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*Horticultural Section—July, 1904.*

# Strawberries at Troupe Station

POSTOFFICE:  
COLLEGE STATION, BRAZOS COUNTY, TEXAS.

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# STRAWBERRIES AT TROUPE STATION.

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BY EDWARD C. GREEN

ASSISTANT HORTICULTURIST

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The establishment of Troupe Station, Smith County, has increased greatly the sphere of influence of the Experiment Stations in that it furnishes an opportunity to assist in the successful development of the many agricultural enterprises newly established in East Texas. This section has had recently a great awakening in horticulture, and development has been more rapid and healthful perhaps than that of any part of the state. The lands of "piney woods" and "red hills" so long despised because they would only produce a half bale of cotton to the acre, are now sought by capitalists from all parts of the country because of their remarkable value for the production of fruits and early vegetables. Lands which could not be rented for \$2.00 per acre to the cotton grower now bring readily \$5.00 per acre rental from the trucker. The development has been not without cost. The pioneers in horticulture met loss and reverses of a most discouraging nature due often to lack of definite knowledge as to which varieties were most suited to the soil and climate. The most profitable standard sorts of other sections of our country proved failures under East Texas conditions, and these failures often produced a general impression that the crop in question could not be grown. Some growers, however, persisted until they met success though often through a series of losses which would have daunted any but the bravest and most enthusiastic lovers of the orchard and garden. Where success in a given crop has been achieved the industry has spread and today there are whole communities which specialize in the production of a few high grade crops.

Troupe Station has taken up the burden of experiments with new and unusual crops as well as testing all varieties of fruits and vegetables, thus doing the pioneer work for all and saving individuals the possible loss of growing untried things. Facts already learned by the truckers of the state from their hard and practical experience are taken as a foundation on which to build, and when discoveries of interest and apparent value are made they are given into the hands of the grower for practical demonstration and final judgment. The Station aims to relieve the individual of costly experimentation with varieties and methods of doubtful virtue and having tried all submit the most promising to the attention of the trucker.

A remarkable condition of affairs exists in East Texas in regard to the common strawberry. Some communities grow and ship this fruit in carloads while others have but a very slight knowledge of the plant or berry. It is safe to say that the strawberry can be grown

anywhere in East Texas with less expense than a crop of tomatoes, while the product usually meets with better sale and proves more profitable to the grower.

The following report deals with the work with strawberries at Troupe Station during the seasons of 1902-3 besides giving some general instruction concerning the crop, methods of culture, fertilization, control of insect and fungus pests, etc., for the benefit of the beginner.

## I. THE VARIETY TEST.

Fifty varieties were set in 1902 by my predecessor, Dr. E. P. Stiles and carried through the drouth of that year with considerable difficulty. Some varieties suffered much from "leaf spot," a fungus disease, but the larger part withstood the unfavorable summer, made a good growth in the fall and reached the spring of 1903 in a satisfactory condition.

**The Soil**—The land consists of sand and fine clay washed from a neighboring hill. It is of a dark gray color and is commonly called "made land," being carried in by the washing of the higher ground. Being of a fertile nature no fertilizer was applied except a light dressing of dissolved bone a few weeks before fruiting. The soil on which the experiment was located drains well, hence, it was not considered necessary to plant on beds.

**Cultivation**—Level culture with five and fourteen-toothed cultivators was given throughout the growing period both of the first and second seasons. Occasional work with the hand hoe was necessary as the strawberry but weakly resists the encroachments of weeds and grass, and while young needs frequent assistance from the gardener in its battle for existence. As a rule straw mulches rather than cultivation are depended on during the spring of the second season but owing to the wet, cold and packed condition of the soil in 1903 it was thought advisable to use the five-tooth cultivator, and from February until the plants were fruiting frequent cultivation was given. This treatment caused some sandy berries and under ordinary circumstances should not be practiced. The straw mulch should be the main dependence for keeping down weeds and retaining moisture.

**Weather**—The frost which occurred the latter part of March destroyed the blossoms of the earliest varieties and caused the loss of several days in ripening. Dry cold weeks in April and May threatened the crop of late varieties, but a seasonable shower brought them through and revived the ones that had already borne their fruit to such an extent that they blossomed again and produced an after crop of considerable magnitude. Another factor which undoubtedly had a bearing on the second crop was the light application of fertilizer already mentioned. This was worked in between the rows in March after which no rain occurred until April 29th. With this rain the fertilizer became available and the plants were pushed into renewed vigor. On May 5th another shower fell and marked improvement in the yield of all plats was noted May 6th.

**The Crop**—From early in April until June, strawberries were abundant at Troupe Station and for six weeks an average of over a crate a day was sold. The variety plats were small, the fifty-one rows requiring only a fifth acre, and many of the varieties yielded practically nothing, still, the collective crop amounted to 981 quarts or at the rate of about 204 twenty-four quart crates per acre.

The following table gives the performance of each variety in connection with which should be considered the percentage of a perfect stand. Where the percentage is poor, i. e., the plants few, it is an indication that the plants in such plats have suffered from leaf spot the preceding summer, although in some cases it is due to the habit of the variety in plant production or its inability to withstand our summer heat.

The table gives also the date of earliest picking and the period of greatest production.

NO.	NAME	PER CENT OF PERFECT STAND	TOTAL QUARTS	RATE OF YIELD PER ACRE QUARTS	Date First Picking April	PERIOD OF GREATEST PRODUCTION
1	Aroma, b . . . . .	100	42	10500	18	Apr. 29 to May 27
2	Barton's Eclipse, p . . . . .	90	49 $\frac{3}{4}$	12437 $\frac{1}{2}$	18	" 25 " 29
3	Bederwood, b . . . . .	50	10 $\frac{1}{4}$	2562	18	" 29 " 16
4	Brandywine, b . . . . .	30	23 $\frac{1}{2}$	5875	20	" 24 " 23
5	Brunette, b . . . . .	20	6	1500	22	May 4 " 20
6	Bubach, p . . . . .	50	12	3000	25	" 6 " 26
7	Carmi, p . . . . .	10	4 $\frac{1}{2}$	1125	25	" 6 " 23
8	Clyde, b . . . . .	75	17 $\frac{1}{4}$	4312 $\frac{1}{2}$	15	Apr. 25 " 22
9	Cobden Queen, p . . . . .	85	25	6250	15	" 20 " 20
10	Crescent, p . . . . .	10	16 $\frac{3}{4}$	4185	15	" 20 " 22
11	Cumberland Triumph, b . . . . .					
12	Darling, b . . . . .	95	32	8000	10	" 15 " 8
13	Du Pre, p . . . . .	100	30 $\frac{3}{4}$	7687 $\frac{1}{2}$	24	May 6 to June 8
14	Earliest, b . . . . .	100	31	7750	12	Apr. 18 to May 22
15	Enormous, p . . . . .					
16	Excelsior, b . . . . .	95	32 $\frac{1}{2}$	8125	10?	Apr. 15 to May 8
17	Glenmary, b . . . . .	75	18	4500	22	May 1 " 23
18	Haverland, p . . . . .	95	34 $\frac{1}{2}$	8625	18	" 1 " 29
19	Hoodriver, b . . . . .	25	7	1750	15	Apr. 29 " 16
20	Howell, b . . . . .	50	14	2500	25	May 1 " 22
21	Imp. Hoffman, b . . . . .					
22	Jerry Rusk, b . . . . .	10	5	1250	29	May 4 to May 20
23	Jessie, b . . . . .	75	11 $\frac{1}{2}$	2875	18	Apr. 27 " 22
24	Johnson Early, b . . . . .	95	15 $\frac{3}{4}$	3930	10	" 15 " 4
25	Klondyke, b . . . . .	10	6	1500	12	" 20 " 4

NO.	NAME	PER CENT OF PERFECT STAND	TOTAL QUARTS	RATE OF YIELD PER ACRE QUARTS	Date First Picking April	PERIOD OF GREATEST PRODUCTION
26	Lady Thompson, b . . . .	100	36	9000	12	Apr. 18 to May 9
27	Mark Johnson, b . . . . .	50	7	1750	22	" 29 " 20
28	Marguerite, b . . . . .	100	32½	8125	15	" 24 " 27
29	McKinley, b . . . . .	50	10	2500	10	" 15 " 1
30	Mexican, b . . . . .	.....	.....	.....	.....	.....
31	Murray's Extra Early, p	70	27	6750	12	Apr. 15 to May 9
32	Neunun, p . . . . .	20	2¼	562½	12	.....
33	Nick Ohmer, b . . . . .	75	18½	4625	18	" 25 " 27
34	New York, b . . . . .	90	12½	3125	12	" 27 " 18
35	Parker Earle, . . . . .	65	17	4250	12	.....
36	Patrick, b . . . . .	100	20	5000	29	May 4 to June 1
37	Phenomenal, b . . . . .	100	24¼	6062½	10	Apr. 15 to May 8
38	Phoenix, b . . . . .	25	5½	1375	20	" 29 " 9
39	Pride of Cumberland, b..	10	6½	1625	25	May 6 " 23
40	Ridgeway, b . . . . .	10	1¾	437½	29	" 8 " 25
41	Ruby, p . . . . .	75	16½	4125	24	May 4 " 29
42	Sample, p . . . . .	95	25½	6390	22	" 1 " 29
43	Seaford, p . . . . .	60	15½	3875	12	Apr. 27 " 22
44	Sen. Dunlap, b . . . . .	95	27½	6875	15	" 25 " 25
45	Sharpless, b . . . . .	95	22	5500	22	May 1 " 27
46	Star, b . . . . .	90	21	5250	18	Apr. 29 to May 22
47	Tenn. Prolific, b . . . . .	95	25	6250	12	" 27 " 29
48	Victor Walker, b . . . . .	5	1½	375	15	" 25 to June 1
49	Warfield, p . . . . .	70	26	6500	22	" 27 to May 27
50	West Lawn, p . . . . .	75	29	7250	12	" 27 " 29
51	Wm. Belt, b . . . . .	35	10	2500	20	May 1 " 22

**Notes on Varieties**—Supt. W. S. Hotchkiss observed the growth of the plants in the new beds during the fall of 1903, and the following notes on habit, vigor and the prevalence of disease are from his records.

In describing the shape, size and color of the fruit some difficulty was experienced owing to the variability of berries in the same variety. To obviate this standards for form and size were established and the berry described in accordance with the average of several individuals of its variety. For the convenience of the reader the standards used are herewith reproduced. For colors a standard was more difficult to fix owing to the unsatisfactory replies of artists in response to the request for examples of red, scarlet and crimson, the terms already established by the American Pomological Society for describing the



*Ovate*



*Conical*



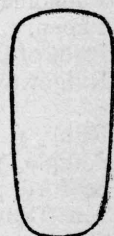
*Oblate*



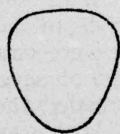
*Compressed*



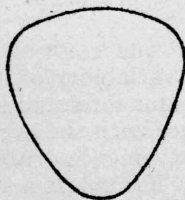
*Long*



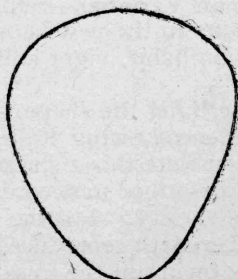
*Oblong*



*Small*



*Medium*



*Large*

strawberry. We herewith insert the definitions of these colors as found in the Century Dictionary:

"Red, of a bright warm color resembling that of blood or of the highest part of the primary rainbow."

"Scarlet, a highly chromatic and brilliant red color inclining toward orange. The color of red iodide of mercury is a typical example."

"Crimson, a highly chromatic red color somewhat inclining toward purple, like that of red wine a year or two old; deep red."

Through the kindness of Lydia Hart Green, Artist for the Science Department, University of Illinois, Special Artist to the U. S. Fish Commission, etc., the Station obtained water color paintings of four strawberries (see frontispiece) of which two varieties the Barton's Eclipse and the Senator Dunlap illustrate respectively the "scarlet" and "crimson" used in the following descriptions.

**Aroma**—Perfect flowered, makes few plants as compared with many varieties, vigorous, resists summer heat well and is not subject to leaf spot disease. Fruit conical in form though slightly irregular, and of a beautiful rich crimson color. Quality very good, a valuable market berry, prolific, not early, flesh firm.

**Barton's Eclipse**—Pistillate. Plants made a vigorous growth and withstood the severe summer heat. Slightly susceptible to leaf spot. Fruit large, firm, long, conical and rich scarlet. Quality poor to fair, a good berry for late market though not yet sufficiently tested to warrant unqualified recommendation. This season it made the best yield of any variety, but had it not been for a timely rain its record would have been less than the field average.

**Bederwood**—Perfect, makes plants rapidly, very susceptible to attack of leaf spot, fruit small, round, conical, scarlet and of very good quality. Not desirable on account of small size and unproductiveness.

**Brandywine**—Perfect, plants strong and vigorous, slightly affected by leaf spot. Fruit large, dark crimson and of very good quality. Good for home or market.

**Brunette**—Perfect, produces few new plants, slightly attacked by leaf spot, fruit medium size, round, conical, dark crimson, firm and of very good quality. Desirable for home use.

**Bubach**—Pistillate. Plants make a vigorous growth and resist drouth and leaf spot very successfully. Fruit is very large, irregular, oblong, conical, crimson and of fair quality. Desirable for fancy market.

**Carmi**—Pistillate. Plants make few runners, resist drouth and leaf spot. Fruit of medium size, long conical, light red and of very poor quality. Undesirable.

**Clyde**—Perfect. Plants strong and practically free from disease, resistant to drouth. Fruit large, irregular, oblong, conical, scarlet, firm and of a good quality.



**Cobden Queen**—Pistillate. Plants make strong growth, resist leaf spot, and endure drouth well. Fruit medium to large size, compressed conical, scarlet, moderately firm and of excellent quality. Yields well.

**Crescent**—Pistillate. Plants make a poor growth though little injured by leaf spot. Fruit small to medium, conical, light scarlet and of good quality. For two seasons the plants have made a poor growth owing to the heat and drouth of summer.

**Darling** — Perfect. Plants strong and make many runners. Slightly attacked by leaf spot. Fruit medium size, round conical, light red and of good quality; a good home berry, too soft to ship well.

**Du Pre**—Pistillate. Plants very strong and vigorous, slightly injured by leaf spot. Fruit very small, round, pink red and of high quality. Undesirable.

**Earliest**—Perfect. Said to be a seedling of Michel's Early. Plants small, vigorous and nearly free from leaf spot. Fruit small to medium, round conical, light red, good quality, flesh soft.

**Enormous**—Variety fruited and found untrue to name.

**Excelsior** — Perfect. Plants vigorous and drouth resistant but seriously injured by leaf spot. Fruit medium in size, conical, bright scarlet and of good quality though sharply acid. An excellent shipping berry of the color most attractive to the purchasers. One of the best for early distant market. Excelsior's heaviest picking was four days earlier but total yield was about ten per cent less than that of Lady Thompson.

**Glen Mary**—Perfect. Growth strong and vigorous, makes few plants, slightly susceptible to leaf spot, fruit large, long conical, crimson, firm, poor to fair quality.

**Haverland**—Pistillate. Makes few plants which are small and practically free from leaf spot. Fruit medium to large, long conical, light crimson and of very good quality, flesh firm although like Lady Thompson its color is against market desires, still, owing to excellent shipping qualities and productiveness, this variety is one of the best for commercial purposes.

**Hood River**—Perfect. Plants vigorous and free from disease. Fruit medium in size, irregular conical, red, soft and of fair quality.

**Howell**—Perfect. Plants strong, healthy and nearly free from leaf spot. Fruit medium size, irregular, bright crimson, quality excellent. Good for home use.

**Jerry Rusk**—Perfect. Plants weak and few, injured by leaf spot and do not withstand heat of summer. Fruit small to medium, irregular, round oblong conical, dark crimson, quality very good. Flesh firm, red, juicy.

**Jessie**—Perfect. Vigorous grower but makes few plants. Trace of leaf spot only at end of season. Fruit small, round conical, bright scarlet and of very good quality.

**Johnson's Early**—Perfect. Plants small but healthy and resistant to leaf spot. Fruit above medium size, ovate conical, bright red and of excellent quality. The berry is too soft to ship well but is one of the best for the home table. Flesh red, juicy.

**Klondyke**—Perfect. Plants very strong and vigorous, resist leaf spot and endure summer satisfactorily. Fruit medium in size, conical to round conical, rich crimson and of very good quality. The berry is firm, rather dry and appears to have all the qualities of a good shipper. This variety is one of the most promising of early market sorts and may replace Lady Thompson to some extent with large growers. Worthy of trial by every commercial grower. The berry is exceptionally sour and may not be relished at the home table.

**Lady Thompson**—Perfect. Plants vigorous, multiply freely and withstand well the summer heat and the attacks of leaf spot. Fruit medium to large, round conical, slightly heavier on one side, pinkish scarlet to light red, quality fair, inclined to be soft, productive. Owing to the light color and a tendency to shrink somewhat in carrying, this variety is not so popular with the purchaser as with the grower. One well known commission man states that the fruit is taken because there is nothing better on the market at the same time. At present the Lady Thompson is the most popular market berry with the majority of East Texas growers.

**Mark Johnson**—Perfect. Plants vigorous, a few badly infected with leaf spot. Fruit medium to large, irregular, ovate conical, light red, quality very good, not prolific. Variety appears mixed.

**Marguerite**—Perfect. Produced few young, strong plants, slight trace of leaf spot. Fruit medium to large, irregular round conical, red, quality fair, flesh pink and firm.

**McKinley**—Perfect. Plants small, healthy and practically free from disease. Fruit medium to large, round to long conical, dark crimson, moderately firm, quality good; a promising market variety and worthy of trial.

**Mexican**—Perfect.—Makes but few plants during the season, slightly injured by leaf spot. Fruit medium to large, round conical, red with pink spot even when ripe, quality good, moderately firm.

**Murray's Extra Early**—Pistillate. Plants small, vigorous and free from disease. Fruit small conical, scarlet, fair quality. Berry with many and large seeds. Undesirable.

**New York**—Perfect. Plants vigorous, badly infected with leaf spot, made few runners. Fruit medium to occasionally very large, oblong conical, red, quality good. Yield was light.

**Nick Ohmer**—Perfect. Vigorous grower, fruit medium to large, compressed conical, crimson, firm and of good quality.

**Parker Earle**—Plants mixed and untrue to name.

**Patrick**—Perfect. Plants free from leaf spot, small and make few runners. Fruit small, ovate to conical, crimson, quality very good. Berry too small for commercial growing, flesh pink, juicy and moderately firm.

**Phenomenal**—Perfect. Plants small but vigorous, numerous and practically free from leaf spot. Fruit small, compressed conical, slightly necked, deep crimson and of good quality. Productive but berry too small for commercial planting.

**Phoenix**—Perfect. Fruit medium size, round conical, light red, fair quality. Plants do not survive summer well.

**Pride of Cumberland**—Perfect. Made few new plants. Free from leaf spot, vigorous. Fruit medium to very large, conical, dark scarlet, firm, quality very good.

**Ridgeway**—Perfect. Plants few and weak. Slightly attacked by leaf spot. Fruit small to medium, oblong, round conical, light red, firm quality, below average.

**Ruby**—Plants small, free from leaf spot, made very few runners. Fruit medium to large, irregular, oblong conical, crimson, quality good. It is probable that this berry is not true to name, as it differs essentially from authoritative descriptions.

**Sample**—Pistillate. Plants few and seriously injured by leaf spot. Fruit large, oblong conical, scarlet. Quality poor to fair, firm and a good shipper.

**Seaford**—Pistillate. Made few young plants which are strong, vigorous and free from leaf spot. Fruit small to medium, compressed conical, crimson, quality very good.

**Sen. Dunlap**—Perfect. Trace of leaf spot. Fruit small to medium, ovate conical, slightly necked, rich dark crimson, quality very good. Flesh pink, firm.

**Sharpless**—Perfect. Old plants healthy, made few young plants. Trace of leaf spot. Fruit medium to large size, conical, light red, quality very good. Flesh firm, rather sour.

**Star**—Perfect. Few new plants, healthy and free from leaf spot. Fruit medium to large, ovate conical, scarlet, quality poor. Berry too soft for shipping.

**Tennessee Prolific**—Perfect. Plants vigorous. Trace of leaf spot. Fruit medium, irregular conical, glossy scarlet, firm, quality good.

**Victor Walker**—Perfect. Plants strong, trace of leaf spot. Fruit of medium size, oblong conical, crimson, quality very good. Calyx

very large and leafy, seeds deeply imbedded in smooth appearing berry. Possibly desirable for kitchen garden.

**Warfield**—Pistillate. Made many new weak plants, trace of leaf spot. Fruit medium size, irregular conical, firm, crimson, quality very good. Does not withstand climate well.

**West Lawn**—Pistillate. Plant vigorous. Fruit small to medium, conical, scarlet, moderately firm, quality very good. Good for home market.

**Wm. Belt**—Perfect. Plants made good growth though badly infected by leaf spot. Fruit large, irregular conical, bright crimson, quality the best. Superior berry for table or fancy home market. Should be in every garden.

Hoffman and Noonan were also tested but made such a poor showing that owing to reports from reliable sources I am led to believe the plants were untrue to name.

## II. THE SHIPPING TEST.

With a view toward obtaining definite information on the relative merits of the varieties for distant market, the crop gathered on May 18th was shipped by express to points in Missouri. The berries were picked early in the morning, boxed and crated as though for home market, no attempt being made to pick with special reference to long shipment. Part was shipped on the fast morning train and the remainder held at the packing shed and sent by the night express. Arrangements had been made with reliable parties at points in Missouri near St. Louis to receive the fruit and report on the condition in which it arrived. Their report is as follows:

J. G. Meissner, Bushberg, Mo. Fruit picked morning of 18th and shipped at 9:30 a. m. Arrived at Bushberg May 19th, at 6:30 p. m.

VARIETY	GENERAL APPEARANCE	PER CENT DECAY	QUALITY
West Lawn....	Dull.....	10	Good
Mexican.....	Bright Glossy..	5	Good, but Green
Brandywine....	" "	5	Good
Glen Mary.....	" "	5	Excellent
Star.....	" "	40	Poor
Barton's Eclipse	" "	20	Fair
Aroma.....	" "	5	Excellent
Haverland.....	" "	5	Good
Patrick.....	" "	5	Fair
Sample.....	" "	5	Good
Du Pre.....	Dull.....	None	Fair
Warfield.....	Bright.....	50	Excellent
Sen. Dunlap....	".....	25	Good

“REMARKS: Mexican, Glen Mary, Haverland and Sample boxes arrived full to the top. In others there was one-half to an inch shrinkage on account of settling.”

R. M. Baker, Peverly, Jefferson County, Mo. Fruit picked morning of May 18th and shipped at 11 p. m. Arrived at Peverly May 20th, at 7:15 a. m.

VARIETY	GENERAL APPEARANCE	PER CENT DECAY	QUALITY
West Lawn.....	Top mouldy....	Small	Fair
Mexican.....	Sound.....	None	....
Glen Mary.....	Few sound....	75	Poor
Star.....	Soft.....	75	Poor
Barton's Eclipse	Good.....	Perfect	Good
Aroma.....	Fairly good....	25	Fair
Haverland.....	Good.....	Perfect	Good
Du Pre.....	Fairly good....	25	Fair

“REMARKS: Top boxes were more mouldy and shrunken than bottom tier. The Barton's Eclipse and Haverland were decidedly the largest and in best condition.”

From the above it appears that Haverland is the best, Aroma, Barton's Eclipse and Mexican are eminently satisfactory and the remainder are undesirable to worthless from a shipping standpoint.

### SUMMARY.

1. For distant market Excelsior and Lady Thompson for early, and Aroma and Haverland for mid-season are the varieties of proven value.
2. For distant market the Klondyke for early offers great promise and is worthy of extensive trial by commercial growers. For late market the Barton's Eclipse is a promising variety, but should be tested further before given extensive trial.
3. For the home table Johnson's Early and Darling for early, Haverland, Aroma and Wm. Belt for medium to late.
4. The results indicate that Haverland is a perfect shipper and that Aroma, Barton's Eclipse and Mexican(?) are satisfactory.

### III. SUGGESTIONS FOR STRAWBERRY CULTURE.

Strawberries do well on nearly every kind of soil and no kitchen garden is complete unless it contains a large planting of this delicious fruit, still when the crop is considered for commercial purposes care should be taken in choosing a location. Land subject to drought,

wet soil, cold or quick sand, very light or very stiff soil should be avoided. Low places totally surrounded by higher land should be avoided on account of probability of spring frost. Chocolate, sandy loam and light clay soils have proven best for strawberries while rolling land with ample air drainage is safest from frost. Bottom land is often satisfactory when not too wet in spring or subject to untimely frost.

Perhaps the best preparation for the strawberry field is to turn under deeply in fall a heavy crop of cow peas. Barn yard manure and wood ashes may be applied any time during the winter and harrowed in. Plow again early in spring and harrow until perfectly mellow. Continue work with the harrow once a week until planting. Early in March the plants should be set about 18 inches apart in  $3\frac{1}{2}$  foot rows.

None but young plants which have never borne a crop should be used in the new field. All dry stems and old leaves should be removed leaving only one to three of the small young leaves about the center. In case the plants are obtained from a distance and are received in a poor condition they should be taken from the bundles and heeled in with roots well spread in long shallow trenches. Sprinkle lightly once a day and in a short time their condition will indicate which will likely endure field planting. Great loss of time in setting worthless plants may be saved in this way.

The success attendant upon obtaining a full stand depends much upon the manner of setting. The strawberry cannot withstand the rough treatment commonly given cabbage, when transplanted. The plants must not be put over a quarter inch deeper than they were in their original situation, otherwise, the terminal buds are liable to be covered with earth and thus injured or killed. Plants set too high suffer when the ground settles, as this leaves their roots and crowns exposed and dried; dead plants quickly result. Another apparently small but essentially important point is care to spread the roots out thinly so that their entire surface may be against the soil which should be opened for them by the use of a spade or a flat dibber.

The cultivation throughout the summer should be shallow and thorough and the rows must be kept free of grass and weeds by means of hand labor. When the runners form it is sometimes necessary to assist them to establish the young plants in their proper places but after sufficient plants have been grown the subsequent runners should be kept down by cutting off with a hoe or a rolling cutter attached to the cultivator.

Late in the fall after all growth has stopped it is desirable to cover the rows with a mulch of clean straw or pine needles. This should be left in place until the middles can be cultivated in February after which the mulch may be raked off the rows to cover the middles and more straw added if necessary to make a blanket deep enough to retain moisture and prevent weed growth.

If the soil is reasonably rich and has been prepared in the manner suggested, no further fertilization is necessary, but failing this it is desirable to work in 500 pounds of acid phosphate and 50 bushels of

ashes per acre between the rows during the February cultivation before the mulch is raked from the rows.

In harvesting the berries should be picked by passing the thumb and forefinger over the berry and snipping off the stem about a half inch from the fruit. Due care must be taken to keep the fruit of an even degree of ripeness, the degree being dependent on whether the fruit is for home or distant market.

It is almost needless to say that harvesting and marketing a large crop requires management and business ability of a high order. As in all new enterprises it will pay the novice not to attempt very extensive operations the first year.

As to expenses and profits, it is variously estimated that the cost of production is from \$35.00 to \$77.00 per acre and basing returns on the prices of the year at Troupe, the average there being \$2.00 per 24-qt. crate f. o. b., one can see that strawberry culture is fairly remunerative. However, it is more safe to consider returns on the basis of \$1.50 per crate f. o. b. your station, as that figure would more often represent the average return of the season.

Of the diseases attacking the strawberry the leaf spot (*Sphaerella fragariae*) is the most serious. It is almost impossible to grow certain varieties on account of this fungus as it attacks both leaves and fruit stalks girdling the latter and causing the spray of young fruit to wither. In setting new beds remove from plants all spotted leaves and dry stems and if convenient spray with Bordeaux mixture once or twice within a few weeks after planting. In renovating old beds the practice of burning over is recommended. This is desirable unless the mulch and old plants are very dry in which case there is likelihood of killing them. Choose a time when soil is damp and leaves and mulch dry enough to burn slowly. When the young leaves push forth supplement the burning by thoroughly spraying with Bordeaux, after which serious difficulty is not probable.