in favorable seasons, and blackberries yield equally as well, while red raspberries yield about the same to the square rod, and grapes from 10 to 20 lbs. per vine, each year, and many bunches of grapes will fill a market basket.

A Good Mixture—Mix brains, common sense, muscle and manure in the right proportion, and you can raise anything the soil will produce, and in quantities according to the mixture you apply. Do not expect "grapes of thorns or figs of thistles," although I have seen splendid Jessie where the thistles prevented the picking of the fruit.

Requisites for Success.—Good soil, well drained, rich in composts, free from weeds and white grubs, good kinds, true to name, well planted, well cultivated, properly protected, in ordinary seasons will pay a wonderful percent. on all the investment, and you can have strawberries that you can cut with a carving knife. Of course you must look out for the leaf roller, crown borer, thrip, white grub, and a host of other pests. Mow the strawberry beds right after fruiting, and to destroy these leaf-eating insects, burn when there is a brisk wind, for in a dry season it may injure the beds.

The leaf-eating insects of any plant or tree may be easily destroyed by white hellebore, London purple or Paris green, when the fruit is not maturing. We can't have anything without some sweat, and sometimes a good deal. Every plant, shrub, grain, fruit, vegetable, grass, tree in the forest, and fruit tree, from the time of the garden of Eden till now, has its peculiar enemy, and man is not an exception, for woman is after him and the devil is after them both.

Apple Growing in Wisconsin.

Why it is Unsuccessful.

1. We plant on low, black soil, undrained or unridged, or on the south and southeast side hills. We should plant on the top of clay timber ridges, north and northeast side hills.

2. We have been planting for forty years the tender or half-hardy sorts, and too large trees.

3. We neglect to prune the tree to one central trunk, with only side branches at nearly right angles 86 inches apart.

4. We do not shade the bodies from the day of planting to protect from the borer, and the heat of the sun, summer and winter.

5. We too often neglect to fence, and often the cattle do the pruning.

6. We often grow them too fast and too late in the season, especially for the first six or eight years. Do not stimulate to growth after the 1st of July.

7. We starve them to death after they come to bearing.

8. We do not protect from our insect enemies by spreading with poison after blossoming in spring and early summer.

9. We often let our trees overbear, and thereby injure the vitality of the tree, and if this is followed by a hard winter the tree is injured and often killed.
10. Because of hard winters—more because the foregoing precautions have been neglected than the necessary injury by cold.

In order that the severity of the winters may be understood, I herewith append a synopsis of the past fourteen winters, with a more extended report of this winter just closing:

The record below was taken on the north side of a hard maple tree with a Farenheit mercury thermometer. Only such days are given as went to zero and below, including also November and December, 1887:

November, 1887.
November 28th, 6 below zero.
December, 1887.
December 22d, zero; 24th, zero; 28th, 12 below; 29th, 16 below; 30th, 19 below.
Five days at zero and below aggregated 47 degrees.

January, 1888.
January 2d, 8 below; 3d, 15 below; 9th, 2 below; 10th, 10 below; 11th, 18 below; 12th, 12 below; 13th, 12 below; 14th, 22 below; 15th, 27 below; 16th, 30 below; 17th, 10 below; 18th, 20 below; 19th, 10 below; 20th, 15 below; 21st, 30 below; 22d, 17 below; 24th, 9 below; 26th, 5 below; 28th, 10 below. Nineteen days at zero and below aggregated 282 degrees.

February, 1888.
February 6th, 7 below; 7th, zero; 8th, 21 below; 9th, 27 below; 10th, 21 below. 11th, 18 below; 15th, 10 below; 16th, zero, 26th, 7 below; 27th, 12 below; 28th, zero; Eleven days aggregated 123 degrees.*

To the first of March for the past winter, thirty-six days at zero and below aggregated 408 degrees. We hope we have passed most of the zero weather for this winter.

The following figures will give the comparison for the past thirteen winters:

Winter of 1874-5 gave 47 days below, aggregating 742 degrees.
Winter of 1875-6 gave 14 days below, aggregating 190 degrees.
Winter of 1876-7 gave 40 days below, aggregating 418 degrees.
Winter of 1877-8 gave 4 days below, aggregating 22 degrees.
Winter of 1878-9 gave 28 days below, aggregating 386 degrees.
Winter of 1879-80 gave 15 days below, aggregating 106 degrees.
Winter of 1880-1 gave 52 days below, aggregating 606 degrees.
Winter of 1881-2 gave 11 days below, aggregating 61 degrees.
Winter of 1882-3 gave 47 days below, aggregating 507 degrees.
Winter of 1883-4 gave 33 days below, aggregating 371 degrees.
Winter of 1884-5 gave 52 days below, aggregating 606 degrees.
Winter of 1885-6 gave 27 days below, aggregating 273 degrees.
Winter of 1886-7 gave 38 days below, aggregating 449 degrees.

The coldest month in thirty-two years was February, 1875. Twenty days below zero aggregated 324 degrees. The coldest days during the last fourteen winters were as follows:

Winter of 1874-5. January 9, 30 below; 1875-6, February 2, 17 below; 1876-7, January 25, 30 below; 1877-8, January 7, 15 below; 1878-9, January 2, 33 below; 1879-80, December 13, 26 below; 1880-81, January 10, 37 below; 1881-2, January 23, 14 below; 1882-3, January 21, 36 below; 1883-4 January 5 and 6, 35 below; 1884-5, January 22 and 28, 30 below; 1885-6, January 23 and February 3, 28 below; 1886-7, January 7, 37 below; 1887-8, January 16 and 21, 30 below.

Discussion.

Mr. West.—What pruning do you give your currant bushes?

Mr. Kellogg.—Take out the old wood after three years old; renew the bush continually from year to year. The black currant might need nipping on the shoots after a season’s growth.

Mr. J. M. Smith.—How does Fay’s Prolific do?

Mr. Kellogg.—It is paying very well. It is a large, late variety, similar to the

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*March, 1888, has given but one day below zero, that was 22d, 8 below, making the average 47° up to March 27.
old cherry currant in size, but much better in yield. I would trim out the old wood from blackberries in the fall; if I were trimming for shortening in for fruit, I would trim off any time in June after the growth has made one foot.

Mr. Smith.—Why do you recommend so many kinds of strawberries?

Mr. Kellogg.—There are a great many different tastes, and you can have a dozen varieties of strawberries at the same price you can have one or two kinds.

Question.—Have you for sale the Janesville grape?

Mr. Kellogg.—Yes, and it is good for everything but to eat.

Mr. Seymour.—It seems to be ripe the earliest and the latest of any grape produced, and it may be good to eat under the impression that it is a new grape imported from France, but I think it is good for nothing except as a windbreak.

Question.—Isn't it good for preserving?

Mr. Kellogg.—The best way to preserve grapes is to sit up nights and eat them.

Question.—I would like a remedy for the currant borer?

Mr. Kellogg.—The best remedy is the knife and the fire; cut out the old wood and burn it.

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POTATO CULTURE.

By KENNEDY SCOTT, Columbia County, Wis.

Fifth Paper.

Kind of Soil to Select.—The kind of soil to select is a very essential element in the success of potato culture as well as in any other crop, and I think more essential in this than in most others. While in nearly all other crops, good land in good condition will produce an average crop, it is not so with potatoes. It is necessary to have what is generally styled with us sandy loam, and that in good condition. After it has been seeded down to clover, give it a good coat of barn-yard manure, about 25 loads to the acre, plow early in the fall, and in the spring thoroughly cultivate till it is well pulverized to the depth of four or five inches, and well smooth with a smoothing harrow.

Marking the Ground.—Now it is ready to be marked, which I do one way with an ordinary marker making four marks, three feet apart. To mark the other way we take an ordinary sulky corn plow; taking off one foot from each side, fix the others stationary with rod holding them just three feet apart, furrowing across the marks to the depth of at least four inches. I have obtained best results from planting that depth, using an ordinary tracer to assist in getting rows straight and of equal width. The planting to this depth is necessary for two reasons—it puts the seed deep enough into the ground so that we may get the full benefit of thorough dragging before the young plants make