Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

6261
1881.

—
CRAWFORD'S

STRAWBERRY CULTURE

WITH

CATALOGUE.

—
FREE TO ALL.

MATTHEW CRAWFORD

CUYAHOGA FALLS, OHIO.

DIRECTIONS, TERMS, &c.

In making out your order, please write your name and address very plainly. This is important. Send cash with the order, either by P. O. Money Order or registered letter. A dollar bill may be wrapped around an old postal card and sent in the letter with the order. Less than a dollar may be sent in one-cent stamps. Sums sent as above are at my risk.

In ordering late in the season, when some varieties may be sold out, please state whether others may be substituted for them.

At these prices plants will be sent by mail prepaid. If you want them sent by express, *you paying the charges*, the price will be five cents per dozen and forty cents per 100 less. Six will be sent at dozen rates, and 50 at 100 rates. Packing is done in the most perfect manner, and the plants delivered at the express office free of charge.

I guarantee the safe arrival of all plants, and will replace any package that may be lost or damaged on the way, provided I am notified at once.

Do not write for special rates. I have but one price.

Order just what you want, be it ever so little. If you have a friend or neighbor who is interested in strawberry culture, please send his name and address with your order, and I will mail him a catalog.

When plants are received set them out at once, first shortening the roots to three inches, and keeping them in water until they are taken to the bed to be planted. If it is not convenient to set them out at once, plant them a few inches apart in some sheltered part of the garden, where they can be watered occasionally. It is a good plan to scatter some straw over them to shade them a little, and keep the ground from baking. I will acknowledge the receipt of all orders at once, and fill them just as soon as possible. Sometimes I am prevented for a day or two on account of storms, but customers may be assured that I am as anxious to send off plants as they are to receive them.

When plants are received please let me know if all is satisfactory. If not, I will make it so.

1881.

CRAWFORD'S
STRAWBERRY CULTURE

WITH
CATALOGUE.

FREE TO ALL.

MATTHEW CRAWFORD
CUYAHOGA FALLS, OHIO.

at all times during the season; that every school child could carry plenty of them in the lunch basket, and that they could be freely given to the sick, the poor, or the unfortunate. Then on the other hand, think of being without them, of seeing one's children longing and wishing that they might have all they wanted just once, or seeking in the fence rows for a handful of wild ones to satisfy their cravings. The wants of one's children touch a tender chord in the parent's heart, and the thought of their looking with hungry eyes upon fruit which would be delicious to their young appetites, but is denied them, might easily induce those who love them to plant strawberries for their sakes alone. By all means let the desires of the little ones be gratified, when the object of those desires is so innocent,—even beneficial, and at the same time so easily provided.

But although the strawberry may be grown in all climates and on all soils, and the fruit is so desirable that it seems to be almost a necessity, and is produced with so little outlay of time and money that even the poor in our cities may enjoy it, still that class of people who rise early and work late, and have changed the wilderness to fruitful fields, and who supply the nation with food, are too often deprived of its pleasures and benefits. Although this state of things is fast giving place to a better, it may be well to notice some of the hindrances which the farmer encounters, and see if they cannot be overcome. Many have been kept from ever making an effort to raise strawberries by the supposition that great skill is required, and that all the conditions must be very favorable. This is a mistake, for though no crop responds more readily to extra care, yet none bears neglect better.

Another reason why farmers do not plant strawberries is because they hate to putter, and they consider that an inseparable part of the business. The mechanic finishes his day's work at six and then his time is his own, if he has a garden he can cultivate strawberries as a pastime. It is an agreeable change from his regular labor. Not so the farmer. He works all day at tilling the soil, then the inevitable "chores" are to be done, after which he is too tired to care for anything, least of all a continuation of what he has been doing all day, only on a smaller scale. The garden of Eden would scarcely be worth possessing at such a time if he were required "to dress and keep it."

We propose to remove this obstacle presently, by showing how the farmer can raise plenty of berries without puttering at all; but first let us look at some of the difficulties of those who have tried and failed.

One cause of failure is setting poor or wilted plants. Another, planting new, untried varieties, that perhaps prove worthless even in the hands of skillful growers. A third cause is planting too deep, and a fourth injudicious cultivation.

It may be said that if all these things are to be taken into consideration strawberry growing is too complicated for any but those who make a specialty of it. But are not as many things to be considered in raising wheat, corn, or any other crop? The difference is that the farmers know these things so well that they do not seem difficult. A few simple directions,

faithfully followed, would make it as easy for him to raise strawberries as corn.

Early in the spring, select a piece of ground, say a quarter of an acre, that can be cultivated with a horse. If it has been plowed the year before so much the better, as sod ground is apt to contain grubs. After preparing it well, as for any other crop, mark it out as for corn, having the rows not less than three feet apart, and running in the direction that is most convenient for the cultivator. The plants should stand fifteen inches apart in the row. If plants can be obtained near home, get them in preference to sending to a distance. Only plants of the previous season's growth should be used. Cut off the old runners and dead leaves, and shorten the roots to three or four inches. Keep them moist from the time they are dug till they are planted again. This is important.

In planting, scoop a hole deep enough to receive the roots, not straight down, but having its left hand side sloping at an angle of forty-five degrees. Take the plant in the left hand, place the crown on a level with the surface, and spread out the roots in fan shape against the slanting side of the hole. Still holding the plant, fill in a little earth, press it firmly on the roots, and then put in the remainder, leaving it loose. If the crown is covered to any depth, the plant will die. As soon as blossoms appear, cut them off, for it weakens the plant to let it bear the same season it is set.

The space between the rows should be kept stirred with the cultivator just like any other crop. It will be necessary to hoe between the plants in the row, and the soil should be kept level,—not drawn up around the plants lest the crowns be covered.

As the soil gets cool and moist in the fall, the roots extend to quite a distance from the plant near the surface. These roots should not be disturbed. Experienced growers discontinue all deep cultivation early in the fall, and until after the fruit is gathered in June. Still, the weeds must be kept down, and it may possibly be better to cultivate among plants late in the season, or in the spring, than to do worse. The only objection is the injury to the roots.

If it is thought that the ground is not rich enough, some wood ashes, either leached or unleached, may be sown on the surface in the fall or spring. Half a bushel to the rod is sufficient. Any ground that is good enough for corn will produce strawberries, and it is never too rich; but rank, unfermented manure should be avoided.

Cut off the runners as often as once in two weeks during the growing season. If they are allowed to gain much headway they will exhaust the plants. Children are usually employed to do this, and it is easily done by taking the runners in the left hand and cutting them off with the right.

Early in the winter cover the entire surface with litter of some sort to keep the plants from being injured by freezing and the wind. There is no danger of putting on too much between the rows, but the plants themselves must not be covered too deep. An inch or two will be enough. Straw is probably the best covering. When growth commences in the spring, remove the covering from directly over the plants, and leave it between

them for a mulch. In case objection is made to so much cutting off runners, there is another plan that may be adopted which has some advantages:

Set the plants four feet apart each way, and let them cover the ground with runners. In this case it will be necessary to set out a new bed every year, but by the other plan the same bed will produce three crops, if after the bearing season is over, the mulch is removed, and the bed cared for as it was the year before.

STRAWBERRY CULTURE IN TOWN GARDENS.

Read before the Stark County Horticultural Society, June 9, 1880, by M. CRAWFORD.

The fact that there is great pleasure in the cultivation of the strawberry is so well established that any effort to prove it would be a waste of words. That it must also be profitable as a business is clearly shown by its rapid increase.

Fifty years ago no strawberries were known in the markets, even of our large eastern cities, except wild ones. Now they are supplied by the wagon load, car load, and boat load, and the bushels are counted by the thousand, ten thousand, and hundred thousand. No statistical tables have been compiled showing the magnitude of this industry, but a few items will give some idea of its vastness.

The late J. Knox, of Pittsburgh, some years ago sold \$3,000 worth of berries from one day's picking of the Jucunda alone. Mr. Young, of Norfolk, Va., has 250 acres in berries this year. This is said to be the largest strawberry farm in the world. A correspondent in California, writes me that he has grown 5,000 bushels in one year for the San Francisco market.

But those growers who raise this fruit in such immense quantities are not the ones who experience the most pleasure in its cultivation. Those who engage in the business on a small scale, just for the love of it, and cultivate a few rods in the garden are the ones who take the greatest delight in it, and it is by such that nearly all our finest varieties have been originated. They also raise most of the prize berries, for they cultivate them not as an article of merchandise, having a money value, but as pets to be cherished with care, and made as perfect as possible.

It would, without doubt, be advisable for every one who has a garden, to plant strawberries as he would flowers, for the pleasure of it, but there are other inducements, among which is the comfort of having them good and fresh for home use. Although it is true that our markets are well supplied with berries, and that the prices are low, it is equally true that the finest kinds are never found in the market, nor can any kinds be bought in as good condition as they can be had at home.

It is always convenient to have a supply at hand, instead of going to the store or market for them when wanted. Many housekeepers are so situated that this would be a great annoyance, and no doubt all would appreciate the advantages of having plenty in the garden.

Then, too, it is economical to raise a family supply, and this is an item not to be overlooked when considering the interests of the masses. It saves

the outlay of money which would be required to buy berries, and even a small sum each day for several weeks is worth saving. This is especially true when the saving, instead of diminishing the comforts of the family, is the means of increasing them; for the supply is almost certain to be more abundant when raised than when bought.

Besides its being pleasant, convenient, and economical to raise strawberries in town gardens, it can also be made profitable. The cost of planting is small, and most mechanics and business men have leisure time sufficient for the cultivation of not only a supply for home use, but also a liberal surplus, which sells readily and often yields surprising returns.

Six years ago we lived in town and had a lot containing a quarter of an acre. We had ten rods in strawberries, and about half of them were seedlings that produced only a small crop. From the whole crop we picked ten bushels of berries.

It has been my good fortune to become acquainted with an old gentleman in Canada, who yet lives on the farm where he first settled over forty years ago, when all was a wilderness for many miles. A few years since his health failed, and for months he was a helpless invalid. On his recovery he surrendered the farm to his son, and commenced the cultivation of the strawberry as an amusement. He has been remarkably successful, and now has perhaps the finest collection in Canada. Last season he sold over sixty bushels from half an acre.

The wants of the strawberry are few and easily supplied, and are the same whether they are grown by the acre or in a small bed. The soil should be cool, moist, and rich, and the plants should have room to grow without being crowded. They should receive such protection in winter as will prevent their being injured by frequent freezing and thawing.

The best soil for the strawberry is the best you have. It is not so much the soil as the cultivator. Dayton is not necessarily the best place for raspberries; nor Delaware for grapes. It makes but little difference what the soil is, provided it is put in good condition, and kept so as far as possible. The best natural soil, however, is a sandy loam, and the nearer any other approaches to this the better. It should be pulverized to as great a depth as possible without bringing up any poor subsoil.

Nearly all large plantations are set in the spring, and the earlier the better, using only plants of the previous season's growth. They may, however, be set in the summer or fall, as soon as young plants can be obtained. It is important that the roots be kept from drying while out of the ground. In planting, press the earth firmly about the roots,—but see that the crown is not covered. Two feet apart each way is a good distance to plant. The blossoms should be cut off the season they are planted, and the runners at all times. This will cause the plant to become large and strong. The soil should be stirred often enough to keep down the weeds, and to prevent a crust from forming on the surface. When the weather becomes cool in the fall, the strawberry sends out new roots which take possession of the soil to a considerable distance from the plant. These should not be disturbed by deep cultivation. It is not best to stir the ground at all in the spring before the fruit ripens.

The strawberry removes but little from the soil, and is therefore not a very rank feeder. Potash and phosphoric acid are the elements mainly required, and they can be best supplied by sowing about a peck of wood ashes and three pounds of bone dust to the rod, previous to the last hoeing in the fall. If it is more convenient to use well rotted stable manure, it may be applied to the surface between the plants early in the winter. As soon as freezing weather comes, the whole bed may be covered with straw to the depth of two inches, and in the spring, when growth commences, it should be removed from directly over the plants, leaving it between them.

Immediately after the fruit is gathered in June, remove the mulch, dead leaves and runners, and stir the soil thoroughly, after which the bed should be treated as it was the previous year. Three crops can usually be taken from a bed grown in this way.

More than twice the ordinary amount of fruit can be obtained, if one has the control of plenty of water, and will keep the ground moist from the time the blossoms first appear until the fruit is ripe. In the absense of water, a heavy mulch is the next best thing.

STRAWBERRIES WITH POTATOES.

After the ground has been well prepared, set the plants three feet apart each way. They should get good care, every blossom and runner being cut off until the potatoes are dug in July. They should then be very thoroughly cultivated both ways, always using a cultivator that will not cover the plants. If they have received good care up to this time, they will be strong and ready to send out plenty of large healthy runners. As soon as these are ready to root they may be trained lengthwise of the rows. The spaces between must be stirred,—using the cultivator while there is room—after which the work must be done with the hoe. If managed in this way the fruit will be almost clear gain, as the potatoes will pay the expense.

WITHOUT STRAWBERRIES.

From the bottom of our heart we pity the family without strawberries. To be compelled to live year after year without enjoying one of the most delicious fruits God in His goodness has given us, is cruel. To be deprived of it when it is so healthful, so delicious, so desirable every way, and when it can be raised so cheaply and so abundantly, is a shame. If a man is a married man he not only wrongs himself by not having them, but he is cruel to his wife by preventing her from enjoying them. If he is a father, and loves his children, he will want them to be happy and healthy by eating all they want of them week after week while they bear. Plant them; plant them, everybody! Let every family rejoice in a patch of strawberries. Let them go to the loaded vines and pluck the aromatic scarlet beauties and eat their fill. Let strawberry short cakes, and strawberries and cream, supply the table. Strawberries for everybody is the prayer of the *Rural World*.

STRAWBERRY CULTURE FOR MARKET.

—
 READ BEFORE THE MINNESOTA STATE HORTICULTURAL SOCIETY, JAN. 18, 1881.
 —

Strawberry culture is an important industry, supplying a want felt by nearly every person in this broad country; and furnishing a delightful employment to thousands who might not otherwise earn anything.

When we consider that forty years ago scarcely any cultivated strawberries were found in the market, and then see the magnitude of the business at the present time, we naturally enquire why so many engage in it.

This fruit possesses so many desirable qualities that it commends itself to every one, and at the same time is perfectly harmless. Until the advent of the Wilson in '57, it was a luxury to be enjoyed by the few, now it is indispensable in nearly every family. While the market may sometimes be over-stocked for a day or two with the common kinds, the demand for first class berries has never been supplied.

When well grown it is not only cheerfully bought and paid for, but eagerly sought. Everything connected with its culture is pleasant. There is no hard work attending it. It occupies the ground but a short time, removes almost nothing from it, and leaves it in good condition for the following crop. While all other fruits have their favorite localities outside of which they can not be grown at a profit, this flourishes on almost any soil and in any climate where one cares to live. It requires but little capital, and its cultivation is easily learned. It has but few enemies, and is one of the surest crops grown. I have cultivated it 25 years without a failure. It brings in a large amount from a small piece of ground, and may be

grown in connection with other crops at very little cost.

But yet, although its culture offers so many inducements, only those who have had some experience, and who live within a reasonable distance of a good market or a railroad station should engage in it extensively.

As our success depends to a great extent on the mode of culture adopted, it may be well to consider the methods of some of our leading growers.

Mr. Knox, the "Strawberry King" of Pittsburg was very successful, and his plan was to set the plants 18 inches apart each way, cut off all runners, and cultivate with the hoe, keeping the ground mulched after the first summer. He took from 3 to 5 crops from the same bed, and fruit was of the very best. From a single picking of the Jucunda he sent 100 bushels to New York, and the same quantity to Philadelphia, which brought him 50 cents a quart at wholesale, besides retailing a large quantity at Pittsburg the same day. His soil was heavy clay, and very rich. His mode was especially adapted to the foreign sorts, and his greatest success was with Jucunda, Triomphe de Gand, Trollopis Victoria, and Kitley's Goliath—all foreign. The objections to it are that a great amount of labor is required before any returns come in, that plants in hills are more liable to be winter killed, and that when the ground is occupied for several consecutive years, the enemies of the strawberry—which are more numerous now than in Mr. Knox day—are multiplied.

Peter Henderson, of New York, cultivates with remarkable success, as follows: Ground that has been heavily manured for previous crops, is well prepared in August, three inches of well-rotted stable manure worked into the surface, and potted plants of the large varieties are set two feet apart each way. They receive the best of care,

every runner being cut off, and the whole bed carefully covered in the winter. After bearing in June they are plowed under. The finest fruit is grown in this way.

Mr. Henderson has an army of skilled workmen; his work is done in the best manner, and his home market is the best in the country, and extra fine fruit brings a great price. While his plan may be a success with him, there are but few men over the country who would find it profitable to put 400 loads of manure and 11,000 potted plants to the acre.

We often see it recommended, especially for garden culture, to lay the ground off in beds four feet wide, with paths a foot wide between, and set three rows of plants on each bed, one foot apart in the row, keeping all runners off. This would require about 25,000 plants to the acre, and a great amount of work to accomplish what can be done much cheaper.

The plan most common on the light sand of New Jersey, where such immense quantities are grown, is to have the rows four feet apart, and set the plants twelve inches in the row, let them run, and cultivate with a horse, narrowing the cultivator as the strips of plants get wider. This, however, leaves the plants so thick that they can not properly develop, and the best fruit is never produced in this way.

J. M. Smith, of Green Bay, Wis., is certainly one of the most successful growers in the west. His plan is as follows:

"Mark off the bed in rows two feet apart, and set the plants from twelve to fifteen inches in the row. Let each plant send out six runners, forming a semi-circle on each side of the parent plant, and about six inches from it. This will leave an alley one foot in width to walk in. Cut off all other runners, and keep the whole season's growth in these plants."

This will necessitate a good deal of labor, but if the season should be moist, and the

ground deep and rich, an immense crop would be produced. On the other hand, if there should be but little rain, or if the ground should be only moderately fertile, plants standing so thick could produce only small berries, especially after one picking. It is said that Mr. Smith has raised 400 bushels to the acre.

Under whatever condition the strawberry is grown, its wants are always the same, and success will follow in proportion as these wants are supplied. The ground should be rich, cool and moist, but not wet. It should be thoroughly pulverized to a good depth, keeping the best soil on the surface. The plants should have room to develop, and must have the ground all to themselves from the time the surface roots form in the fall until the berries are ripe in June.

Our aim should be to produce the finest fruit possible at the least cost, and where land is cheap and labor dear, the following plan will commend itself:

Early in the spring select ground that has been under cultivation for at least two years, so as to avoid the white grub, which is nearly always found in sod. If the soil has been heavily manured in the mean time, so much the better. If not, apply a good coating after the ground is plowed, and harrow it in. If manure can not be had, 500 pounds of bone-dust and 40 bushels of unleached wood ashes to the acre, may be used instead.

After preparing the land, mark it out in straight rows four feet apart, and set the plants two feet apart in the row. This will require between five and six thousand plants to the acre. In taking up plants, use only last year's runners, rejecting those with black roots.

Trim off the dead leaves and runners, shorten the roots to three or four inches, and wash all the dirt off lest the larvæ of the crown borer or other injurious insects be carried to the new bed. Set the plants

so that the crown will be level with the surface, but not covered, and press the earth firmly about the roots. It is important that the plants be kept from drying while out of the ground. When taking them to the field to plant, put them in a pail with water sufficient to cover the roots, taking each one out as needed. The soil adheres to the wet roots, and no further watering is necessary. Every one should raise his own plants if possible, so as to have them when wanted.

At the proper time, plant sweet or early field corn, in the rows with the plants—the hills four feet apart. This will injure the plants little or none, and the shade will be beneficial rather than otherwise, in the summer. The corn will pay all the expense the first year. All runners and blossoms should be cut off as soon as they appear, so as to let the plants get strong before any draft is made on them. About the last of July, when the plants have gained strength, and are sending out several runners at a time, they may be allowed to grow and cover the ground. Cultivation with a horse must then be discontinued, and if it has been well done up to this time but few weeds will appear afterward. When the weather becomes cool and moist in the fall, the whole bed may be gone over with the hoe, and all weeds removed, after which the ground should not be disturbed to any depth.

The strawberry sends out new roots near the surface in the fall, and if they are cut or broken, either then or in the spring, the crop will be diminished accordingly. The want of proper covering in the winter, allowing the roots to be wrenched and broken by the frost, has the same effect.

Whether the corn is sold green or allowed to ripen, the stalks should be left uncut, as they not only shelter the plants in winter, but prevent the covering from blowing off. In many parts of the country this is an important item.

Early in the winter cover the whole surface to the depth of an inch or two with litter of some kind. Horse manure, with plenty of straw in it is first rate. Cut straw is excellent, and need not be removed in the spring. Evergreen boughs, corn stalks, swamp hay, rotted sawdust, tanbark or leaves, if they can be kept on—anything that will shade the ground, and prevent it from thawing every bright day, will answer.

When growth commences in the spring, and the freezing nights are past, the bed may be uncovered, if the covering is such that the plants can not push through it. Paths eighteen inches wide should be made between the rows. If plants are needed, they should be taken up in narrow strips, and those on each side shaved off with the hoe, so as not to injure the roots of those left to bear. If the plants are then over the bed, the spaces between them must be covered with a mulch—the paths also—to keep the ground moist and the fruit clean. A good mulching will sometimes double the crop. Let no deep stirring be given in the spring. Small weeds will do but little harm till the fruit is ripe. Large ones may be shaved off with the hoe, or pulled up by hand.

In regard to picking and marketing get everything ready as far as possible before the berries ripen. Engage your pickers, women first, then girls, and last, boys. In picking leave out the small berries. They add but little to the measure, while they injure the appearance of all the rest.

As soon as the last of the berries are picked, plow up the bed and plant some late crop. In this way three crops can be taken from the soil in two years, and the enemies of the strawberry are destroyed, instead of being left to multiply in an old neglected bed. It will cost less, in this way, to raise a new bed every year, than to clean out an old one, and put it in proper condition for bearing.

STRAWBERRY FERTILIZER.

A correspondent of the *Fruit Recorder* says: "An experiment made last year by myself may not come amiss at this time with those who grow strawberries. I procured half a hogshead, filled it with rain water, and put into it one-quarter pound of ammonia, and one-quarter pound of common nitre. When the strawberry plants were blossoming out I gave them a sprinkling of the solution at evening, twice a week, until the fruit was nearly of size. The result was double the amount of fruit on those where the liquid was applied to what was obtained from those alongside, to which none of the liquid was applied."

GROWING PRIZE BERRIES.

To raise the very finest strawberries it is necessary that the wants of the plants be supplied. The soil must be rich and moist, every runner should be cut off before it has exhausted the plant, and no weeds must be allowed to grow among them. It is possible to have the soil too rich, although this seldom happens. I have seen plants blossom and fail to set the fruit because so much manure had been applied. After the fruit is set, then you may soak the bed with liquid manure, or cover the surface with the strongest kind of animal manure. This will cause an excessive growth of foliage and fruit.

Growers sometimes remove the soil until the roots are almost exposed, and then fill in with very rich compost, keeping the ground constantly moist.

The following throws light on the subject:

"I should say that when a highly developed plant is produced up to the point of fruiting, that fact demonstrates that the soil is wanting in nothing required for fruiting. The fruit contains nothing that

is not needful for leaves, stems, and root, and it can scarcely happen in agricultural practice that a plant can grow up to the point of fruiting, and then fail to perfect fruit on account of a cessation in the supplies of plant food, except such as would happen from growth. When its conditions for growth are already highly favorable, any attempt to push to greater production by excess of plant food, especially by excess of nitrogenous matters, often or generally results in development of foliage and stem at the expense of fruit, whereas whatever limits the supply of food, as drouth or poor soil, tends to early, and relatively to the foliage, abundantly fruiting.

A strawberry field highly manured—manured, in fact, to the verge of excess—may give a good crop when the weather is, by its coolness and dryness, just favorable to vegetation, but may fail of its crop when the heat and moisture at the flowering and fruiting time are excessive. What would be the most favorable for foliage, stalks and runners, would be excessive for fruit."—Prof. S. W. Johnson, in *Country Gentleman*.

IRRIGATING STRAWBERRIES.

In the spring of 1878 I planted one acre of low, mucky land, with strawberries, with the intention of irrigating them by a living spring brook, the natural course of which bordered the plat. In June a heavy freshet swept away a portion of the plants and covered most of the others with water. Late in November another freshet covered the plants completely. In endeavoring to examine their condition soon after I sank to my knees in the soft wet mould among the vines. After the water settled away and the earth was frozen, I covered the plants with light strawy manure from the horse stable. In April this was removed where too thick. The plants beneath

looked bright and fresh. When in full blossom last spring a blighting frost fell upon them, followed by another hard frost later, both frosts destroying every blossom and bud so far as I could observe. Certainly here was a series of disasters that would seem to dispell all hopes of strawberries. A week later I discovered a few fresh blossoms here and there. The stream was turned into a trench across the head of the plat, from which furrows carried the water between every other row. It flowed gently in these furrows about half the length thereof, then gradually sank into the loose earth. After 24 hours the whole bed appeared well soaked, and the water was turned off. The water was turned on again often enough to keep the soil well moistened. The plants seemed to thrive under this treatment. It was a novel sight to see the little brooks between the rows, now hidden under the luxuriant leaves, then appearing again in the bright sunshine.

When the last berries on the uplands had been picked, all hands moved towards the muck patch, followed by a wagon with picking stands and crates. This was the first picking. There they lay, in some instances piled one on another, big luscious Wilsons, Monarchs, Boydens, Downings, and Col. Cheneys; a sight to behold, I assure you.

It was the best picking we had during the season, exceeding those on the upland where the frost did little, if any injury. The soil was made so moist among these strawberries as to cause the corn and potatoes growing near by to turn decidedly yellow.—Chas. A. Green, in *Fruit Recorder*.

I think so. The *Capt. Jack* will produce as well, or better; it is equally as good for shipping, and is more attractive, and meets with a readier sale.

The *Glendale* is more certain to produce a crop than the Wilson, as it is not liable to be injured by late frosts, and is a much better grower on any soil. In quality it is about as good, and it will carry farther and keep longer. Another advantage the *Glendale* has is its ripening so late that it comes in competition with but few first class berries.

The *Charles Downing* is another variety that has been found to pay better than the Wilson. It is of better quality than any of the above, and seems to do well on any soil.

Whether the *Windsor Chief* will become as popular as the others named, remains to be seen.

"What new variety have you that is ahead of the sharpless."

Perhaps none. The *Miner's Prolific* is a better berry, and I think more productive, but not as large, and probably not as firm. For home use, firmness is no advantage, but rather the contrary.

The *Warren* is one of the most promising of the new kinds, and on my soil I like it better than the Sharpless; but it is always best to try new sorts in a small way at first.

The *Hervey Davis* is a much better berry than the sharpless in many respects. If they were placed side by side in the market, I think nearly every one would chose the former, even before tasting it. He certainly would after. For home use, one should plant several varieties, including the earliest and latest.

ANSWERS TO QUESTIONS.

"Have you anything better than the Wilson for a market berry?"

BONE DUST AND ASHES FOR STRAWBERRIES.

Bone dust and wood ashes supply all the elements needed by the strawberry. Ashes

alone are often of great benefit, as they furnish not only the potash so much needed by this plant, but a large amount of phosphoric acid.

I am acquainted with the owner of a few acres of land who was employed in a shop until three years ago, when he gave up his situation and engaged in the cultivation of small fruits. He has used scarcely any manure except ashes drawn from the planing mill. Last season he sold 197 bushels of strawberries from 130 rods of ground, and no account was kept of those used on the table or of small lots sold to the neighbors.

Ashes must be used judiciously. I have known several persons to kill their plants by putting on too many. If they are unleached, a peck to the square rod is sufficient. They may be sown over the bed at any time, but must not be put in piles around the plants or on them. A bushel to the rod will do no harm if scattered evenly over the surface.

A friend near Cleveland set out a patch of the Wilson on new land. The following season he had a fine crop except on a small sandy knoll where they were almost a failure. Not wishing to plow up the bed, he scattered bone dust over the knoll and worked it in with the hoe. The following year he had the finest fruit on that part and received a first premium for the best quart of Wilsons.

Another man within a mile of the last had a patch of the Jucunda and Triomphe de Gand on heavy clay. In the fall he applied bone dust, working it into the surface, and then put on stable manure. The patch was carefully covered in the winter, and the following season the berries were immense—many of them from two to two and a half inches in diameter. I know a field that had received no manure for fifteen years. It was plowed in the fall and in the spring was planted partly

to strawberries, and produced but a moderate crop.

After the bearing season the plants were plowed under, and in the spring the ground received a small amount of stable manure, and a heavy coat of crushed bones. It was again planted to strawberries and produced a very large crop.

Some of the finest berries I ever saw were grown on a bed set in August, and manured with a compost principally of horse manure and bone dust.

Bone dust is costly—from forty to fifty dollars a ton—and still it may be the cheapest fertilizer in the end. A ton of it contains 520 pounds of phosphoric acid, and over 600 pounds of organic matter containing nitrogen.

Large quantities of bones might be procured in any part of the country. Last winter I offered my little boy half a cent a pound for all he could gather. He told other boys and the bones soon began to come. When the spring came I had no time to handle them, so I quit buying, but I had paid for more than five tons up to that time. Some of the boys went to the woods and found horses' bones that had been lying for years.

Last March I sunk some barrels about half their depth in the ground and filled them with bones, packing in plenty of wood ashes between. They were kept moist most of the time, but this was not faithfully attended to. In less than two months many of the bones were so soft that they could be crushed in the hand. In this way a ton of bones, costing ten dollars, may be prepared for use at small expense. The ashes are worth all they cost for manure, besides softening the bones.

If tight boxes or casks are used and a few inches of loam put on top, there is but little waste. Wheat growers might profit by this, and prepare their own fertilizer, as bone dust is not always obtain-

able—the demand exceeding the supply. Last fall, when our Grange ordered a car load, there was none at the mill.

The following is from "Harris' Talks on Manures:

BONE DUST.

A good method is to mix the bone dust with barnyard manure and let both ferment together, and I am inclined to think this is the simplest and most economical method of rendering bones available. The bone dust causes the heap of manure to ferment more rapidly, and the fermentation of the manure softens the bones. Both the manure and bones are improved and rendered richer and more available by the process. One ton of good bone dust contains about as much nitrogen as eight and a half tons of fresh stable manure, and as much phosphoric acid as 110 tons of fresh stable manure. But one ton of manure contains more potash than five tons of bone dust.

LIQUID MANURE.

Every one who has had experience knows how readily plants respond to an application of liquid manure. This is not strange when we consider that they take up all their food in a liquid form. A fertilizer of any kind may be close to the roots of a plant, but until it is dissolved in water it can not be used. One of the chief pleasures in gardening is in supplying the wants of one's plants and giving them every opportunity to perfect themselves. If you have plants on poor land—even clear sand—liquid manure poured around them will cause a rapid growth, and the color will change to a dark green in a day or two. The brown liquor that may be found in a barnyard after a shower is excellent, and is none too strong. The

best time to apply it is just before or after a rain. It should be poured around the roots and not on the leaves, and it is never safe to put it to plants newly set out. They should have a few days to recover from transplanting.

HOW TO GET LIQUID MANURE.

Get a bushel of horse manure, containing a quantity of hoof parings from the blacksmith shop; put it in a tight barrel and fill it with water. In a day or two it is fit for use. After using, put more water in the barrel. It may be filled over and over again, as it will not lose its strength for months. The same quantity of manure from the horse or cow stable will answer as well, but it will need to be renewed often, as it soon loses its strength. A much smaller quantity of hen manure will do, and it can be made too strong. I have sometimes put a bushel of hen manure in a barrel, filled it up with water, and then put a quart or two of this in a pail of clear water. As it gets weaker more may be used. For well established strawberry plants you will hardly get it too strong.

ANOTHER WAY.

It was a question with me for a long time how to dispose of the suds and slops from the house so as to keep them out of sight and have no unpleasant smell about the premises. After trying several plans I adopted the following, which fills the bill:

I took a large dry goods box and put a partition in it, leaving the small end wide enough to admit a pail. In the partition I left several seams to let the water pass through. I then nailed a strip along the top of the partition, and to this the covers were hinged. At a convenient distance from the kitchen I dug a hole a little larger than the box and within six inches of being as deep. I put in an inch or two of clay and wet it up like mortar, then put in the box with the large part next the house. The space all around was filled with wet

clay and well tramped. A wheelbarrow load of manure was then put in the large end, and it was ready for all kinds of slops. When I want to water my plants I find the best kind of liquid manure in the small end of the box, and it is replenished every day from the house. No unsightly pile of filth is decomposing in the sun, and no unpleasant smell is ever noticed. Last spring I planted a canna near the box, on the side toward the house, and it grew to an immense size, hiding the box from view. We never discover any smell about the box except when the covers are lifted; but as I was afraid there might be, I put in a pound or more of coprapas occasionally. Several times during the season I clean out the box and supply fresh manure. We never put in salt, lime or ashes.

COMPOSITION OF THE STRAWBERRY.

An analysis of the strawberry made by Prof. Goesman and published in the Massachusetts Ploughman in '78 is exceedingly suggestive. From it we learn that 100 bushels—of strawberries—40 lbs. to the bushel—leave after burning, 20 lbs. of ash, 49.24 per cent. (9.85 lbs.) of which is potash, and 18.50 per cent. (3.70 lbs.) phosphoric acid.

As 100 bushels of this fruit to the acre is perhaps a fair average, let us compare it with some other crops: Twenty bushels of wheat will remove from the soil 5.72 lbs. potash and 12 lbs. phosphoric acid. One hundred and fifty bushels of potatoes leave 90 lbs. ash, containing 50.4 lbs. potash and 16.20 lbs. phosphoric acid. One might suppose from these figures that the strawberry will flourish on poor ground, but this is a mistake. Every large yield reported was grown on rich soil, and the reason of this appears to be that so much plant food is required by the plants.

Prof. Goesman found that the average strawberry plants with ripe fruit attached, consist of 52 per cent. fruit and 48 per cent roots, stems and leaves, and that the latter yield 3.34 per cent. ash. So the plants that produce 100 bushels of berries would weigh about 3,700 lbs., and yield 123 lbs. ash containing 13 lbs. potash and 18 lbs. phosphoric acid.

As this is not removed from the soil, but plowed under, we see why it is likely to get a good crop after strawberries. A large amount of available plant food is already gathered and within reach of the succeeding crop.

Any manure that will furnish potash, phosphoric acid and nitrogen is a perfect fertilizer, as any soil contains all other elements needed. Potash alone may be obtained from wood ashes, phosphoric acid from bones, and nitrogen from nearly all animal substances, especially hoofs, hair, dried flesh, and blood, guano, hen manure, etc. Common barnyard manure furnishes everything needed by plants.

I have seen several other analyses of the strawberry, all of which gave a larger per cent. of ash than that of Prof. Goesman, but I am unable to say which is the nearest correct.

POTTED PLANTS.

Most of our finest prize berries are grown on potted plants set in the fall. Small pots are filled with rich soil, sunk to the rim, and young runners placed on them to root. In two or three weeks they will be rooted, when they can be transferred to the bed where they are to bear. Pots are much inclined to dry out before the plants are rooted, and it may be necessary to give them a watering. As it may not always be convenient for one to use pots, pieces of thick turf, three inches square, are said

to answer as well. When potted plants are to be shipped to a distance, they are taken out of the pots, wrapped in paper, and packed in moss.

I have used as a substitute for pots small bags made from white cotton cloth. They cost but a trifle, as a yard will make four dozen that will hold as much as three inch pots. They are less liable to dry out, and may be left on the roots when planted. I have tried strong paper bags, but with poor success.

TESTING NEW VARIETIES.

There are those who will have every new strawberry as soon as it is offered for sale. Some for the pleasure of testing them and exhibiting the fruit and others for the purpose of selling plants. From a few plants well managed a good supply of fruit may be obtained, besides a large number to sell or set out for a new bed. Many would pay fifty cents for a dozen plants who would not give two dollars. So the man who will invest in a new sort can supply his neighbors the next year, get his money all back, and have a good bed to bear. When it is desired to make the most of a dozen, they may be managed as follows:

Set them out six or eight feet apart each way, on rich ground. Give thorough cultivation, occasionally pouring liquid manure around them. As the runners grow, train them so as to cover the bed. As many as 9,000 plants have been produced from a dozen in a single season. Another good plan is as follows:

Set the plants in a circle four feet in diameter. After they get established make a few holes in the bottom of a barrel, place it within the circle, fill it with stable manure, and then with water. It may be refilled with water as often as once a week.

The liquid manure coming out at the

bottom of the barrel will cause a rank growth, and as the runners start they may be potted and transferred to a bed where they can be allowed to run, or be kept for bearing.

In testing a new sort, always plant some standard kind near it, giving both the same chance, so that one may be compared with the other.

MAMMOTH BERRIES.

"People are sometimes discouraged by the accounts of mammoth berries grown of late. We hear of berries ten, twelve, and even fourteen and a half inches in circumference. This would be called large for an apple, and it is wonderful for a strawberry; but such ones are not really so large as one would imagine at first thought. A berry of regular shape, six inches in circumference, weighs one ounce and this is very large. One three inches in circumference weighs three-eighths of an ounce, and is considered of good size, about 150 to a quart.

It is said that a Great American has been grown fourteen and one-half inches in circumference, which is four and three-fifths inches in diameter. Such a berry, if of regular shape, would be ninety-seven times as heavy as one one inch in diameter, and would weigh over twelve ounces, while the heaviest berry yet grown weighed but about three.

The fact is, these large berries are shapeless monstrosities, and these measurements are taken over and between all the irregularities."

Extract from an essay read before the Ohio State Horticultural Society, at Canton, December 12th, 1879, by M. CRAWFORD.

STRAWBERRIES IN MASSACHUSETTS.

I wish to give you and the readers of your valuable paper a statement of a crop

of strawberries, of the Wilson Albany, raised in poor North Orange, in the year '73. The soil is a damp loam, with a north slope.

The year previous the owner, Mr. Nathaniel Cheeney, in building, had a large pile of waste which covered *two rods square*. At a proper time it was burnt and planted to early peas, which were taken off in August of 1872, and immediately his man set it out in rows of $1\frac{1}{2}$ ft. by 8 inches on the row of the above variety of strawberries.

They were well cared for. The summer of '73 there was harvested on two rods square of ground 500 quarts of fruit, measured, and very many were given away which were not included in the measure of the crop. The berries not used in the family were sold in Orange for 20 cents per quart.—J. A. F., in *Fruit Recorder*.

WASHING STRAWBERRIES.

Two or three years ago some one asked "Can strawberries be washed," you answered, "Might as well try to wash sugar." Now, I have washed a great many. Make a box ten or twelve inches square—only sides and ends; put a piece of wire cloth one-fourth inch meshes, on for bottom; sink it in a tub of clean water, level to the top; pour the berries into the water, in the sieve; raise and lower it two or three times. Your berries will be clean. Set them by in the shade to dry and drip. Sun will fade and wilt them. My neighbor last year had larger and finer berries than mine, but would not wash them. He could not sell far as much as I did—all said that mine looked so bright. I have fourteen sieves to wash in. By pouring so that they fall in the water, no bruising them at all. They need not remain in the water over one-fourth of a minute.—J. McHAN-NON, in *Fruit Recorder*.

RAISING SEEDLINGS.

Much is said about the improvement of the strawberry, and new seedlings are put in the market every year—each one better than any that preceded it. When we consider all the qualities required in a variety, is it not strange that no one has improved this fruit in any way except in size and productiveness? Now if some one would give us a berry as large as the Wilson when well grown, with the fragrance, color and richness of the wild berry, together with a healthy, vigorous and productive plant, he would benefit the whole country.

Raising seedling strawberries is exceedingly interesting. Perhaps there is nothing in horticulture more so. Those who have never tried it would hardly imagine that so many fine sorts would be produced. Some will be of immense size and unproductive; others of the most delicious flavor but small. Some will be bright red, some some light orange, and others white.

SAVING AND SOWING THE SEED.

In raising seedlings, one should have some object in view more than to merely raise a variety worthy of cultivation. If quality is the object, save seed from fine specimens of the Sterling, Hervey Davis, Burr's Pine, or some sort possessing in a high degree, those qualities you wish to reproduce. Put the berries in a cloth, and wash out the pulp. Then dry the seed in the shade. In the fall or winter mix the seed with sand, put it in a flower-pot, and sink it in the soil level with the surface to freeze. As soon as the ground is dry enough in the spring prepare a bed and sow the seed and sand, covering about a quarter of an inch deep. It must be kept moist until it comes up, and this can best be done by shading during the warmest part of the day, and watering in the evening from a fine rose. In a short time the plants will appear, with round seed leaves about as large as a small pin head.

The bed must be carefully weeded and watered, if necessary. In June the young seedlings may be set where they are to fruit, and cared for like any other newly planted bed.

If any of your seedlings should prove to be fine, do not be in a hurry to name and introduce them. Plant them alongside of the Wilson, Chas. Downing, and Cumberland Triumph, giving them all an *equal chance*. If convenient, have them grown on different soils. If they are superior under all circumstances, they are worthy of a name.

WATER FOR STRAWBERRIES.

The great want of the strawberry is moisture, and yet it will not flourish with its roots in stagnant water. From the time the blossoms appear until the fruit is ripe, the soil should be kept constantly moist. Where a bed is so situated that water can be turned on it, either from a spring or by water works, wonderful crops of this fruit may be produced.

I remember a bed of two or three rods on dry, sandy land, that was thoroughly saturated every morning from a pipe in the house. The plants remained green and healthy until the last berry was picked. It was the opinion of the owner that the crop was several times greater on account of the water.

A gentleman near Cleveland had a small patch, not exceeding ten rods, on black muck, about eighteen inches deep, underlaid with clay. It was so situated that it received the water that constantly passed from the foot of a sandy hill near by. The crop was one of the largest ever grown. The same year, the grower had about half an acre on dry sandy soil, which yielded less than the small bed on the muck.

Twenty years ago my employer raised the Hovey's seedling on low mucky soil

where it did so well that he grew it in preference to the Wilson, as it yielded almost as much, and brought a better price. The same variety never succeeded on the light soil of New Jersey, nor on the clay around Pittsburgh.

In all parts of the country may be found low mucky land that would produce immense crops of strawberries. The only objection is that late frosts are more to be feared on low ground. In such places the beds should not be uncovered until quite late. Some varieties are more liable to be injured than others. The Glendale is almost proof against late frosts.

If fires are kindled in different parts of the patch on frosty nights, and covered with damp rubbish of any kind, they will send out clouds of steam and smoke that will settle over the patch, and protect it more or less.

Although water is so necessary, no one need suppose he can accomplish much with a watering-pot. It should never be attempted unless the bed is well mulched; and then at least fifty gallons to the rod should be applied at a time. A heavy mulch is probably the cheapest way to keep the ground moist and cool.

INSECTS INJURIOUS TO THE STRAWBERRY.

The *White grub-worm* is one of the enemies we have to contend with. It eats the roots of the strawberry, and its presence is not known until the plant wilts, when the worm may usually be found at or near the root. If not destroyed it will follow the row, eating the roots and killing every plant as it goes. I know of no remedy for them. They are not injured in the least by being frozen, and it is not certain that any amount of salt that would not damage the plants would kill them. The best way is to use ground that has been cultivated for at least two years. The

Grub is the larvæ of the May-beetle, and it remains in the ground three years before it changes to the perfect insect. All this time it lives on the roots of plants within its reach. It is not confined to the strawberry, but is destructive to grass roots and even potatoes.

The *Strawberry Crown-borer* is a small, white worm, less than a quarter of an inch long, and about as thick as the lead in a pencil. The head is brown, but the body is white clean through. It is usually found curled up in a circle. The perfect insect is about one-sixth of an inch long, brown in color, and appears above ground in August.

The larvæ is said to work in the crown of the plant, commencing at the top and working downward into the pith, destroying the embryo, fruit-stalks, and leaves. Far more frequently it bores into the side of the crown, and often quite low down, and it seldom goes very deep. I am satisfied that it also eats the bark off of the roots. I have dug up hundreds of plants that were ruined in this way, and no other worms were found among them. I have thought too, for some time, that the perfect insect would, and often did, eat small holes in the leaves, but perhaps I am mistaken in this. The remedy for the Crown-borer is to plow up the bed as soon as the berries are picked.

The *Grapevine Colaspis* is usually spoken of as a grapevine pest, but it lays its eggs on the strawberry during the summer, and the larvæ soon hatch and feed on the rootlets during the fall, winter and spring. It is said that the beetles sometimes feed on the leaves of the strawberry and if this happens after the fruit is picked, Paris green or London purple might be used as for the Colorado potato beetle. Better still, plow up as soon as done bearing.

Prof. A. J. Cook, of Michigan, publishes an account of a strawberry leaf-beetle

(*Paria Aterrима Oliv.*) that is very injurious in many parts of the country. Prof. Riley has found it in southern Illinois and Missouri, and has received it from Massachusetts. According to Prof. Cook's description, the larvæ and beetle are about like the Crown-borer in size and color. He speaks of their habits as follows:

"These beetles, like all of their family, are voracious feeders, and though small are so numerous that in early spring and after harvest they completely defoliate the strawberry plants.

The larvæ appears to eat the young tender roots, and in this to differ from others of the leaf-eating beetles. As these larvæ, as well as the pupæ, are in the earth about the roots of the plants, we see that their importation with affected plants would be very easy, and could only be avoided with certainty by having the roots of the plants thoroughly washed before setting.

REMEDY.

Paris green or London purple applied to the plants as we apply them to destroy the potato-beetle."

The "Strawberry Worm" is the larva of a small, black fly, not as large as a honey-bee. The worm is about three-fourths of an inch long, quite slender, and of a pale green color. It attacks the leaves, eating large holes in them. They are sometimes so abundant that they destroy the entire foliage, and kill the plants. If they appear after the crop is gathered they may be destroyed with Paris green.

The *Strawberry Leaf-roller* is very destructive in some parts of the country by curling and tying the leaves. It is well to pinch them with the thumb and finger when working among the plants. If they were very numerous other means would have to be adopted.

Old neglected beds furnish a breeding ground for all the enemies of the strawberry.

VARIETIES AND PRICES.

MT. VERNON.—Originated in New Jersey. Introduced last spring. As it has probably not fruited outside of the originator's grounds, it is but little known. Those who have seen it, and examined its habits of growth and productiveness, speak of it in the highest terms. I obtained my plants from the originator, and with me it is a fine healthy grower, producing an abundance of strong plants, with no sign of rust or blight. It is creating more interest now, in New Jersey, than any other except the Kirkwood, which is claimed by many to be identical with it. It is described as being very late, and productive, a healthy grower, with tall fruit-stalks. Fruit, uniformly large, roundish, conical, bright red, and of excellent quality. 60 cents per doz., \$3.00 per hundred.

MARVIN.—A cross between the Wilson and Jucunda. Originated in Michigan. A few plants were sent out in the fall of '79 and spring of '80—dealers pledging themselves not to sell over a dozen to any one person. I procured 100 from the originator, and planted them all, and now have a very fine lot of plants. It is described as very large, of good quality, and extremely late. In form it resembles the Jucunda or Wilson, color, deep glossy red. I allowed a few to bear, and the smallest berry was over three inches in circumference, and very late; but I do not pretend to judge from plants set the same season. With me it is a moderately good grower. If it should prove to be all that is claimed for it, it will be a great acquisition. The originator evidently has faith in it, for he is planting it largely. 60 cents per dozen, \$3.00 per 100.

HART'S MINNESOTA SEEDLING.—Originated in Minnesota, and was placed in the hands of Truman M. Smith, president of the Minnesota State Horticultural Society, from whom I obtained it. Mr. Smith speaks of it as follows: "Nothing I have seen in my thirty years strawberry growing equals it. It is without fault, save not of the very highest quality." As I have not fruited this in perfection, I will quote what is said of it by a grower in Conn., who has the largest stock of this variety in the country: "We were so well pleased with it last year that we made quite a large planting of them, and our only regret this season was that we did not have more of them. The plant is very vigorous, free from rust and blight, very productive, fruit of large size, very regular and uniform, with no small berries. Color, a rich dark red, with prominent seeds, that make it very handsome and attractive. The flavor is delicious, and was so pronounced by many of our visitors the past season. All things considered, we think it has more good points than any variety we have tested, and will doubtless become as popular as the well-known Charles Downing, not only for family use, but for market." A few days ago, the same person wrote me as follows: "Hart's Minnesota Seedling is by far the best of any of the very new kinds that we are testing." 40 cents per dozen; \$2.00 per 100.

WARREN.—This is a new variety, and one that is likely to become a great favorite. I received it from the originator in '76, and the more I see of it the better it pleases me. It is a fine healthy grower, sending out an abundance of strong runners with very short joints. It has never been

injured in winter, and its foliage remains green during the summer. Its blossoms are perfect, and it bears a very heavy crop. Fruit very large, roundish, and always of regular form. Color, dark red—ripening all over at the same time. Quite early in ripening, and among the best in quality. Its fruit-stalks are rather short, so that its blossoms are protected by the foliage. I think all will be pleased with this variety. A grower who had at our exhibition last June, fifty varieties, said, "The Warren has given me this year the finest fruit on my grounds." 50 cents per dozen; \$2.50 per 100.

LONGFELLOW.—The companion of the Warren, both being originated by A. D. Webb, of Kentucky. This is the finest berry I have raised for some years, and has received more praise than any other, with one exception. The plant is a good grower and bearer—not liable to be injured in summer or winter. It is late in ripening,—perhaps the latest I have,—continues in bearing a long time, and is very large to the last. Form elongated, conical, and usually uniform in shape and size, but the first to ripen are sometimes coxcombed and irregular. When placing them on the table at an exhibition, one grower remarked, "You beat them all on Sharpless this year." Color, dark red, very glossy and beautiful; flesh firm, sweet, and high flavored. This is a grand variety to grow for exhibition, as it is so attractive, and is in perfection for so long a time. It ripens rather unevenly. 50 cents per dozen; \$2.50 per 100.

RED JACKET.—From Blackhawk Co., Iowa. I procured my plants in '79, from a friend in Iowa, who had it from the originator. As I have fruited it but one year, I insert the description as received from the party of whom I obtained the plants: "It is a large berry, sometimes measuring six inches in circumference, of a very deep red color; when fully ripe, I would call it a deep blood red; very uniform in shape, being roundish, conical, having a sprightly acid flavor, firm flesh; when left on the vines until *dead ripe*, it don't rot, but dries up, hence it will stay on the vines for days after being ripe enough to pick, and not spoil. It is robust and vigorous, very large rank foliage of a light green color, having long runners, and making large quantities of plants. The fruit-stalks are tall and strong, holding the fruit well up from the ground." I could give a great many testimonials in its favor, but will insert only two, to show how tastes differ:

From J. T. Lovett, vice-president of the American Nurserymen's Association: "The highest-flavored strawberry of any value I have ever seen, surpassing the past season even that venerable standard of excellence, 'Burr's New Pine,' and possessing the sprightliness of the wild strawberry to a greater degree than the Wildings themselves. Plant of the most vigorous growth, *immensely* prolific, and although very early (being preceded only by Crystal City) it kept in fruit until late in the season."

From Geo. W. Dean, vice-president of the Portage Co. (Ohio) Horticultural Society: "This is the berry that is said to be so good with sugar and cream. I am sorry it is not better without them. Sugar and cream will overcome a good deal, and may hide the flat sourness of Red Jacket strawberries, but I am of opinion that they can be put to various other uses more profitable. It is in every way inferior except in size to Burr's New

Pine, and not more than one-fourth as productive." 30 cents per dozen; \$1.50 per 100.

SHIRTS.—This variety was originated by E. J. Shirts, of Oceana Co., Mich., from whom I received my plants. It is new, having been named by the Mich. Pomological Society in '79. The plant is a healthy and vigorous grower, and a good bearer. Fruit-stalks tall and strong, holding the berries well up from the ground. Fruit large, long, conical, with long neck. Flesh moderately firm, and remarkably sweet and good. Color, rich dark red. Owing to its size and color, it is said to command a ready sale. 50 cents a dozen; \$2.50 per 100.

GLENDAL.—If I am thoroughly acquainted with any variety this is the one. Before I had any interest in it, I called the attention of fruit growers to it, and I have watched it carefully since its introduction. As it was sent all over the country two years ago, it has by this time settled into its proper place. As far as I know, the habits of the plant have never been spoken against, and probably never will be. It is large, healthy, vigorous, hardy, and very productive. It sends out an immense number of strong fibrous roots that extend to a great distance and enable it to mature its fruit in a dry time. Its fruit-stalks are tall and stout, and yet its blossoms are protected by its leaves. It has probably never been injured by late frosts, as its fruit is protected by an immense calyx or hull. It succeeds on all soils and in all localities. It is very late, and is one of the easiest to pick—always bringing the stem with it. Its blossoms are perfect. The fruit is very large, conical, of regular form, and holds its size well to the end. It is very firm, and is kept so loose in the basket by its large calyx and long crooked stem, that it will carry farther and keep longer without becoming wet or mussy looking than any other variety. It is excellent for canning, the berries settling to the bottom while others float on the surface. Now for its faults. It has no gloss; its color fades to a light orange scarlet if exposed to the light for a day or two, although it is bright red when first picked. Its flavor is only moderately good, though greatly praised by some. If sent to a distant market the baskets must be well filled, as it is inclined to settle more than most varieties. I know of no other sort so certain to produce a crop, and I consider it a very safe kind to plant. It is very profitable to grow at the north for shipping south at the close of the season. 30 cents per dozen; \$1.50 per hundred.

SHARPLESS.—This is perhaps the most popular variety in the country at the present time. It seems to do well everywhere, and the most favorable accounts of it are received from all parts of the country. The only objections I find to it are that its blossoms seem to be quite easily injured by late frosts, and its fruit is inclined to ripen unevenly. Still, many of our leading varieties are worse in this latter respect than the Sharpless, and but few have so many good points. The fruit is very large, sometimes irregular in form, and occasionally misshapen. Color, bright glossy red; flesh firm, sweet and good. The plant is remarkably strong and vigorous, and its fruit is produced in abundance. Its fruit-stalks are moderately tall and strong, but they are usually bent to the ground with the great weight of fruit. Its blossoms are perfect. From six to eight inches

in circumference is not an unusual size with this variety, and some specimens have been found over twelve inches. No garden should be without it. 30 cents per dozen; \$1.50 per 100.

PRES. LINCOLN.—This variety is noted for its size, quality, firmness and productiveness. It has been grown over eleven inches in circumference, though, of course, such ones are of irregular form. From five to six and eight inches is not unusual with this variety. For so large a berry, it is immensely productive. With me it has not been able to mature all its fruit, but on damp soil it would probably do so. Flesh firm, sweet and rich; color, bright red; blossoms perfect. This has been the rival of the Sharpless, but is not as strong a grower with me. The average size is not as large as the Sharpless, but some wonderful specimens are occasionally found. It is, however, more productive, and of better quality. It is said to succeed better in the north than in the south. 30 cents per dozen; \$1.50 per 100.

WINDSOR CHIEF.—This is said to be a cross between the Champion and Chas. Downing, while some claim that it is the champion. I procured my plants from the originator, and believe it to be just what he claims for it. I have several times raised seedlings that resembled their parents. This variety is said to have yielded at the rate of 17,000 quarts to the acre. The plant is a strong healthy grower, perfectly hardy, and a great bearer. It holds its size to the end better than most varieties. Blossoms pistillate. Fruit very large, roundish, sometimes coxcombed; color, rich glossy scarlet; flesh firm and of fair quality. 25 cents per dozen; \$1.25 per 100.

HERVEY DAVIS.—A new variety from Massachusetts. It has fruited with me but one year. The plant resembles the Wilson in appearance and habits of growth, and like that variety is immensely productive. Fruit very large, and holding its size well to the last; color, deep glossy red, ripening on all sides; form, about like the Wilson, flesh moderately firm, and of the very highest flavor; blossoms perfect. If this variety fails in any respect, it will be in want of vigor. 60 cents per dozen; \$3.00 per 100.

PHOTO.—Originated by myself ten years ago. This has received more praise than any other on my place, although I never considered it of best quality. The plant is very large and stocky, sending out an abundance of strong healthy runners. The foliage is liable to burn in the summer, but it always comes out all right the next spring. It is a great bearer, either in hills or matted rows. I have seen nine fruit-stalks loaded with large berries on a plant less than ten months old; and more than two quarts have been picked from a single hill. Fruit of very large size to the end of the season; form roundish, never irregular; flesh tender, sweet and pleasant, but altogether too soft for market. Pistillate. 40 cents per dozen; \$2.00 per 100.

STERLING.—A berry of the very best quality and most attractive appearance. Plant a vigorous grower, hardy, healthy, and productive. It usually ripens every berry. Season medium; fruit-stalks short; blossoms pistillate. Fruit large, conical, with a slight neck; never misshapen; flesh firm, and of the most delicious flavor; color, bright red, ripening all over. Succeeds on either light or heavy soil. 50 cents per dozen; \$2.50 per 100.

CRYSTAL CITY.—The earliest variety in cultivation. Plant vigorous and productive, green and healthy all summer. Fruit of medium size, conical, resembling the Large Early Scarlet; color, deep red; flesh moderately firm, and of good quality. Too small for market. 30 cents per dozen, \$1.50 per hundred.

MINER'S PROLIFIC.—This is a great favorite wherever known. The plant is a very luxuriant grower and a great bearer, perfectly hardy, and not liable to burn in the summer. Fruit very large, roundish, sometimes uneven on the surface; color, dark red; flesh moderately firm, and of a very pleasant agreeable flavor. Late in ripening, and a long time in bearing,—holding its size well to the last. Blossoms perfect. 30 cents per dozen; \$1.50 per 100.

CUMBERLAND TRIUMPH.—A cross between the Green Prolific and Jucunda. It is almost a perfect variety. The plant is a splendid grower, having an abundance of large healthy foliage that usually remains green all through the summer. Its fruit-stalks are tall and strong, and it is a most abundant bearer. Blossoms perfect. This variety never produces any berries twelve inches in circumference, nor even eight inches, but it will yield a great amount of very large berries, and scarcely any small ones. It is always of regular form, resembling the Green Prolific. Color, light orange scarlet; flesh, rather soft for a market berry, but one of the best for home use. Quality good. 30 cents per dozen; \$1.50 per 100.

CRESCENT SEEDLING.—The great merit of this is that it will bear any amount of neglect, and yet produce a crop. It is said to have borne heavy crops for three years without any care whatever. Those who have failed with other varieties should try this. It is probably unsurpassed for vigor and productiveness. If planted six feet apart each way it will cover the ground with runners, but it will not always choke out sorrel as it was claimed to do. I am not aware that it has ever been extensively grown in hills, but judging from a single row I had, I think the runners would need cutting two or three times a week. I have never seen this variety of large size,—never as large as the Wilson or Capt. Jack. Its color is bright red, and it ripens all over at once. It is easily picked, and the quality is moderately good. It is one of the earliest to ripen, and is not easily injured by late frosts. Pistillate. 25 cents per dozen; \$1.25 per 100.

CAPT. JACK.—This is a seedling of the Wilson, and a decided improvement on its parent, which it is rapidly superceding. The plant is of medium size, very dark green, and wonderfully healthy, vigorous and productive. It seems to succeed on any soil, and in all parts of the country; it seems to suffer less in a dry time than other sorts; perhaps this is owing to its small foliage. Its fruit-stalks are rather short, and it is necessary to nip off the stem in picking, as the hull is liable to remain behind. Fruit large, roundish, conical, and very uniform in shape and size; color clear, light red, with glossy surface; flesh firm; an excellent shipping berry; quality good, but not best. It continues a long time in bearing, and is of good size when the Wilson is no longer worth picking; its attractive appearance causes it to sell readily in the market. There is no safer variety for beginners. 25 cents per dozen; \$1.25 per 100.

SETH BOYDEN.—This is an old and reliable sort; it succeeds on either light or heavy soil, and is a favorite where best known. The plant is very large and strong, perfectly hardy, and a good bearer; the fruit is of the largest size, roundish, conical, and very uniform in shape and size; color dark red, and inclined to have a white tip unless fully ripe; flesh moderately firm, with a sweet and pleasant flavor. A good variety for the table or a near market. 40 cents per dozen; \$2.00 per 100.

SPRINGDALE.—The companion of the Cumberland Triumph; not as fine a grower or bearer, but of better color and higher flavor; it is always of regular form, and the first berries are of immense size, but they get smaller after the first picking. Pistillate. 40 cents per dozen; \$2 per 100.

CONTINENTAL.—Fruited but once with me. Plant strong, vigorous and productive; somewhat injured last winter; fruit large, roundish, dark red, and of very good quality. 30 cents per dozen; \$1.50 per 100.

BURR'S NEW PINE.—The standard of excellence. It almost disappeared from cultivation, but is now being planted to a considerable extent for home use. Last season I had it in perfection, on rich damp soil, heavily mulched, and all the runners kept off. It produced a great many berries of good quality, but so small that we considered them hardly worth picking. Miner's Prolific, Hervey Davis or Sterling is just as good, and much more satisfactory. Last season it rusted badly. 50 cents per dozen; \$2.50 per 100.

CHARLES DOWNING.—Succeeds on any soil, and in all parts of the country. The plant is so vigorous that it seems to produce more the second and third year than the first, and it always bears well; fruit large, conical, and of regular size and shape; color, bright; flesh, firm; quality, good; one of the best, all things considered. 25 cents per dozen; \$1.25 per 100.

DUCHESS.—One of the very productive varieties, equal in this respect to any with which I am acquainted; the plant is a fine, healthy grower, with strong fruit-stalks; fruit of large size, larger than the Wilson, and much like it; form roundish, never irregular; color, bright red, with no green ends; flesh firm, and of a sprightly agreeable flavor; one of the first to ripen; blossoms perfect; a very profitable market berry. 30 cents per dozen; \$1.50 per 100.

FOREST ROSE.—I expected much from this variety, but was disappointed. Have seen it in great perfection elsewhere, but with me it has never done well. The fruit is all that can be desired when well grown, but it is too uncertain. 25 cents per dozen; \$1.25 per 100.

CINDERELLA.—I have fruited this one season, and am well pleased with it. The plant is a strong, vigorous grower, and an abundant bearer—even when crowded in the bed; although last winter was very hard on plants, this was uninjured; fruit of large size, conical, sometimes cockscombed, and of a bright glossy red; blossoms perfect; quality very good. It resembles the Triomphe de Gand, but is much more productive. 30 cents per dozen; \$1.50 per 100.

WILSON.—Too well known to need description. As usually found in the market, it is of small size and very sour; when well grown and fully ripe it is large, very dark red, and of fair quality; the plant is a moderately good grower, quite hardy, very prolific, and succeeds nearly everywhere; it

diminishes in size after the first picking, and needs the most favorable season to enable it to mature all its fruit. 25 cents per dozen; \$1.25 per 100.

OCEANA CHIEF.—A new variety of great promise from Michigan. I have not fruited it, and have mislaid the description as received from the originator. 40 cents per dozen; \$2 per 100.

BRILLIANT.—This was offered in my catalogue last season as a new variety of great promise; when I saw it in bearing last June I was greatly disappointed in it, and destroyed every plant I had. As my customers will probably do the same, they may order anything on my list to the amount paid for Brilliant.

At the above prices plants will be sent by mail, *post-paid*. They will be sent by express, *at purchaser's expense*, for five cents per dozen and forty cents per hundred less.

ERRATA.

On page 5, 5th line from the bottom, substitute "thawing" in place of "the wing".

On page 11, 2d column, 2d paragraph, and 10th line, substitute "thin" in place of "then".

On page 16, 2d column, 2d paragraph, and 2d line, insert "that we are" between "is" and "likely".

I N D E X .

	PAGE.		PAGE.
To My Customers.....	2	Liquid Manure	15
Strawberry Culture on the Farm	3	Composition of the Strawberry.....	16
Strawberry Culture in Town Gardens.....	6	Potted Plants.....	16
Strawberries with Potatoes.....	8	Testing New Varieties	17
Without Strawberries.....	8	Mammoth Berries.....	17
Strawberry Culture for Market.....	9	Strawberries in Massachusetts.....	17
Strawberry Fertilizer.....	12	Washing Strawberries.....	18
Growing Prize Berries.....	12	Raising Seedlings	18
Irrigating Strawberries.....	12	Water for Strawberries.....	19
Answers to Questions	13	Insects injurious to the Strawberry.....	19
Bone Dust and Ashes for Strawberries....	13	Varieties and Prices.....	21

A GREAT AGRICULTURAL AND FAMILY JOURNAL.

There is a rapidly increasing demand for an enterprising, instructive, live, and reliable agricultural journal, not only from the farmers and their families, but also from those in many other pursuits and professions who have a proper interest in this great underlying interest of our nation. Such a paper is THE OHIO FARMER, of Cleveland, Ohio, proving itself to be. The present editors of this old, established journal seem to fully appreciate the wants in a publication of this kind, and are sparing no expense or pains to fully fill the bill. THE OHIO FARMER is one of the oldest and best established of its kind in America; is a sixteen page, sixty-four column weekly of fifty-two issues a year, containing every week a vast amount of most valuable agricultural news, and recording in plain practical terms all that science and experiments are bringing to light of value in agriculture, stock breeding, horticulture, apiary, and poultry; its great prominent feature being scientific in so purely practical and reliable a manner as to be an invaluable instructor at all times to its readers. THE OHIO FARMER is also a most valuable family paper, and contains each week a "Home and Domestic Department," that interests and instructs the wife and children of the family alike with the husband and father. We can only add that this is lately being acknowledged by all the influential agriculturists of this country as the leading agricultural journal of America, and unboubtedly stands at the head of all similar publications for genuine value to its readers.

Subscription Terms, only \$1.50 a year, payable invariably in advance.

A good active club agent wanted in every neighborhood, to whom liberal premiums or cash commissions are offered. SPECIMEN COPIES SENT FREE TO APPLICANTS. Address

M. J. LAWRENCE,
Ed. and Prop. The Ohio Farmer, Cleveland, O.

TESTIMONIALS.

EXTRACTS FROM LETTERS RECEIVED LAST SEASON.

D. W. H. Taylor, Brodhead, Wis.: "The plants sent me last spring were the finest I ever saw. Every plant lived."

Ege & Rogers, Petersburg, Pa.: "The plants were duly received, and were in excellent condition. We have planted them out, and they are growing off finely."

Franklin Davis & Co., Baltimore, Md.: "The plants came in good order, and were satisfactory. We have been getting some Sharpless plants from New Jersey at \$5 per M., but we believe yours are cheaper at \$10. We like the best."

A. D. Webb, Bowling Green, Ky.: "Yours received in fine order—won't lose a plant."

W. M. Hopkins, Kansas City, Mo.: "Plants came to hand in splendid condition. I am well pleased with them. Do not see how they are so clean and white."

A. B. Coleman, Princeton, Ky.: "The plants are the finest I ever saw, and were packed to perfection. I believe they would have gone to Europe in splendid condition."

Later: "The plants I got of you are doing finely. Out of the 1,000 you sent me, I do not think I lost a dozen plants. Some of them bore immense berries at seven weeks' setting. They were the finest lot of plants ever received in this country."

W. W. Farnsworth, Waterville, O.: "They were as fine plants as I ever saw."

W. C. Steele, LaPorte, Ind.: "The plants received to-day, very fresh and nice. Much obliged for your liberality."

"R. Foster, Hudson, O.: "Capt. Jacks just arrived, youthfully bright, and in number far above bargain. Thanks. I admire your method of packing."

W. S. Tucker, Waco, Texas: "I am happy to tell you that the strawberry plants came to hand all O. K., a few days ago. Never saw prettier plants in my life. Every single one of them is living and growing off beautifully."

Horace Ford, Cleveland, O.: "Received plants to-day in *capital order*. Accept thanks for such fine plants, and the liberal count. I never had better from any source."

B. G. Stabler, Sandy Spring, Md.: "Received the plants last evening. Came in perfect condition. 'Tis a great satisfaction to get all of the kinds ordered, which I seldom do from some dealers. Please accept my sincere thanks for the most liberal and generous count you have given me in the different varieties."

I. R. Crandall, Auburn, Cal.: "Strawberry plants came to hand by P. O. last evening, in fine condition."

C. P. Snowden, College Hill, O.: "Many thanks for these beautiful plants. The only fault I have to find, you have been too generous. They arrived in fine condition, as if they were just ready to burst forth into bloom."

H. Loring, Kankakee, Ill.: "Plants received this morning fresh and vigorous—as fresh as when taken from the earth."

F. D. Hillman, Tecumseh, Mich.: "I received the plants in fine condition as usual."

Geo. S. Lester, Canal Fulton, O.: "The plants came yesterday. They are splendid ones, and arrived in *first class order*."

Chas. Downing, Newburgh, N. Y.: "The strawberry plants were received on Saturday in good condition, for which I am very much obliged."

TESTIMONIALS—*Continued.*

M. B. Bateham, Painesville, O.: "The strawberry plants arrived in good time and condition. Accept thanks."

I. N. Turner, Marion, Ind.: "Those plants came to hand in excellent order. I did not lose one-half dozen plants. The Sharpless were the best plants, and put up the best of any stuff I ever received."

J. W. Fleeman, St. Joseph, Mo.: "The plants you sent came to hand in excellent condition. The plants are very fine."

Robt. C. Breck, Bridgewater, Mass.: "My plants were received in due time and in good order. Much obliged for extra plants."

Chas. A. Green, Clifton, N. Y.: "Strawberry plants came in the finest condition I have ever seen when sent by mail—they appeared as fresh as when just dug."

Wm. Kramer, Florist, Dayton, O.: "I received the plants in good order, and am very much pleased with them. They are the *best* plants that I have ever received upon any order."

A. I. Wright, Lakefield, Ont.: "Beautiful plants, as fresh as daisies."

B. W. Mason, Sweet Water, Ala.: "The strawberry plants came quickly and in good order, and I believe every one of them will live."

J. Gregory, New Cumberland, W. Va.: "Many thanks for your promptness in sending the strawberry plants, also for your liberal count, and the extra "Photos."

D. A. Fisher, Denver, Ind.: "Plants arrived in *splendid* condition—best of any I ever received from a distance. *Splendid* plants too. You will hear from me when needing more."

E. Bradfield, Ada, Mich.: "The plants came all right and in better condition than any I ever received by mail before."

O. A. Loveland, New Haven, O.: "The strawberry plants arrived in good order—splendid plants."

C. M. Merwin, Medina, Tenn.: "The plants were received to-day in excellent condition, and are a fine lot of plants indeed. Thanks for the extras."

J. R. Matthews, Canton, O.: "Strawberry plants received on Saturday. They are very nice. Never saw better ones."

W. K. Gibson, Jackson, Mich.: "Plants received in excellent condition, and perfectly satisfactory."

J. R. McFarland, Stanton, Pa.: "I received the plants on Tuesday in the best condition. I supposed that you would send all packed together in a box, and that the greatest speed and care would have to be taken with them here to get them delivered in a condition that would be likely to give any one satisfaction. You can imagine my surprise when the express agent took me into a cool airy room and showed me the beautiful sight."

Geo. N. Joseph, Pataskala, O.: "Never saw plants come through the mail and be in as good condition as those I received from you. Every plant is living and growing finely."

KANSAS FARMER: "An old friend of the FARMER is quite enthusiastic over the receipt of a quantity of the Sharpless strawberry plants from one of our advertisers, Mr. M. Crawford, Cuyahoga Falls, O. He says they were the finest plants he ever saw, and he is somewhat of a judge of small fruit plants."