

O K L A H O M A
Agricultural Experiment Station.

BULLETIN No. 15—FEBRUARY 1895.



Department of Horticulture

GARDEN VEGETABLES—1895.

FRANK A. WAUGH.

BOARD OF REGENTS.

HON. WM. C. RENFROW, Governor, Ex-Officio, - - - Guthrie, Okla.
HON. JOHN R. CLARK, President, - - - Stillwater, Okla.
HON. F. CARUTHERS, Treasurer, - - - Oklahoma City, Okla.
HON. H. E. GLAZIER, - - - Orlando, Okla.
HON. J. W. HOWARD, - - - Edmond, Okla.
HON. JOHN D. DEBOIS, - - - Guthrie, Okla.

STATION STAFF.

JAMES C. NEAL, Ph. C.; M. D., Director, - - - Botanist.
ALEX. C. MAGRUDER, M. S. - - - Agriculturist.
GEO. L. HOLTER, B. S., - - - Chemist.
FRANK A. WAUGH, M. S. - - - Horticulturist.

ASSISTANTS.

W. T. WEBSTER, - - - Mechanic.
A. N. CAUDELL, - - - Assistant in Entomology.
B. J. CONLEY, - - - Farm Superintendent.
T. M. UPSHAW, - - - Secretary.

GARDEN VEGETABLES 1894.

BY F. A. WAUGH, Horticulturist.

INTRODUCTORY.

For the most part the experiments reported in the following pages are tests of varieties of garden vegetables. As the proper results of such experiments there are added under the several heads recommendations as to the selection of varieties and notes of prominent varietal characteristics of practical or technical importance. Directions for culture do not belong in this bulletin, and may be found elsewhere.

The conditions of these experiments and the methods of work are practically unchanged from 1893, and may be found described in Bulletin 9 of this Station.

Experiment 14—Peas.

Fifteen varieties of peas were planted in rows April 9th and 10th, each row being given 90 running feet. These peas were picked as fast as they came of size commonly used on the table. The following list shows the varieties grown and the total yield in pounds of pods and peas to each row:

No.	1.	Extra Early Premium Gem.	6.39	lbs.
"	2.	Philadelphia Extra Early.	3.08	"
"	3.	American Wonder.	7.21	"
"	4.	Blue Peter.	7.45	"
"	5.	Little Gem.	10.56	"
"	6.	First and Best.	7.16	"
"	7.	Maud S.	8.82	"
"	8.	Shopshire Hero	19.51	"
"	9.	Irish Marrowfat	11.13	"
"	10.	Tom Thumb.	15.98	"
"	11.	McLean's Little Gem	6.83	"
"	12.	Early Kent.	10.32	"
"	13.	Eugenia.	13.56	"
"	14.	Melting Sugar.	19.03	"
"	15.	Sterling	16.98	"

Notes on Varieties.

No. 1. EXTRA EARLY PREMIUM GEM.—Mixed with a few of ranker growth and later fruiting. Prevailing type 11.6 inches high, medium strong; pods, straight cylindrical, quality very good.

No. 2. PHILADELPHIA EXTRA EARLY.—Plants 15 to 19 in. high, slender with long internodes; peas about 4, large spherical; quality below medium.

No. 3. AMERICAN WONDER.—A very even lot; plants 39 in. high, stout bushy, internodes short; pods 2.3 in. long, well filled, cylindrical; peas 4 to 5, good quality.

This is a standard variety and can usually be relied upon.

No. 4. BLUE PETER.—A dwarf pea, but mixed with a few tall late vines. Plant 5.9 in. high, stout; internodes short; pods 2 in. long, somewhat flattened but large; peas 4 to 5 irregular in shape, medium quality.

A good variety for early planting.

No. 5. LITTLE GEM.—This lot contained several vines of a later kind. True type 13.7 in. high, pods 2.4 in. long, slightly recurved; peas 4 to 6, medium size, good quality.

No. 6. FIRST AND BEST.—This lot contained a few plants of a later variety. Prevailing type 13.7 in. high, vines slender; pods 1.7 in. long, irregular; peas 3, smooth and spherical, poor quality.

This is usually a hardy and prolific variety. The same thing is sold under many different names by different seedsmen.

No. 7. MAUD S.—Plants 17.7 in. high, rather slender; pods irregular; peas 3 to 5, inferior quality.

Very similar to No. 6 in general appearance, there being practically no difference between the varieties.

No. 8. SHROPSHIRE HERO. Plants 23.6 in. high, pods 3.5 in. long; peas 7.

This variety does not seem to be well suited to general planting in the home garden.

No. 9. IRISH MARROWFAT.—Plants 29.5 in. high, large, strong. This variety, also, seems to be better adapted to field culture than to garden.

No. 10. TOM THUMB.—Plants 4.7 in. high, stout, internodes very short; pods 2.2 in. long, cylindrical, well filled; peas 5 to 6, spherical, fair quality.

One of the best early varieties.

No. 11. MCLEAN'S LITTLE GEM.—Plants 9.8 to 13.7 in. high, medium strong; pods 2.2 in. long, irregular; peas 2 to 3, large spherical flattened, fair quality.

Not usually a heavy cropper, but of good quality and desirable.

No. 12. EARLY KENT. Plants 13.7 in. high, slender; pods 1.7 in. long, irregular; peas 2 to 3 spherical, quality below medium.

This variety also is put out under a great many different names. It is very good for the general crop.

No. 13. EUGENE.—Plants 23.6 in. high, vigorous, bushy; pods 3.1 in. long; quality fair.

No. 14. MELTING SUGAR.—Plants 37.4 in. high, but little branched, vigorous but tender, internodes long; leaflets 4 to 6, color medium, size medium, texture fine, from broadly oval to slender ovate, obtuse, mostly entire, and occasional shallow indentation toward the apex; stipules very large, irregularly oval, unevenly dentate near base; tendrils long; pods borne on twelfth or thirteenth node, 10 cm 3.9 in. long and very broad 2.5 cm-.9 in., flattened and recurved, tender; peas 7 to 8, medium size, very fine quality.

No. 15. STERLING.—Plants 23.6 in. high, very leafy large and tender. A medium quality variety for the later crop.

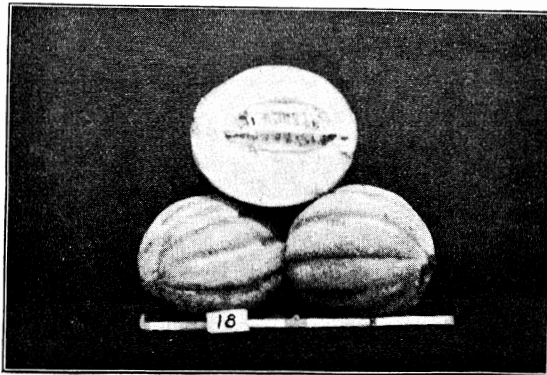
Experiment 20—Musk Melons.

Twenty-six varieties of musk melons were grown in rows four and one-half feet apart, each variety having 270 feet of row. The following is the

list of varieties with the number of ripe fruits picked from each, the total weights, and the average weight of single melons in each lot:

No.		No. Melons.	Total Wt.	Average Wt.
1.	Baltimore.....	171	255.34 lbs.	1.58 lbs.
2.	Bay View.....	167	292.71 "	1.75 "
3.	Beck's Columbus.....	109	208.72 "	1.92 "
4.	Bird Cantelope.....	139	255.95 "	1.84 "
5.	Burpee's Melrose.....	54	67.23 "	1.2 "
6.	Cassaba.....	131	229.49 "	1.75 "
7.	Champion Market.....	109	142.3 "	1.3 "
8.	Chicago Market.....	196	223.76 "	1.14 "
9.	Delmonico.....	148	312.39 "	2.11 "
10.	Emerald Gem.....	192	149.39 "	.75 "
11.	Extra Early Hackensack.....	63	127.64 "	2.2 "
12.	Extra Early Nutmeg.....	199	255.72 "	1.28 "
13.	Irondequoit.....	100	225.31 "	2.25 "
14.	Improved Cantelope.....	212	276.11 "	1.34 "
15.	Jenny Lind.....	147	129.93 "	.88 "
16.	Jenny Lind, H&S.....	181	187.13 "	1.3 "
17.	Large Yellow Cantelope.....	109	213.18 "	1.95 "
18.	Miller's Cream.....	111	181.88 "	1.63 "
19.	Montreal Market.....	123	273.3 "	2.21 "
20.	Perfection.....	51	115.52 "	2.26 "
21.	Shumway's Giant.....	112	303.68 "	2.7 "
22.	Superior.....	108	121.3 "	1.12 "
23.	Princess.....	116	210.57 "	1.81 "
24.	The Osage.....	56	122.74 "	2.19 "
25.	The Banquet.....	207	221.83 "	1.07 "
26.	New Triumph.....	16	56.97 "	3.56 "

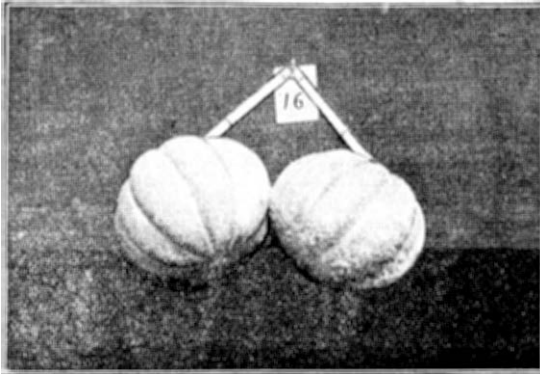
In consequence of the fact that the Department was unable to employ



MUSK MELON—DELMONICO.

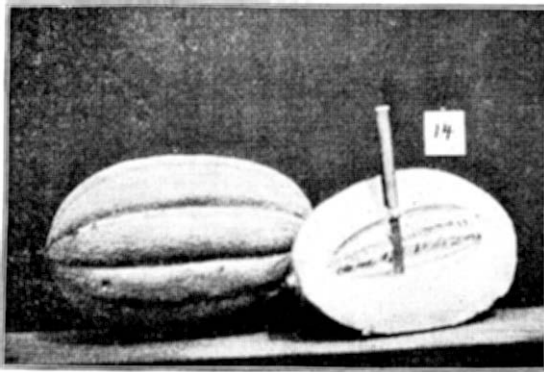
anyone qualified to make observations of any value as to the general or special character of varieties or to record points of merit or demerit, we are

unable here to add anything, except in a general way, to the evidence given in the foregoing table. The table shows that, in general, the varieties bearing small melons were more prolific as regards numbers than the



MUSK MELON—IMPORTED CANTELOPE.

large fruited varieties. It is also to be remarked, as a matter of importance, that with very few exceptions, the small fruited melons are much the best in quality and are further desirable for their early ripening. Extra



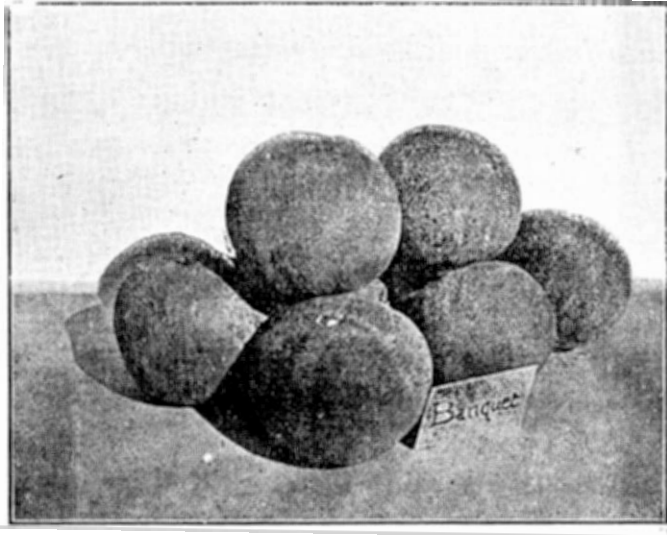
MUSK MELON—CASSABA.

Early Nutmeg, Jenny Lind and Banquet have shown marked superiority in these qualities. Extra Early Hackensack, Chicago Market, Irondequoit,

Perfection, Superior, Montreal Market, and Princess are of larger size, and have shown some desirable characters, but as a class, do not yield heavily, as may be seen by the record above.

The varieties Cassaba, Delmonico, Improved Cantelope, and Banquet are shown in the accompanying illustrations made from photographs of specimens grown in our experiments.

A second planting of musk melons was made later than the one here reported; and the developments with it were for the most part in harmony



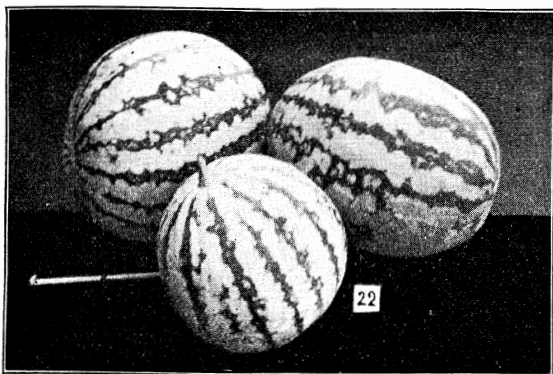
MUSK MELON—BANQUET.

with those of the earlier planting; but the entire growth was arrested in the middle of the season by severe drought, so that it is not thought worth while to report the incomplete notes.

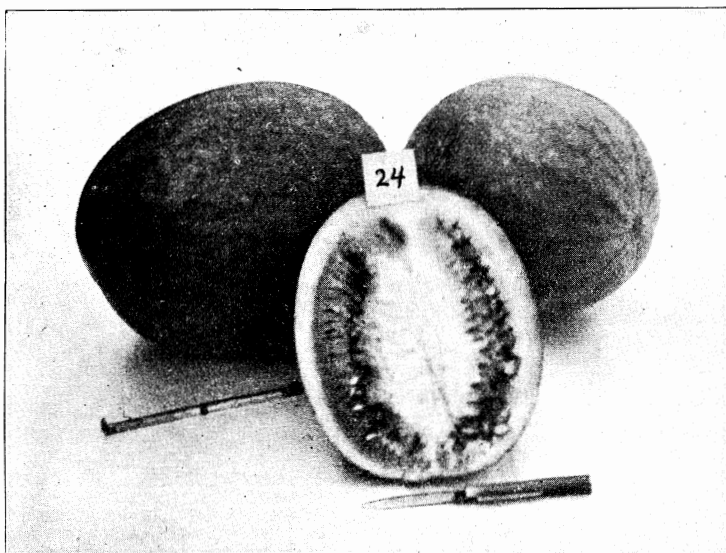
Experiment 21—Water Melons.

Twenty-five varieties of water melons were planted and handled in all respects as the musk melon. It should be said that the thin (unmanured) upland soil on which these experiments have been made, although quite satisfactory in a comparison of musk melons, is not at all adapted to the

growth of water melons, insomuch, it is believed, as to affect to some degree the value of the results for comparison.



WATER MELON—CUBAN QUEEN.



WATER MELON—GREEN AND GOLD.

The disease mentioned in a subsequent paragraph (Experiment '58) was prevalent in all plats of this experiment; but, although it has been found to affect different varieties in different degrees, a reliable estimate of its varying influence in this experiment was found impossible. Perhaps it is just as well to disregard the influence of this disease after all; or at any rate not to attempt any correction of numerical results on its account, since, if different varieties are affected differently, this varying susceptibility to the disease constitutes a varietal characteristic which has no more right to be separated from the others than productiveness itself.

Below is given a list of the varieties grown with a record of the number of ripe melons gathered, the total weight and the average weight in each case.

Picking Record—Water Melons.

No.		No. Melons.	Total Wt.	Average Wt.
1.	Black Spanish.....	142	579.39 lbs.	2.76 lbs.
2.	Boss.....	54	160.16	2.96
3.	Cuban Queen.....	73	399.47	5.47
4.	Delaware.....	120	475.80	3.96
5.	Extra Early.....	120	481.59	4.01
6.	Fordhook.....	117	411.16	3.51
7.	Florida's Favorite.....	121	347.22	2.86
8.	Girardeau's Favorite.....	123	398.26	3.22
9.	Green and Gold.....	82	422.84	5.15
10.	Golden Honey.....	100	441.58	4.41
11.	Hoosier King.....	111	444.01	4.00
12.	Ice Cream.....	101	410.72	4.06
13.	Ironclad.....	57	300.71	5.24
14.	Jones' Jumbo.....	87	385.58	4.31
15.	Kolb's Gem.....	93	489.97	5.26
16.	Kentucky Wonder.....	79	468.15	3.13
17.	Mountain Sprout.....	105	367.62	3.50
18.	Mountain Sweet.....	68	339.00	4.48
19.	Pride of Georgia.....	66	376.10	5.60
20.	Rattlesnake or Gipsy.....	74	368.28	4.70
21.	Rockyford.....	77	331.79	4.31
22.	Scaly Bark.....	56	320.77	5.72
23.	Seminole.....	77	375.88	4.88
24.	The Dixie.....	78	369.27	4.73
25.	Vick's Extra Early.....	83	365.66	4.409

The Department does not feel justified in making any recommendations on the strength of this year's experiments.

Experiment 22—Cucumbers.

The cucumbers, to the number of 34 varieties, were planted and cared for in the manner explained under musk melons; and the same remarks

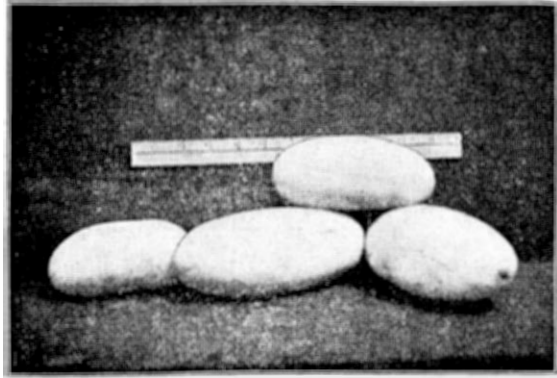
made under that head apply equally to this experiment. A second planting of cucumbers was made; but the crop was much interfered with by drought; and it is thought not worth while to report anything but the early planting.

The growth of the crop was influenced more or less by the insects common to cucumber vines, namely the *Diabrotica* spp. and *Anasa tristis*. These are mentioned more at length in a separate paragraph.—Experiment 56.

In picking the plan was to take off all fruits as soon as they reached ordinary picking size, and it is the record of such pickings which is presented in the following table.

Picking Record—Cucumbers.

No. 1.	Arlington White Spine.....	13
2.	Bennet's White Spine.....	11
3.	Borowskische.....	140
4.	Burpee's White Wonder.....	26
5.	Chicago Giant.....	1
6.	Cool and Crisp.....	5
7.	Early Cluster.....	10
8.	Early Netted Russian.....	123
9.	Early Green Cluster.....	104
10.	Evergreen White Spine.....	223
11.	Extra Long White Spine.....	2
12.	Extra Early Green Prolific.....	32
13.	Early Frame.....	48
14.	Giant Pera.....	95
15.	Giant White.....	1
16.	Green Prolific.....	101
17.	Hill's Forcing.....	13
18.	Improved White Spine.....	19
19.	Improved Long Green.....	181
20.	Japanese Climbing.....	8
21.	Landreth's First Early.....	7
22.	Livingston's Evergreen.....	212
23.	Long White Snake.....	13
24.	New Everbearing.....	150
25.	New Siberian.....	81
26.	Nichol's Medium Green.....	59
27.	Parisian Prolific.....	89
28.	Peerless White Spine.....	9
29.	Serpent, or Snake.....	247
30.	Small West India Gherkin.....	Failure.
31.	Tailby's Hybrid.....	46
32.	Thorber's Commercial.....	42
33.	Westerfield Chicago Pickle.....	188
34.	White Wonder.....	117



CUCUMBER—BURPEE'S WHITE WONDER.

Experiment 25—Lettuce.

Early plantings of lettuce in open ground have always done well at the Oklahoma Experiment Station. For convenience lettuce is planted in rows between which the five-tooth cultivator is run as in other garden crops; and this method, though not economical of space, produced fine large heads of superior quality. Below is given a list of the varieties grown in 1894 with a description of each.

Variety Notes.

No. 1. **GOLDEN STONEHEAD.** Plants small, medium light green; leaves small, much rounded, with entire margin, nearly smooth; midnerve broad, prominent, excurrent.

No. 2. **DENVER MARKET.** Plants medium size; medium green; rather long and stiff, wrinkled; margin irregular; dentate; nerves small, inclined to be radiating from upper third of leaf blade; midnerve broad, straight, strong, excurrent, with infrequent soft spines on back.

No. 3. **SALAMANDER.** Plants large, spreading; rather dark green; leaves medium large, rounded with smooth margin, only very slightly wrinkled, nerves small, usually given off at right angles; midnerve, small, slender, excurrent.

No. 4. **GRAND RAPIDS FORCING.** Plants large, light green; leaves large, much wrinkled, broad below, margin finely cut dentate; nerves prominent, irregular, anastomosing prominently and irregularly; midnerve broad, nearly excurrent, sparsely soft spinose along the back.

No. 5. **BLACK SEEDED TENNIS BALL.** Plants fair size, medium light green; leaves much rounded, a little wrinkled, finely and sparsely dentate, especially below; nerves fine, branching at right angles; midnerve small, straight and excurrent.

No. 6. **GRAY OR YELLOW SEEDED BUTTER.** Plants small, medium green; leaves small, rounded, tapering below, a very little wrinkled, with finely and irregularly toothed margin; veins rather prominent, leaving midnerve regularly at right angles, but generally soon confluent or irregularly anastomosing; midnerve strong, excurrent.

No. 7. **CHARTIER PINK.** Plants medium size to large, medium light green shaded and mottled with dark purple toward the leaf margins; leaves medium large, broad, wide below, considerably wrinkled, margins dentate; nerves strong and radiating; midnerve fairly large.

No. 8. **IMPROVED HANSON.** Plants large, strong, upright, medium light green; leaves large, long, broad spatulate, more or less wrinkled, with irregular dentate margin; nerves fine, very regularly, disposed at right angles to midnerve; midnerve very strong quite to apex of leaf and strongly set with soft spines at the back.

No. 9. **BUTTER CUP.** Plants medium size, medium green; leaves rounded, broad, entire, not wrinkled, nerves not prominent, set at right angles to strong but tapering midnerve.

No. 10. **THE DEACON.** Plants large, upright, medium light green; leaves long, cuneate downward, entire; nerves small, with regular set weak spines at back.

No. 11. **FERRY'S PRIZE HEAD.** Plants large, medium green, strongly marked with dark purple; leaves medium size, broad, rounded margin curled and toothed; veins irregularly radiating, rather prominent; midnerve not large, with a few weak spines at the back and numerous irregularly disposed small glands or warts.

No. 12. **HENDERSON'S NEW YORK.** Plants large, vigorous, medium dark green; leaves very large and broad, a little wrinkled; margin somewhat dentate and curled; nerves branching but not distinctly radiating from any single point, rather strong; midnerve large, strong, excurrent.

No. 13. **STUBBORNHEAD.** Plants large and vigorous, medium green; leaves large, very broad especially downward, a little wrinkled; margin entire; nerves rather strong, regularly set at right angles to strong, excurrent midnerve, which has a few weak spines at the back.

No. 14. **WHITE SEEDED TENNIS BALL.** Plants small and unthrifty, medium light green; leaves comparatively large, broad and irregular, wrinkled, nearly entire; veins irregular, branching; midnerve medium large, tapering, set with a few soft spines.

No. 15. **BOSTON CURLED.** Plants large and very coarse, medium green; leaves large and very coarse, a little wrinkled; the edges curled; margins sharply dentate; nerves regularly set and parallel, small; midnerve strong and prominent, excurrent, with uncommonly strong spines at the back.

No. 16. **TILTON'S WHITE STAR.** Plants large, light green; leaves large, very broad above, tapering very abruptly, coarsely wrinkled; margin a little curled and sparsely denticulate; nerves large, radiating, strongly irregular; midnerve very broad below but barely excurrent, nearly smooth at the back.

No. 17. **BROWN DUTCH.** Plants small to medium, upright, dark green shaded with brownish purple; leaves medium large, rounded above, straight, tapering below, nearly smooth; margin flat and coarsely denticulate; nerves small, given off regularly at right angles to strong, straight, excurrent midnerve.

No. 18. **CHICAGO FORCING.** Plants small and scattering, soon running to seed; light green; leaves small coarse and stiff, somewhat wrinkled; margin coarsely curled and toothed; nerves small and radiating, anastomosing and becoming strongly netted; midnerve not prominent, barely excurrent, with rather strong spines at back.

No. 19. **BLONDE BEAUTY.** Plants large, light green; leaves large, broad and rounded above, narrow below, a little wrinkled; margin moderately curled and denticulate; nerves prominent, radiating; midnerve rather strong, excurrent, usually strongly bent toward the axis of the plant, smooth at the back.

No. 20. **TOMHANNOCK.** Plants medium size, medium dark green, strongly tinted with purple; leaves large, broad and rounded above, wide below, moderately wrinkled, margin curled and very finely toothed; nerves moderately prominent, radiating, seldom uniting; midnerve medium strong, barely excurrent, smooth at back.

No. 21. **RANDOLPH'S FAVORITE.** But one small light green plant grew in the plot.

No. 22. **PARIS WHITE COS.** Plants large, coarse, upright, medium dark green; leaves large, coarse and strong, nearly smooth, coarsely denticulate; nerves rather prominent, nearly parallel; midnerve large, coarse, excurrent smooth at back.

No. 23. **BLACK SEEDED SIMPSON.** Plants large, thrifty, light green; leaves large, very broad, a little wrinkled; margin curled and finely denticulate; nerves large, irregularly radiating, occasionally anastomosing; midnerve medium large, with a few soft spines at back.

No. 24. **OAK LEAVED.** A very poor stand. Plants very small, medium green; leaves having the characteristic resemblance to oak leaves.

No. 25. **SILVER BALL.** Plants large, coarse, medium light green; leaves large, strongly rounded, tapering below, smooth; margin with coarse denticulations; nerves small, nearly parallel and at right angles to midnerve; midnerve small, straight, excurrent.

No. 26. **MARBLEHEAD MAMMOTH CABBAGE.** Plants large and thrifty, medium green with an occasional tinge of red in the margin of the leaves; leaves large, rounded, broad below, a little wrinkled; nerves medium strong, between parallel and radiate branching, sometimes anastomosing; midnerve strong, straight, excurrent, with several soft spines at the back.

No. 27. **GOLDEN CURLED.** Plants medium large, strong, light green, with a distinct tinge of light yellow on the new leaves; leaves large, rounded, broad below, only a little wrinkled; margin evenly curled and denticulate; nerves irregular, radiating, branching; midnerve medium strong, excurrent, nearly smooth.

No. 28. **LANDRETH'S HEAT RESISTING COS.** Plants rather small, upright, dark green; smooth; margin shallow scalloped and irregularly denticulate; nerves fine close together, parallel and at right angles to midnerve; midnerve prominent, strong, excurrent.

No. 29. **LANDERTH'S EARLY CUTTING.** Plants medium large, light green with a tinge of yellow; leaves medium large, broad and rounded above, broad below, somewhat wrinkled; margins a little curled, evenly denticulate; nerves irregular radiate branching, medium strength, excurrent, nearly smooth.

No. 30. **EARLY CURLED SILESIA.** Plants medium large and strong, dark green; leaves large, narrow, a little coarsely wrinkled; margin irregular, irregularly curled and denticulate; nerves medium prominent, parallel, divergent at right angles from strong excurrent midnerve; midnerve has several strong spines at back.

After two year's trial here we feel satisfied in recommending the following varieties of lettuce: Denver Market, Hanson and Henderson's New York. Others are good, but these are most satisfactory. The fol-

lowing varieties have proved unsatisfactory: Salamander, Chartier Pink, Buttercup, Brown Dutch, Oakleaved.

Experiment 26—Potatoes.

In this experiment 2.64 pounds seed of each variety was planted in rows April 7. The entire plat was cultivated with five-tooth cultivator and hoe throughout the season. Below we give a table showing the date of ripening, the total crop in pounds, the weight of marketable tubers after sorting, the percentage of marketable tubers, and the weight of the ten best tubers of each variety. It will be interesting to compare the record of each variety with the subjoined average of all varieties.

General Record—Potatoes.

	Ripe	Total Crop.	Market-able.	Per cent. Mktble.	Weight of 10 best.
Early Rose.....	6-30	41.7	32.8	78.8	3.97
Early Market.....	6-26	34.1	29.7	87.1	2.86
Early Six Weeks.....		44.1	41.3	93.8	4.41
Early Ohio.....	6-20	45.3	41.3	91.2	3.31
Rural New Yorker.....	7-12	19.4	17.0	87.5	4.19
New Queen.....	6-28	47.5	38.3	82.3	3.31
Ohio Junior.....	6-28	47.5	41.0	89.6	4.63
Beauty of Hebron.....	7-12	11.0	9.2	85.0	2.43
Peachblow.....	8-9				
Vaughan.....	6-30	37.6	31.7	84.5	2.87
Albinos.....	6-26	32.5	23.7	72.9	2.20
Average.....		35.7	30.6	85.6	3.41

Experiment 27—Tomatoes.

Fourteen varieties of Tomatoes as listed in the table' below were planted in rows six feet apart with plants four feet apart in the rows, ten plants of each variety being used. In the following table are shown: 1, the date of first picking; 2, the number of fruits picked; 3, the total weight of the crop in pounds; and 4, the average weight of individual tomatoes in ounces.

Picking Record—Tomatoes.

	First Ripe.	No. Fruits.	Total Wt. lbs	Average Wt. oz.
Atlantic Prize.....	7-23	103	11.94	1.8
Livingston's Favorite.....	7-23	61	8.3004	1.6
Dwarf Champion.....	7-28	76	9.1381	1.9
Long Keeper.....	7-30	86	9.083	1.7
Dwarf Aristocrat.....	7-28	79	8.016	1.6
Golden Trophy.....	8-3	122	8.8736	1.2
Pear-shaped Yellow.....	7-23		10.6262	
Livingston's perfection.....	8-3	131	10.381	1.3
Ten Ton Tomato.....	7-23	135	12.3017	1.5
Acme.....	8-4	119	10.0751	1.3
Matchless.....	8-3	82	8.1681	1.6
Optimus.....	8-9	125	9.7774	1.2
Ignotum.....	8-6	87	9.4468	1.7
Perfection.....	7-28	53	4.4092	1.3

Nearly all varieties listed are of superior merit. Dwarf Champion

and Dwarf Aristocrat are desirable, while among the larger sorts Favorite, Perfection, Matchless, Optimus and Ignotum are especially good.

Training Test.

Another experiment was also made with tomatoes of each of the following ten varieties. Twenty vines were set aside. Ten of each variety were grown in the usual way, while the remaining ten were trimmed to single stems and trained to stakes. This was done to ascertain the truth of the statement often made that vines so pruned and trained will produce the bulk of their crop earlier. The results were as follows:

Tomatoes—Training Test.

DATE OF FIRST RIPE.			TOTAL YIELD.	
Trained.	Untrained.		Trained.	Untrained.
7-17	7-11	..... Atlantic Prize.....	7.793	4.387
7-30	7-11	..... Long Keeper.....	7.209	9.931
7-18	8-1	..... Golden Trophy.....	6.095	8.278
7-14	8-1	..... Livingston's Perfection.....	5.534	9.49
7-30	8-10	..... Optimus.....	3.78	9.568
7-30	8-1	..... Livingston's Favorite.....	2.877	11.1
9-5	8-17	..... Turner's Hybrid.....	.659	4.64
8-1	7-23	..... Pear Shaped Yellow.....	7.517	12.974
8-1	8-10	..... Acme.....	4.012	7.165
7-28	7-28	..... Paragon.....	2.16	11.552

It will be seen from this that the results are not emphatic. When an average is made of the ripening dates it will be found that there was in this case absolutely no difference as to time of ripening, and that the total yield was considerably against the method of pruning and training.

Experiment 54—Miscellaneous Vegetables.

ONIONS.

The seed of ten varieties of onions were sown in drills, each variety having 90 feet of row. The following table shows in pounds the amount gathered:

	Gross Wt.	Culls.	Per Ct. Mktble.
Prizetaker.....	8.37	3.85	.53
Yellow Globe Danvers.....	3.14	2.42	.22
Mammoth Silver King.....	1.15	1.1	.5
Bermuda Island Red.....	.66	0.00	1.00
Giant Della Rocca.....	1.43	.99	.61
Bermuda Island White.....	1.04	.93	.11
Bermuda Red.....	6.17	4.46	.27
Prizetaker, U. S. Dep. Ag.....	4.74	2.63	.46
Bloomsdale Extra Early Pearl.....	.551	0.00	1.00
Bloomsdale Extra Early Golden Seal.....	.33	0.00	1.00

It will be seen that Prizetaker makes the best record. The same variety was planted in several other lists and ranked first in all. As grown here it is a fine appearing yellow onion, nearly globular and about 2 inches in diameter.

OKRA, OR GUMBO.

The following list shows the varieties of Okra planted and the number of edible pods cut from thirty feet of row of each:

Dwarf.....	868
Tall.....	719
White Velvet.....	797
Dwarf Green, Seed from Germany.....	710

Though the Dwarf is the most prolific the White Velvet is much superior for cooking, and would be preferred in all cases for this country.

This is a vegetable of which people, especially those reared at the north, do not seem to know the good qualities. It makes a fine addition to the bill of fare and the fact that it seems to be quite undisturbed by the dryest weather is no small recommendation.

SALSIFY, OR VEGETABLE OYSTER.

Though no special experiment was made with this vegetable, it was grown on the ground again this year with the usual good success. This is one of the finest garden vegetables grown, is exceedingly easy to prepare and no harder to grow than potatoes. It is too bad that it is not oftener grown.

Experiment 56—Insecticides.

BY A. N. CAUDELL.

The following is a short synopsis of experiments made on the squash bug *Anasa tristis*, during the season of 1893 and 1894 under the supervision of the Department of Horticulture.

The experiments of 1893 were mostly with odoriferous substances. The hope was to get a substance the scent of which would be so obnoxious to the insects as to drive them away, but this proved to be a difficult matter. There were four of these odorous solutions made by dissolving 50 grams sugar in water with three eggs well beaten, and adding respectively the oils of Tansy, Cageput, Savin and Eucalyptus, after which each was diluted to three gallons.

Another remedy experimented with was kerosene emulsion, to which was added five grams of Pyrethrum powder to each gallon of emulsion. The emulsion was diluted to three times its bulk with water.

The application of these remedies was commenced the first of June, 1893, and continued till the latter part of July. The spraying was done with a knap-sack sprayer.

At the first spraying the plants, squashes, cucumbers and melons, were

in the second leaf. The remedies were always applied after 4 o'clock p. m. so as to avoid the scorching rays of the sun. At the end of July all the plants were dead. In the latter part of August the bugs attacked plants in another part of the field, and these were immediately sprayed. In a week's time, however, the plants were all dead.

As to the effectiveness of these remedies but one thing can be said, and that is that they were complete failures. The kerosene emulsion when first applied seemed to kill a great number of bugs, especially young ones, but the apparently dead bugs soon commenced to kick, and before long would begin feeding with renewed vigor. Some few very young bugs were killed outright but to kill any of the older ones the emulsion had to be so strong as to seriously injure the plants. The eggs were unhurt by any of these remedies. These results are conclusive, as there were plenty of plants on which to experiment and the spraying was done thoroughly, three times a week.

In July, 1894, I commenced some experiments on this insect with lime and Pyrethum powder. Plants were thoroughly dusted with these substances and the experiments proved them to be wholly worthless as squash bug exterminators. I also made several attempts at trapping the pests with various appliances. An adhesive substance was prepared by melting together one pound of resin and one quart of castor oil. This scheme captured a few harmless moths but no bugs of any consequence.

A satisfactory remedy for the squash bug, so far as we are concerned, is yet to be found.

Experiment 58—Treatment of Melon Diseases.

Both in 1893 and 1894 a disease of fungous origin appeared in considerable amount on the water melons, and in a less degree on the musk melons. The disease is probably the same referred by Sturgis* to a fungus called *Colletotrichum lagenarium* (Pass.) Ell. & Halls., and by Brunk† referred to *Gleosporium lindemuthianum*, Sacc. & Magnus, under which name it is also referred to by the U. S. Department of Agriculture‡. Halstead makes mention of the same fungus§ as causing an anthracnose of beans, and suggests soaking seed in fungicidal solutions. He gives the

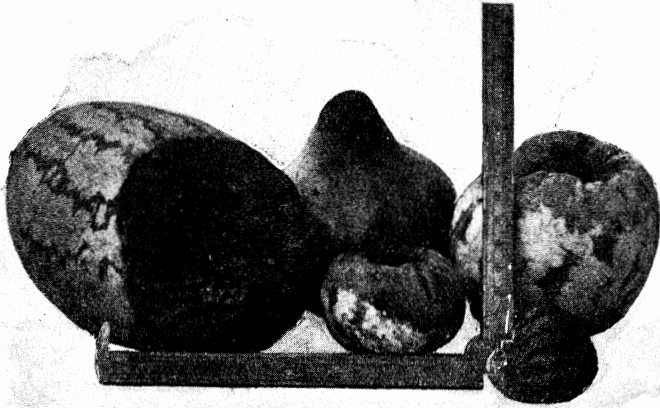
*17th An. Rep. Conn. Exp. Sta. p. 272, 1893.

†4th An. Rep. Md. Exp. Sta. p. 387, 1891.

‡Bull. 8, Div. Botany, U. S. Dep. Agr. 1889.

§An. Rep. N. J. Exp. Sta. for 1891, p. 284.

name *Colletotrichum lindemuthianum*, Sacc., to the fungus. Good success by field spraying is reported by Brunk* who says: "The disease can



ANTHRACNOSE OF WATER MELON.

easily be prevented by timely application of the reduced Bordeaux mixture." In this his results are quite different from ours, as will appear below.

The pathological characters of this disease as it appears here on the young fruits have already been described by this Department† as follows:

This rot attacks the young fruits, spreading usually from the blossom end, but sometimes from the side. The affected spot becomes darker in color and finally black and shrivelled. Often the whole fruit is destroyed; and it very rarely matures. Very often, also, the young melons are found, immediately after fertilization, blackened and blasted, apparently destroyed by the same agency as affects the larger fruits. Sometimes a part of the blackened surface of a melon shows a somewhat granular appearance and a darker color, due to the fruiting spores of one of the fungi associated with the rot. Different varieties of melons were affected in greatly different degrees by this disease.

The accompany cut will give a very fair idea of the general appearance of the diseased fruits.

In 1893 some experiments were attempted for the suppression of this disease† but without results. During 1894 carefully planned experiments were carried out to ascertain the practicability of combatting it in the field.

The first plan undertaken for mitigating the damage was to soak the

*loc. cit.

†Bull. 9, Okla. Exp. Sta. p. 16, 1893.

seeds in fungicidal solutions before planting. Owing to an accident only part of the results can be given. The following figures show the percentage of fruits in each lot affected with the disease:

Seed untreated.....	51.2 per cent.
Seed treated with Copper Carbonate Solution.....	61.1 "
Seed treated with Bordeaux Mixture.....	61.4 "

The second plan was to spray the plants with Bordeaux Mixture in the same manner followed for other diseases of plants. With large plats and careful treatment the following averages of fruits affected were obtained:

Plants treated once a week from germination.....	43.0 per cent.
Plants treated once a week after August 15th.....	58.4 "
Plants untreated.....	44.2 "
Plants treated irregularly through the fruiting season.....	43.3 "

It will be seen at once that these results are entirely negative. Future experiments may be more successful; but up to date this disease does not seem to come under the control of the ordinary fungicides.

Experiment 59—Mulching Potatoes.

One of the most interesting experiments on the grounds was a test of the value of mulching on potatoes. Five varieties were planted. Two and one-half pounds of seed of each variety was used in each plat, and given seventy-two feet of row. The two plats were side by side. One was mulched soon after the potatoes came up. The other was cultivated about like corn. The following table shows the result:

VARIETY.	Total Crop.		Marketable Crop.		Percentage Marketable.		to Best weigh.	
	Mulch	Cult.	Mulch	Cult.	Mulch	Cult.	Mulch	Cult.
Ohio Junior.....	59.5	36.8	54.7	32.4	91.9	88.0	4.6	5.3
New Queen.....	46.7	21.7	38.9	16.6	83.3	77.6	4.2	2.2
Vaughan.....	40.0	33.7	33.8	22.9	84.6	66.0	4.0	2.2
Early Ohio.....	45.4	30.1	41.0	24.5	90.4	81.3	4.0	2.7
Beauty of Hebron.....	38.3	9.8	33.4	7.1	87.3	71.9	3.8	1.5
AVERAGE.....	46.0	26.5	40.0	20.7	87.8	78.1	4.1	2.4

The difference in favor of mulching is remarkable. Every variety shows a difference in favor of mulching, and it shows in all points—size of tubers, percentage of marketable and total yield. It is said by some, with apparently good reason, that mulching is most useful in a dry year. But the early part of the summer of 1894, in which these potatoes matured, was as wet as we usually have in this country. These figures are, of course, for only a single year, but they are quite emphatic.

GUTHRIE, OKLA.
HOME, FIELD AND FORUM Co.
1895.