STUDIES OF THE NUTRIENT VALUE OF

NITROGEN

ON TOMATO PLANTS.

RUSSELL FOREST BALTHIS.

A THESIS

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the requirements for the Degree of

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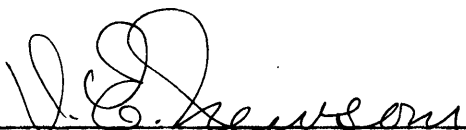
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E. P. Sandsten (signature)

Head of the Department of Horticulture

Colorado Agricultural College

Fort Collins, Colorado

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THE DEGREE OF MASTER OF SCIENCE

_____
Chairman and Professor of Zoology

_____
Professor Horticulture

_____
Professor of Veterinary Pathology

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INTRODUCTION.

The effect upon tomato plants of applications of
nitrogen, either in organic form of in readily available
commercial form, is a question of vital interest to every
tomato grower. It is an important question because the
tomato requires plenty of nitrogen for normal growth and
fruit production.

It must, however, be understood that vegetative
vigor is very probably a response to environmental condi-
tions and that in each locality there are cultural prac-
tices and other factors which influence the nitrogen con-
tent of the various soils, and that soils differ widely
in texture and organic content. The heterogenous charac-
ter of all field soils quite often causes an individuality
of plants to exist, rather than the normal average growth
that is expected under the existing conditions.

Investigations agree that nitrogen is the con-
trolling element of plant growth and it follows, there-
fore, that proper cultural methods must be followed to
conserve and to supply adequate nitrogen requirements.
Continuous cropping of any soil will eventually deplete
the natural store of nitrogen or other basic plant food
elements. Therefore, in order to maintain the fertility
of the soil, the plant food removed by crops must in some

way be returned to the soil. A fertile soil is one that contains, in available form, a sufficient quantity for normal growth and reproduction of the necessary plant food elements.

In studies on the care of plants we must consider that a plant has life even as a human has life and we must surround it with that environment which is most conducive to maximum growth and reproduction, if our results are satisfactory. Munson (26) states that "Successful tomato culture depends as much upon the man in charge as upon conditions. Eternal vigilance and the exercise of good judgment on the part of the grower are more essential than strict adherence to set rules."

BOTANY AND HISTORY OF THE TOMATO.

Botanical:

     Family - - Solanaceae

     Genus - - Lycopersicum

     Species - Esculentum

     Variety - Globe

Lycopersicum esculentum - Mill.

     This name is derived from the Greek Lycos - wolf, and persica - peach, also esculentum - edible, and was given originally through its supposedly aphro-disiacal effect when eaten. Another reason for the name is the allusion to the beautiful peach-like appearance and the dedeitful (wolf-like) value of the fruit.

Common name:

     Wolf peach, Love apple, Gold apple, Tomato.

Historical:

     There is no record of the tomato in the eastern hemisphere before the discovery of America. It was supposedly collected in South America by the earliest navigators and carried back to Europe. According to Hedrick (17) it was first mentioned by Matthiolus in 1554 as pomi d'oro, who says they recently appeared in Italy. Also in 1596 Gerarde, an Englishman, says he received seeds of the tomato for his garden from Spain, Italy and other hot countries. The name tomato is de-

rived from tribal names given the plant as in Mexico the wild tribes call it Tomati, although the older Aztec tribe called it Xitomate or Zitotomate. It is found growing wild in Mexico and the more tropical regions of South America. According to Munson (26) it "is spontaneous or indigenous throughout Mexico and as far north as Texas and California.""

In regard to the use of the tomato in America Tracy (41) says "First mentioned in America. I find of its being grown for culinary use was in Virginia in 1781. In 1788 a Frenchman in Philadelphia made most earnest efforts to get people to use the fruit, but with little success, and similar efforts made by an Italian in Salem, Mass., in 1802, were no more successful. The first record I can find, of the fruit being regularly quoted in the market was in New Orleans in 1812 and the earliest record I have been able to find of the seed being offered to seedmen, as that of an edible vegetable, was by Gardner and Hepburn in 1818 and by Landreth in 1820. Buist's 'Kitchen Gardener' says: In 1828-9 it (the tomato) was almost detested and commonly considered poisonous. Ten years later every variety of pill and panacea was 'Extract of Tomato' and now (1847) almost as much ground is devoted to its culture as to the cabbage." The change to popularity appears, therefore, to have taken place about 1835.

REVIEW OF LITERATURE.

Twenty-five hundred years ago, long before the age of experimentation, Russell (31) tells us there were two speculations on how plants obtained their food. First, plants derived all food and all substance from water. Second, plants fed upon decaying animal and vegetable matter in the soil on the assumed principle that plants like all other living things could feed upon materials of like nature with themselves but not upon materials of unlike nature. These ideas remained intact for hundreds of years. In 1620 Von Helmont, to prove the assumption that plants get their nutrition from water, took an earthen vessel, put in 200 pounds of dry soil and moistened it with water. Into this he pressed a willow shoot weighing five pounds. It grew well. For five years he watered the tree keeping the vessel covered about the shoot to eliminate dust from blowing in. At the end of the five years he found that the tree weighed 169 pounds and 5 ounces with the soil weighing 200 pounds less 2 ounces. However, in 1699 Woodworth showed conclusively, says Russell (31) that in using impure water from a conduit that the rate of growth was eight times as great as that of using rain water.

In 1840 in the time of Liebig the science of agriculture became more prominent. We find before this time the understanding was general that plant food consisted of decaying animal and vegetable matter and farmyard manure. Liebig saw "the bearing on crop production of the facts that phosphates, potassium compounds and am-

monium salts increased growth of plants. He announced
that plant food is the ashes of plants; that is, potass-
ium, sodium, magnesium, calcium compounds and certain at-
mospheric constituents, carbon dioxide, and ammonia."
Further, Russell (31) shows that from Liebig's work where-
by "plants feed upon simple mineral and gaseous substances
and build them into highly complex products, the whole pro-
cess now became susceptible of investigation. With this
understanding scientists branched out in experimental work
with all the plant food elements showing conclusively that
the three principals are Nitrogen, Phosphorus, and Pot-
ash: that these are essential to plant growth and that
these with lime (calcium) are the ones more liable of ex-
haustion in our soil by cropping."

Sackett (35) has explained the processes that
must take place in Nitrogen before it becomes available
for plant use. He tells us that to be of value to vege-
tation nitrogen must be present in the soil in the form of
nitrates or possibly as ammonia salts. These forms are
obtained through two processes; ammonification, whereby
ammonia is produced from the action of bacteria on complex
organic matter; and nitrification, where the ammonia is
converted into nitrous acid and nitrites, and these fur-
ther reduced into nitric acid and nitrates.

A vast amount of investigative work has been
compiled that has reference to the application and results

from the use of fertilizers. Most of the work done has
led to that of a proportionate complex or a complete fer-
tilizer in which nitrogen, phosphorus and potash form
their respective ratios for application to the soil. The
nitrogen is to stimulate the vegetative growth, i.e. wood
and foliage. Phosphorus hastens maturity according to
Hepler and Kraybill (19) by "promoting rapid early growth
of the plant so that a much larger number of blossom clus-
ters, blossoms and fruit are produced early." Potash
(supposedly) influences the yield.

Gourley (15) tells us that "Nitrogen is probably
the most important of all the elements of plant food for
the reason that it is usually the least abundant in our
soils and because when it is purchased artifically it is
the most expensive. Nitrogen occurs in more than one form
in the soil. What is usually spoken of as nitrogen of the
air is by far the most abundant. Nitrogen also occurs as
nitrate salts, the nitrogen of organic compounds, ammonia
and nitrates. It is usually considered that the most suit-
able form of nitrogen for plants, and in fact the form in
which practically all plants take their nitrogen (the le-
gumes excepted) is as nitrates, yet recent work has shown,
first, that plants other than legumes may use atmospheric
nitrogen and, second, that plants may use more organic
nitrogen than at one time was believed."

Sandsten (36) has found that Colorado soils,
as a rule, are rich in nitrogen.

Again Russell (32) points out that "No soil con-
stituent fluctuates more in amount than nitrates. Plants
and rain rapidly remove them and bacterial action rapidly
forms them. The producing agencies are most active in
spring, and work throughout summer and autumn, while the
removal agencies are active in summer and winter." Lip-
man and Burgess (23) state that "Experiments have shown,
more-over, that plants are not alike in their ability to
use soil-water soluble nitrogen compounds; some of them
must have one form, others another form, and still others
are indifferent to the form and use one as well as another"
and "For plant growth purposes, therefore, we are reason-
ably safe in assuming that the problem of nitrogen nutri-
tion is chiefly one in supplying to the root zone enough
nitrate at different parts of the life of the plant to in-
sure normal growth."

Influence of Nitrogenous Fertilizers on Tomatoes.

In 1889 Bailey (3) found that liberal and even
heavy manuring of tomatoes during that season gave great
increase in yields over no fertilizing. He also observed
that the heavy manuring does not appear to produce vine at
the expense of the fruit.

Voohees (42) found that a larger quantity of
nitrate of soda used in two applications increased the
yield without delaying maturity of the crop. Where a larg-

er quantity was used in one application the yield was increased but at the expense of maturity. In this Bailey and Munson (6) show that very heavy manuring does not lessen productiveness and that the nitrate of soda alone is not a profitable manure upon the soil. Bailey (4) had better success in forcing greenhouse tomatoes when the plants were grown in a loamy soil of which 20 to 25 per cent of the bulk was well rotted manure. Liquid manure or a top dressing was applied when the plants began to bear fruit. This procedure gave a higher value for tomatoes grown indoors than applications of nitrate of soda, nitrate of ammonia, salt or phosphate of soda. Continuing this work in the field Bailey and Corbert (5) found that manure applied late or which gave substance late in the season gave poor results. It delayed fruitfulness and the plant was overtaken with frost before it yielded a satisfactory crop. The low yield resulting is the probable origin of the opinion that a tomato crop is injured by heavy manuring. In these studies, however, the nitrate of soda gave the best yields. Work (45) in his nutrition studies of the tomato took sand as a base in which to grow his plants and used different fertilizers as nitrate of soda, peptone, urea, casein, hemoglobin, ammonia and manure as nutrients. He found little choice among the various artificial fertilizers, with none giving as good results as the manure. Voohees (43) in summing up his years of nitrate studies with tomatoes states that:

"1. Nitrate of soda is superior to both barnyard manure and mineral fertilizers alone.

2. Nitrate of soda alone is on the whole but slightly less effective than the complete manure.

3. When small quantities of nitrate are used the second application is advantageous.

4. Large quantities (320 lbs. per acre) of nitrate are more effective than small quantities (16 lbs. per acre).

5. Tomatoes matured more quickly and gave greater proportion of fruit on nitrate of soda plots."

Anderson and Richardson (1) in fertilizer tests found that stable manure gave much the better results extending over a four year period. Nitrate of soda alone for the period gave a gradual decrease in yield with no crop the fourth year.

In comparing the growth of foliage Schneidwind and Meyer (38) found that the "nitrogen derived from the nitrate of soda enters into production of the leaf and is used in this connection to a greater extent than the nitrogen from barnyard manure, but that the quantity of nitrogen taken up from barnyard manure produced more substance than an equal quantity taken up from the nitrate of soda."

McLean and Pember (25) found in 1924-25 that the highest yields were obtained where nitrogen, as nitrate of soda, at the rate of 95 pounds per acre was applied at various times to medium manured soil. Their results show an

increase of one pound per plant over soil having only stable manure applied.

Three years of experimental work with nitrogen at the Experimental and Research Station, Turner's Hall, Cheshunt, Herts (13) showed that manurial treatments must be regulated by climatic conditions because during a hot summy season the tomato requires more nitrogen than when the season is dull and cold. Beattie (7) cautions one in the use of any material containing a high percentage of nitrogen. Excessive amounts caused excessive vine growth and dropping of the blooms and the yield is unsatisfactory. He believes that little nitrogen is necessary when a plentiful supply of manure or good compost is used.

Randall (29) found that tomatoes grown in the greenhouse are capable of utilizing heavy applications of nitrogen. His soil analyses indicate that the plants used to advantage the available amount in the nitrate of soda applied as well as a portion of the nitrates originally contained in the soil. His highest application was 66.7 grams per single plant without any apparent deliterious effect either to vegetative growth or fruit.

Work (46) in discussing the injury done to the tomato by nitrate of soda states "In experiments with single tomato plants in boxes holding about a bushel and a third of sand, no marked damage to the plants was induced

by increasing the applications of nitrate of soda until
the soil concentration became so great that it was diffi-
cult for the plants to secure water. This concentration
was found to be around $2\frac{1}{2}$ percent nitrate of soda in the
soil solution. There was no indication that high nitrate
injured the plants by acting as a poison within the tiss-
ues. Injury seemed to be due strictly to the creation of
a state of "physiological drouth." At the same time the
careless use of nitrate has often unjured plants. Too
large quantities may readily "burn" them if placed near
the roots and stems. On the other hand, broadcasting over
the growing plants when the leaves are dry is attended
with no injury."

Randall (29) took precaution to prevent denitri-
fication by regulating the moisture supply so as not to
check the air supply in the soil which would otherwise
stimulate denitrification. The absence of a large quan-
tity of organic matter in the soil also eliminates an im-
portant essential to the process of denitrification. He
also found that as the nitrogen supply was increased there
was a gradual increase of fruit set.

In this same study Randall (29) found that ni-
trate of soda was conducive to blossom end rot. The
greatest number of affected fruit came from plants re-
ceiving the highest application of nitrogen. His explan-
ation for this was that the nitrogen causes a vigorous
growth which results in a large leaf area and that a check

in the moisture supply brings about an increase in the density of the cell sap contained within the leaves, which draws moisture from the fruit during transpiration. Stone (39) found that there is less occurence of the rot in the fall when light conditions are poorer and transpiration less active. Further, he found that fertilizers and manures containing large amounts of nitrates modify root absorption thus restricting amount of water taken up and inducing a tendency for the fruit to rot. Lewis (22) however, states this disease is physiological and arises through the variations of soil moisture and drouth.

The fruit set and yield of the tomato has been approached from various angles. Gardner, Bradford and Hooker (14) in discussing Fruit Formation states that "Fertilization is usually followed by a growth of the surrounding ovarian tissue resulting in a 'setting' of the fruit." Green and Woid (16) emphasize the necessity of success in tomato forcing being more dependent on thorough and careful pollination than anything else connected with the work; also that the amount of pollen applied in fertilization is of great influence. Fink (13) in his pollination studies shows that the development of the fruit to maturity is influenced by the amount of pollen applied. Zimmerly (47) tells us that the tomato is self-sterile but cross pollination is unnecessary for a perfect set of fruit in the open, though in the greenhouse the plants should be

jarred to obtain pollination or they can be hand-pollinat-ed. Bouquet (9) found that "there are several causes for the unfruitfulness of blossoms, the principal ones being; first, the absence of natural pollinating agents such as insects; second, the relation of the several reproductive organs in the development of the flower; and third, the correlation of vegetative growth of the plant with the reproductive system." He states that pollination by hand gives quicker maturity than natural or self-pollinated methods.

Schneck (37) made a study to determine the ef-fects of various methods of pollination. In this the emas-culation, watch glass, brush, jar, and check methods were followed. The result showed that emasculation gave the highest percentage of fruitfulness, earliness, size and lowest misshapen fruit. Oskamp (28) in pollination ob-servations during 1926 found that in many cases of unfruit-fulness where it had been thought pollination problems caus-ed self-sterility and inter-sterility in apples, was more often due to nutrition and other causes.

In 1918-21 Lloyd (24) carried on studies of lettuce yields using different soil and manure mixtures with one part sand. All the experiments except those associated with check plots contained various amounts of fertilizers. His check plots for a 4-4-1 mix, i.e. 4 parts soil, 4 parts rotted manure, and 1 part sand, gave the av-erage better yield for the three year average than any of

the others. In commenting on these studies Professor Lloyd
says "of the check plots the one with the 4-4-1 mixture
gave a distinctly larger yield than the 4-2-1 mixture in
two of the three years, and as a three year average show-
ed nearly four pounds greater yield. The untreated 4-0-1
mixture showed an average yield which was approximately 19
pounds less than the 4-4-1 mixture and 15 pounds less than
the 4-2-1 mixture." Continuing these studies under tomat-
oes also from 1918-21 using the same mixtures the yield of
the 4-4-1 mixture exceeded the 4-2-1 mixture by 9.18 pounds
and the 4-0-1 mixture by 21.5 pounds. It also exceeded
yields of the 4-2-1 and 4-0-1 mixtures when complete arti-
ficial fertilizers were added. The yield was increased,
however, when fertilizers were added to the 4-4-1 check,
although the increase in average yield for the three year
period was only 4.87 pounds.

Kraus and Kraybill (21) in their extensive exper-
iments show that the tomato may be markedly vegetative
and non-fruitful in the presence of a very abundant sup-
ply of available nitrogen and moisture. An under supply
reduced both vegetation and fruit. Plants became most
fruitful when they started in an abundance of nitrogen and
transferred to a medium with only moderate amounts of a-
vailable nitrogen. They also found that the degree of
fruitfulness was not dependent upon the amounts of nitrat-
es or carbohydrates alone but arose from a condition of
balance between them. Roberts (33) also found this condi-
tion existing between the nitrogen and carbohydrate con-

tent in blossom bud formation of the apple.

Kraus and Kraybill (21), however, show that a fertilizer with a supply of nitrate nitrogen chiefly promotes a vegetative growth and the carbohydrate supply determines to what extent the nitrogen increases or decreases fruitfulness.

The degree of fruitfulness may also be associated with cultivation as Kraus and Kraybill (21) also found that cultivation was effective in conserving moisture. It promoted the supply of available nitrogen. Where the plants were largely vegetative, through abundant supply of nitrogen, the limiting of cultivation was conducive to fruitfulness. Excessively vegetative plants, those with full, heavy, succulent foliage, were mostly decidedly unfruitful and often large percentages of the blossoms failed to set fruit. Their investigations bring out the important relation between balanced nutrition of tomato plants and their fruiting. Plants grown in soil with nitrogen in abundance were distinctly unfruitful. Distinctly non-vegetative plants tended to early fruitage but this ratio of occurence was not uniform.

Regarding the appearance of the foliage when nitrogen is withheld, Bewley and White (8) found that "the leaves of plants grown in soil deficient in nitrogenous foods, develop pale yellow blotches between the veins, the blotches gradually increasing in size until the

entire leaf surface is yellow."

Nightingale (27) found that the presence or absence of nitrates within tomato plants do not necessarily affect the type of growth. In discussing this problem he states that "It would seem that nitrates are not necessarily associated with the growth responses of plants, as tomato with no nitrates in the nutrient culture or tissue of leaves, stems or roots grew very rapidly when the carbohydrate supply was decreased, by subjecting the plants to total darkness or short-day conditions. While it is possible that nitrates may be formed from decomposition of protein or other nitrogen fractions and resynthesized at once, no nitrates were found in the tissue. Also, there seems to be no reliable evidence in the literature indicating that proteolysis of nitrates takes place in plants."

Considering abnormal buds, Jenkins and Britton (20) in experiments with carnations found practically no close relationship between the number of "sleepy" flowers (abnormal buds) and the various amounts of nitrogenous fertilizers applied to the soil. It was found that some varieties bear more abnormal buds that fail to develop than others.

THE EXTENT AND RELATION OF TOMATO PRODUCTION
IN COLORADO AND THE UNITED STATES.

In 1925 Colorado had 3,100 acres allotted to
tomato production showing an increase of 35.5 percent
over 1924 with an increased production of 14,400 tons to
25,500 tons and with a value of almost double over 1924 or
$293,000.00 (Colorado Year Book, 1926) (10). These fig-
ures, though they cover only the amounts used in manufac-
turing the product for canning, serve as a criterion cov-
ering the vast amount of this vegetable consumed. In 1925
according to the United States Agricultural Year Book (1926)
it ranked first of all the commercial truck crops raised
in the United States, with an acreage of 456,020. It is
the leading canned vegetable. With lettuce and cucumbers
it is one of the main greenhouse vegetables grown for the
winter trade.

In 1925 the total valuation of the tomato produc-
tion in the United States reached $60,656,000.00. In this
monetary relation Colorado plays but a small part although
it is evident that inasmuch as the area increased 500 acres
between 1923 and 1925 (Agricultural Year Book, U.S.D.A.1926)
this plant is fast assuming a recognized place in the state
in truck crop production.

The tomato forms the basis for many of our con-
diments and leads with lettuce for salad purposes. It is
a refreshing fruit and is considered having a high food
value. Atwater and Bryant (2) show it to consist of:

Source	Water	Protein	Fat	Carbohydrate and Fibre	Ash	Fuel Value per Pound
Fresh	94.3%	0.9%	0.4%	3.9%	0.5%	105 calories
Canned	94.0%	1.2%	0.2%	4.0%	0.6%	105 calories
Dried	7.3%	12.9%	8.1%	62.3%	9.4%	1740 calories

PROCEDURE OF WORK.

Materials.

This experiment was carried on in the green-house in a ground bed twelve feet by eighteen feet, walled with cement and of a sufficient depth to permit a drainage base of cinders and to contain up to fourteen inches of soil.

The Globe variety of tomato was selected as this is most commonly grown for winter forcing in this locality. It is a good, smooth, light (pinkish) red, solid, rounded, medium sized, highly productive fruit with large green foliage and is apparently well adapted to greenhouse forcing.

New soil obtained from along a fence row was used in this problem.

Methods.

The plants used in this experiment were grown from seed planted January 10, 1927, under two processes; one seed flat contained field soil, the other a thoroughly mixed combination of 50 percent field soil and 50 percent well rotted barnyard manure.

The young plantlets were grown in the same kinds of soil while in the transplanting flats and four inch pots.

At no stage of transplanting or potting were the plants allowed to become pot bound.

On March 10, 1927, the field soil plants had attained an average height of 21.5 centimeters and were set out in Plots I and II. The plants in the 50 percent combination on March 18, 1927, had attained an average height of 13.8 centimeters and were set out in Plot III. The delay between the dates of planting were necessary since sufficient development was desired to hold the pot soil in place while transplanting in the bed.

Each pot contained the following number of plants: Plot I − − 12 plants

Plot II − − 12 plants

Plot III − − 24 plants

giving a spacing distance of 24 by 28 inches or an available space of 4.5 square feet for each plant and a planting rate of 9680 per acre. Plots I and II were partitioned off from Plot III by 2 inch planking extending down to the cinder drainage base. Plots I and II were separated by heavy ½ inch glass set edge to edge and extending down to the cinder drainage base.

Treatment of soil.

Plot I. No preparation was necessary as nitrate was to be fed the plants by mixing it with the surface soil at the rate of 320 pounds per acre which on area basis

would give each plant 14.99 grams. Application was made in 3 different amounts 15 days apart.

March 19 - - 7.50 grams

April 2 - - 4.49 grams

April 17 - - 3.00 grams

Two days before setting out the plants the soil was spaded over forming a trench and the trench filled with water thus thoroughly wetting the soil and preventing any soil moisture deficiency at the time of planting.

Plot II. Field soil unfertilized. No preparation except as in Plot I. The same method was followed in applying water by trenching to avoid any soil moisture deficiency at the time of planting.

Plot III. Field soil formed the base soil here on which was applied a layer of well rotted barnyard manure to a thickness of 4.5 inches. The soil and manure were then thoroughly mixed. A subsequent amount of manure to a depth of 2 inches was applied and this was well mixed with the soil. All the manure applied weighed 1380 pounds and gave a content of 12.77 pounds per square foot or an application at the rate of 228 tons per acre.

Location of plots in the middle section of the greenhouse:
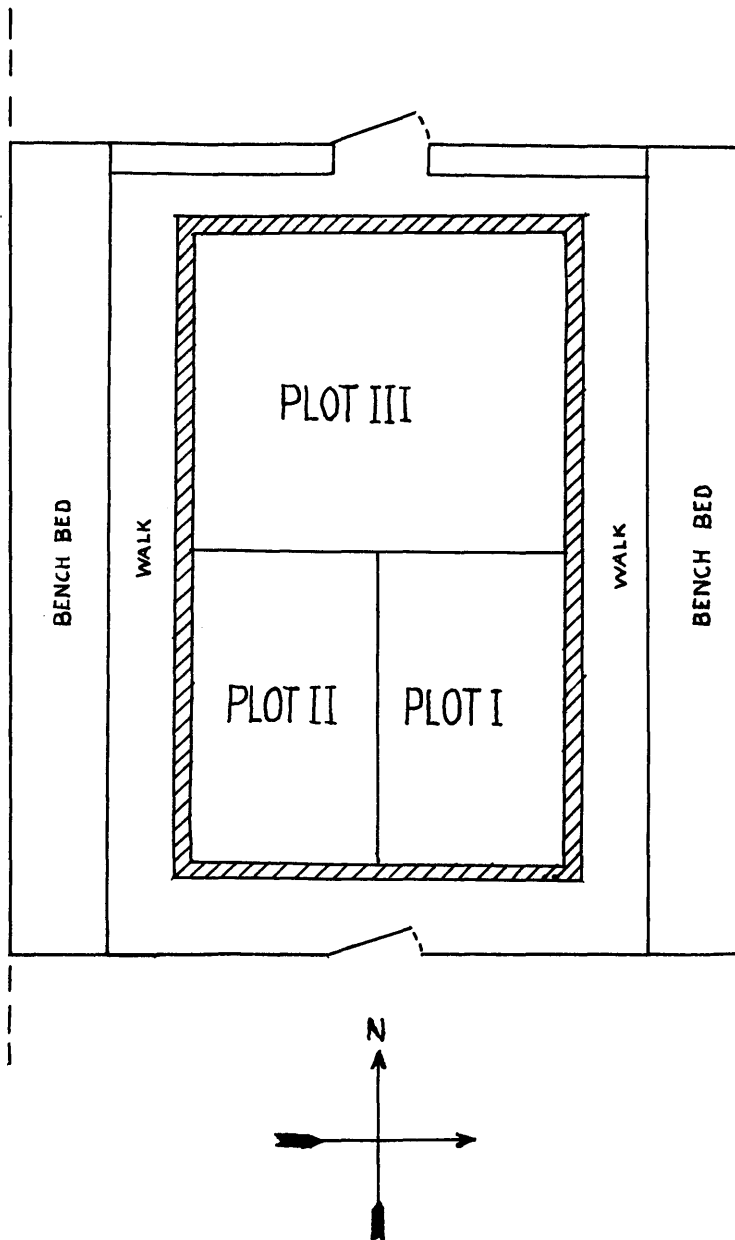
Watering.

Water was applied to the soil when the plants showed need or when there was an apparent moisture deficiency. A good soaking was given instead of repeated light waterings since it was desired to have moisture evenly distributed.

Soil Treatments.

The surface of the soil was kept well tilled. After each time it was necessary to work in the plots, all packing caused by walking was loosened up. Before water was applied the soil was cultivated to a depth of 3 inches.

Care of Plants.

The plants were trained upright to a single stem. All side shoots were kept pinched off and the stem kept tied, as new growth made it necessary, to a cane pole that was securely embedded in the soil. The top was tied overhead to cross wires extending across the greenhouse, these being held taut by canes extending crosswise beneath them and tied with wire to a central overhead steam pipe. As the plants developed the 6 lower leaves were nipped off since they are the ones that invariably are first attacked by aphids and other insects, and in the way of cultivation and are usually covered with dirt. As the blossom clusters developed terminal and lateral cluster leaves often formed and where these appeared they were removed to help stimulate growth.

Blossom record was kept every day. The standard for time of blossoming was when the petals extended horizontally.

Fruit setting record was kept every day. The standard for fruit setting was when the enlargement of the ovule had taken place.

Pollination was practiced every day by hand, using the face of the second finger. The pollen was gathered by tapping or emasculating the flower and catching the pollen grains on the finger which was then brought up to the stigma. Care was taken to see that the stigma had reached the proper stage of receptivity. This condition manifests itself when the petals are recurved or reflexed. Often it was found that the stamens covered the pistil and unless pollination is practiced every day by removing the withered corolla and the stamens and the pollen brought direct to the stigma, fertilization of the ovaries will probably not take place.

Heighth measurements were taken at the same hour every fifth day from each plant using a 15 centimeter rule. The point of the terminal stem bud was the standard base from which measurements were taken. This was done by placing a cross mark, corresponding to the height of the terminal stem bud on the cane to which the plant was tied, the distance between the marks being noted on the heighth growth record sheet. The mean of each plot was taken as basis for charts and graphs showing periods and rate of growth for

each plot. Work (45) states "that height is not an accur-
ate measure of growth as the plant may develop greatly in
other respects without a proportionate increase in stature.
Furthermore, a plant suffering from nitrogen hunger shows
a decided tendency to become spindling, gaining materially
in height after real growth is nearly at a standstill."
However, all plants in each plot were tied as uniformly as
possible thus giving a uniformity of measurement for all
and any discrepancies of the plot height between the plots
would show up to advantage.

The measurements were made at the time that the
plants were growing vigorously, being terminated when the
plants in a plot had developed the sixth bud cluster and
2 leaves above as the experiment was to cover data includ-
ing only 6 clusters.

Throughout the entire growing period of the plants
included in this study the care of the soil, moisture con-
tent, and physical conditions together with keeping the
plants free from insects were carried forward as closely
along ideal commercial lines as possible. As the fruit
reached maturity above the third fruit cluster the lower
leaves were removed to permit an open space of 18 inches
beneath the remaining leaves and the soil. Better air cir-
culation and a slight sprinkling beneath the plants on hot
days could thus be obtained as an aid to higher air moisture
content. It may well be stated that throughout the experi-
ment the numbers of insects were negligible and no spraying
or fumigation was carried on. Probably this was largely

due to the houses adjoining on the north and south being fumigated several times for aphids and white fly. During the latter part of the fruit maturity period the tomato psyllid (Paratrioza cockerelli) appeared, but the lower leaves were removed and where nymph colonies appeared later they were removed and consequently no damage resulted.

Record was kept of all fruit affected with blossom end rot, this being the only disease of any apparent consequence, as it was desired to learn to what degree the conditions in each plot stimulated the rot. Other physiological disturbances of the plants as to coloration of foliage and its density were recorded.

The criteria for fruit maturity was considered when the fruit had attained a uniform pinkish color. Each morning the fruit was gathered at this stage of ripening and each fruit weighed in grams and the productive record kept by cluster, plant and plot number.

Analysis of the soil in each plot by the Kjeldahl-Gunning method was made to determine the amounts of nitrogen (NN) that were available. In this the amount of chlorides also was determined as any great excess amounts might have a bearing on plant growths.

The criteria for a normal plant, on which all graphs and summaries are based, included a plant having 3 leaves between fruit clusters, foliage not excessive, vegetative or sub-vegetative, free from fusarium wilt (Fusarium lycopersici), and not subjected to ventilator drafts.

PRESENTATION OF DATA.

The tomato seed was planted January 10, 1927, as mentioned, in two seed flats and fine soil sifted over sufficient to cover. These were watered by the absorption method, thus giving a maximum amount of moisture for germination without disturbing the seed as is usually the case with sprinkling. The flats were then placed in the forcing house and covered with glass to prevent excessive evaporation and to retain the heat. One of these flats, No.1, contained unfertilized field soil; the other, No. 2, half field soil and half well rotted manure thoroughly mixed.

On January 21, No. 1 flat: All seed had germinated and the plantlets were 2 inches high. These were transplanted into a 3 inch flat containing field soil.

No. 2 flat: Growth development was very poor. Out of 194 seeds germinating, 70 plantlets were suitable for transplanting, the other 124 still had the testa covering cotyledons, 89 of which had testa embedded in soil, the stem not having developed sufficient strength to raise the testa. The soil-manure in this flat had become puddled putty like, and the oxygen essential to germination had been eliminated; also the further decomposition of the organic substances had caused a number of the plantlets to damp off. The plantlets that had developed the cotyledons were transplanted to a 3 inch flat containing half soil and well rotted manure thoroughly mixed.

On February 5, the plants in flat No. 1 were transferred direct to 4 inch pots using field soil, but it was
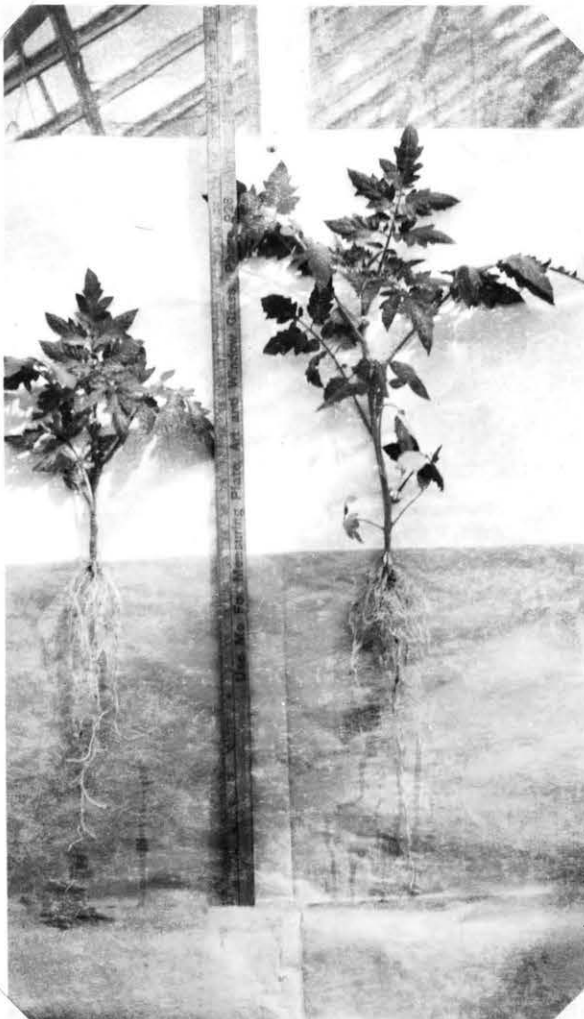
B

Fig. 1 Top. Shows representative plants. Field soil plant on right at time of setting out. Manure and soil type plant at left set out 8 days later. View 60 days after seed sown.

Fig. 2 left. Same plants as above. Showing root development. Field soil plant right. Manure and soil plant at left. Field soil roots more fibrous. Manure soil roots thick and woody.

not until February 12, or 7 days later, that the plants in
flat No. 2 were ready for potting when they were put in
4 inch pots using thoroughly mixed field soil and manure
of equal parts.

On March 10, 24 average plants potted in field
soil were set out in the south half of the bed, designat-
ed as Plot I and II. The plants in the soil and manure
mixture had not developed a root system sufficient to hold
soil together in the pots until March 18 when 24 average
plants were set out in the north half of the bed designat-
ed as Plot III.

The plants shown in Figures 1 and 2 were select-
ed from heighth measurements of the plants grown in the
two cultural processes and were representative plants. It
was believed that this should give a good idea of the re-
lative growth from green and dry weights of the roots,
leaves and stem. The plants were thoroughly cleaned of
all foreign matter, cut up, keeping leaves and stem separ-
ated from the roots, and respective weights taken as green
material and also after drying for 36 hours in the Freas
Electric Vacuum oven. The results show a vast difference
in the two cultural methods. The soil plant ran nearly
twice as heavy in the green and dry stages as the manured
plant. The weights are shown in Table No. 1.

Table No. 1, Relative Weights of Mean Plants before Planting in Plots I, II, and III.

Stage	Parts of Plant	Soil in which grown	
		Manured Weight in grams	Unfertilized Weight in grams
Green	Root	5.30	7.33
	Leaves and stem	15.35	30.45
	Total	20.65	37.78
Dry	Root	.305	.575
	Leaves and stem	1.562	3.337
	Total	1.867	3.912

Measurements taken of the tap root and length of longest root showed that the manured plant had a tap root 3.91 cm. long with length of longest root of 31.36 cm. That of the unfertilized soil plant had a tap root of 9.52 cm. long with root length of 33.98 cm.

It was noted that at the transplanting and potting stages the plants in the field soil apparently received no check to growth in their new environment. Those in the soil and manure mixture were reluctant to forge ahead even with care taken not to disturb the root system by removing the soil surrounding them. However, even though a period of inactivity resulted, when the roots took hold a vigorous growth developed. After setting out in the bed, this period of inactivity was also apparent in Plot III, whereas the plants in Plot I and II received no check. The plants in Plot III remained several days behind the plants in Plots I and II in heighth growth and

general development. On May 12 the fruit began to devel-
op rapidly in Plots I and II and the plants in Plot III
gained rapidly, diminished heighth growth vigor becoming
quite noticeable in Plots I and II.

In all tables, charts and graphs hereinafter
presented where computations present an average, this
average is represented by the word mean.

RELATION OF NITROGEN TO HEIGHTH GROWTH.

The retarding effect on time from the manured
soil on seed germination was manifest throughout the period
until the plants on Plots I and II were topped by two leav-
es above the sixth fruit cluster. During the period from
May 8 to May 12, the latter date when the plants in Plot
III were also topped by two leaves above the sixth cluster,
the plants in Plot III gained rapidly in height over Plots
I and II. Graph No. 1 shows the growth made in all plots.
Charts 1, 2, and 3 show that Plot I had made a greater
growth than Plot III and Plot III greater than Plot II al-
though the daily mean growth was exceedingly close, being
for Plot I, 2.853 cm., Plot II 2.743 cm., and Plot III 2.8
cm. This data shows that the field soil containing 30.54
ppm. and 16.99 ppm. chlorides is conducive to maximum
heighth growth; that the addition of 16.66 grams of $NaNO_3$
per plant does not increase the growth; and that well
rotted manure heavily applied has a tendency to increase
growth. The great amount of chlorides found in the manure
is probably an inhibiting factor in normal plant develop-
ment and is worthy of further research.

GRAPH NO. 1

MEAN HEIGHTH GROWTHS

CM

170
160 — 162.47 cm
158.25 cm
150 — 147.58 cm
140
130
120
110
100
90
80
70
60
50
40
30
20
10

SOIL

NANO3

MANURE

MEAN HEIGHTH OF PLANTS BEGINNING OF MEASUREMENTS.

APRIL 2-1927

PLOT I - NANO₃ - 45.7 cm
PLOT II - SOIL - 45.4 "
PLOT III - MANURE - 32.8 "

6   10   14   18   22   26   30   4   8   12

APRIL   MAY

CHART NO. 1

HEIGHTH GROWTHS

PLOT I - FIELD SOIL AND NITRATE OF SODA

(Growth in centi-meters)

No. of Plant	Date of Measurement										TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
	April							May				
	6	10	14	18	22	26	30	4	8	12		
1	10.2	13.5	12.7	10.8	11.8	12.5	11.5	12.0	12.0	10.9	117.9	11.79
2	12.7	11.4	10.8	10.7	11.3	12.8	12.7	12.5	10.5	11.3	116.7	11.67
3	11.0	12.9	12.2	11.6	14.7	14.2	14.6	11.2	11.2	10.0	123.6	12.36
4	14.3	11.1	11.7	10.2	11.8	14.6	14.1	10.4	12.2	11.0	121.4	12.14
5	13.7	10.5	9.5	9.9	11.0	11.7	15.3	10.6	12.1	11.0	115.3	11.53
6	15.2	11.6	9.9	10.5	9.6	13.2	12.3	12.0	11.4	9.1	114.8	11.48
7	15.6	9.7	9.4	10.1	11.7	11.0	11.4	11.5	12.7	11.2	114.3	11.43
8	14.0	12.8	9.6	11.6	11.3	13.8	12.8	10.2	11.8	11.7	119.6	11.96
9	13.1	12.2	9.4	9.9	11.6	13.4	12.8	13.2	12.1	10.0	117.7	11.77
10	12.5	12.5	10.0	11.5	11.6	11.2	9.5	10.3	11.5	7.5	108.1	10.81
11	12.9	13.0	11.4	10.4	10.7	14.1	12.4	10.1	15.8	7.6	118.4	11.84
12												
TOTAL PER PERIOD	145.2	131.2	116.6	117.2	127.1	142.5	139.4	124.0	133.3	111.3	1287.8	128.78
MEAN PER PERIOD	13.23	11.93	10.60	10.65	11.55	12.95	12.67	11.27	12.12	10.12	117.09	11.709

Duration of Readings — 41 Days

Total Mean Growth Per Period Of Measurement – 11.709 c.m.

Daily Mean Growth – 2.853 cm

CHART NO. 2

HEIGHTH GROWTHS

PLOT II - FIELD SOIL - UNFERTILIZED

(Growth in centi-meters)

NO. OF PLANT	Date of Measurement										TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
	April							May				
	6	10	14	18	22	26	30	4	8	12		
1	12.8	13.5	12.3	12.3	13.6	12.2	10.3	7.6	12.2	11.2	118.0	11.80
2	11.8	12.4	10.5	11.6	12.2	12.2	11.1	10.9	9.8	8.4	110.9	11.09
3												
4	12.5	13.4	11.2	11.1	13.8	13.3	13.0	10.3	10.5	11.0	120.1	12.01
5	13.0	13.2	9.3	10.0	11.7	12.3	12.3	9.0	10.9	7.5	109.2	10.92
6	14.5	14.5	11.1	11.2	11.0	12.6	11.4	10.5	11.4	8.6	116.8	11.68
7	11.9	15.4	10.9	9.8	10.3	12.0	11.3	9.3	10.6	10.4	111.9	11.19
8	12.4	11.8	12.9	9.7	11.2	10.8	12.0	11.0	12.1	12.0	115.9	11.59
9	13.1	12.2	10.7	10.4	11.2	10.3	12.5	8.9	10.5	10.6	110.4	11.04
10	11.5	12.0	10.2	12.0	11.2	11.0	10.1	12.0	10.8	10.0	110.8	11.08
11	10.6	11.2	9.8	10.1	9.3	12.2	11.7	11.4	6.7	10.2	103.2	10.32
12	11.2	11.8	9.4	10.6	9.9	11.3	12.6	11.2	12.5	10.0	110.5	11.05
TOTAL PER PERIOD	135.3	141.4	118.3	118.8	125.4	130.2	128.3	112.1	118.0	109.9	1237.7	123.77
MEAN PER PERIOD	12.30	12.85	10.73	10.80	11.40	11.84	11.66	11.20	10.73	10.00	112.51	11.25

DURATION OF READINGS – 41 DAYS

TOTAL MEAN GROWTH PER PERIOD OF MEASUREMENT – 11.25 CM

DAILY MEAN GROWTH – 2.7439 CM

CHART NO. 3
HEIGHTH GROWTHS
PLOT III - FIELD SOIL AND MANURE
(Growth in centi-meters)

No. of Plant	Date of Measurement										TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
	April							May				
	6	10	14	18	22	26	30	4	8	12		
1												
2												
3												
4												
5												
6												
7												
8	9.0	7.2	10.3	10.0	12.3	13.6	13.0	10.3	12.1	13.5	111.3	11.13
9	9.7	10.2	9.6	11.3	11.1	12.6	12.2	10.5	12.0	10.9	110.1	11.01
10	8.6	9.8	8.3	11.3	11.0	11.8	12.7	12.5	12.7	9.4	108.1	10.81
11	11.0	10.7	10.6	10.2	10.1	11.9	14.6	12.0	13.8	11.9	116.8	11.68
12	8.6	11.0	10.3	12.2	12.1	13.5	12.2	13.3	13.5	11.7	118.4	11.84
13												
14												
15	8.4	8.4	9.3	10.9	10.5	15.5	8.9	11.5	9.9	10.0	103.3	10.33
16	9.4	9.7	8.5	10.8	9.9	11.4	13.2	10.9	10.4	12.2	106.4	10.64
17	9.7	11.5	11.5	11.7	13.4	14.7	16.0	14.0	11.3	14.4	128.2	12.82
18	9.1	9.3	10.6	13.2	12.5	12.2	12.1	12.4	10.8	12.6	114.8	11.48
19												
20	10.6	11.2	12.8	11.1	12.4	14.2	15.7	14.0	14.8	13.8	130.6	13.06
21												
22												
23												
24												
TOTAL PER PERIOD	94.1	99.0	101.8	112.7	115.3	131.4	130.6	121.4	121.3	120.4	1148.0	114.8
MEAN PER PERIOD	9.41	9.90	10.18	11.27	11.53	13.14	13.06	12.14	12.13	12.04	11x.8	11.48

DURATION OF READINGS - 41 DAYS

TOTAL MEAN GROWTH PER PERIOD OF MEASUREMENT - 11.48 CM

DAILY MEAN GROWTH - 2.8 CM

Abnormal Plants.

A plant is abnormal when it deviates from the
general rule or type of growth. One of the striking con-
trasts arising from the methods of treatments was the num-
ber of plants showing this abnormal growth in Plot III
wherein there were 14 out of 24 plants, or 58.3 percent,
whereas Plot I had but one out of 12, or 8.3 percent, and
Plot II had 1 out of 12, or 8.3 percent affected.

The basis for classing the plants as abnormal
constituted several causes and are described by plants und-
er each plot, namely:

    Plot I.

        Plant 12 - - Fusarium wilt, stunted growth.

           Fungus causes disease, Fusarium lyco-

        persici, that attacks the roots, grows up

        through fibrovascular bundles (tissue), the

        vascular tissues are clogged, and the inten-

        sive transpiration in the daytime (hot sunny

        day) causes leaves to wilt badly.

    Plot II.

        Plant 3 - - Excessively vegetative, poss-

        ibly a hybrid, leaves exceedingly enlarged,

        very deep green, leathery and thick, stem

        thickened, fruit round, smooth, medium size.

    Plot III.

        Plants 1 to 6 - - Subject to overhead ventil-

        ator draft at north end of house; plants 3

        and 4 developed Fusarium wilt and growth

was stunted. It was discovered at the ter-
mination of the study that these 2 plants
were also affected with nematodes.

Plants 7, 13, 14, 19 - - Abnormal leaf de-
velopment, 4 leaves between cluster nodes.

Plant 21 - - Sub-vegetative, spindly, not
vigorous.

Plant 22 - - Sub-vegetative, short leaf nodes.

Plant 23 - - Sub-vegetative, Fusarium wilt.

Plant 24 - - Abnormal leaf development, 4
leaves between cluster nodes, coming out in
opposite pairs instead of alternately.

Plants 7, 13, 14, 19, and 24, after topping, grew
much taller until they were much higher than the plants in
either Plots I or II. Where 4 leaves grew between the clus-
ter nodes, the spacing distance between these clusters aver-
aged 8.5 cm. longer than with the normal plants. These dis-
tances averaged 35.4 cm. for the abnormal plants and 26.9
cm. for the normal plants. As a basis of comparison bet-
ween the 3 plots it was believed advisable to eliminate
the abnormal plants from all calculations. It is inter-
esting to note that in comparative yields including all
plants thePlot I gave an average of 5593.59 grams of 12.3ᵇ
pounds per plant. Plot II gave an average of 5221.52 grams
or 11.48 pounds per plant. Plot III gave an average of
4795.08 grams or 10.57 pounds per plant. Charts Nos. 22
to 42 covering data on all plants, normal and abnormal,
are included in the appendix.

Fig. 3 Left, Plant 12, Plot I. Showing Fusarium wilt effecting only part of plant.

Fig. 4 Right. Plant 3, Plot II. Showing excessive vegetative growth. Leaves large, thick and leathery. Fruit small but smooth and uniform.

Fig. 5 Left. Plant 7, Plot I.
Showing normal growth, three
branches between fruit clusters
appearing alternately. The 4th,
5th., and 6th., fruiting clust-
ers shown.

Fig. 6 Right. Plant 13,
Plot III. Showing the ab-
normal branching. Four
leaves between fruit
clusters with two oppos-
ite. 4th., and 5th.,
fruiting clusters shown.

Analysis of Soils.

An analysis was made of the soil in each of the 3 plots 5 weeks after the plants had been set out and fertilizers added. These analyses cover only the amount of Nitrate nitrogen (NN) and chlorides (Cl) in parts per million (ppm) of the soil:

	NN (ppm)	Cl (ppm)
Plot I. (Soil and NaNO$_3$)	50.44	21.24
Plot II. (Soil)	30.54	16.99
Plot III. (Soil and manure)	74.24	199.74

These analyses are very interesting in showing the high amounts of Nitrate nitrogen and chloride salts in well rotted manure. In fact, the abnormal growth developed may possibly be due to the high content of the chlorides. At least there is such a difference in Plots I and II from Plot III that such a relation must exist.

Again from the growth study it appears that the NN in our field soils is approximately sufficient for optimum growth for tomatoes grown under glass. Yet the small increase brought out by the application of Nitrate of Soda at the rate of 14.99 grams per plant appears to be a justifiable expense, even though the plants were apparently not able to assimilate the great amount of Nitrate nitrogen in the manured plot when measured by amounts of yields.

It would follow, therefore, that 2 problems are faced; first, either the near optimum assimilating nitrate content of the tomato plant is reached in the field soil, and second, that the great amounts of chloride salts found in heavily manured soils causes abnormal vegetative conditions of plant growth.

PLOT I, Nitrate of Soda.

The rate of application of Nitrate of Soda per plant based on 320 pounds per acre was determined by reducing the pounds to grams, 1 pound being equal to 453.59 grams, or 145,148 grams per acre. The plot contained 54 square feet. Each plant was evenly spaced $2\frac{1}{4}$ feet by 2 feet giving a total of 4.5 sq.ft. per plant, or 9680 plants per acre, there being 43,560 sq.ft. in an acre. Then the total grams per acre divided by the number of plants per acre gave the application per plant of 14.99 grams.

The first application of Nitrate of Soda made on March 19, consisted of 7.50 grams per plant. This was sifted with fine soil to a distance of 5 inches distant from the stem. On April 2 the second application of 4.49 grams per plant was sifted with fine soil to a distance of 8 inches from the stem. The third application of 3 grams on April 17 was also sifted with fine soil to a distance of 8 inches from the plant stem. A response of heighth growth to the first treatment was quite apparent within a few days. The measurement made (Chart No.1) shows that on April 6 a mean growth of 13.23 cm. had been made,

which gradually lessened to 11.93 cm. on April 10, 10.60 cm. on April 14, and 10.65 cm. on April 18. From the application on April 17 we see the response showing up by a mean growth of 11.55 cm. on April 22, 12.95 cm. on April 26, and 12.67 cm. on April 30. From this time there was a general decline to a mean growth of 10.12 cm. on May 12. The plants were topped on May 14 with no further measurements taken. The data shows a fluctuation of heighth growth caused by the Nitrate of Soda and that the plants are quick to give a response. This effectiveness took place within 5 days, reaching a maximum within 9 days from which time a general lessening of growth occurred. However, this is not conclusive as the tomato is susceptible to climatic changes as was found during the week of April 14 when there occurred 3 days of cold, cloudy weather and the plant growth lessened considerably.

Observations were made repeatedly to determine if the Nitrate of Soda would intensify coloration of the foliage but compared to Plot I no difference in color was discerned.

The total number of 439 buds produced gave a mean number of 39.90 per plant or 6.65 per cluster. Of this total number 3 buds did not develop into flower (abortive), the remainder, 436, flowering and setting fruit.

Fig. 7, Plot I.

Representative plant. All fruit set on plant and fruit
well developed. Plant more slender than those in Plot II.

The total of 439 buds were distributed throughout the plot as shown by:

Clusters	Buds	Mean per Cluster
1 - - - - - - -	56	- - - - - 5.090
2 - - - - - - -	55	- - - - - 5.0
3 - - - - - - -	60	- - - - - 5.454
4 - - - - - - -	100	- - - - - 9.090
5 - - - - - - -	69	- - - - - 6.272
6 - - - - - - -	99	- - - - - 9.

Total 439.

Mean per plant 39.90.   Mean buds per cluster per mean

plant, 6.65.

The data on Charts 4 to 9 show the irregularity of flowering and the fruit setting periods, a resume of which is shown in Table No. 2.

Table No. 2, Relation of buds per cluster to the periods required in flowering and fruit setting:

No.Buds per Cluster	Fre-quency	Mean No.Days to complete Flowering	Range	Mean No.Days to set Fruit	Range
3	6	6	5-8	2.33	2-4
4	5	11.2	9-15	8.2	6-11
5	14	11.64	9-16	9.21	6-13
6	19	15.37	11-23	12.05	7-20
7	5	19.	15-26	16.2	12-15
8	2	19.	19	15.	14-16
9	5	16.8	14-18	14.0	13-15
10	5	21.6	19-23	18.8	15-21
11	1	16.		14.	
13	2	20.	19-21	16.	15-17
15	1	18		16.	
16	1	21		19.	

CHART NO. 4

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIRST CLUSTER - PLOT I

DAILY RECORD

No. of Plant	Class	March 26	27	28	29	30	31	Apr 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS			0	1	2	3	2	2	2	1	1	1	1	1	2	1	1	0									16	
	FRUIT SET							0	1	1	2	2	3	3	3	3	3	4	4	4	5								13
2	BUDS	4																											
	FLOWERS			0	1	2	3	3	3	2	1	1	1	1	1	1	1	1	0									15	
	FRUIT SET							0	1	2	2	2	3	3	3	3	3	3	4										11
3	BUDS	6																											
	FLOWERS				0	1	1	2	2	2	3	3	4	4	3	1	2	2	1	1	0							15	
	FRUIT SET								0	1	1	1	1	1	2	4	4	4	5	5	6								12
4	BUDS	5																											
	FLOWERS				0	1	2	3	3	3	3	3	1	1	2	1	1	1	0									13	
	FRUIT SET								0	1	1	1	3	3	3	4	4	4	5										11
5	BUDS	6																											
	FLOWERS			0	1	1	2	3	3	3	2	3	2	2	1	1	2	1	1	0								16	
	FRUIT SET							0	1	1	2	2	3	3	4	4	4	5	5	5	6								13
6	BUDS	5																											
	FLOWERS			0	1	2	3	3	4	4	4	2	2	1	0													10	
	FRUIT SET							0	1	1	1	3	3	4	5														7
7	BUDS	5																											
	FLOWERS			0	1	2	3	4	3	3	2	2	2	1	0													10	
	FRUIT SET							0	2	2	3	3	3	4	5														7
8	BUDS	5																											
	FLOWERS				0	1	1	2	2	2	2	2	2	3	3	2	2	1	1	0								15	
	FRUIT SET								0	1	1	1	2	2	2	2	3	3	4	4	5								12
9	BUDS	6																											
	FLOWERS				0	1	2	3	3	3	3	3	3	3	2	1	1	0										12	
	FRUIT SET								0	1	1	1	2	3	3	4	5	5	6										10
10	BUDS	5																											
	FLOWERS				0	1	2	4	3	3	3	2	1	0	1	1	1	1	1	0								15	
	FRUIT SET								0	1	1	1	2	3	3	4	4	4	4	4	5								13
11	BUDS	4																											
	FLOWERS			0	1	2	3	3	2	2	2	2	2	2	2	0												11	
	FRUIT SET						0	1	2	2	2	2	2	2	2	4													9
12	BUDS																												
	FLOWERS																												
	FRUIT SET																												
TOTALS	BUDS	56																											
	FLOWERS			7	16	26	33	30	29	26	24	21	20	15	9	12	8	6	4	0									148	
	FRUIT SET							1	11	13	17	22	28	31	37	44	44	48	50	52	56								118
	DATE	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.09

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 12.33

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 9.83

CHART NO. 5

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

SECOND CLUSTER - PLOT I

DAILY RECORD

No. of Plant	Class	\multicolumn{26}{c}{Number of Buds, Flowers and Fruit Set — April}																								No. Days Flowering	No. Days Fruit Set
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
1	BUDS	6																											
	FLOWERS				0	1	2	3	3	3	4	4	2	2	3	2	1	0										12	
	FRUIT SET										0	1	1	3	3	3	4	5	6										8
2	BUDS	6																											
	FLOWERS					0	1	2	3	3	3	2	3	2	2	2	2	2	2	1	1	0						15	
	FRUIT SET											0	1	1	2	3	3	3	3	4	5	5	6						11
3	BUDS	5																											
	FLOWERS							0	2	2	2	2	2	2	3	3	2	1	0									9	
	FRUIT SET											0	1	1	2	2	2	3	4	5									8
4	BUDS	3																											
	FLOWERS						0	1	3	3	3	2	0															6	
	FRUIT SET										0	1	3																2
5	BUDS	8																											
	FLOWERS				0	1	2	3	4	5	5	4	2	1	1	1	1	1	2	2	2	2	1	0				19	
	FRUIT SET										0	1	2	4	4	5	5	5	5	5	5	6	6	7	8				14
6	BUDS	6																											
	FLOWERS			0	1	2	3	4	5	5	4	3	1	1	1	1	1	1	1	1	0							17	
	FRUIT SET									0	1	2	4	4	4	5	5	5	5	5	5	6							12
7	BUDS	3																											
	FLOWERS				0	2	2	3	3	2	0																	5	
	FRUIT SET								0	1	3																		2
8	BUDS	3																											
	FLOWERS						0	1	2	3	3	3	2	0														6	
	FRUIT SET											0	1	3															2
9	BUDS	5																											
	FLOWERS						0	1	3	3	4	4	4	3	3	2	1	0										10	
	FRUIT SET										0	1	1	2	2	2	4	4	5										7
10	BUDS	3																											
	FLOWERS							0	3	3	3	2	0															5	
	FRUIT SET											0	1	3															2
11	BUDS	7																											
	FLOWERS						0	1	1	2	3	3	3	3	3	3	3	3	2	1	1	0						15	
	FRUIT SET										0	1	2	3	3	3	4	4	5	6	6	7							12
12	BUDS																												
	FLOWERS																												
	FRUIT SET																												
TOTALS	BUDS	55																											
	FLOWERS				1	6	12	20	34	35	34	29	19	15	16	13	10	6	5	5	5	2	2	1	0			119	
	FRUIT SET								1	1	13	25	32	33	39	44	46	49	49	49	53	53	54	55					80
	DATE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 10.81

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 7.27

CHART NO. 6

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

THIRD CLUSTER - PLOT I

DAILY RECORD

No. of Plant	Class	Number of Buds, Flowers and Fruit Set — April																							May			No. Days Flowering	No. Days Fruit Set
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		
1	BUDS	6																											
	FLOWERS								0	1	1	3	4	3	3	1	2	1	1	0								11	
	FRUIT SET												0	1	2	4	4	5	5	6									8
2	BUDS	5																											
	FLOWERS						0	1	2	3	4	3	3	2	1	1	0											9	
	FRUIT SET										0	1	2	3	4	4	5												6
3	BUDS	6																											
	FLOWERS								0	1	2	2	2	3	2	3	3	3	1	1	0							11	
	FRUIT SET												0	2	2	3	3	5	5	6									7
4	BUDS	6																											
	FLOWERS								0	2	2	3	3	2	2	2	2	2	2	1	0							12	
	FRUIT SET												0	2	2	3	4	4	4	4	5	6							9
5	BUDS	5																											
	FLOWERS					0	1	1	2	3	1	1	2	2	1	0												9	
	FRUIT SET									0	2	2	2	3	4	5													6
6	BUDS	6																											
	FLOWERS			0	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	0								16	
	FRUIT SET								0	1	2	2	3	4	5	5	5	5	6										12
7	BUDS	7																											
	FLOWERS				0	1	2	3	3	2	1	0	1	1	2	2	2	2	2	1	1	1	0					18	
	FRUIT SET								0	1	2	3	3	3	3	3	4	3	5	5	6	6	7						15
8	BUDS	6																											
	FLOWERS						0	2	2	3	3	2	3	2	3	2	1	1	1	0								12	
	FRUIT SET							0	1	2	2	3	3	4	5	5	5	6											10
9	BUDS	6																											
	FLOWERS							0	1	2	3	3	2	2	2	2	1	1	0	0	0	1	0					15	
	FRUIT SET											0	1	2	3	3	4	4	5	5	5	5	6						12
10	BUDS	3																											
	FLOWERS								0	2	2	2	2	3	2	1	1	0										8	
	FRUIT SET												0	1	2	2	3												4
11	BUDS	4																											
	FLOWERS								0	2	2	3	3	2	1	1	1	1	0									9	
	FRUIT SET												0	1	2	3	3	4											6
12	BUDS																												
	FLOWERS																												
	FRUIT SET																												
TOTALS	BUDS	60																											
	FLOWERS				1	3	5	8	11	22	23	25	27	25	22	16	16	12	9	7	2	1	2	0				132	
	FRUIT SET										2	6	9	11	19	28	37	42	47	50	52	57	58	60					95
DATE		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.45

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 12.

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 8.63

CHART NO.7

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

FOURTH CLUSTER – PLOT I

DAILY RECORD

No. of Plant	Class	April 18	19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	No. Days Flowering	No. Days Fruit Set
1	BUDS	3																															
	FLOWERS		○	1	3	3	3	3	2	○																						6	
	FRUIT SET								○	1	3																						2
2	BUDS	9																															
	FLOWERS			○	1	2	3	3	2	3	2	3	4	4	3	2	3	2	1	1	1	○										17	
	FRUIT SET					○	1	2	3	3	3	3	5	6	6	7	8	8	8	9													14
3	BUDS	7																															
	FLOWERS					○	2	2	2	2	1	2	2	1	1	2	1	2	2	1	1	1	○									17	
	FRUIT SET						○	2	2	2	3	3	3	4	4	4	5	6	6	6	7												14
4	BUDS	10																															
	FLOWERS					○	2	2	2	2	3	3	3	2	2	3	2	2	1	1	1	1	1	○	○	○	1	1	○			22	
	FRUIT SET						○	1	1	2	2	4	4	4	6	6	7	7	8	8	8	9	9	9	9	9	10						20
5	BUDS	10																															
	FLOWERS		○	1	2	2	2	4	2	3	4	3	3	3	3	1	1	2	1	1	1	2	1	1	1	○						23	
	FRUIT SET					○	2	2	3	4	4	5	5	7	7	7	8	8	8	8	9	9	9	9	10								19
6	BUDS	13																															
	FLOWERS		○	1	1	2	3	6	5	5	5	3	4	3	4	3	1	1	1	2	1	1	○									19	
	FRUIT SET					○	1	2	3	6	6	7	7	8	10	10	11	11	12	12	13												15
7	BUDS	13																															
	FLOWERS			○	1	2	2	4	4	2	3	4	4	4	3	4	4	3	2	2	1	1	1	1	1	○						21	
	FRUIT SET					○	3	4	4	4	7	8	8	8	9	11	11	12	12	12	12	12	13										17
8	BUDS	10																															
	FLOWERS			○	1	1	2	3	3	3	3	4	5	2	4	2	1	2	1	1	1	1	○									19	
	FRUIT SET						○	1	2	3	3	5	5	7	8	9	9	9	9	9	10												15
9	BUDS	10																															
	FLOWERS					○	1	2	2	3	4	4	4	3	4	2	2	2	1	1	1	○	○	1	1	1	1	○				21	
	FRUIT SET						○	1	1	2	2	4	4	6	6	7	8	8	8	9	9	9	9	9	10								19
10	BUDS	6																															
	FLOWERS					○	1	2	2	1	2	1	1	2	1	1	1	1	1	1	1	○	○	1	1	1	1	○				22	
	FRUIT SET						○	1	1	2	2	2	3	3	4	4	4	4	5	5	5	5	5	6									20
11	BUDS	9																															
	FLOWERS						○	1	3	3	4	2	2	2	2	3	3	2	1	1	2	1	○									16	
	FRUIT SET							○	2	2	3	3	4	4	5	7	7	7	8	8	9												13
12	BUDS																																
	FLOWERS																																
	FRUIT SET																																
TOTALS	BUDS	100																															
	FLOWERS			2	6	11	20	32	31	28	32	29	31	26	28	24	18	20	13	12	11	9	6	8	8	5	5	2	0			203	
	FRUIT SET					3	13	22	33	33	46	48	58	66	69	79	81	85	89	91	95	95	96	97	98	100							168
	DATE	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 9.09
NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 18.45
NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 15.27

CHART NO. 8

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

FIFTH CLUSTER - PLOT I

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	Apr 24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																																				
	FLOWERS							0	1	2	2	2	1	2	1	2	2	1	1	1	1	0															14	
	FRUIT SET											0	1	1	2	2	2	4	4	4	4	5	6															11
2	BUDS	4																																				
	FLOWERS						0	1	1	2	2	3	2	2	1	2	1	1	0																		11	
	FRUIT SET											0	1	1	2	2	3	3	4																			7
3	BUDS	7																																				
	FLOWERS							0	1	2	3	3	2	3	2	2	1	1	1	1	1	1	1	1	0												17	
	FRUIT SET											0	1	1	2	2	3	4	4	4	4	4	5	5	5	6												14
4	BUDS	6																																				
	FLOWERS						0	1	2	2	2	2	2	2	1	1	1	1	2	2	2	1	1	0													16	
	FRUIT SET											0	2	2	2	2	2	3	3	4	4	5	6															11
5	BUDS	4																																				
	FLOWERS							0	2	2	2	2	2	1	2	2	2	1	0																		10	
	FRUIT SET											0	1	1	2	2	2	2	3	4																		8
6	BUDS	9																																				
	FLOWERS						0	2	2	1	2	2	1	1	1	1	1	1	2	1	1	1	0	0	0	0	0	0	0	0	1	1	1	0			26	
	FRUIT SET							0	1	1	1	2	2	3	3	3	3	4	5	5	6	6	6	6	6	6	6	6	6	6	6	7						25
7	BUDS	6																																				
	FLOWERS						0	1	2	2	2	3	2	2	1	2	2	2	2	2	1	1	1	0													17	
	FRUIT SET									0	1	1	2	2	2	3	3	4	4	5	5	5	6															13
8	BUDS	7																																				
	FLOWERS							0	2	2	2	2	1	1	1	2	1	1	2	2	2	1	2	1	1	0											19	
	FRUIT SET									0	2	2	2	2	2	3	3	4	4	4	5	5	6	6	7													15
9	BUDS	9																																				
	FLOWERS							0	1	1	2	2	1	1	1	1	2	3	3	3	3	2	1	1	0												18	
	FRUIT SET									0	1	2	2	2	2	3	3	3	4	6	8	8	9															15
10	BUDS	6																																				
	FLOWERS									0	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0						23	
	FRUIT SET											0	1	2	2	3	3	3	4	4	4	5	5	5	5	5	5	5	6									20
11	BUDS	5																																				
	FLOWERS							0	1	2	2	2	1	2	1	1	1	1	1	2	1	0															14	
	FRUIT SET									0	1	1	2	2	2	3	3	3	4	5																		11
12	BUDS																																					
	FLOWERS																																					
	FRUIT SET																																					
TOTALS	BUDS	69																																				
	FLOWERS					3	5	9	15	20	22	23	14	19	14	18	15	14	13	11	12	11	5	5	8	3	1	2	2	2	2	1	1	0			185	
	FRUIT SET										1	1	1	8	8	16	16	22	28	28	37	40	44	44	49	51	59	60	62	64	64	64	64	65	65	66		150
	DATE	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.27

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 16.81

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 13.33

49

CHART NO. 9

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

SIXTH CLUSTER - PLOT I

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	May 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Jun 1	2	3	4	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																																
	FLOWERS						0	1	2	2	1	1	2	2	1	1	0																9	
	FRUIT SET									0	1	2	2	3	4	4	5																	7
2	BUDS	6																																
	FLOWERS						0	1	2	2	2	2	1	1	2	1	1	1	1	1	1	0											19	
	FRUIT SET									0	1	2	2	2	3	3	3	4	4	4	5	5	5	5	6									16
3	BUDS	8																																
	FLOWERS						0	2	2	2	3	1	2	2	2	1	1	1	2	2	1	1	1	1	1	0							19	
	FRUIT SET									0	2	2	2	3	4	4	5	5	5	6	6	7	7	7	8									16
4	BUDS	15																																
	FLOWERS							0	2	2	2	2	2	2	3	3	5	5	5	3	1	1	2	2	2	1	0						18	
	FRUIT SET									0	1	2	2	4	5	5	6	6	10	12	12	12	12	12	14	15								16
5	BUDS	11																																
	FLOWERS						0	1	1	2	2	4	3	3	3	3	4	3	2	2	1	1	0										16	
	FRUIT SET									0	1	1	2	3	4	5	6	6	7	9	9	10	10	11										14
6	BUDS	9																																
	FLOWERS				0	2	2	2	2	2	3	1	1	1	3	2	2	3	3	1	1	1	0										17	
	FRUIT SET									0	1	2	2	4	5	5	5	6	6	6	6	8	8	8	9									15
7	BUDS	16																																
	FLOWERS					0	1	2	2	2	3	3	4	3	4	2	3	2	2	2	1	3	3	3	3	2	1	0					21	
	FRUIT SET									0	1	2	3	4	6	7	9	9	10	10	11	12	12	12	13	13	14	15	16					19
8	BUDS	5																																
	FLOWERS						0	2	2	2	1	1	2	2	3	2	2	1	0														11	
	FRUIT SET									0	1	2	2	2	2	3	3	4	5															9
9	BUDS	9																																
	FLOWERS								0	1	2	1	1	2	2	2	2	4	5	4	3	2	1	0									14	
	FRUIT SET										0	1	1	2	2	2	4	4	4	5	6	7	8	9										13
10	BUDS	5																																
	FLOWERS								0	1	2	1	1	1	1	2	2	3	1	1	1	0											13	
	FRUIT SET										0	1	1	2	2	2	2	2	4	4	4	5												12
11	BUDS	10																																
	FLOWERS								0	1	2	3	3	2	2	2	3	2	2	1	1	2	2	2	1	0	0	1	1	1	1	0	23	
	FRUIT SET									0	1	2	3	4	4	5	5	6	7	7	7	8	9	9	9	9	9	9	9	10				21
12	BUDS																																	
	FLOWERS																																	
	FRUIT SET																																	
TOTALS	BUDS	99																																
	FLOWERS					3	5	12	16	20	23	21	20	23	23	22	22	25	25	16	18	13	12	8	6	3	1	1	1	1	1	0	180	
	FRUIT SET								2	X	9	20	21	32	42	47	53	57	61	7X	79	81	85	89	91	95	98	98	98	98	98	99		158
	DATE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 9.

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 16.33

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 14.33

Yield.

The first fruit matured on May 20, 4 months and 10 days after the seed was planted. The mature fruit first appeared on clusters 4 and 5 and by May 26 ripening was quite general throughout the plot. The duration of ripening and weight in grams is shown by Table No. 3.

Table No. 3, Plot I - - Duration of Ripening and Amount of Yield:

Cluster:	Duration of Ripening			Yields		
	Date	:No. Days	:	Grams	:Lbs.per:	Plant
		:	:		: Plot	:
1	: May 20-June 18:	29	:	8691.20:	19.16:	1.74
2	: May 30-June 27:	29	:	8969.55:	19.77:	1.80
3	:June 10-July 1:	20	:	9903.25:	21.83:	1.98
4	:June 17-July 26:		:	12308.30:	27.13:	2.47
5	:June 16-July 26:		:	9080.80:	20.02:	1.82
6	:June 30-July 26:		:	12734.80:	28.08:	2.55
Totals :		:		:61687.90:	135.99:	12.36

*A number of fruit had not entirely ripened on this date but it was necessary to bring the experiment to a close.

Of the unripened fruit there were 10 that had not developed beyond the marble size stage. These were obtained from 2 plants, 3 and 10. The remainder of the plants produced fruit of commercial size.

Misshapen Fruit.

From a count of 685 fruit there were 11that were misshapen and not entirely smooth, giving a percentage of 1.6.

Blossom End Rot.

Of the 436 fruit set, there were 10 fruit that showed blossom end rot. This rot did not appear on any fruit in the first, second or third clusters but affected

2 fruit on the fourth cluster, and 8 on the sixth cluster. The number arising on the sixth cluster appeared during early stages of maturity when water was withheld to see if such would hasten the ripening of the fruit.

PLOT II - - Unfertilized Field Soil - - Check.

Excellent cultural treatment was given this plot as for Plots I and III, to obtain the best possible yields and to determine the behavior of the plants with no fertilizer applied under such treatment. The data embodied in Charts 10 to 15 show an irregularity in flowering and fruit setting periods with no possible relation between the same clusters on the different plants. It was thought that the number of buds in a cluster would act as guide or control for the duration of their periods of flowering and fruit setting for like clusters but no uniformity resulted. There was a gradual increase in the number of buds per cluster per mean plant until the earlier cluster began developing fruit when a general decline would occur, a same ratio of increase and decrease being found in the duration of flowering and fruit setting.

The 11 normal plants produced a total of 401 buds as is shown by clusters.

Cluster	Buds	Mean per Cluster.
1	49	4.454
2	61	5.545
3	64	5.818
4	84	7.636

5 – – – – – – – – 67 – – – – – – 6.090

6 – – – – – – – – 76 – – – – – – 6.909

Total – – – – – – 401

Mean per plant, 36.45   Mean buds per cluster per

mean plant – – – –6.067.

Of these 401 buds 395 produced flowers and all
set fruit, the difference, 6 buds, being abortive and de-
veloping no corolla or pistils or stamens. The first 4
clusters produced no abortive buds.

As is shown by Charts Nos. 10 to 15 the first
cluster was the only one showing any regularity of coming
into flower though the completion of the flowering period
was irregular, notwithstanding that the number of buds per
cluster was quite uniformly 4 and 5. Carrying on the de-
termination of the extent of the absence of uniformity in
extent of the flowering and fruit setting the relation to
the number of buds per cluster to the number of days re-
quired to complete these periods, is shown by Table No.4.

Table No. 4 – – Relation of buds per cluster to
the periods required in flowering and fruit setting.

No.Buds per Cluster	Frequency	Mean No.Days to complete Flowering	Range	Mean No.Days to set fruit	Range
2	2	5.		1.	
3	4	5.75	4-7	3.	2-4
4	9	10.11	8-16	7.22	4-12
5	14	12.857	9-17	9.785	6-15
6	20	15.45	11-20	12.5	7-18
7	8	15.125	12.18	12.125	8-15
8	2	14.	12-16	12.5	9-14
9	1	21.		19.	
11	3	17.666	16-21	15.	13-18
12	1	17.		14.	
13	1	18.		16.	
14	1	22.		19.	

CHART NO. 10

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIRST CLUSTER – PLOT II

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS			0	1	3	4	5	3	3	2	1	1	0														9	
	FRUIT SET								0	2	2	3	4	4	5														6
2	BUDS	3																											
	FLOWERS			0	1	2	3	2	0																			4	
	FRUIT SET						0	1	3																				2
3	BUDS																												
	FLOWERS																												
	FRUIT SET																												
4	BUDS	5																											
	FLOWERS				0	1	2	2	1	2	2	2	1	1	2	1	1	1	1	0								15	
	FRUIT SET							0	1	1	2	2	3	3	3	4	4	4	4	5									13
5	BUDS	4																											
	FLOWERS				0	1	2	2	2	2	2	2	2	1	1	0												10	
	FRUIT SET							0	1	1	2	2	2	3	3	4													8
6	BUDS	4																											
	FLOWERS		0	1	1	2	3	3	2	2	2	1	0															9	
	FRUIT SET							0	1	1	2	3	4																5
7	BUDS	4																											
	FLOWERS			0	1	1	2	3	2	2	2	1	1	1	0													10	
	FRUIT SET							0	1	1	2	3	3	3	4														7
8	BUDS	5																											
	FLOWERS		0	1	1	2	3	3	3	4	3	3	2	2	1	0												12	
	FRUIT SET								0	1	2	2	3	3	4	5													7
9	BUDS	5																											
	FLOWERS			0	1	2	3	2	2	1	1	1	2	2	1	1	1	1	0									15	
	FRUIT SET						0	1	2	3	3	3	3	3	4	4	4	4	5										13
10	BUDS	4																											
	FLOWERS				0	1	2	4	4	4	4	4	2	1	0													10	
	FRUIT SET											0	2	3	3	4													4
11	BUDS	5																											
	FLOWERS			0	1	2	3	3	3	3	4	3	2	2	1	0												11	
	FRUIT SET							0	1	1	2	3	3	4	5														8
12	BUDS	5																											
	FLOWERS			0	1	2	3	3	3	3	2	2	1	1	0													10	
	FRUIT SET							0	1	2	2	3	4	4	5														8
	BUDS	x9																											
	FLOWERS			2	8	19	30	32	25	26	28	20	14	11	7	7	2	2	2	1	0							115	
	FRUIT SET							3	14	16	23	27	34	37	42	47	47	47	47	48	49								81
	DATE	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 4.45

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 10.45

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 7.33

CHART NO. 11

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

SECOND CLUSTER - PLOT II

DAILY RECORD

NO. OF PLANT	Class	Number of Buds, Flowers and Fruit Set — April																										NO. DAYS FLOWERING	NO. DAYS FRUIT SET
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
1	BUDS	5																											
	FLOWERS			0	2	3	3	3	4	2	2	2	2	1	1	0												11	
	FRUIT SET								0	3	3	3	3	4	4	5													7
2	BUDS	7																											
	FLOWERS		0	1	3	4	3	3	3	4	2	2	2	1	1	0												12	
	FRUIT SET			0	1	2	2	3	5	5	5	6	6	7															10
3	BUDS																												
	FLOWERS																												
	FRUIT SET																												
4	BUDS	6																											
	FLOWERS				0	2	2	3	3	3	3	4	2	2	2	1	1	1	1	1	1	1	0					17	
	FRUIT SET											0	1	1	1	3	3	3	4	4	5	5	5	5	5	6			14
5	BUDS	6																											
	FLOWERS							0	3	3	4	4	4	2	2	3	2	1	1	1	1	1	0					14	
	FRUIT SET												0	1	3	3	3	4	5	5	5	5	5	6					11
6	BUDS	6																											
	FLOWERS						0	2	3	3	3	3	4	3	1	1	1	1	1	1	1	1	0					15	
	FRUIT SET											0	1	1	2	4	4	5	5	5	5	5	5	6					12
7	BUDS	6																											
	FLOWERS							0	1	3	3	3	5	3	2	1	2	1	0									11	7
	FRUIT SET												0	2	3	4	4	5	5	6									
8	BUDS	2																											
	FLOWERS							0	1	2	2	2	2	0														5	
	FRUIT SET												0	2															1
9	BUDS	3																											
	FLOWERS					0	1	2	3	3	2	1	1	0														7	
	FRUIT SET										0	1	2	2	3														4
10	BUDS	7																											
	FLOWERS								0	1	2	4	4	4	4	4	3	1	2	1	1	0	1	1	0			15	
	FRUIT SET												0	1	1	1	2	4	4	5	5	6	6	6	7				12
11	BUDS	6																											
	FLOWERS							0	3	4	4	4	3	2	2	1	2	1	1	1	0							12	
	FRUIT SET											0	1	2	3	3	4	4	5	5	5	6							10
12	BUDS	7																											
	FLOWERS					0	2	2	3	3	4	4	3	3	2	2	1	1	1	1	1	0						16	
	FRUIT SET										0	1	2	3	3	4	6	6	6	6	6	7							13
TOTALS	BUDS	61																											
	FLOWERS			1	5	12	14	20	30	31	30	35	26	17	16	13	11	7	7	6	5	2	1	1	0			135	
	FRUIT SET					1	2	2	9	14	16	26	36	31	44	47	52	53	54	55	58	60	60	61					101
	DATE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.55

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 12.27

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 9.18

CHART NO. 12

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

THIRD CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	Number of Buds, Flowers and Fruit Set — April																							May			No. Days Flowering	No. Days Fruit Set
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		
1	BUDS	5																											
	FLOWERS			0	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	0								15	
	FRUIT SET										0	1	2	2	2	4	4	4	4	5									9
2	BUDS	3																											
	FLOWERS		0	1	2	3	3	2	1	0																		6	
	FRUIT SET						0	1	2	3																			3
3	BUDS																												
	FLOWERS																												
	FRUIT SET																												
4	BUDS	6																											
	FLOWERS					0	1	2	2	2	2	1	1	1	1	2	2	2	2	2	0							15	
	FRUIT SET										0	1	2	2	2	2	3	3	3	3	4	6							11
5	BUDS	8																											
	FLOWERS								0	1	2	2	3	2	3	4	4	2	3	2	1	0						12	
	FRUIT SET													0	1	2	3	3	5	5	6	7	8						9
6	BUDS	7																											
	FLOWERS								0	1	1	2	3	2	2	1	2	2	3	2	2	1	1	1	0	1	0		17	
	FRUIT SET													0	1	1	3	3	3	3	4	4	5	5	5	6	6	7		14
7	BUDS	7																											
	FLOWERS									0	1	2	3	3	3	2	2	2	3	3	2	1	0						12	
	FRUIT SET														0	2	2	4	4	4	5	6	7						8
8	BUDS	7																											
	FLOWERS									0	2	2	3	3	4	4	2	3	2	2	2	1	1	1	1	0			16	
	FRUIT SET													0	3	3	4	4	4	5	5	5	6	6	7					11
9	BUDS	5																											
	FLOWERS				0	1	2	2	2	2	3	2	2	2	1	1	0											11	
	FRUIT SET								0	1	1	2	2	3	4	4	5												8
10	BUDS	6																											
	FLOWERS									0	1	2	2	3	4	3	3	2	2	2	2	1	0						12	
	FRUIT SET													0	1	2	3	4	4	4	5	6							8
11	BUDS	4																											
	FLOWERS									0	2	2	2	3	2	2	1	1	0										8	
	FRUIT SET													0	1	2	3	3	4										5
12	BUDS	6																											
	FLOWERS					0	1	2	2	2	1	1	1	1	1	1	1	1	2	2	2	3	2	2	1	0			19	
	FRUIT SET							0	1	1	2	2	2	2	2	2	3	3	3	3	4	4	5	6						16
TOTALS	BUDS	64ˣ																											
	FLOWERS			1	3	8	11	10	13	15	19	23	20	23	22	19	16	18	16	13	8	5	✗	2		2	0		143	102
	FRUIT SET							1	2	5	6	10	14	17	24	31	39	41	4✗	48	54	57	58	61		62	64			
	DATE	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.82

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 13.

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 9.27

CHART NO. 13

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

FOURTH CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	__April__ 18	19	20	21	22	23	24	25	26	27	28	29	30	__May__ 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																															
	FLOWERS		0	1	2	2	3	2	3	2	2	2	2	1	1	1	0															13	
	FRUIT SET				0	1	1	2	2	3	4	4	4	5	5	5	6																12
2	BUDS	13																															
	FLOWERS		0	1	2	2	4	4	4	5	5	3	3	3	2	3	4	2	2	2	1	0										18	
	FRUIT SET			0	1	2	2	2	4	6	6	7	8	8	9	11	11	11	12	13													16
3	BUDS																																
	FLOWERS																																
	FRUIT SET																																
4	BUDS	7																															
	FLOWERS					0	1	3	3	4	2	1	2	2	2	2	1	1	0	1	1	1	1	0								18	
	FRUIT SET						0	2	3	3	3	4	4	4	5	5	6	6	6	6	6	7											15
5	BUDS	6																															
	FLOWERS				0	1	3	3	2	2	1	2	1	1	2	1	1	0														12	
	FRUIT SET					0	1	2	3	3	4	4	4	5	5	6																	10
6	BUDS	11																															
	FLOWERS				0	1	2	2	4	4	3	4	2	3	4	3	3	1	2	2	1	1	1	1	1	0						21	
	FRUIT SET					0	1	2	2	3	5	5	5	6	6	8	8	8	9	10	10	10	10	10	11								18
7	BUDS	5																															
	FLOWERS				0	1	2	2	2	2	1	1	1	1	1	1	1	1	1	0												15	
	FRUIT SET					0	1	2	2	2	3	3	3	3	4	4	4	5															12
8	BUDS	6																															
	FLOWERS			0	1	1	2	2	3	2	2	2	2	2	1	1	2	1	1	0												16	
	FRUIT SET				0	1	2	2	3	3	4	4	4	5	5	5	6																12
9	BUDS	9																															
	FLOWERS			0	2	2	4	3	2	4	2	2	2	3	2	2	1	0	0	1	1	1	1	1	0							21	
	FRUIT SET				0	1	2	2	4	4	5	5	6	6	7	8	8	8	8	8	8	8	9										19
10	BUDS	6																															
	FLOWERS				0	1	2	2	3	3		1	2	1	1	1	1	1	0	1	1	1	0									17	
	FRUIT SET						0	2	2	2	3	3	4	4	4	5	5	5	6														13
11	BUDS	4																															
	FLOWERS				0	2	2	2	2	1	1	3	2	2	1	0																10	
	FRUIT SET					0	1	1	1	2	2	3	4																				7
12	BUDS	11																															
	FLOWERS				0	2	3	4	3	3	3	3	2	3	3	3	2	3	3	2	1	0										16	
	FRUIT SET					0	1	2	3	3	5	5	5	6	7	7	7	9	10	11													14
TOTALS	BUDS	84																															
	FLOWERS	1	3	X	10	20	27	31	29	26	23	21	18	22	23	15	14	9	10	9	X	X	3	3	2	1	0						177	148
	FRUIT SET			2	3	X	5	13	23	30	31	45	46	50	59	61	69	70	73	78	80	81	81	82	83	84								
	DATE	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 7.64

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 16.09

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 13.45

CHART NO. 14

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIFTH CLUSTER – PLOT II

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	Apr 24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																																				
	FLOWERS				(0)	3	3	2	3	1	1	2	1	1	1	1	1	1	1	(0)																	15	
	FRUIT SET							(0)	1	1	3	3	3	4	4	4	4	5	5	5	5	6																14
2	BUDS	6																																				
	FLOWERS	(0)	1	2	2	1	2	1	1	1	0	0	1	1	1	1	2	1	1	(0)																	17	
	FRUIT SET				(0)	1	1	2	2	2	3	3	3	3	3	3	3	4	4	5																		15
3	BUDS																																					
	FLOWERS																																					
	FRUIT SET																																					
4	BUDS	6																																				
	FLOWERS						(0)	1	1	2	2	1	2	1	1	2	2	2	2	1	1	2	1	1	(0)												18	
	FRUIT SET										(0)	1	1	2	2	2	2	3	3	4	4	4	5	5	5	6												15
5	BUDS	2																																				
	FLOWERS							(0)	2	2	2	2	2	(0)																							5	
	FRUIT SET												(0)	2																								1
6	BUDS	6																																				
	FLOWERS							(0)	1	1	2	2	2	1	1	1	1	2	1	2	1	1	2	1	1	(0)											17	
	FRUIT SET											(0)	2	2	2	2	2	3	3	4	4	4	5	5	6													13
7	BUDS	4																																				
	FLOWERS									(0)	2	1	1	1	2	2	2	1	(0)																		8	
	FRUIT SET											(0)	1	1	1	1	2	2	3	4																		8
8	BUDS	6																																				
	FLOWERS								(0)	1	2	2	2	2	2	1	1	1	2	1	2	1	1	1	1	(0)											17	
	FRUIT SET												(0)	1	2	2	2	2	3	3	4	4	4	5	5	6												13
9	BUDS	6																																				
	FLOWERS						(0)	1	1	1	2	2	3	2	2	2	2	1	1	0	0	0	1	1	1	1	(0)										20	
	FRUIT SET												(0)	1	1	1	2	3	3	4	4	4	4	5	5	6												15
10	BUDS	14																																				
	FLOWERS										(0)	1	2	2	2	3	2	2	2	3	2	2	3	2	2	2	1	1	1	1	1	1	(0)				22	
	FRUIT SET																(0)	1	2	2	2	4	6	7	7	9	11	11	11	12	13	13	13	13	13	14		19
11	BUDS	6																																				
	FLOWERS								(0)	2	2	3	2	1	2	1	1	1	1	1	0	0	0	0	1	1	(0)										18	
	FRUIT SET											(0)	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6										16
12	BUDS	5																																				
	FLOWERS						(0)	1	1	2	2	2	1	1	1	0	0	0	0	1	1	1	(0)														16	
	FRUIT SET											(0)	1	1	2	3	3	3	3	3	3	3	4															12
TOTALS	BUDS	67																																				
	FLOWERS		1	2	3	6	8	11	16	19	15	16	11	12	12	12	12	12	9	9	8	6	6	5	3	2	2	2	1	1	1	1	1	1	0		173	
	FRUIT SET						1	1	3	3	5	10	11	19	22	26	28	30	34	38	40	42	47	50	52	56	59	62	62	62	63	64	64	64	64	65		141
DATE		24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.09

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 15.72

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 12.81

CHART NO. 15
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
SIXTH CLUSTER – PLOT II
DAILY RECORD

Number of Buds, Flowers and Fruit Set

May: days 4–30; June: days 1–4

No. of Plant	Class	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																																
	FLOWERS		0	1	1	2	2	1	1	1	2	1	1	1	1	1	1	1	0														15	
	FRUIT SET							0	1	2	2	2	3	3	4	4	4	4	5															12
2	BUDS	5																																
	FLOWERS	0	2	2	2	3	2	1	2	1	2	1	1	1	0																		12	
	FRUIT SET					0	1	2	2	3	3	4	4	4	5																			9
3	BUDS																																	
	FLOWERS																																	
	FRUIT SET																																	
4	BUDS	8																																
	FLOWERS						0	1	3	3	3	2	2	2	2	1	1	1	1	0													13	
	FRUIT SET									0	1	2	3	3	4	4	4	5	5	6														10
5	BUDS	6																																
	FLOWERS						0	1	2	3	2	2	2	2	1	1	1	1	0														12	
	FRUIT SET									0	1	1	2	2	4	4	4	4	5															10
6	BUDS	8																																
	FLOWERS							0	1	2	2	1	2	3	3	2	3	2	1	1	1	1	1	1	0								16	
	FRUIT SET									0	1	1	1	3	4	4	5	6	6	7	7	7	8											14
7	BUDS	7																																
	FLOWERS								0	2	2	1	2	1	1	1	2	2	2	2	1	1	2	2	0								15	
	FRUIT SET										0	1	1	2	2	3	3	3	4	4	5	5	5	7										14
8	BUDS	3																																
	FLOWERS							0	1	2	2	3	2	2	0																		6	
	FRUIT SET											0	1	1	3																			3
9	BUDS	12																																
	FLOWERS						0	1	1	2	2	2	3	2	3	4	3	2	3	4	3	2	2	1	0								17	
	FRUIT SET										0	1	1	2	2	4	6	7	7	8	9	10	10	11	12									14
10	BUDS	6																																
	FLOWERS									0	2	1	1	1	3	2	2	1	0	0	0	0	0	0	1	1	0						18	
	FRUIT SET										0	1	1	2	2	2	3	3	4	5	5	5	5	5	5	5	6							18
11	BUDS	5																																
	FLOWERS									0	1	2	2	1	1	2	2	1	1	0													10	
	FRUIT SET											0	1	1	1	2	3	3	3	4														9
12	BUDS	11																																
	FLOWERS								0	1	2	2	3	4	4	3	3	3	3	2	2	3	2	1	1	0							16	
	FRUIT SET										0	1	2	3	5	6	7	8	8	8	9	10	10	11										13
TOTALS	BUDS	76																																
	FLOWERS		2	3	3	5	5	5	6	15	20	22	21	20	21	18	1X	17	15	13	11	6	5	5	3	0	0	1	1	1	0		150	
	FRUIT SET					1	3	X	5	8	14	20	2X	37	4X	46	49	55	58	6X	65	66	68	71	71	71	71	71	72					126
	DATE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.91

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 13.33

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 11.45

Yield.

The first fruit matured on May 16, or 4 months and 6 days after seed was planted, becoming quite general throughout the plot by May 23, 9 plants producing fruit by that date.

The duration of ripening and weights is shown by Table No. 5.

Table No. 5, Plot II, Duration of Ripening and Amount of Yields.

| Cluster | Duration of Ripening | | Yields | | |
	Date	No.Days	Grams	Pounds per plot	Pounds per Cluster
1	May 16-June 9	25	9383.69	20.69	1.88
2	May 27-June 29	34	11206.45	24.70	2.25
3	June 4 -July 6	33	9686.30	21.35	1.94
4	June 12-July 26*	--	11555.00	25.47	2.32
5	June 17-July 26*	--	9733.00	21.45	1.95
6	June 26-July 26*	--	7973.20	17.57	1.59
Totals			59537.64	131.26	11.93

* Of the unripened fruit it was found necessary to pick, there were 15 that had not developed beyond the marble size stage.

Misshapen Fruit.

From a count made of 685 fruit there were 10 that were misshapen and not entirely smooth, giving a percentage of 1.5.

Blossom End Rot.

There were also 11 fruit affected with blossom end rot in Plot II. No rot appeared on clusters 1, 2, and 3. There were 5 fruit affected on cluster 4, 5 on cluster 5, and 1 on cluster 6. All the rot appeared since July 4, during the last 3 weeks of the experiment, when water was

Fig. 8, Plot II.

Representative plant. All fruit set. Fruit on lower
cluster mature and ready for harvest. Shows stockiness
of plant - short cluster nodes.

withheld in an endeavor to hasten maturity.

Plot III - - Manure and Field Soil.

It was deemed necessary to eliminate 14 plants out of the 24 in this plot and to consider only normal plant data. In the 41 days growth data was taken, the mean plant made a growth of 117.58 cm. A gradual increased uniformity of growth gave a daily mean growth of 2.8 cm. with a pronounced increase during the last period data was taken. After topping at 2 leaves above the sixth cluster, there continued to be this increase due to the developing of the upper part of the stem and the leaves.

The 10 plants produced a total of 362 buds, or as shown by clusters:

Cluster	Buds	Mean per Cluster
1 - - - - - - -	55 - - - - -	5.5
2 - - - - - - -	57 - - - - -	5.7
3 - - - - - - -	62 - - - - -	6.2
4 - - - - - - -	49 - - - - -	4.9
5 - - - - - - -	70 - - - - -	7.0
6 - - - - - - -	69 - - - - -	6.9
Total	362	

Mean per plant, 3.62   Mean buds per cluster per mean plant, 6.033.

Of these buds 353 came into flower and set fruit, the difference between these and the total number (362) being abortive buds that failed to develop into flower.

CHART NO. 16
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
FIRST CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set — April

No. of Plant	Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	No. Days Flowering	No. Days Fruit Set
1	BUDS																													
	FLOWERS																													
	FRUIT SET																													
2	BUDS																													
	FLOWERS																													
	FRUIT SET																													
3	BUDS																													
	FLOWERS																													
	FRUIT SET																													
4	BUDS																													
	FLOWERS																													
	FRUIT SET																													
5	BUDS																													
	FLOWERS																													
	FRUIT SET																													
6	BUDS																													
	FLOWERS																													
	FRUIT SET																													
7	BUDS																													
	FLOWERS																													
	FRUIT SET																													
8	BUDS	8																												
	FLOWERS								0	1	1	1	1	2	1	2	4	5	5	5	4	2	1	1	1	0			17	
	FRUIT SET													0	1	1	1	2	2	3	5	6	7	7	8					13
9	BUDS	5																												
	FLOWERS					0	1	1	1		2	3	4	3	2	2	2	1	1	1	1	1	0						17	
	FRUIT SET											0	1	2	2	2	3	3	3	4	4	4	5							12
10	BUDS	5																												
	FLOWERS								0	1	2	3	3	3	3	3	2	2	2	1	0								11	
	FRUIT SET														0	1	2	3	3	3	4	5								7
11	BUDS	6																												
	FLOWERS								0	1	1		2	2	3	3	3	2	2	2	2	2	2	1	0				15	
	FRUIT SET															0	1	2	2	2	2	2	3	4	4	5	6			10
12	BUDS	5																												
	FLOWERS				0	1	1	2	3	3	2	3	4	4	2	2	1	0											12	
	FRUIT SET									0	1	1	1	1	3	3	4	5												8
13	BUDS																													
	FLOWERS																													
	FRUIT SET																													
14	BUDS																													
	FLOWERS																													
	FRUIT SET																													
15	BUDS	5																												
	FLOWERS							0	1	2	2	3	3	2	1	1	1	1	0	0	1	1	1	1	1	1	0		19	
	FRUIT SET													0	1	2	2	2	2	3	3	3	3	4	4	4	5			15
16	BUDS	5																												
	FLOWERS								0	1	1		2	2	2	3	2	2	3	2	1	2	2	1	1	0			15	
	FRUIT SET															0	1	1	2	3	3	3	4	4	5					10
17	BUDS	6																												
	FLOWERS						0	1	2	3	4	4	4	3	2	2	2	2	1	1	0	0	0	0	0	1	1	0	20	
	FRUIT SET													0	1	2	3	3	4	4	5	5	5	5	5	5	6			18
18	BUDS	5																												
	FLOWERS							0	1	2	2	3	3	3	2	2	1	1	2	1	1	1	0						14	
	FRUIT SET													0	2	2	2	3	3	3	4	4	5							9
19	BUDS																													
	FLOWERS																													
	FRUIT SET																													
20	BUDS	5																												
	FLOWERS						0	1	1	2	3	3	3	4	4	4	3	2	2	1	1	0							14	
	FRUIT SET													0	1	1	1	2	3	3	4	4	5							9
21	BUDS																													
	FLOWERS																													
	FRUIT SET																													
22	BUDS																													
	FLOWERS																													
	FRUIT SET																													
23	BUDS																													
	FLOWERS																													
	FRUIT SET																													
24	BUDS																													
	FLOWERS																													
	FRUIT SET																													
TOTALS	BUDS	55																												
	FLOWERS				2	3	6	12	18	22	29	30	31	23	19	16	17	16	12	12	11	6	3	2	3	0			154	
	FRUIT SET										1	2	3	6	15	21	21	27	30	37	40	41	46	50	52	52	52	55		108
DATE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.5

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 15.4

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 10.8

CHART NO. 17
DETERMINATION OF BUDS , FLOWERS AND FRUIT SET
SECOND CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	No. Days Flowering	No. Days Fruit Set
1	BUDS																													
	FLOWERS																													
	FRUIT SET																													
2	BUDS																													
	FLOWERS																													
	FRUIT SET																													
3	BUDS																													
	FLOWERS																													
	FRUIT SET																													
4	BUDS																													
	FLOWERS																													
	FRUIT SET																													
5	BUDS																													
	FLOWERS																													
	FRUIT SET																													
6	BUDS																													
	FLOWERS																													
	FRUIT SET																													
7	BUDS																													
	FLOWERS																													
	FRUIT SET																													
8	BUDS	5																												
	FLOWERS												0	1	3	3	4	3	3	2	2	1	0						10	
	FRUIT SET													0	1	1	3	3	4	4	5									7
9	BUDS	5																												
	FLOWERS										0	1	2	3	2	2	2	2	3	2	1	1	1	0					12	
	FRUIT SET											0	1	1	2	2	2	3	4	4	4	5								10
10	BUDS	5																												
	FLOWERS										0	1	2	3	4	4	3	2	2	1	0								9	
	FRUIT SET											0	1	2	3	3	4	5												6
11	BUDS	6																												
	FLOWERS											0	1	3	3	2	3	4	2	2	2	1	1	0					11	
	FRUIT SET												0	1	1	1	3	3	3	5	5	6								9
12	BUDS	6																												
	FLOWERS									0	1	2	3	3	3	4	3	3	2	2	2	1	0						12	
	FRUIT SET										0	1	1	2	3	4	4	4	5	6									9
13	BUDS																													
	FLOWERS																													
	FRUIT SET																													
14	BUDS																													
	FLOWERS																													
	FRUIT SET																													
15	BUDS	6																												
	FLOWERS											0	2	2	3	1	2	2	2	2	1	0	0	0	0	1	1	1	16	
	FRUIT SET												0	2	2	3	3	3	4	5	5	5	5	5	5	5	6			14
16	BUDS	6																												
	FLOWERS											0	1	2	3	3	3	3	3	1	2	1	1	1	0				13	
	FRUIT SET												0	1	1	2	2	4	4	5	5	5	6							11
17	BUDS	6																												
	FLOWERS									0	1	2	3	4	4	4	2	2	2	1	0								12	
	FRUIT SET										0	1	3	4	4	4	5	5	6											8
18	BUDS	6																												
	FLOWERS										0	1	2	3	3	4	2	2	1	2	2	2	0						11	
	FRUIT SET											0	2	3	4	4	4	4	6											7
19	BUDS																													
	FLOWERS																													
	FRUIT SET																													
20	BUDS	6																												
	FLOWERS									0	1	2	3	4	4	4	2	2	1	0	0	0	0	0	0	1	1	1	19	
	FRUIT SET										0	1	3	3	4	4	5	5	5	5	5	5	5	5	6					15
21	BUDS																													
	FLOWERS																													
	FRUIT SET																													
22	BUDS																													
	FLOWERS																													
	FRUIT SET																													
23	BUDS																													
	FLOWERS																													
	FRUIT SET																													
24	BUDS																													
	FLOWERS																													
	FRUIT SET																													
TOTALS	BUDS	57																												
	FLOWERS									3	7	13	22	27	31	22	25	22	23	16	13	5	5	2	3	2	2	0	125	
	FRUIT SET											1	4	16	21	27	29	36	40	50	50	53	53	55	55	55	57			96
	DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.7

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 12.5

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 9.6

CHART NO. 18
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
THIRD CLUSTER – PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	Apr 19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	No. Days Flowering	No. Days Fruit Set
1	BUDS																														
	FLOWERS																														
	FRUIT SET																														
2	BUDS																														
	FLOWERS																														
	FRUIT SET																														
3	BUDS																														
	FLOWERS																														
	FRUIT SET																														
4	BUDS																														
	FLOWERS																														
	FRUIT SET																														
5	BUDS																														
	FLOWERS																														
	FRUIT SET																														
6	BUDS																														
	FLOWERS																														
	FRUIT SET																														
7	BUDS																														
	FLOWERS																														
	FRUIT SET																														
8	BUDS	3																													
	FLOWERS												○	1	1	2	2	3	2	2	1	1	0							9	
	FRUIT SET													○	1	1	2	2	3												5
9	BUDS	6																													
	FLOWERS							○	2	2	3	3	1	2	2	3	2	2	2	1	○									12	
	FRUIT SET												○	2	2	3	3	4	4	4	5	6									9
10	BUDS	6																													
	FLOWERS						○	1	2	2	2	2	2	2	2	3	3	2	2	1	○									13	
	FRUIT SET												○	2	2	2	2	3	4	5	6										9
11	BUDS	6																													
	FLOWERS							○	1	1	2	2	2	1	2	2	3	2	2	1	1	1	1	1	○					17	
	FRUIT SET												○	1	2	2	2	2	3	3	4	4	5	5	5	5	6				14
12	BUDS	6																													
	FLOWERS					○	1	1	1	2	1	1	1	1	2	3	3	2	2	2	1	1	1	○						17	
	FRUIT SET										○	1	1	2	2	2	2	2	3	3	4	5	5	5	6						14
13	BUDS																														
	FLOWERS																														
	FRUIT SET																														
14	BUDS																														
	FLOWERS																														
	FRUIT SET																														
15	BUDS	5																													
	FLOWERS							○	1	2	2	3	2	1	1	2	2	2	1	1	1	1	○							14	
	FRUIT SET												○	1	2	2	2	2	3	4	4	4	5								11
16	BUDS	9																													
	FLOWERS							○	1	2	2	2	2	2	2	3	3	3	4	3	3	2	1	○						15	
	FRUIT SET												○	1	1	2	2	2	3	3	4	6	7	8	9						12
17	BUDS	6																													
	FLOWERS						○	1	2	3	3	4	4	2	2	2	1	2	1	1	1	1	○							15	
	FRUIT SET												○	3	3	3	4	4	5	5	5	5	6								10
18	BUDS	6																													
	FLOWERS							○	1	2	2	2	2	2	3	2	2	1	1	1	1	1	1	1	○					16	
	FRUIT SET											○	1	1	2	2	3	3	4	4	5	5	5	5	5	6					15
19	BUDS																														
	FLOWERS																														
	FRUIT SET																														
20	BUDS	9																													
	FLOWERS			○	1	1	2	2	2	3	1	2	3	4	4	4	3	2	2	2	2	2	0							19	
	FRUIT SET										○	2	2	2	3	3	4	5	5	6	7	7	7	9							14
21	BUDS																														
	FLOWERS																														
	FRUIT SET																														
22	BUDS																														
	FLOWERS																														
	FRUIT SET																														
23	BUDS																														
	FLOWERS																														
	FRUIT SET																														
24	BUDS																														
	FLOWERS																														
	FRUIT SET																														
TOTALS	BUDS	62																													
	FLOWERS				1	1	X	6	14	19	19	21	17	18	22	25	26	18	19	14	11	8	6	2	1	0				147	
	FRUIT SET										X	X	16	18	21	23	25	34	36	44	50	54	56	60	61	62					113
	DATE	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.2
NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 14.7
NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 11.3

CHART NO. 19
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
FOURTH CLUSTER - PLOT III
DAILY RECORD

No. of Plant	Class	April 28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	No. Days Flowering	No. Days Fruit Set
1	BUDS																																
	FLOWERS																																
	FRUIT SET																																
2	BUDS																																
	FLOWERS																																
	FRUIT SET																																
3	BUDS																																
	FLOWERS																																
	FRUIT SET																																
4	BUDS																																
	FLOWERS																																
	FRUIT SET																																
5	BUDS																																
	FLOWERS																																
	FRUIT SET																																
6	BUDS																																
	FLOWERS																																
	FRUIT SET																																
7	BUDS																																
	FLOWERS																																
	FRUIT SET																																
8	BUDS	6																															
	FLOWERS											0	2	2	2	3	2	2	1	1	2	1	1	1	0							13	
	FRUIT SET												0	2	3	4	4	4	5	5	5	5	6										10
9	BUDS	2																															
	FLOWERS						0	2	2	2	2	0																				4	
	FRUIT SET											0	2																				1
10	BUDS	6																															
	FLOWERS					0	1	2	2	3	3	2	1	1	2	2	2	1	1	1	0											14	
	FRUIT SET						0	1	2	3	3	3	4	5	5	5	6																10
11	BUDS	5																															
	FLOWERS					0	1	1	2	2	2	2	1	0	1	1	1	2	1	0												13	
	FRUIT SET						0	1	2	3	3	3	3	4	5																		9
12	BUDS	6																															
	FLOWERS				0	2	2	3	3	3	2	1	1	2	2	1	1	0														13	
	FRUIT SET					0	2	3	3	3	3	5	5	5	6																		9
13	BUDS																																
	FLOWERS																																
	FRUIT SET																																
14	BUDS																																
	FLOWERS																																
	FRUIT SET																																
15	BUDS	4																															
	FLOWERS					0	2	2	2	2	1	1	1	1	1	0	0	0	0	1	1	1	1	0								17	
	FRUIT SET						0	1	1	1	1	2	2	2	2	2	2	3														14
16	BUDS	7																															
	FLOWERS				0	1	2	2	2	1	2	2	1	0	0	0	1	1	1	1	0										20	
	FRUIT SET					0	1	2	2	3	3	4	5	5	6	6	6	6	6	6	7											13
17	BUDS	8																															
	FLOWERS			0	1	3	3	3	3	3	2	1	1	1	1	0	0	0	0	0	1	1	2	2	1	1	1	0			26	
	FRUIT SET					0	1	1	3	3	4	4	4	5	5	5	5	5	5	5	6	6	6	7								23
18	BUDS	3																															
	FLOWERS					0	1	2	2	3	3	2	1	1	0																	8	
	FRUIT SET						0	1	2	2	3																						4
19	BUDS																																
	FLOWERS																																
	FRUIT SET																																
20	BUDS	2																															
	FLOWERS					0	2	2	2	1	1	0																				5	
	FRUIT SET						0	1	1	2																							3
21	BUDS																																
	FLOWERS																																
	FRUIT SET																																
22	BUDS																																
	FLOWERS																																
	FRUIT SET																																
23	BUDS																																
	FLOWERS																																
	FRUIT SET																																
24	BUDS																																
	FLOWERS																																
	FRUIT SET																																
TOTALS	BUDS	49																															
	FLOWERS				1	5	10	16	20	21	19	12	10	9	10	11	9	7	8	2	2	3	8	8	5	3	2	1	1	0		133	
	FRUIT SET					1	2	7	15	20	23	24	26	31	35	38	40	41	42	42	42	43	44	45	46	46	46	47					101
	DATE	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 4.9

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 13.3

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 10.1

CHART NO. 20
DETERMINATION OF BUDS , FLOWERS AND FRUIT SET
FIFTH CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	J1	J2	J3	J4	J5	J6	J7	J8	No. Days Flowering	No. Days Fruit Set
1	BUDS																																			
	FLOWERS																																			
	FRUIT SET																																			
8	BUDS	14																																		
	FLOWERS											0	1	2	2	2	3	3	3	4	4	2	4	4	4	5	5	4	3	3	0				19	
	FRUIT SET												0	1	2	3	3	3	5	6	6	7	7	7	9	10	11	11	14							16
9	BUDS	4																																		
	FLOWERS						0	2	1	2	3	2	2	1	0																				7	
	FRUIT SET							0	1	1	1	2	2	3	4																					7
10	BUDS	6																																		
	FLOWERS					0	1	2	3	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	0								22	
	FRUIT SET						0	1	1	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	6										20
11	BUDS	6																																		
	FLOWERS						0	1	2	3	3	1	1	2	1	1	1	1	1	0															13	
	FRUIT SET							0	2	2	2	3	3	4	4	4	4	5																		10
12	BUDS	6																																		
	FLOWERS					0	1	2	2	2	2	2	2	3	1	1	0																		11	
	FRUIT SET						0	1	2	2	3	3	5	5	5	6																				9
15	BUDS	5																																		
	FLOWERS						0	1	2	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0						22	
	FRUIT SET							0	1	1	1	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	5									20
16	BUDS	7																																		
	FLOWERS						0	2	2	1	1	1	1	2	1	1	2	2	1	1	0														13	
	FRUIT SET							0	1	2	2	3	3	3	4	4	4	4	5	5	6															13
17	BUDS	6																																		
	FLOWERS			0	1	1	3	3	2	2	2	2	2	1	1	1	0																		14	
	FRUIT SET				0	1	2	3	3	4	5	5	5	5	5	6																				11
18	BUDS	5																																		
	FLOWERS						0	1	2	2	2	2	2	1	1	0																			8	
	FRUIT SET							0	1	2	2	4	4	5																						6
20	BUDS	11																																		
	FLOWERS					0	2	3	2	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	0									19	
	FRUIT SET						0	1	3	3	4	5	6	7	7	8	9	9	9	10	10	10	10	10	11											19
TOTALS	BUDS	70																																		
	FLOWERS			1	3	10	16	16	20	20	1x	1x	12	10	11	9	9	9	10	9	5	6	1	1	6	1	1	5	3	3	0				148	
	FRUIT SET						1	7	11	15	25	27	35	37	38	4x	46	48	49	51	55	51	57	58	59	59	61	63	65	65	68					131
DATE		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 7.

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 14.8

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 13.1

CHART NO. 21
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
SIXTH CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	No. Days Flowering	No. Days Fruit Set
		May																June																	
1	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
2	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
3	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
4	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
5	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
6	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
7	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
8	BUDS	4																																	
	FLOWERS										0	1	1	2	2	2	1	1	2	2	2	2	2	2	1	1	1	1	1	0				18	
	FRUIT SET																	0	1	1	1	2	2	2	3	3	3	3	3	4					14
9	BUDS	7																																	
	FLOWERS					0	1	2	2	2	2	1	1	3	2	2	2	2	2	1	1	1	1	0										17	
	FRUIT SET											0	1	2	2	2	3	3	3	3	4	5	5	5	5	6									14
10	BUDS	4																																	
	FLOWERS						0	1	1	1	2	1	1	1	1	2	2	2	1	1	1	0												16	
	FRUIT SET											0	1	1	1	2	2	2	3	3	3	3	3	4											13
11	BUDS	6																																	
	FLOWERS							0	1	1	1	2	2	1	1	2	2	2	2	4	4	2	2	2	0									16	
	FRUIT SET												0	1	1	1	2	2	2	2	2	4	4	4	6										12
12	BUDS	4																																	
	FLOWERS		0	1	1	2	2	1	2	2	1	1	1	1	1	1	0																	15	
	FRUIT SET							0	1	1	1	2	2	3	3	3	3	3	4																12
13	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
14	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
15	BUDS	8																																	
	FLOWERS						0	1	1	1	2	2	2	3	2	2	2	1	2	2	2	2	2	2	0									16	
	FRUIT SET													0	1	1	2	2	2	4	4	4	4	4	6										12
16	BUDS	6																																	
	FLOWERS								0	1	1	1	3	2	1	1	1	1	1	1	1	0												12	
	FRUIT SET													0	1	2	2	3	3	3	3	3	4												9
17	BUDS	13																																	
	FLOWERS	0	1	1	2	3	3	3	3	2	3	3	3	4	3	4	4	4	5	5	3	3	1	1	0									22	
	FRUIT SET									0	1	1	2	2	3	3	4	5	6	6	7	7	8	10	10	12	12	13							18
18	BUDS	9																																	
	FLOWERS		0	1	3	3	3	2	1	2	3	2	1	3	2	2	2	2	2	1	2	2	1	1	0									21	
	FRUIT SET									0	1	2	2	2	3	4	4	5	5	5	5	6	7	7	7	8	8	9							18
19	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
20	BUDS	8																																	
	FLOWERS		0	1	1	2	2	3	2	2	3	3	2	4	3	2	2	2	2	1	1	1	1	1	0									21	
	FRUIT SET										0	1	1	2	2	3	3	4	5	5	6	6	7	7	7	7	7	8							17
21	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
22	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
23	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
24	BUDS																																		
	FLOWERS																																		
	FRUIT SET																																		
TOTALS	BUDS	69																																	
	FLOWERS		1	4	7	10	13	14	14	16	18	19	16	22	19	19	17	18	21	18	14	14	8	4	1	1	1	1	1	0				174	
	FRUIT SET									3	5	6	10	14	19	23	27	31	35	37	40	44	50	50	56	60	63	63	63	63	64				139
	DATE	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 6.9

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 17.4

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 13.9

The number of days required to complete cluster flowering and to set fruit was very irregular. It was very noticeable that the more buds in a cluster the longer it took that cluster to complete its cycle of flowering and fruit setting. The relation to the number of buds per cluster to the days required to complete the flowering and fruit setting is shown by Table No. 6.

Table No. 6 - - Relation to Period of Flowering and Fruits Setting per Cluster to Buds per Cluster, Abortive not Included.

No.Buds: per Cluster:	:Fre- :quency:	::Mean No.Days: ::to complete :: Flowering	:Range:	::	Mean No.Days: to set Fruit:	Range
2	2	4.5	4-5		2.	1-3
3	3	11.33	8-17:		7.66	4-14
4	5	13.6	7-18:		11.0	7-14
5	15	13.47	9-19:		9.93	6-15
6	25	14.62	11-22:		11.56	7-20
7	2	23.	20-26:		15.5	8-23
8	2	19.	17-21:		15.	13-17
9	3	18.33	15-21:		14.66	12-18
11	1	19.			19.	
13	1	22.			18.	
14	1	19.			16.	

Yields.

The first fruit matured on May 31, or 4 months and 21 days after the seed was planted. Maturity became general on June 6. The duration of ripening and amount of yield is shown by Table No. 7.

Fig. 9, Plot III.

Representative plant. Shows result of prolonged
flowering and fruit set periods. Only 2 fruit on
fourth cluster show size.

Table No. 7, Plot III - - Duration of Ripen-

ing and Amount of Yields.

Cluster	Duration of Ripening		Yields		
		No.		Pounds	
	Date	Days	Grams	Per Plant	Per Cluster
1	May 31-June 27	28	8617.90	18.99	1.90
2	June 5-July 26	--	7534.90	16.61	1.661
3	June 20-July 26	--	7805.50	17.21	1.73
4	June 25-July 26	--	6351.40	14.00	1.40
5	July 19*July 26	--	8986.80	19.81	1.98
6	June 30*July 26	--	7094.20	15.64	1.57
Totals			46390.70	102.27	10.23

*Blossom end rot.

On July 26 all unripened tomatoes were picked, of

which there were 15 not developed beyond the marble size

stage.

Misshapen Fruit.

From a count of 685 fruit there were 31 or a

percentage of 4.5 caused by the manure treatment.

Blossom End Rot.

Here, as in Plots I and II, no rot appeared

in clusters 1, 2, or 3. In cluster 4 there were 2 fruit

affected; in cluster 5, 7 fruit; and in cluster 6, 6

fruit; giving a total of 15 fruit. The occurrence of

the rot here can also be associated with moisture con-

tent. It first occurred on June 19 when water began to

be withheld in an endeavor to hasten ripening, but only

5 fruit were affected until July 15 when 10 fruit showed

the rot.

In this instance, however, the behavior of all

the 24 plants contained in this plot is of interest in

showing the susceptibility of abnormal plants to the rot,

Considering all plants, therefore, 42 fruit were affect-
ed, these being distributed on the plants as follows:

First cluster - - - - 7

Second cluster - - - 5

Third cluster - - - - 1

Fourth cluster - - - 7

Fifth cluster - - - -11

Sixth cluster - - - -11

From this it would appear that the occurrence of the rot
in a heavily manured soil is not so much dependent upon
degree of moisture as upon soil texture, this soil text-
ure being the media governing the amount of available
water supply.

Coloration of Foliage.

The plants carried forward in the 50-50 man-
ure-soil mixture, from their first appearance and after
transplanting in Plot III on March 18, had a deeper or
more intense green coloration of foliage than those
raised in field soil. This coloration continued until
the fruit began setting on the third cluster when a
gradual change toward a lighter green resulted. On May
12 the plants as a whole were a lighter green than eith-
er Plots I and II. On June 3, after topping, this light-
ened color still existed. In July, however, as the fruit
rapidly reached maturity, the foliage became a darker
green and on July 26 no difference in color could be dis-
tinguished in any of the three plots.

DISCUSSION

Relation of Quantities of Nitrate Nitrogen to
the Formation of Buds, Flowering Period, and Set of Fruit.

The number of buds within the 3 plots showed
a wide range in the mean per cluster in all plots. The
manure, Plot III, giving a range of 2.10; the field soil
Plot II, 3.19; and the Nitrate of soda, Plot I, 4.09.
This variation is shown by Table 8.

Table 9, Number of Buds, mean per cluster,
normal plants.

Cluster	Plot I	Plot II	Plot III
1	5.090	4.454	5.50
2	5.000	5.545	5.70
3	5.454	5.818	6.20
4	9.090	7.636	4.90
5	6.272	6.090	7.00
6	9.000	6.909	6.90
Total buds per mean Plant	39.90	36.452	36.20
Mean per Cluster	6.65	6.067	6.033

This data shows that the Nitrate of Soda gave
an increased number of buds of .584 per cluster over the
field soil and .617 per cluster over the manured soil,
with the field soil giving an increase of .034 buds per
cluster over the manured soil. The higher amounts of
74.24 ppm. of NN in the manured soil (Plot III) would
not cause a laxity of bud formation as from the studies
of Nightingale (27) the presence or absence of nitrates
within tomato plants does not necessarily affect the type
of growth. Gourley (15) in summarizing the amounts of
nitrates in its connection with tree vigor and bud forma-

tion states that "It appears in this soil that nitrate formation of from 20 to 40 parts per million of dry soil as an average for the growing season, is essential for the maximum vigor of the trees and abundant fruit bud formation, and that above this an excess will not of itself increase the growth or number of fruit buds formed." It is very probably due to the large amounts of existing chlorides. Reed and Haas (30) point out that nitrates are not detrimental to growth of walnut seedlings unless high concentrates are used but chlorides are injurious to both walnut and orange trees affecting both the root development and top growth. Sackett (34) in measuring the nitrifying efficiency of various soils concludes that large amounts of chlorides inhibits nitrification.

Experiments by Wheeler and Hartwell (44) showed that, when soils are acid, chlorides have a marked poisonous action on tomatoes, the results dealing with yields, though when air slacked lime was applied this toxic effect disappeared. Thompson and Robbins (40) used chloride salts in eradicating the barberry, with the percentage of kill exceedingly large. Applications however, were exceedingly large compared to the chloride salts found in Plot III, but it shows the toxic effect that such salts may have on plant growth. There was a striking difference in the number of buds that failed to develop into flower. Jenkins and Britton (20) in their work with carnations called this class of bud ab-

normal or "sleepy" though a better classification for those of the tomato would be abortive. The number of these abortive buds were very few in the normal plants and would have but little bearing on production. There were found but 3 abortive buds in Plot I, 6 in Plot II, and 9 in Plot III, giving a percentage ratio of 16-2/3, 33-1/3, and 50. The percentages of NN per ppm. found in the soils were 19.72, 32.5 and 47.8 respectively. Whereas, considering all the plants; i.e. normal and abnormal, Plot I produced 4; Plot II, 7; and Plot III, 35; or a ratio of 8.7 percent, 15.2 percent and 76.1 percent. This suggests that it is not the nitrogen that causes abortiveness, but other elements such as the chlorides in Plot III and that abnormal plants are conducive to abortiveness in buds.

Duration of Blossoming and Fruit Set.

The duration of the time of blossoming and set of fruit was taken by clusters to determine the effect of nitrogen content over unfertilized field soil. The length of time to produce the fruit of the tomato is generally known but there is little knowledge covering the duration of the factors leading up to maturity. Between the fruit clusters there is a wide variation covering extent of flowering and fruiting.

The condition found for the blossoming and fruit setting periods is shown by Table 9.

Table 9 - - Mean Number of Days per Plant per

Cluster Covering Duration of Flowering and Fruit Setting.

	Plot I		Plot II		Plot III 66	
Clusters	Flowering	Fruit Set	Flowering	Fruit Set	Flowering	Fruit Set
1	16	14	17	14	22	18
2	20	16	21	19	19	19
3	19	15	22	19	21	16
4	25	21	25	23	26	23
5	28	27	33	31	27	25
6	26	24	27	24	27	23
Total	134	122	145	130	142	124

Extending from cluster to cluster on a plant there was found to be an overlapping of time taken in flowering, as several clusters were in flower at the same time. Plot I completed its flowering period 11 days ahead of Plot II, and 8 days before Plot III. It also completed fruit setting 8 days ahead of Plot II and 2 days before Plot IIL

The determination of buds, flowers and fruit set is shown by Charts 4 to 20. From these charts no regularity can be based on the beginning of flowering, the duration of such flowering, or the time of fruit set after flowering. There exists wide variation between the plants in each instance. The plants showed an individuality in this respect as the period of fertilization following blossoming in one cluster was no criterion to follow for the next cluster above.

In this there is an overlapping of one cluster over another. The first cluster had not completed its flowering and fruit setting periods before the second cluster came into flower and set fruit. The totals give the time it took buds to flower and fruit to set, though the

Fig. 10. Side view along Plot I and Plot III.
Lower fruit has matured and has been harvested. Shows
smooth, well formed fruit on top clusters.

elapsed time as shown by Charts 4 to 20 is for flowering.

Plot I - - March 29 to June 2, or 66 days.

Plot II- - March 28 to June 4, or 69 days.

Plot III - April 2 to June 15, or 74 days.

and for fruit setting:

Plot I - - April 1 to June 3, or 74 days.

Plot II- - April 1 to June 5, or 66 days.

Plot III - April 9 to June 16, or 68 days.

These durations of time required by each mean cluster per plot in their relation to the mean number of buds flowering are graphically shown by Graphs 2,4,6,8,10 and 12.

In every instance the Field Soil plot first began its period of flowering, averaging 1.6 days ahead of the Nitrate of Soda plot and 11.6 days ahead of the manured plot.

The variation by clusters per plant at the beginning of flowering period compared to unfertilized field soil plot is shown by Table No. 10.

Table 10 - - Beginning Flowering Periods.

Cluster	Plot I	Plot II	Plot III
1	1	o*	7
2	1	o	12
3	1	o	12
4	1	o	12
5	3	o	15
6	3	o	12

*The figure o denotes the mean cluster per plot that first began flowering, numbers denote number days other mean clusters lagged.

This same ratio is not found in the completion of the flowering period, as is shown in Table No. 11.

GRAPH NO. 2
FIRST CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
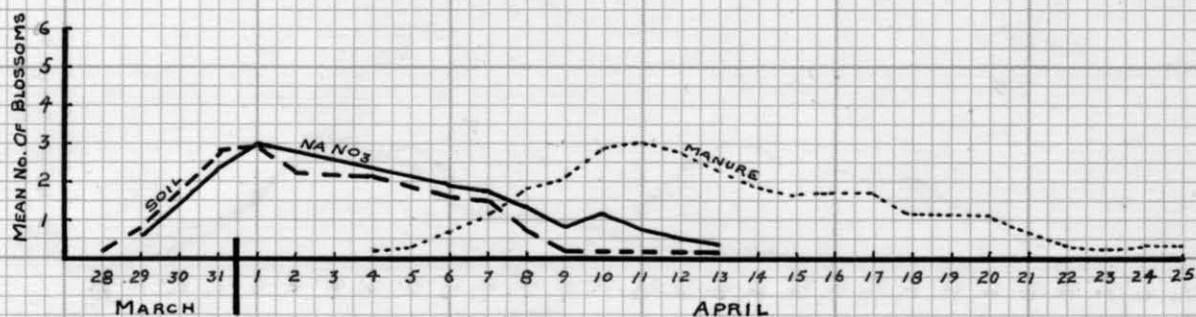
GRAPH NO. 3
FIRST CLUSTER
DURATION OF MEAN FRUIT SETTING PERIOD
AND
MEAN NUMBER OF FRUIT SET
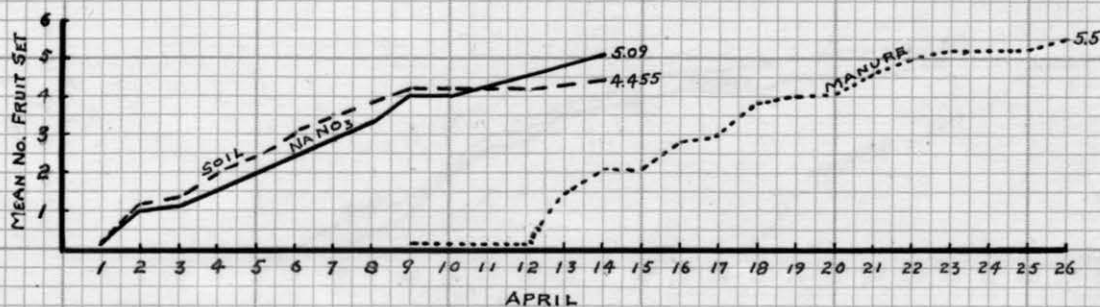
GRAPH NO. 4
SECOND CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
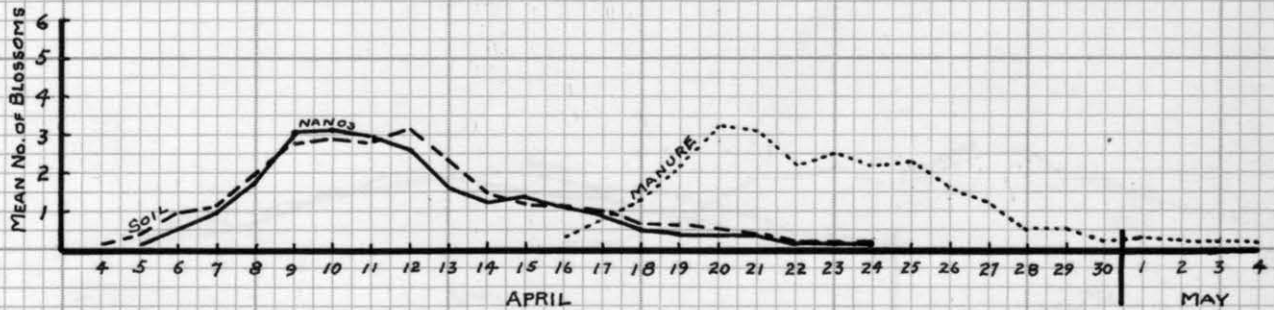
GRAPH NO.5
SECOND CLUSTER
DURATION OF MEAN FRUIT SETTING PERIOD
AND
MEAN NUMBER OF FRUIT SET
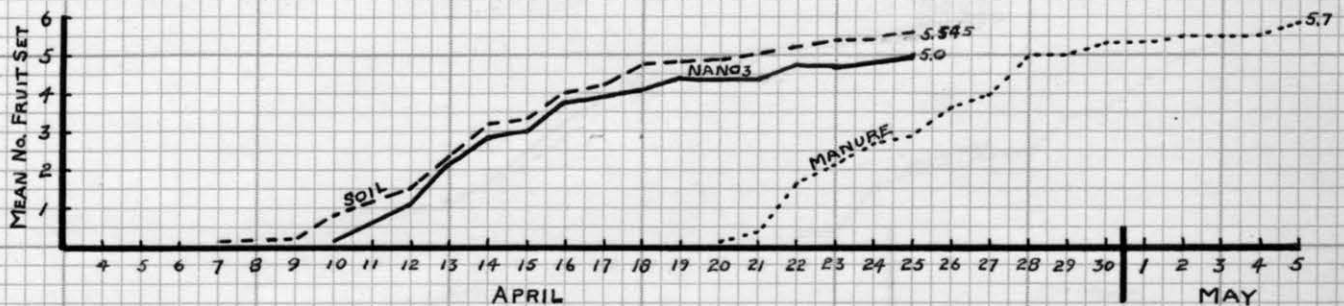
GRAPH NO.6
THIRD CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
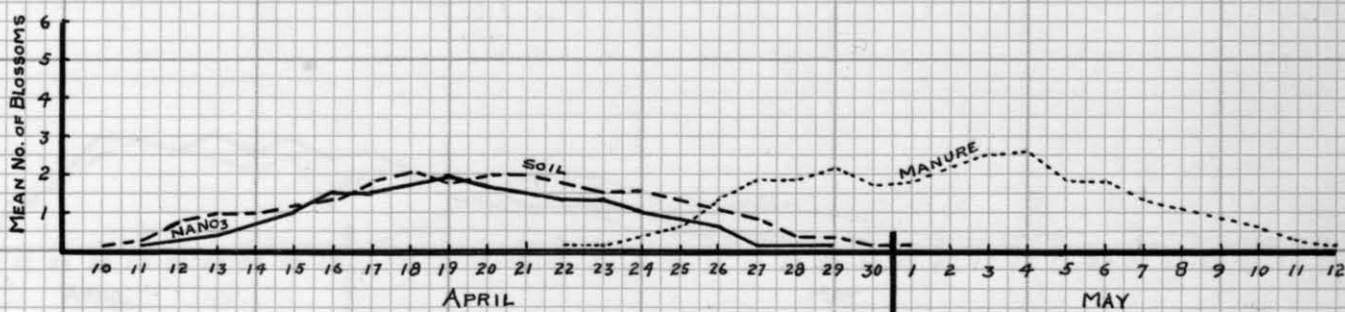
GRAPH NO.7
THIRD CLUSTER
DURATION OF MEAN FRUIT SETTING PERIOD
AND
MEAN NUMBER OF FRUIT SET
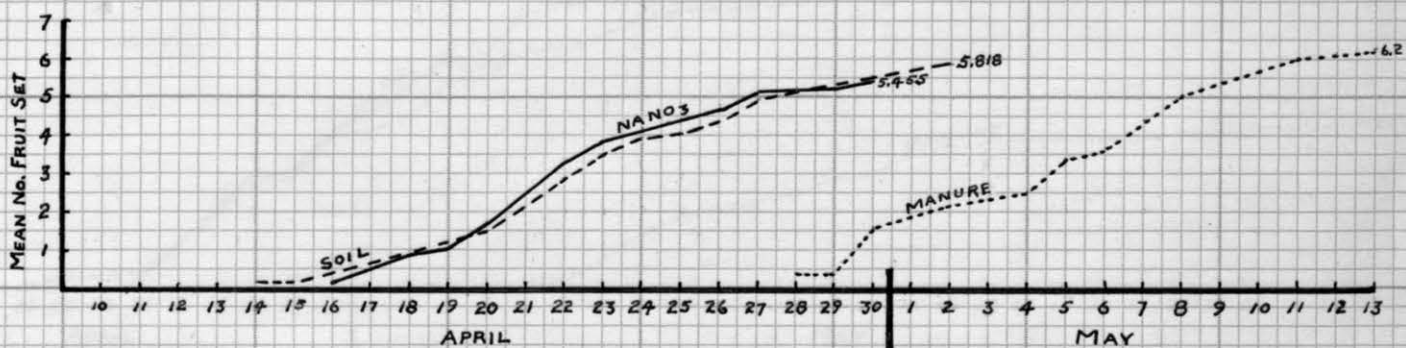
GRAPH NO. 8
FOURTH CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
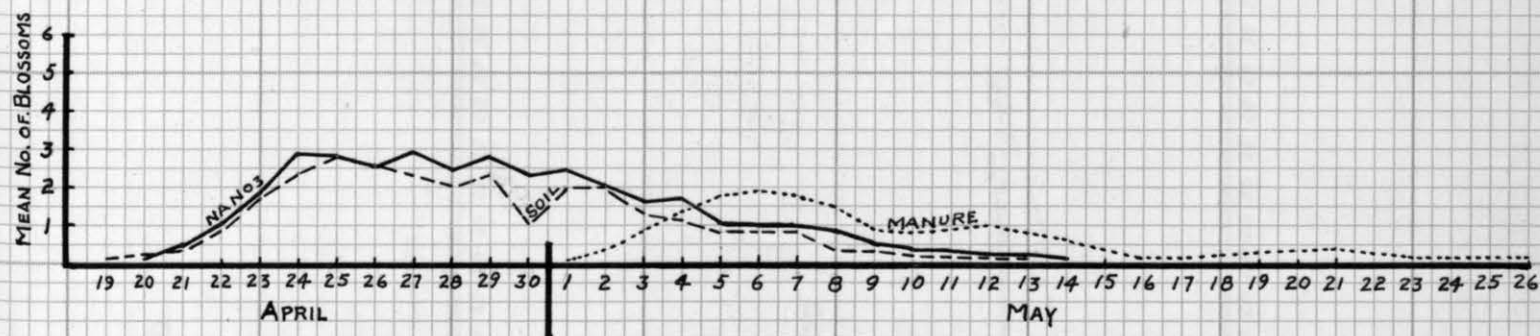
GRAPH NO. 9
FOURTH CLUSTER
DURATION OF MEAN FRUIT SETTING PERIOD
AND
MEAN NUMBER OF FRUIT SET
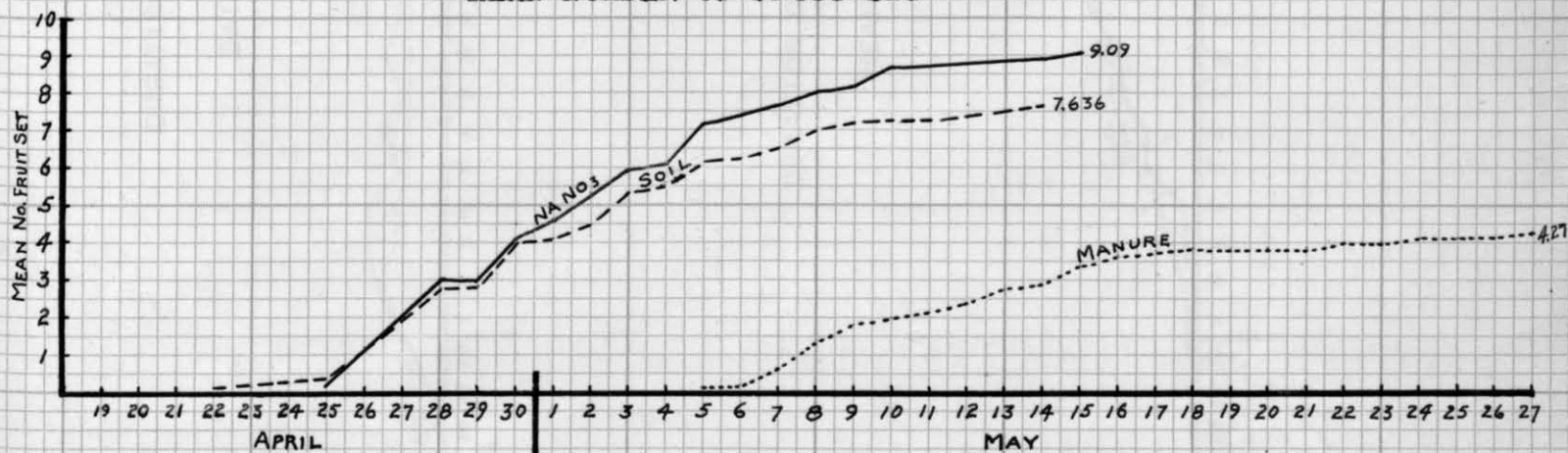
GRAPH NO. 10
FIFTH CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
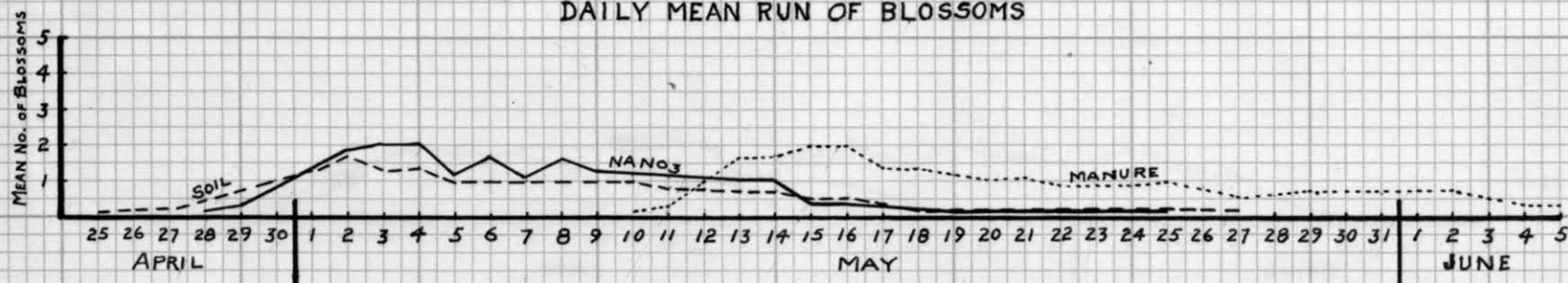
GRAPH NO. 11
FIFTH CLUSTER
DURATION OF MEAN FRUIT SETTING PERIOD
AND
MEAN NUMBER OF FRUIT SET
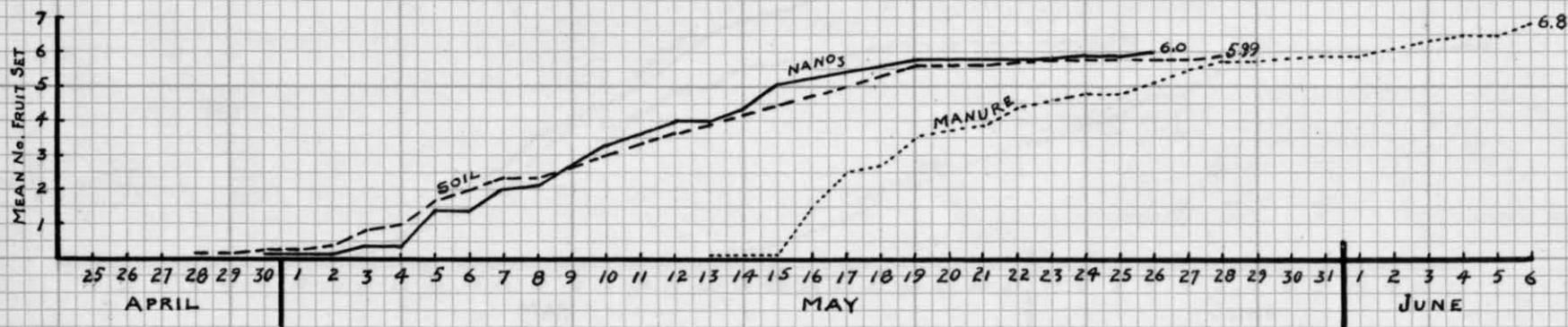
GRAPH NO. 12
SIXTH CLUSTER
DURATION OF MEAN FLOWERING PERIOD
AND
DAILY MEAN RUN OF BLOSSOMS
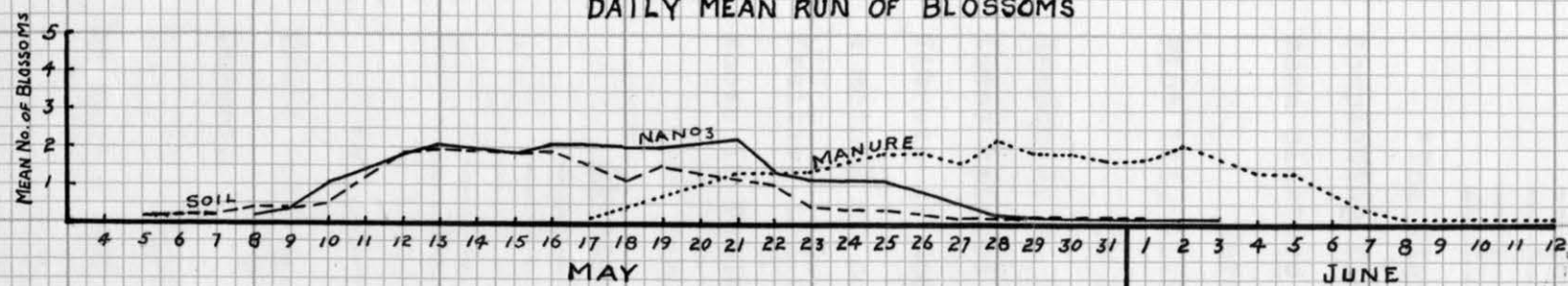
GRAPH NO. 13
SIXTH CLUSTER
DURATION OF MEAN FRUIT SETTINS PERIOD
AND
MEAN NUMBER OF FRUIT SET
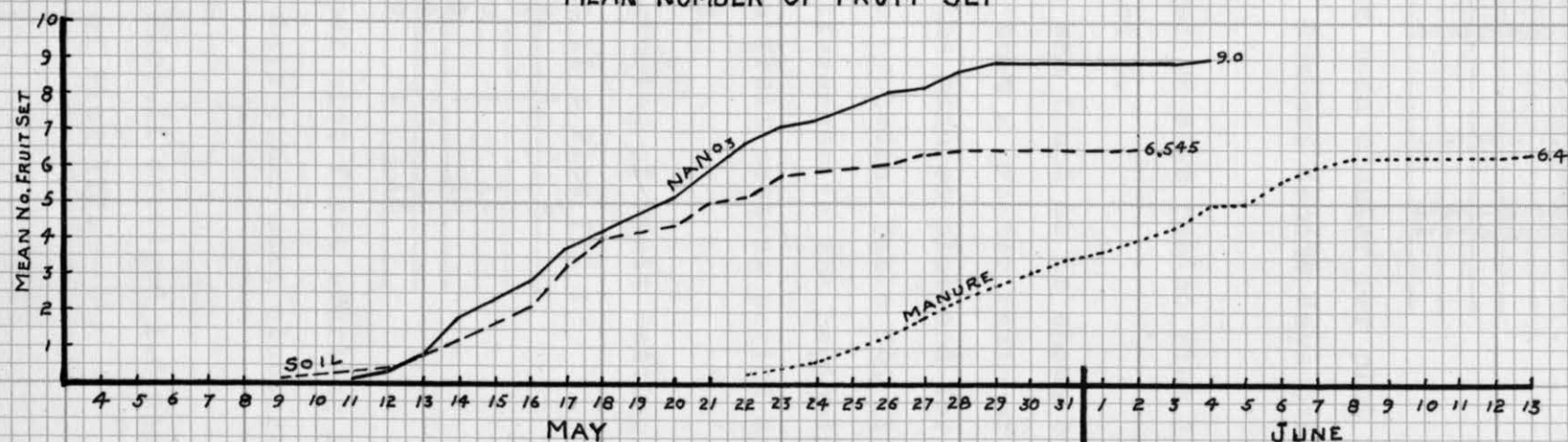
Table 11, Completion of Flowering Period.

Cluster	Plot I	Plot II	Plot III
1	o*	o	12
2	o	o	10
3	o	2	13
4	1	o	13
5	o	2	11
6	o	2	11

*The figure o denotes the mean cluster per plot first completing flowering period. Numbers denote days other mean clusters lagged.

Here Plot II averaged .8 days behind Plot I and Plot III, 11.6 days behind Plot I.

In fruit setting it was found as is shown by Graphs 3, 5, 7, 9, 11, and 13 that a greater ratio of tardiness existed on the part of the manured plot and for the Nitrate of Soda plot as in the preceding Table No. 11. As a method of comparison the differences in the beginning of fruiting and completion of the fruit setting period are shown in Tables Nos. 12 and 13.

Table No. 12 — — Beginning of Fruit Setting.

Cluster	Plot I	Plot II	Plot III
1	o*	o	9
2	3	o	13
3	2	o	14
4	1	o	12
5	2	o	15
6	2	o	13

*o denotes mean cluster per plot first starting its fruit setting, numbers denote days other mean clusters lagged.

Table 12 shows that Plot II averaged 1.6 ahead of Plot I and 12.6 days ahead of Plot III.

Table No. 13, - - Completion of Fruit Setting.

Cluster	Plot I	Plot II	Plot III
1	o*	o	13
2	o	o	10
3	o	2	13
4	1	o	13
5	o	2	11
6	2	o	11

*o denotes mean cluster per plot first completing its fruit setting, numbers denote days other mean clusters lagged behind.

This table shows that the field soil (Plot II) and Nitrate of Soda (Plot I) completed their fruit setting within one day of each other. The manure (Plot III) completed its fruit setting period on an average of 11.6 days later.

COMPARISON OF YIELDS.

A comparison of yields per plot per mean plant per plot, and mean cluster per mean plant per plot is shown by Table No. 14.

Table 14 - - Comparison of Yields.

	Plot I		Plot II		Plot III	
	Grams	Lbs.	Grams	Lbs	Grams	Lbs
Total Yield	61687.90	135.99	59537.64	131.26	46390.70	102.27
Per Mean Plant	5607.99	12.36	5412.51	11.93	4639.07	10.23
Per mean cluster per mean plant	934.67	2.06	902.09	1.99	463.91	1.71

This shows that, with the application of Nitrate of Soda to Plot I, a total increased yield of 4.73 pounds is obtained over the ufertilized field soil. The manured soil in Plot III fell below the unfertilized

soil in total yield of 28.99 pounds.

In greenhouse culture of tomatoes there are a
number of fruit slow in reaching maturity. In this ex-
periment it was found on July 26 that the number and
amount of unripened fruit above marble size was for - -

Plot I

Number of fruit - - - - - 49

Weight of fruit - - - - - 3323.6 grams

Plot II

Number of fruit - - - - - 30

Weight of fruit - - - - - 2051.8 grams

Plot III

Number of fruit - - - - - 55

Weight of fruit - - - - - 3312.7 grams

This is hardly a fair comparison inasmuch as Plot III only
had 10 normal plants. The average, or as it is consider-
ed here, the mean per plant arising from the record based
on the number and weights of unripened fruit shows:

Plot I.

Cluster	No. Unripened Fruit	Weight Grams
1	None	None
2	None	None
3	None	None
4	10	753.7
5	11	817.6
6	28	1752.3
Total	49	3323.6
Mean per Plant	4.49	302.14

Plot II.

Cluster	:	No. Unripened Fruit	:	Weight Grams
1	:	None	:	None
2	:	None	:	None
3	:	None	:	None
4	:	9	:	531.8
5	:	8	:	1011.3
6	:	13	:	508.7
Total	:	30	:	2051.8
Mean per Plant	:	2.73	:	186.53

Plot III.

Cluster	:	No. Unripened Fruit	:	Weight Grams
1	:	None	:	None
2	:	1	:	21.5
3	:	5	:	376.8
4	:	5	:	406.5
5	:	17	:	1060.3
6	:	27	:	1447.6
Total	:	55	:	3312.7
Mean per Plant	:	5.5	:	331.27

In this connection a further count on the fruit that did not develop beyond the marble size; i.e., 2 cm. in diameter, showed that Plot I had 10, Plot II 15, and Plot III 15. Plot I had 8 plants on which all fruit was of commercial size, Plot II 3 plants and Plot III 6 plants. which indicates that the nitrates aid in fruit development.

Fleshiness of Fruit.

One of the striking variations arising from the 3 cultural methods was shown in the amount of fleshiness of the fruit. Tomatoes showing uniformity as to size, shape, smoothness, and degree of maturity were collected from each plot, cut in two crosswise and comparison made as is shown by Figure11, Plot I produced
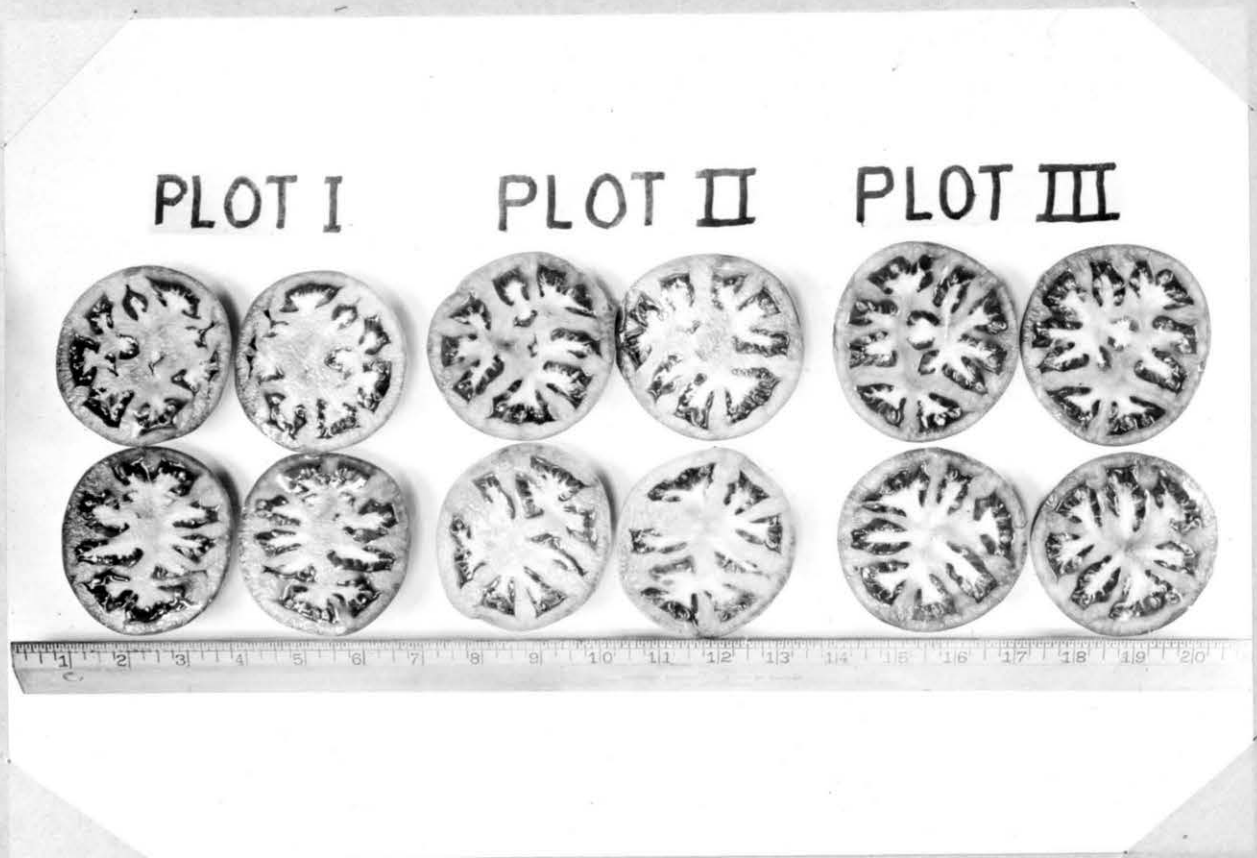
Fig. 11 showing the amount of flesh and seed cavities on fruit from the three plots. Plot II has larger percentage of flesh than Plot I and Plot I is greatly in excess of Plot III, thus showing that a large amount of nitrogen is not essential to the fleshiness of fruit.

fruit consisting of 73 percent flesh, Plot II 82 percent, and Plot III 67 percent. Plots I and II produced fruit that was more firm when handled than Plot III. The percentages of fleshiness leads one to believe that a direct relation exists between firmness and the degree of fleshiness; also, that excess amounts of Nitrate Nitrogen are not factors in causing fleshiness in tomatoes.

Blossom End Rot.

The occurrence of blossom end rot was uniform on Plots I and II with 50 percent more appearing on Plot III. The number of fruit affected were for Plot I, 10; Plot II, 10; and Plot III, 15. It would appear,,therefore, that the available Nitrogen (NN) is in no way associated with the occurrence of the rot. Plots I and II were given identical cultural treatments and it would seem that if nitrogen is conducive to the rot the 14.99 grams of Nitrate of Soda applied to each plant would have shown up to advantage. In Plot III no rot appeared until the fourth cluster was reached as in Plots I and II. The large amount of manure in Plot III soil causes a looser soil texture unless it is thoroughly saturated when a puddled effect results. In no case was such a condition allowed to arise, but instead a thorough watering was given. Owing to the spongy texture the soil was capable of holding a large quantity of water. When the moisture content lessened there was a gradual loosening or separating of the soil particles.

The root hairs failing to obtain the necessary amount of water from the soil had to draw upon stored quantities of moisture in the plant which would necessarily be the fruit. Atwater and Bryant's (2) Analysis shows the tomato to be 94.3 percent water. Further this water during transpiration would be drawn from the more remote portion, or the original blossom end, and breaking down of these affected tissues would result.

Seed Production.

Counts were made of 5 representative fruit from each of Plots I, II and III to learn if the 3 amounts of available nitrogen (NN) gave any difference in amount of seed produced. These counts gave an average of 236 seeds per fruit for Plot I, 153 seeds for Plot II, and 209 seeds for Plot III. This, however, can not be considered as conclusive evidence. The number of fruit used were too few in number for comparison, though the individual records do show a probability that higher available nitrogen soil content does not tend to seedlessness in tomatoes. In Plot I the averages ranged from 168 to 270 seeds; in Plot II from 71 to 208; in Plot III from 92 to 306. Thus the lowest seed content was found in fruit from the unfertilized soil and as well from the manured soil having the highest NN content, which forms no basis for a conclusion.

Bailey (4) believed that the size of the fruit, the number of seeds and the solid portion of the fruit is directly or indirectly influenced by the amount of pollen applied, a stimulating effect or secondary in-

fluence of the pollen probably extending beyond the number of seeds to the pericarp.

SUMMARY.

A heavy application of well rotted manure mixed with unfertilized field soil shortens the flowering and fruit setting periods, but tends to prolong the maturity of the fruit.

The presence of large amounts of chlorides in well rotted manure inhibits normal plant growth.

Unfertilized Colorado field soil is well supplied with available nitrogen. An application of 14.99 grams or approximately ½ ounce of nitrate in the form of Nitrate of Soda, gave an average increased yield per plant of only .43 pounds.

Nitrogen does not increase firmness or fleshiness of fruit and falls below plants grown on unfertilized field soil in this respect.

Nitrogen was found not to be conducive to blossom end rot, the rot arising from the physical and moisture content of the soil.

A relationship exists between abnormal plants and bud abortiveness.

Nitrogen, as Nitrate of Soda, at the rate of 14.99 grams per plant shortens the flowering and fruit setting periods, but tends to prolong fruit maturity.

Bud abortiveness is less prevalent where nitrogen in the form of Nitrate of Soda is applied on the basis of 14.99 grams per plant.

No regularity of flowering or fruit setting
periods exists among individual plants subjected to uni-
form cultural methods in soil fertilized with Nitrate
of Soda, heavily manured soil, or unfertilized field
soil.

Individual plants grown in unfertilized soil
and Nitrate of Soda fed soil varies little compared
to plants grown in heavily manured soil.

Plants grown in Nitrate of Soda fed soil
show less variability of yields than those grown
in unfertilized field soil or heavily manured soil.

ACKNOWLEDGMENTS

BIBLIOGRAPHY

1. Anderson, W. S. and Richardson, F. B.
    1924. Tomato Experiments. So. Miss. Exp. Sta.
    Cir. 58:3-7.

2. Atwater, W. O. and Bryant, A. P.
    1899. The Chemical Composition of American Food
    Materials. U.S.D.A. Office Exp. Sta. Bul.
    28; Revised Edition: 69.

3. Bailey, L. H.
    1889. Notes on Tomatoes. N.Y. Exp. Sta. Bul.
    10:109-126.

4. Bailey, L. H.
    1891. Experiments in Forcing of Tomatoes. N.Y.
    (Cornell) Bul. 28:54-55.

5. Bailey and Corbert.
    1894. Tomato Notes for 1892. N.Y. Bul. 45:
    257-301.

6. Bailey and Munson.
    1890. Notes on Tomatoes. N.Y. (Cornell) Bul.
    21:73-87.

7. Beattie, James H.
    1924. Greenhouse Tomatoes. U.S.D.A. Farmers'
    Bul. 1431:9.

8. Bewley, W. F. and White, H. L.
    1926. Some Nutritional Disorders of the Tomato.
    (Experimental and Research Station, Ches-
    hunt, Herts.) England. Reprinted from
    the Annals of Applied Biology. Vol. XIII,
    No. 3:333-338.

9. Bouquet, A. G. B.
    1919. Pollination of Tomatoes. Ore. Exp. Sta.
    Bul. 158:1-29.

10. Colorado Year Book.
    1926. 58, 80.

11. Connecticut Agri. Exp. Sta. Report.
    1899: 223

12. Eleventh Annual Report.
    1926. Experimental and Research Station, Turn-
    ers Hill, Cheshunt, Herts, England: 10.

13. Fink, Bruce.
    Pollination and Reproduction of Lycoper-
    sicum Esculentum. Minn. Geol. and Nat.

Hist. Surv. 9: 636-643.
Abstract, Beach, S. A., Forcing Tomat-
oes, N. Y. (Geneva) Agri. Exp. Sta.
Bul. 125:294.

14. Gardner, Bradford and Hooker.
    1922. Fundamentals of Fruit Production:488.

15. Gourley, J. H.
    1915. Studies in Fruit Bud Formation. N. Ham.
    Agri. Exp. Sta. Tech. Bul. 9:37-39-52.

16. Green and Woid.
    1904. Forcing Tomatoes. Ohio Agri. Exp. Sta.
    Bul. 153.

17. Hedrick, U. P.
    1919. Sturtevants' Notes on Edible Plants.
    343-346.

18. Henderson.
    1881. Peter Henderson's Handbook of Plants:230.

19. Hepler, J. R. and Kraybill, H. R.
    1925. Effect of Phosphorus upon the Yield
    and Time of Maturity of the Tomato.
    N. Ham. Agri. Sta. Tech. Bul. 28:42.

20. Jenkins, E. H. and Britton, W. E.
    1897. On the Use of Commercial Fertilizers
    for Forcing House Crops. Conn. Agri.
    Exp. Sta. Annual Report, Part IV:302.

21. Kraus, E. J. and Kraybill, H. R.
    1918. Vegetation and Reproduction with Refer-
    ence to the Tomato. Ore. Agri. Exp.
    Sta. Bul. 149; 1-90.

22. Lewis, E. P.
    1924. Tomato Growing in Michigan. Mich. Agri.
    Exp. Sta. Special Bul. 131:12.

23. Lipman, C. B. and Burgess, P. S.
    1915. The Determination of Availability of
    Nitrogenous Fertilizers in Various Cal-
    ifornia Soils by Their Nitrifiability.
    Univ. Calif. Agri. Exp. Sta. Bul. 260:108.

24. Lloyd, J. W.
    1927. Fertilizer Experiments with Greenhouse
    Lettuce and Tomatoes. Ill. Exp. Sta.
    Bul. 286:321-325.

25. McLean, F. T. and Pember, F. R.
    1926. Nutrient Needs of Greenhouse Tomatoes.
    R. I. Agri. Exp. Sta. Bul. 205:13-16.

26. Munson, W. M.
     1908. Tomato Notes. W. Va. Univ. Agri. Exp.
     Sta. Bul. 117:252-259.

27. Nightingale, G. T.
     1927. The Chemical Composition of Plants in
     Relation to Photo-Periodic Changes.
     Wis. Agri. Exp. Sta. Research Bul. 74:45.

28. Oskamp, J.
     1926. Field Observations in Pollination in
     1926. Cornell Univ. N. Y. Proceedings
     of the American Society for Horticultural
     Science, 1926:48-51.

29. Randall, G. O.
     1923. The Effect of Commercial Fertilizers
     on the Set of Fruit, Production and
     Maturity of the Tomato. Graduate
     Thesis (unpublished) Iowa State College.

30. Reed, H. S. and Haas, A. C. R.
     1924. Nutrient and Toxic Effect of Certain
     Ions on Citrus and Walnut Trees with
     Especial Reference to the Concentration
     and PH of the Medium. Cal. Agri. Exp.
     Sta. Tech. Paper 17:1-75.

31. Russell, E. J.
     1926. Plant Nutrition and Crop Production:1-8.

32. Russell, E. J.
     1912. Soil Conditions and Plant Growth: 73.

33. Roberts, R. H.
     1926. Apple Physiology, Growth,Composition
     and Fruiting Responses in Apple Trees.
     Wis. Agri. Exp. Sta. Research Bul. 68:
     16-19.

34. Sackett, Walter G.
     1914. The Nitrifying Efficiency of Certain
     Colorado Soils. Colo. Agri. Exp. Sta.
     Bul. 193: 26-43.

35. Sackett, Walter G.
     1914. Some Soil Changes Produced by Micro-
     organisms. Colo. Agri. Exp. Sta. Bul.
     196: 3-21.

36. Sandsten, E. P.
     1927. Potato Growing in Colorado. Colo. Agri.
     Exp. Sta. Bul. 314: 5-6.

37. Schneck, H. W.
     1923. Pollination Studies with Greenhouse To-
     matoes. Cornell Univ. Proceedings of the

Am. Soc. Hort. Sc. 1923: 198-206.

38. Schneidewind, Meyer D. and Grobler, W.
    1902. Field Experiments at Lauchstadt.
    1903. (Laudw. Jahrb, 31 (1902) No. 5-6, pp.
    826-908, 963-968) Abstract, U.S.D.A.
    Vol. XIV: 852. (original paper not
    examined.)

39. Stone, G. E.
    1911. Tomato Diseases. Mass. Agri. Exp. Sta.
    Bul. 138:12-13.

40. Thompson, N. F. and Robbins, W. W.
    1926. Methods of Eradicating the Common Bar-
    berry. U.S.D.A. Dept. Bul. 1451:13-44.

41. Tracy, W. W.
    1921. Tomato Culture:16-17.

42. Voohees, E. B.
    1889. Effect of Nitrate of Soda vs. Early
    Maturity and Yield. N.J. Exp. Sta.
    Bul. 63:1-27.

43. Voohees, E. B.
    1892. Experiments with Nitrate of Soda upon
    Tomatoes. N. J. Bul. 0:1-26.

44. Wheeler, H. J. and Hartwell, B. L.
    1902. Conditions Determining the Poisonous
    Action of Chlorids. R. I. Agri. Exp.
    Sta. Report:287-301.

45. Work, Paul.
    1924. Nitrate of Soda in the Nutrition of the
    Tomato. N. Y. (Cornell) Agri. Exp. Sta.
    Memoir 75:4-8, 26, 34-36.

46. Work, Paul.
    1926. Tomato Production: 51.

47. Zimmerly, H. H.
    1919. Greenhouse Tomato Growing in Virginia.
    Va. Truck Exp. Sta. Bul. 26:13.

APPENDIX

CHARTS 22 TO 45 INCLUDE DATA COV-
ERING ALL PLANTS — — NORMAL AND AB-
NORMAL — — REGARDING NUMBER OF BUDS,
PERIODS OF FLOWERING, PERIODS OF
FRUIT SETTING AND YIELD.

CHART NO. 22

HEIGHTH GROWTHS

PLOT I - FIELD SOIL AND NITRATE OF SODA

(Growth in centi-meters)

NO. OF PLANT	Date of Measurement										TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
	April							May				
	6	10	14	18	22	26	30	4	8	12		
1	10.2	13.5	12.7	10.8	11.8	12.5	11.5	12.0	12.0	10.9	117.9	11.79
2	12.7	11.4	10.8	10.7	11.3	12.8	12.7	12.5	10.5	11.3	116.7	11.67
3	11.0	12.9	12.2	11.6	14.7	14.2	14.6	11.2	11.2	10.0	123.6	12.36
4	14.3	11.1	11.7	10.2	11.8	14.6	14.1	10.4	12.2	11.0	121.4	12.14
5	13.7	10.5	9.5	9.9	11.0	11.7	15.3	10.6	12.1	11.0	115.3	11.53
6	15.2	11.6	9.9	10.5	9.6	13.2	12.3	12.0	11.4	9.1	114.8	11.48
7	15.6	9.7	9.4	10.1	11.7	11.0	11.4	11.5	12.7	11.2	114.3	11.43
8	14.0	12.8	9.6	11.6	11.3	13.8	12.8	10.2	11.8	11.7	119.6	11.96
9	13.1	12.2	9.4	9.9	11.6	13.4	12.8	13.2	12.1	10.0	117.7	11.77
10	12.5	12.5	10.0	11.5	11.6	11.2	9.5	10.3	11.5	7.5	108.1	10.81
11	12.9	13.0	11.4	10.4	10.7	14.1	12.4	10.1	15.8	7.6	118.4	11.84
12	13.3	12.5	11.2	10.9	12.1	9.0	10.5	14.2	5.0	3.0	101.7	10.17
TOTAL PER PERIOD	158.5	143.7	127.8	128.1	139.2	151.5	149.9	138.2	138.3	114.3	1389.5	138.95
MEAN PER PERIOD	13.21	11.97	10.65	10.68	11.60	12.62	12.49	11.51	11.52	9.53	115.78	11.58

DURATION OF READINGS - 41 DAYS

TOTAL MEAN GROWTH PER PERIOD OF MEASUREMENT - 11.58 CM

DAILY MEAN GROWTH - 2.8219 CM

CHART NO. 23

HEIGHTH GROWTHS

PLOT II - FIELD - UNFERTILIZED

(Growth in centi-meters)

No. of Plant	Date of Measurement — April							May			TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
	6	10	14	18	22	26	30	4	8	12		
1	12.8	13.5	12.3	12.3	13.6	12.2	10.3	7.6	12.2	11.2	118.0	11.80
2	11.8	12.4	10.5	11.6	12.2	12.2	11.1	10.9	9.8	8.4	110.9	11.09
3	12.5	12.1	7.9	9.2	7.8	11.4	10.4	8.7	10.3	8.9	99.2	9.92
4	12.5	13.4	11.2	11.1	13.8	13.3	13.0	10.3	10.5	11.0	120.1	12.01
5	13.0	13.2	9.3	10.0	11.7	12.3	12.3	9.0	10.9	7.5	109.2	10.92
6	14.5	14.5	11.1	11.2	11.0	12.6	11.4	10.5	11.4	8.6	116.8	11.68
7	11.9	15.4	10.9	9.8	10.3	12.0	11.3	9.3	10.6	10.4	111.9	11.19
8	12.4	11.8	12.9	9.7	11.2	10.8	12.0	11.0	12.1	12.0	115.9	11.59
9	13.1	12.2	10.7	10.4	11.2	10.3	12.5	8.9	10.5	10.6	110.4	11.04
10	11.5	12.0	10.2	12.0	11.2	11.0	10.1	12.0	10.8	10.0	110.8	11.08
11	10.6	11.2	9.8	10.1	9.3	12.2	11.7	11.4	6.7	10.2	103.2	10.32
12	11.2	11.8	9.4	10.6	9.9	11.3	12.6	11.2	12.5	10.0	110.5	11.05
TOTAL PER PERIOD	147.8	153.5	126.2	128.0	133.2	141.6	138.7	120.8	128.3	118.8	1336.9	133.69
MEAN PER PERIOD	12.32	12.79	10.51	10.67	11.10	11.80	11.56	10.07	10.69	9.90	111.41	11.14

DURATION OF READINGS - 41 DAYS

TOTAL MEAN GROWTH PER PERIOD OF MEASUREMENT - 11.41 cm

DAILY MEAN GROWTH - 2.8124 cm

CHART NO.24
HEIGHT GROWTHS
PLOT III - FIELD SOIL AND MANURE
(Growth in centi-meters)

No. of Plant	Date of Measurement April 6	10	14	18	22	26	30	May 4	8	12	TOTAL GROWTH PER PLANT	MEAN PERIOD GROWTH PER PLANT
1	9.6	9.3	11.2	12.0	12.2	13.4	14.2	13.4	12.2	8.8	116.3	11.63
2	8.1	7.6	9.5	10.0	11.2	11.0	14.2	13.6	10.6	9.9	105.7	10.57
3	9.5	11.0	9.0	10.3	9.9	12.5	10.9	9.3	9.6	4.9	96.9	9.69
4	8.9	10.0	9.1	10.4	11.0	10.8	11.0	10.1	8.8	6.5	9.6.6	9.66
5	9.5	10.0	10.5	11.0	11.6	13.2	12.0	12.9	10.4	10.5	111.6	11.16
6	9.2	9.7	9.2	11.0	9.6	11.5	12.5	11.5	9.9	11.8	105.9	10.59
7	10.4	9.5	10.1	12.2	11.6	15.0	12.8	13.6	12.9	12.5	120.6	12.06
8	9.0	7.2	10.3	10.0	12.3	13.6	13.0	10.3	12.1	13.5	111.3	11.13
9	9.7	10.2	9.6	11.3	11.1	12.6	12.2	10.5	12.0	10.9	110.1	11.01
10	8.6	9.8	8.3	11.3	11.0	11.8	12.7	12.5	12.7	9.4	108.1	10.81
11	11.0	10.7	10.6	10.2	10.1	11.9	14.6	12.0	13.8	11.9	116.8	11.68
12	8.6	11.0	10.3	12.2	12.1	13.5	12.2	13.3	13.5	11.7	118.4	11.84
13	8.2	8.0	10.6	9.5	10.7	12.2	14.6	13.8	12.2	14.5	114.3	11.43
14	9.6	10.5	10.6	10.6	11.9	11.1	14.5	13.3	12.3	14.0	118.4	11.84
15	8.4	8.4	9.3	10.9	10.5	15.5	8.9	11.5	9.9	10.0	103.3	10.33
16	9.4	9.7	8.5	10.8	9.9	11.4	13.2	10.9	10.4	12.2	106.4	10.64
17	9.7	11.5	11.5	11.7	13.4	14.7	16.0	14.0	11.3	14.4	128.2	12.82
18	9.1	9.3	10.6	13.2	12.5	12.2	12.1	12.4	10.8	12.6	114.8	11.48
19	10.2	12.5	11.5	11.1	10.9	12.4	11.2	11.1	9.4	11.3	111.6	11.16
20	10.6	11.2	12.8	11.1	12.4	14.2	15.7	14.0	14.8	13.8	130.6	13.06
21	10.9	13.0	9.5	10.8	11.5	12.4	13.2	11.0	11.3	13.6	117.2	11.72
22	11.0	11.8	11.5	12.2	12.9	13.3	15.5	12.3	12.5	13.5	126.5	12.65
23	10.0	11.5	9.6	10.1	10.3	13.8	11.5	11.4	11.6	9.0	108.8	10.88
24	10.1	11.5	11.2	11.5	12.9	13.7	9.8	14.3	10.0	12.6	117.6	11.76
TOTAL PER PERIOD	229.3	244.9	244.9	265.4	273.5	307.7	308.5	293.0	275.0	273.8	2716.0	271.60
MEAN PER PERIOD	9.54	10.20	10.20	11.06	11.40	12.82	12.85	12.21	11.46	11.43	113.17	11.317

DURATION OF READINGS — 41 DAYS

TOTAL MEAN GROWTH PER PERIOD OF MEASUREMENT — 11.317 cm

DAILY MEAN GROWTH — 2.76 cm

CHART NO. 25

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIRST CLUSTER - PLOT I

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	March 26	27	28	29	30	31	Apr 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS			○	1	2	3	3	2	2	1	1	1	1	1	1	2	1	1	1	○							16	
	FRUIT SET							○	1	1	2	2	3	3	3	3	3	4	4	4	5								13
2	BUDS	4																											
	FLOWERS			○	1	2	3	3	3	2	1	1	1	1	1	1	1	1	○									15	
	FRUIT SET							○	1	2	2	2	3	3	3	3	3	3	4										11
3	BUDS	6																											
	FLOWERS				○	1	1	2	2	2	3	3	4	4	3	1	2	2	1	1	○							15	
	FRUIT SET								○	1	1	1	1	1	2	4	4	4	5	5	6								12
4	BUDS	5																											
	FLOWERS				○	1	2	3	3	3	3	3	1	1	2	1	1	1	○									13	
	FRUIT SET								○	1	1	1	1	3	3	3	4	4	4	5									11
5	BUDS	6																											
	FLOWERS			○	1	1	2	3	3	3	2	3	2	2	1	1	2	1	1	1	○							16	
	FRUIT SET							○	1	1	2	2	3	3	4	4	4	5	5	5	6								13
6	BUDS	5																											
	FLOWERS			○	1	2	3	3	4	4	4	2	2	1	○													10	
	FRUIT SET							○	1	1	1	3	3	4	5														7
7	BUDS	5																											
	FLOWERS			○	1	2	3	4	3	3	2	2	2	1	○													10	
	FRUIT SET							○	2	2	3	3	3	4	5														7
8	BUDS	5																											
	FLOWERS			○	1	1	2	2	2	2	2	2	2	3	3	2	2	1	1	○								15	
	FRUIT SET							○	1	1	1	2	2	2	2	3	3	4	4	5									12
9	BUDS	6																											
	FLOWERS				○	1	2	3	3	3	3	3	3	3	2	1	1	○										12	
	FRUIT SET								○	1	1	1	2	3	3	4	5	5	6										10
10	BUDS	5																											
	FLOWERS				○	1	2	4	3	3	3	2	1	1	○	1	1	1	1	1	○							15	
	FRUIT SET							○	1	1	2	3	3	4	4	4	4	4	4	4	5								13
11	BUDS	4																											
	FLOWERS			○	1	2	3	3	2	2	2	2	2	2	2	○												11	
	FRUIT SET							○	1	2	2	2	2	2	2	4													9
12	BUDS	8																											
	FLOWERS			○	1	2	3	3	4	4	4	4	4	3	3	1	1	○	○	○	○	○	1	1	1	○		21	
	FRUIT SET							○	1	1	2	2	4	4	6	6	7	7	7	7	7	7	7	7	8				18
TOTALS	BUDS	6×																											
	FLOWERS			8	18	29	36	34	33	30	28	25	23	18	10	13	8	6	8	0	0	1	1	1	0			169	
	FRUIT SET							1	12	18	18	28	30	35	41	50	50	55	57	59	63	63	63	63	63	68			136
	DATE	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 5.33

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 14.08

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 11.33

CHART NO. 26

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

SECOND CLUSTER - PLOT I

DAILY RECORD

No. of Plant	Class	\multicolumn{26}{c}{Number of Buds, Flowers and Fruit Set — April}	No. Days Flowering	No. Days Fruit Set
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
1	BUDS	6																										12	
	FLOWERS				0	1	2	3	3	3	4	4	2	2	3	2	1	0											
	FRUIT SET										0	1	1	3	3	3	4	5	6										8
2	BUDS	6																										15	
	FLOWERS				0	1	2	3	3	3	2	3	2	2	2	2	2	2	1	1	0								
	FRUIT SET											0	1	1	2	3	3	3	3	4	5	5	6						11
3	BUDS	5																										9	
	FLOWERS							0	2	2	2	2	2	3	3	2	1	0											
	FRUIT SET										0	1	1	2	2	2	3	4	5										8
4	BUDS	3																										6	
	FLOWERS						0	1	3	3	3	3	2	0															
	FRUIT SET												0	1	3														2
5	BUDS	8																										19	
	FLOWERS				0	1	2	3	4	5	5	4	2	1	1	1	1	1	2	2	2	2	1	0					
	FRUIT SET										0	1	2	4	4	5	5	5	5	5	5	6	6	7	8				14
6	BUDS	6																										17	
	FLOWERS			0	1	2	3	4	5	5	4	3	1	1	1	1	1	1	1	1	0								
	FRUIT SET										0	1	2	4	4	4	5	5	5	5	5	6							12
7	BUDS	3																										5	
	FLOWERS						0	2	2	3	3	2	0																
	FRUIT SET										0	1	3																2
8	BUDS	3																										6	
	FLOWERS						0	1	2	3	3	3	2	0															
	FRUIT SET											0	1	3															2
9	BUDS	5																										10	
	FLOWERS						0	1	3	3	4	4	4	3	3	2	1	0											
	FRUIT SET										0	1	1	2	2	3	4	5											7
10	BUDS	3																										5	
	FLOWERS							0	3	3	3	2	0																
	FRUIT SET										0	1	3																2
11	BUDS	7																										15	
	FLOWERS						0	1	1	2	3	3	3	3	3	3	3	3	2	1	1	1	0						
	FRUIT SET											0	1	2	3	3	4	4	5	6	6	6	7						12
12	BUDS	6																										11	
	FLOWERS						0	2	3	4	5	5	4	3	2	2	1	1	0										
	FRUIT SET										0	2	3	4	4	5	5	6											7
TOTALS	BUDS	61																											
	FLOWERS					1	6	14	23	38	40	39	33	22	17	18	14	11	6	5	5	5	2	2	1	0		130	
	FRUIT SET								1	7	15	20	36	37	42	47	52	58	55	55	59	59	60	61					87
	DATE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 5.08

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 10.83

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 7.25

CHART NO. 27

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

THIRD CLUSTER - PLOT I

DAILY RECORD

No. of Plant	Class	April: 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																											
	FLOWERS								0	1	1	3	4	3	3	1	2	1	1	1	0							11	
	FRUIT SET									0	1	2	4	4	5	5	5	6											8
2	BUDS	5																											
	FLOWERS							0	1	2	3	4	3	3	2	1	1	0										9	
	FRUIT SET								0	1	2	3	4	4	5														6
3	BUDS	6																											
	FLOWERS								0	1	2	2	2	3	2	3	3	3	1	1	0							11	
	FRUIT SET									0	2	2	3	3	5	5	6												7
4	BUDS	6																											
	FLOWERS								0	2	2	3	3	2	2	2	2	2	2	2	1	0						12	
	FRUIT SET									0	2	2	3	4	4	4	4	5	6										9
5	BUDS	5																											
	FLOWERS					0	1	1	2	3	1	1	2	2	1	0												9	
	FRUIT SET						0	2	2	2	3	4	5																6
6	BUDS	6																											
	FLOWERS			0	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	1	0							16	
	FRUIT SET				0	1	1	2	2	2	3	4	5	5	5	5	6												12
7	BUDS	7																											
	FLOWERS				0	1	2	3	3	2	1	0	1	1	2	2	2	2	2	2	1	1	1	0				18	
	FRUIT SET					0	1	2	3	3	3	3	3	4	5	5	5	6	6	6	7								15
8	BUDS	6																											
	FLOWERS					0	2	2	3	3	2	3	2	3	2	1	1	1	0									12	
	FRUIT SET						0	2	2	3	3	4	5	5	5	6													10
9	BUDS	6																											
	FLOWERS							0	1	2	3	3	2	2	2	2	2	1	1	0	0	0	1	0				15	
	FRUIT SET									0	1	2	3	3	3	4	4	5	5	5	5	6							12
10	BUDS	3																											
	FLOWERS								0	2	2	2	2	3	2	1	1	0										8	
	FRUIT SET												0	1	2	2	3												4
11	BUDS	4																											
	FLOWERS								0	2	2	3	3	2	1	1	1	1	0									9	
	FRUIT SET												0	1	2	3	3	3	4										6
12	BUDS	7																											
	FLOWERS					0	1	2	3	3	3	2	1	1	2	1	3	3	2	2	1	1	0					16	
	FRUIT SET						0	1	2	3	3	3	4	4	4	5	5	6	6	7									13
TOTALS	BUDS	61																											
	FLOWERS			1	3	6	10	1X	25	26	27	28	26	2X	19	15	11	9	3	2	2	0						146	108
	FRUIT SET					2		11	1X	22	31	3X	46	51	55	57	63	6X	65	67									
	DATE	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 5.58

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 12.17

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 9.

CHART NO. 28

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FOURTH CLUSTER - PLOT I

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	No. Days Flowering	No. Days Fruit Set
													April										May										
1	BUDS	3																														6	
	FLOWERS			0	1	3	3	3	3	2	0																						
	FRUIT SET								0	1	3																						2
2	BUDS	9																														17	
	FLOWERS				0	1	2	3	3	2	3	2	3	4	4	3	2	3	2	1	1	1	0										
	FRUIT SET									0	1	2	3	3	3	3	5	6	6	7	8	8	9										14
3	BUDS	7																														17	
	FLOWERS						0	2	2	2	2	1	2	2	1	1	2	1	2	2	1	1	1	1	0								
	FRUIT SET										0	2	2	2	3	3	3	4	4	4	5	6	6	6	7								14
4	BUDS	10																														22	
	FLOWERS						0	2	2	2	2	3	3	3	2	2	3	2	2	1	1	1	1	1	0	0	0	1	1	0			
	FRUIT SET										0	1	1	2	2	4	4	4	6	6	7	7	8	8	8	9	9	9	9	9	10		20
5	BUDS	10																														23	
	FLOWERS		0	1	2	2	2	4	2	3	4	3	3	3	3	1	1	2	1	1	1	2	1	1	1	1	0						
	FRUIT SET									0	2	2	3	4	4	5	5	7	7	7	8	8	8	8	9	9	9	10					19
6	BUDS	13																														19	
	FLOWERS		0	1	1	2	3	6	5	5	5	3	4	3	4	3	1	1	1	2	1	1	0										
	FRUIT SET									0	1	2	3	6	6	7	7	8	10	10	11	11	12	12	13								15
7	BUDS	13																														21	
	FLOWERS			0	1	2	2	4	4	2	3	4	4	4	3	4	4	3	2	2	1	1	1	1	0								
	FRUIT SET									0	3	4	4	4	7	8	8	9	11	11	12	12	12	12	13								17
8	BUDS	10																														19	
	FLOWERS			0	1	1	2	3	3	3	3	4	5	2	4	2	1	2	1	1	1	1	0										
	FRUIT SET									0	1	2	3	3	5	5	7	8	8	9	9	9	9	10									15
9	BUDS	10																														21	
	FLOWERS					0	1	2	2	3	4	4	4	3	4	2	2	2	1	1	1	0	0	1	1	1	0						
	FRUIT SET									0	1	1	2	2	4	4	6	6	7	8	8	8	9	9	9	9	9	10					19
10	BUDS	6																														22	
	FLOWERS					0	1	2	2	2	1	2	1	2	1	1	1	1	1	1	1	0	0	1	1	1	1	0					
	FRUIT SET									0	1	1	2	2	3	3	4	4	4	4	5	5	5	5	5	5	6						20
11	BUDS	9																														16	
	FLOWERS							0	1	3	3	4	2	2	2	3	3	2	1	1	2	1	0										
	FRUIT SET										0	2	2	3	3	4	4	5	7	7	7	8	9										13
12	BUDS	10																														18	
	FLOWERS					0	1	2	4	5	4	3	3	3	3	3	4	2	2	1	1	1	0										
	FRUIT SET									0	1	2	5	5	5	7	7	8	9	9	9	9	10										15
TOTALS	BUDS	110																															
	FLOWERS			2	6	12	22	36	36	32	35	31	34	29	32	26	20	21	18	13	12	10	7	8	8	3	3	2	0			221	
	FRUIT SET								3	14	24	38	56	51	53	65	75	77	88	90	94	97	100	105	105	106	107	108	110				183
	DATE	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 9.17

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 18.41

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 15.25

CHART NO. 29

DETERMINATION OF BUDS , FLOWERS AND FRUIT SET

FIFTH CLUSTER - PLOT I

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	Apr 24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																																				
	FLOWERS							0	1	2	2	2	1	2	1	2	2	1	1	1	1	0															14	
	FRUIT SET											0	1	1	2	2	2	4	4	4	4	5	6															11
2	BUDS	4																																				
	FLOWERS						0	1	1	2	2	3	2	2	1	1	0																				11	
	FRUIT SET										0	1	1	2	2	3	3	4																				7
3	BUDS	7																																				
	FLOWERS							0	1	2	3	3	2	3	2	2	1	1	1	1	1	1	1	0													17	
	FRUIT SET												0	1	1	2	2	3	4	4	4	4	4	5	5	5	6											14
4	BUDS	6																																				
	FLOWERS						0	1	2	2	2	2	2	2	1	1	1	1	2	2	2	1	1	1	0												16	
	FRUIT SET										0	2	2	2	2	2	3	3	4	4	5	6																11
5	BUDS	4																																				
	FLOWERS						0	2	2	2	2	2	1	2	2	2	1	0																			10	
	FRUIT SET									0	1	1	2	2	2	3	4																					8
6	BUDS	9																																				
	FLOWERS				0	2	2	1	2	2	1	1	1	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0				26	
	FRUIT SET							0	1	1	1	2	2	3	3	3	4	4	5	6	6	6	6	6	6	6	6	6	6	7								25
7	BUDS	6																																				
	FLOWERS				0	1	2	2	2	3	2	2	1	2	2	2	2	2	1	1	1	0															17	
	FRUIT SET								0	1	1	2	2	3	3	4	4	5	5	5	6																	13
8	BUDS	7																																				
	FLOWERS							0	1	2	2	2	2	2	1	1	1	2	2	1	1	2	2	2	1	2	1	1	0								19	
	FRUIT SET									0	2	2	2	2	2	2	3	3	4	4	4	5	5	6	6	7											15
9	BUDS	9																																				
	FLOWERS							0	1	1	2	2	1	1	1	1	2	3	3	3	2	1	1	1	0												18	
	FRUIT SET										0	1	1	2	2	2	3	3	3	4	6	8	8	9														15
10	BUDS	6																																				
	FLOWERS									0	2	2	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0					23	
	FRUIT SET											0	1	2	2	3	3	3	4	4	4	5	5	5	5	5	5	5	6									20
11	BUDS	5																																				
	FLOWERS							0	1	2	2	2	1	2	1	1	1	1	1	2	1	0															14	
	FRUIT SET									0	1	1	2	2	2	3	3	3	4	5																		11
12	BUDS	12																																				
	FLOWERS							0	2	2	2	3	3	3	3	4	5	3	3	3	3	2	2	1	1	0											18	
	FRUIT SET											0	2	2	3	3	5	7	7	7	8	8	10	10	10	11											14
TOTALS	BUDS	81																																				
	FLOWERS				3	5	11	17	22	25	26	17	22	18	23	18	17	16	14	14	13	6	6	5	3	1	2	2	2	2	1	1	0				203	
	FRUIT SET									1	1	1	X	X	18	18	25	27	33	44	47	51	52	57	61	69	70	73	75	75	75	75	76	76	77			164
	DATE	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 6.75

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 16.92

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 13.65

CHART NO. 30
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
SIXTH CLUSTER - PLOT I
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	May 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	June 1	2	3	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																																
	FLOWERS						0	1	2	2	1	1	2	2	1	0																	9	
	FRUIT SET									0	1	2	2	3	4	4	5																	7
2	BUDS	6																																
	FLOWERS					0	1	2	2	2	2	1	1	2	1	1	1	1	1	1	0	1	1	1	1	0							19	
	FRUIT SET								0	1	2	2	2	3	3	3	4	4	4	5	5	5	5	5	6									16
3	BUDS	8																																
	FLOWERS					0	2	2	2	2	3	1	2	2	2	1	1	1	2	2	1	1	1	1	1	0							19	
	FRUIT SET									0	2	2	2	3	4	4	5	5	6	6	7	7	7	8										16
4	BUDS	12																																
	FLOWERS						0	2	2	2	2	2	2	3	3	5	5	5	3	1	1	2	2	2	1	0							18	
	FRUIT SET									0	1	2	2	4	5	5	6	6	10	12	12	12	12	12	14	15								16
5	BUDS	11																																
	FLOWERS						0	1	1	2	2	4	3	3	3	3	3	4	3	2	1	1	0										16	
	FRUIT SET									0	1	1	2	3	4	5	6	6	7	9	9	10	10	11										14
6	BUDS	9																																
	FLOWERS				0	2	2	2	2	2	3	1	1	1	3	2	2	3	3	1	1	0											17	
	FRUIT SET							0	1	2	2	4	5	5	5	6	6	6	6	8	8	9												15
7	BUDS	10																																
	FLOWERS				0	1	2	2	3	3	4	3	4	2	3	2	2	2	1	3	3	3	3	2	1	0							21	
	FRUIT SET						0	1	2	3	4	6	7	9	9	10	10	11	12	12	12	13	13	14	15	16								19
8	BUDS	5																																
	FLOWERS				0	2	2	2	1	1	2	2	3	2	1	0																	11	
	FRUIT SET						0	1	2	2	2	3	3	4	5																			9
9	BUDS	9																																
	FLOWERS							0	1	2	1	1	2	2	2	2	4	5	4	3	2	1	0										14	
	FRUIT SET								0	1	1	2	2	4	4	4	5	6	7	8	9													13
10	BUDS	5																																
	FLOWERS							0	1	2	1	1	1	1	2	2	3	1	1	1	0												13	
	FRUIT SET								0	1	2	2	2	2	4	4	4	5																12
11	BUDS	10																																
	FLOWERS						0	1	2	3	3	2	2	2	3	2	2	1	1	2	2	1	0	0	1	1	1	1	1	0			23	
	FRUIT SET								0	1	2	3	4	4	5	5	6	7	7	7	8	9	9	9	9	9	9	10						21
12	BUDS	5																																
	FLOWERS				0	1	2	2	2	2	2	1	2	1	2	1	1	0															12	
	FRUIT SET						0	1	2	2	3	3	4	4	5																			8
TOTALS	BUDS	104																																
	FLOWERS					4	7	14	18	22	25	22	22	24	25	25	23	23	25	25	16	14	13	12	8	6	3	1	1	1	1	0	192	166
	FRUIT SET																																	
DATE		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 8.67

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 16.

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 13.83

CHART NO. 31

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIRST CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS			0	1	3	4	5	3	3	2	1	1	0														9	
	FRUIT SET							0	2	2	3	4	4	5															6
2	BUDS	3																											
	FLOWERS			0	1	2	3	2	0																			4	
	FRUIT SET						0	1	3																				2
3	BUDS	4																											
	FLOWERS						0	1	2	2	3	3	4	4	3	0												8	
	FRUIT SET													0	1	4													2
4	BUDS	5																											
	FLOWERS				0	1	2	2	1	2	2	2	1	1	2	1	1	1	1	1	0							15	
	FRUIT SET							0	1	1	2	2	3	3	3	4	4	4	4	4	5								13
5	BUDS	4																											
	FLOWERS				0	1	2	2	2	2	2	2	2	1	1	0												10	
	FRUIT SET							0	1	1	2	2	2	3	3	4													8
6	BUDS	4																											
	FLOWERS		0	1	1	2	3	3	2	2	2	1	0															9	
	FRUIT SET								1	1	2	3	4																5
7	BUDS	4																											
	FLOWERS			0	1	1	2	3	2	2	2	1	1	1	0													10	
	FRUIT SET							0	1	1	2	3	3	3	4														7
8	BUDS	5																											
	FLOWERS		0	1	1	2	3	3	3	4	3	3	2	2	1	0												12	
	FRUIT SET								0	1	2	2	3	3	4	5													7
9	BUDS	5																											
	FLOWERS			0	1	2	3	2	2	1	1	1	2	2	1	1	1	1	1	0								15	
	FRUIT SET						0	1	2	3	3	3	3	3	4	4	4	4	4	5									13
10	BUDS	4																											
	FLOWERS				0	1	2	4	4	4	4	4	4	2	1	1	0											10	
	FRUIT SET												0	2	3	3	4												4
11	BUDS	5																											
	FLOWERS			0	1	2	3	3	3	3	4	3	2	2	1	0												11	
	FRUIT SET							0	1	1	2	3	3	4	5														8
12	BUDS	5																											
	FLOWERS			0	1	2	3	3	3	3	2	2	1	1	0													10	
	FRUIT SET						0	1	2	2	3	3	4	4	5														8
TOTALS	BUDS	53																											
	FLOWERS			2	8	19	30	33	27	28	27	23	18	15	10	2	2	2	2	1	0							123	
	FRUIT SET							3	14	16	23	27	34	37	43	51	51	51	51	52	53								83
DATE		26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 4.42

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 10.25

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 6.92

CHART NO. 32

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

SECOND CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS		0	2	3	3	3	4	2	2	2	2	1	1	0													11	
	FRUIT SET								0	3	3	3	3	4	4	5													7
2	BUDS	7																											
	FLOWERS			0	1	3	4	3	3	3	4	2	2	2	1	1	0											12	
	FRUIT SET									0	1	2	2	3	3	5	5	6	6	7									10
3	BUDS	3																											
	FLOWERS								0	2	3	3	3	3	3	2	2	0										8	
	FRUIT SET													0	1	1	3												3
4	BUDS	6																											
	FLOWERS				0	2	2	3	3	3	3	4	2	2	2	1	1	1	1	1	1	0						17	
	FRUIT SET								0	1	1	1	3	3	3	4	4	5	5	5	5	6							14
5	BUDS	6																											
	FLOWERS							0	3	3	4	4	4	2	2	3	2	1	1	1	1	0						14	
	FRUIT SET											0	1	3	3	3	4	5	5	5	5	6							11
6	BUDS	6																											
	FLOWERS					0	2	3	3	3	3	4	3	1	1	1	1	1	1	1	0							15	
	FRUIT SET											0	1	2	4	4	5	5	5	5	6								12
7	BUDS	6																											
	FLOWERS						0	1	3	3	3	5	3	2	1	2	1	0										11	
	FRUIT SET											0	2	3	4	4	5	5	6										7
8	BUDS	2																											
	FLOWERS						0	1	2	2	2	2	0															5	
	FRUIT SET											0	2																1
9	BUDS	3																											
	FLOWERS				0	1	2	3	3	2	1	1	0															7	
	FRUIT SET								0	1	2	2	3																4
10	BUDS	7																											
	FLOWERS								0	1	2	4	4	4	4	4	3	1	2	1	1	0	1	1	0			15	
	FRUIT SET												0	1	1	1	2	4	4	5	5	6	6	6	7				12
11	BUDS	6																											
	FLOWERS						0	3	4	4	4	3	2	2	1	2	1	1	1	0								12	
	FRUIT SET										0	1	2	3	3	4	4	5	5	6									10
12	BUDS	7																											
	FLOWERS					0	2	2	3	3	4	4	3	3	2	2	1	1	1	1	1	0						16	
	FRUIT SET									0	1	2	3	3	3	4	4	6	6	6	6	6	7						13
TOTALS	BUDS	64																											
	FLOWERS			1	5	12	14	20	30	33	33	38	29	20	19	15	13	7	7	6	5	2	1	1	0			143	
	FRUIT SET							1	2	9	14	16	26	36	37	45	48	55	56	57	58	61	63	63	64				104
	DATE	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT- 5.33

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT- 11.92

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT- 8.67

CHART NO. 33

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

THIRD CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																											
	FLOWERS		0	1	2	2	2	2	2	3	2	2	2	2	1	1	1	1	0									15	
	FRUIT SET										0	1	2	2	2	4	4	4	3										9
2	BUDS	3																											
	FLOWERS		0	1	2	3	3	2	1	0																		6	
	FRUIT SET						0	1	2	3																			3
3	BUDS	5																											
	FLOWERS										0	1	1	1	2	2	2	1	2	2	1	0	0	0	1	0		14	
	FRUIT SET																0	1	2	2	2	3	4	4	4	4	5		10
4	BUDS	6																											
	FLOWERS			0	1	2	2	2	2	1	1	1	1	2	2	2	2	2	2	0								15	
	FRUIT SET											0	1	2	2	2	2	3	3	3	3	4	6						11
5	BUDS	8																											
	FLOWERS							0	1	2	2	3	2	3	4	4	2	3	2	1	0							12	
	FRUIT SET												0	1	2	3	3	5	5	6	7	8							9
6	BUDS	7																											
	FLOWERS							0	1	1	2	3	2	2	1	2	2	3	2	2	1	1	1	0	1	0		17	
	FRUIT SET												0	1	1	3	3	3	3	4	4	5	5	5	6	6	7		14
7	BUDS	7																											
	FLOWERS									0	1	2	3	3	3	2	2	2	3	3	2	1	0					12	
	FRUIT SET													0	2	2	4	4	4	5	6	7							8
8	BUDS	7																											
	FLOWERS									0	2	2	3	3	4	4	2	3	2	2	2	1	1	1	1	0		16	
	FRUIT SET														0	3	3	4	4	4	5	5	5	6	6	7			11
9	BUDS	5																											
	FLOWERS				0	1	2	2	2	2	3	2	2	2	1	1	0											11	
	FRUIT SET										0	1	1	2	2	3	4	4	5										8
10	BUDS	6																											
	FLOWERS								0	1	2	2	3	4	3	3	2	2	2	2	1	0						12	
	FRUIT SET													0	1	2	3	4	4	4	5	6							8
11	BUDS	4																											
	FLOWERS								0	2	2	2	3	2	2	1	1	0										8	
	FRUIT SET													0	1	2	3	3	4										5
12	BUDS	6																											
	FLOWERS							0	1	2	2	2	1	1	1	1	1	1	1	2	2	2	3	2	2	1	0	19	
	FRUIT SET												0	1	1	2	2	2	2	3	3	3	3	4	4	5	6		16
TOTALS	BUDS	69																											
	FLOWERS		1	3	8	11	10	13	15	19	2X	21	2X	2X	21	18	19	18	5	9	5	X	2	3	0			157	112
	FRUIT SET					1	2	5	6	10	1X	1X	2X	31	40	43	4X	50	51	61	64	65	66	69					
	DATE	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.75

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 13.08

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 9.33

CHART NO. 34

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FOURTH CLUSTER - PLOT II

DAILY RECORD

No. of Plant	Class	April 18	19	20	21	22	23	24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																															
	FLOWERS		0	1	2	2	3	2	3	2	2	2	2	1	1	1	0															13	
	FRUIT SET			0	1	1	2	2	3	4	4	4	5	5	5	6																	12
2	BUDS	13																															
	FLOWERS	0	1	2	2	4	4	4	5	5	3	3	3	2	3	4	2	2	2	1	0											18	
	FRUIT SET			0	1	2	2	4	6	6	7	8	8	9	11	11	11	11	12	13													16
3	BUDS	7																															
	FLOWERS						0	1	1	2	3	4	2		2	2	2	2	2	2	1	1	1	1	0							16	
	FRUIT SET												0	2	2	2	4	4	4	4	5	5	6	6	7								12
4	BUDS	7																															
	FLOWERS				0	1	3	3	4	2	1	2	2	2	2	2	1	1	0	1	1	1	1	0								18	
	FRUIT SET							0	2	3	3	3	4	4	4	4	5	5	6	6	6	6	6	7									15
5	BUDS	6																															
	FLOWERS						0	1	3	3	2	2	1	2	1	1	2	1	1	0												12	
	FRUIT SET							0	1	2	3	3	4	4	4	4	5	5	6														10
6	BUDS	11																															
	FLOWERS						0	1	2	2	4	4	3	4	2	3	4	3	3	1	2	2	1	1	1	1	1	0				21	
	FRUIT SET							0	1	2	2	5	5	5	6	6	8	8	8	9	10	10	10	10	11								18
7	BUDS	5																															
	FLOWERS						0	1	2	2	2	2	1	1	1	1	1	1	1	1	1	0										15	
	FRUIT SET							0	1	2	2	2	3	3	3	3	4	4	4	5													12
8	BUDS	6																															
	FLOWERS				0	1	1	2	2	3	2	2	2	2	2	1	1	2	1	1	1	0										16	
	FRUIT SET							0	1	2	2	3	3	4	4	4	5	5	5	6													12
9	BUDS	9																															
	FLOWERS					0	2	2	4	3	2	4	2	2	3	2	2	1	0	0	1	1	1	1	1	0						21	
	FRUIT SET							0	1	2	2	4	4	5	5	6	6	7	8	8	8	8	8	8	9								19
10	BUDS	6																															
	FLOWERS							0	1	2	2	3	3	1	1	2	1	1	1	1	0	1	1	0								17	
	FRUIT SET												0	2	2	2	3	3	4	4	4	5	5	5	6								13
11	BUDS	4																															
	FLOWERS						0	2	2	2	2	1	1	3	2	2	1	0														10	
	FRUIT SET							0	1	1	1	2	2	2	3	4																	7
12	BUDS	11																															
	FLOWERS						0	2	3	4	3	3	3	3	2	3	3	3	2	3	3	2	1	0								16	
	FRUIT SET							0	1	2	3	3	3	5	5	5	6	7	7	7	9	10	11										14
TOTALS	BUDS	91																															
	FLOWERS		1	3	X	10	20	21	32	30	28	26	31	20	24	25	17	16	11	12	10	5	5	X	3	2	1	0				193	
	FRUIT SET				2	3	X	5	13	23	30	31	47	48	52	63	65	73	74	78	83	86	87	88	89	90	91						160
	DATE	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT- 7.58

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT- 16.08

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT- 13.33

CHART NO. 35

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

FIFTH CLUSTER – PLOT II

DAILY RECORD

Number of Buds Flowers and Fruit Set

No. OF PLANT	Class	April 24	25	26	27	28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	No. DAYS FLOWERING	No. DAYS FRUIT SET
1	BUDS	6																																				
	FLOWERS			0	3	3	2	3	1	1	2	1	1	1	1	1	1	0																			15	
	FRUIT SET					0		1	1	3	3	3	4	4	4	5	5	5	5	6																		14
2	BUDS	6																																				
	FLOWERS	0	1	2	2	1	2	1	1	1	0	0	1	1	1	1	2	1	1	0																	17	
	FRUIT SET				0	1	1	2	2	2	3	3	3	3	3	3	3	4	4	5																		15
3	BUDS	5																																				
	FLOWERS									0	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0					21	
	FRUIT SET										0	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5										17
4	BUDS	6																																				
	FLOWERS					0	1	1	2	2	1	2	1	1	2	2	2	2	1	1	2	1	1	1	0												18	
	FRUIT SET							0	1	1	2	2	2	2	2	3	3	4	4	4	5	5	5	6														15
5	BUDS	2																																				
	FLOWERS						0	2	2	2	2	2	0																								5	
	FRUIT SET												0	2																								1
6	BUDS	6																																				
	FLOWERS						0	1	1	2	2	2	1	1	1	1	2	1	2	1	1	2	1	0													17	
	FRUIT SET								0	2	2	2	2	2	2	3	3	4	4	4	5	5	6															13
7	BUDS	4																																				
	FLOWERS								0	2	1	1	1	2	2	2	1	0																			8	
	FRUIT SET								0	1	1	1	1	2	2	3	4																					8
8	BUDS	6																																				
	FLOWERS							0	1	2	2	2	2	2	1	1	1	2	1	2	1	1	1	1	0												17	
	FRUIT SET									0	1	2	2	2	2	3	3	4	4	4	5	5	6															13
9	BUDS	6																																				
	FLOWERS			0	1	1	1	2	2	3	2	2	2	2	1	1	0	0	0	1	1	1	1	0													20	
	FRUIT SET					0	1	1	1	2	3	3	4	4	4	4	4	5	5	5	6																	15
10	BUDS	14																																				
	FLOWERS									0	1	2	2	2	3	2	2	2	3	2	2	3	2	2	2	2	1	1	1	1	1	1	0				22	
	FRUIT SET										0	1	2	2	2	4	6	7	7	9	11	11	11	12	13	13	13	13	13	14								19
11	BUDS	6																																				
	FLOWERS						0	2	2	3	2	1	2	1	1	1	1	0	0	0	0	0	0	1	1	0											18	
	FRUIT SET							0	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6															16
12	BUDS	5																																				
	FLOWERS			0	1	1	2	2	2	1	1	1	0	0	0	0	1	1	1	1	0																16	
	FRUIT SET					0	1	1	2	3	3	3	3	3	3	3	3	4																				12
TOTALS	BUDS	72																																				
	FLOWERS		1	2	3	6	8	11	16	19	15	17	12	14	14	14	13	13	11	10	9	9	7	5	5	3	3	3	2	2	2	1	1	1	0		194	
	FRUIT SET			1	1	3	3	5	10	11	19	22	26	26	31	35	40	42	44	49	52	54	59	62	65	65	65	66	68	60	69	69	69	70				158
	DATE	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 16.17

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 13.17

CHART NO. 36

DETERMINATION OF BUDS, FLOWERS AND FRUIT SET

SIXTH CLUSTER – PLOT II

DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	J1	J2	J3	J4	No. Days Flowering	No. Days Fruit Set
1	BUDS	5																																
	FLOWERS		0	1	1	2	2	1	1	1	2	1	1	1	1	1	1	0															15	
	FRUIT SET						0	1	2	2	2	3	3	4	4	4	4	5																12
2	BUDS	5																																
	FLOWERS		0	2	2	2	3	2	1	2	1	2	1	1	1	0																	12	
	FRUIT SET						0	1	2	2	3	3	4	4	4	5																		9
3	BUDS	8																																
	FLOWERS										0	1	2	2	3	1	0	0	0	0	1	1	1	2	1	1	0	0	0	1	1	0	20	
	FRUIT SET											0	1	3	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	7			18
4	BUDS	8																																
	FLOWERS						0	1	3	3	3	2	2	2	2	1	1	1	1	1	0												13	
	FRUIT SET								0	1	2	3	3	4	4	4	5	5	6															10
5	BUDS	6																																
	FLOWERS						0	1	2	3	2	2	2	2	1	1	1	1	1	0													12	
	FRUIT SET								0	1	1	2	2	4	4	4	4	4	5															10
6	BUDS	8																																
	FLOWERS								0	1	2	2	1	2	3	3	2	3	2	1	1	1	1	1	1	0							16	
	FRUIT SET										0	1	1	1	3	4	4	5	6	6	7	7	7	7	8									14
7	BUDS	7																																
	FLOWERS								0	2	2	1	2	1	1	1	2	2	2	2	1	1	2	2	0								15	
	FRUIT SET										0	1	1	2	2	3	3	3	4	4	5	5	5	5	7									14
8	BUDS	3																																
	FLOWERS								0	1	2	2	3	2	2	0																	6	
	FRUIT SET												0	1	1	3																		3
9	BUDS	12																																
	FLOWERS						0	1	1	2	2	2	3	2	3	4	3	2	3	4	3	2	2	1	0								17	
	FRUIT SET									0	1	1	2	2	4	6	7	7	8	9	10	10	11	12										14
10	BUDS	6																																
	FLOWERS								0	2	1	1	1	1	3	2	2	1	0	0	0	0	0	0	1	1	1	0					18	
	FRUIT SET										0	1	1	2	2	3	3	4	5	5	5	5	5	5	5	5	6							18
11	BUDS	5																																
	FLOWERS								0	1	2	2	1	1	2	2	1	1	1	0													10	
	FRUIT SET										0	1	1	1	2	3	3	3	4															9
12	BUDS	11																																
	FLOWERS								0	1	2	2	3	4	4	3	3	3	3	2	2	3	2	1	1	0							16	
	FRUIT SET										0	1	2	3	5	6	7	8	8	8	9	10	10	11										13
TOTALS	BUDS	84																																
	FLOWERS		2	3	3	5	5	6	15	20	22	22	22	23	21	15	17	15	13	11	7	6	6	5	1	1	1	1	1	1	1	0	170	
	FRUIT SET						1	3	4	5	8	14	20	29	38	47	50	53	59	64	68	69	70	72	76	77	77	77	77	78	78	79		144
	DATE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 7.

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 14.17

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 12.

CHART NO. 37
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
FIRST CLUSTER – PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set — April

No. Plant	Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	No. Days Flowering	No. Days Fruit Set
1	BUDS	10																												
	FLOWERS						0	1	1	2	2	3	3	4	3	4	4	5	5	3	4	3	1	0					16	
	FRUIT SET													0	1	2	2	3	4	6	6	6	7	9	10					11
2	BUDS	5																												
	FLOWERS									0	1	2	2	2	3	2	3	2	1	1	2	1	1	1	0				14	
	FRUIT SET														0	1	1	2	3	3	3	4	4	4	5					10
3	BUDS	5																												
	FLOWERS	0	2	2	2	3	2	2	1	2	2	1	1	1	0														12	
	FRUIT SET						0	1	2	3	3	3	4	4	4	5														9
4	BUDS	9																												
	FLOWERS							0	1	2	3	3	3	4	4	4	4	3	3	2	3	2	2	3	2	1	0		18	
	FRUIT SET													0	1	1	2	2	3	3	4	4	6	6	6	7	8	9		14
5	BUDS	8																												
	FLOWERS						0	1	1	2	3	3	3	4	4	4	3	3	2	2	2	2	1	0					16	
	FRUIT SET													0	1	1	1	2	2	3	4	6	6	6	7	8				13
6	BUDS	5																												
	FLOWERS							0	1	2	3	3	2	1	1	0	1	1	1	2	2	1	0						14	
	FRUIT SET													0	1	1	2	3	3	3	3	3	4	3						11
7	BUDS	5																												
	FLOWERS							0	1	2	2	3	3	2	3	2	2	2	1	1	0								13	
	FRUIT SET													0	1	1	2	3	3	4	4	5								9
8	BUDS	8																												
	FLOWERS									0	1	1	1	2	1	2	4	5	5	5	4	2	1	1	1	0			17	
	FRUIT SET														0	1	1	1	2	2	3	5	6	7	7	8				13
9	BUDS	5																												
	FLOWERS						0	1	1	1	2	3	4	3	2	2	2	1	1	1	1	1	0						17	
	FRUIT SET													0	1	2	2	3	3	3	4	4	4	5						12
10	BUDS	5																												
	FLOWERS							0	1	2	3	3	3	3	2	2	1	0											11	
	FRUIT SET													0	1	2	3	3	4	5										7
11	BUDS	6																												
	FLOWERS						0	1	1	2	2	3	3	2	2	2	2	2	2	1	0								15	
	FRUIT SET													0	1	2	2	2	3	4	4	5	6							10
12	BUDS	5																												
	FLOWERS			0	1	1	2	3	3	2	3	4	4	2	2	1	0												12	
	FRUIT SET								0	1	1	1	3	3	4	5														8
13	BUDS	5																												
	FLOWERS						0	1	1	2	2	2	1	1	2	2	3	2	2	1	0								15	
	FRUIT SET													0	2	2	2	2	3	3	3	4	3							10
14	BUDS	3																												
	FLOWERS						0	2	3	3	3	2	2	2	0														7	
	FRUIT SET												0	1	1	3														4
15	BUDS	5																												
	FLOWERS						0	1	2	2	3	3	2	1	1	1	1	0	0	1	1	1	1	1	1	0			19	
	FRUIT SET													0	1	2	2	2	3	3	3	3	4	4	4	4	5			15
16	BUDS	5																												
	FLOWERS								0	1	1	2	2	2	3	2	2	3	2	1	2	2	1	0					15	
	FRUIT SET														0	1	1	2	3	3	3	4	4	5						10
17	BUDS	6																												
	FLOWERS							0	1	2	3	4	4	4	3	2	2	2	2	1	0	0	0	0	0	1	1	0	20	
	FRUIT SET													0	1	2	3	3	4	5	5	5	5	5	5	5	6			15
18	BUDS	5																												
	FLOWERS							0	1	2	2	3	3	3	2	2	1	1	2	1	1	1	0						14	
	FRUIT SET													0	2	2	3	3	4	4	4	5								9
19	BUDS	6																												
	FLOWERS				0	1	1	2	2	3	4	3	3	3	3	2	2	1	1	0									14	
	FRUIT SET										0	1	2	2	3	4	4	5	5	6										9
20	BUDS	5																												
	FLOWERS					0	1	1	2	3	3	3	4	4	4	3	2	2	1	1	0								14	
	FRUIT SET											0	1	1	2	3	3	4	4	5										9
21	BUDS	3																												
	FLOWERS						0	1	2	3	3	2	1	1	0														7	
	FRUIT SET											0	1	2	2	3														4
22	BUDS	6																												
	FLOWERS							0	1	2	3	3	4	3	2	1	2	2	2	1	1	1	1	1	0				17	
	FRUIT SET													0	1	2	3	3	3	4	4	4	5	5	5	6				13
23	BUDS	3																												
	FLOWERS				0	1	1	2	2	3	3	2	2	1	0														9	
	FRUIT SET										0	1	1	2	3															4
24	BUDS	4																												
	FLOWERS							0	1	2	2	2	2	2	2	1	1	1	1	0									11	
	FRUIT SET													0	1	1	1	2	3	3	3	3	4							9
TOTALS	BUDS	132																												
	FLOWERS		2	2	6	9	15	29	42	56	68	65	59	52	51	38	37	37	29	27	27	17	8	3	3	0			337	
	FRUIT SET								1	2	3	4	9	16	23	40	57	68	72	77	92	99	101	112	122	128	129	132		238
DATE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 5.5

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 14.04

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 9.92

CHART NO. 38
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
SECOND CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	M1	M2	M3	M4	M5	M6	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																												
	FLOWERS							0	1	2	4	4	4	2	2	1	1	2	2	1	0								12	
	FRUIT SET												0	2	3	4	4	4	4	5	6									8
2	BUDS	4																												
	FLOWERS									0	1	1	2	4	3	3	2	2	0										8	
	FRUIT SET													0	1	1	2	4												5
3	BUDS	8																												
	FLOWERS		0	1	1	1	1	3	3	4	5	6	4	3	1	0													12	
	FRUIT SET										0	1	1	2	2	4	5	7	8											8
4	BUDS	7																												
	FLOWERS							0	1	2	2	3	3	4	4	5	3	2	1	1	1	1	0						16	
	FRUIT SET											0	1	1	1	3	4	5	6	6	6	6	6	7						13
5	BUDS	6																												
	FLOWERS							0	1	2	3	3	3	3	2	2	2	1	1	0									12	
	FRUIT SET											0	1	1	3	3	4	4	5	5	6									9
6	BUDS	4																												
	FLOWERS									0	2	4	4	3	2	0													5	
	FRUIT SET												0	1	2	4														3
7	BUDS	6																												
	FLOWERS							0	1	2	3	4	3	3	3	2	1	2	2	1	0								13	
	FRUIT SET											0	1	1	3	3	4	4	4	5	6									10
8	BUDS	3																												
	FLOWERS										0	1	3	3	4	3	3	2	2	1	0								10	
	FRUIT SET													0	1	1	3	3	4	4	5									7
9	BUDS	5																												
	FLOWERS								0	1	2	3	2	2	2	2	3	2	1	1	0								12	
	FRUIT SET											0	1	1	2	2	3	4	4	5										10
10	BUDS	5																												
	FLOWERS								0	1	2	3	4	4	3	2	2	1	0										9	
	FRUIT SET												0	1	2	3	3	4	5											6
11	BUDS	6																												
	FLOWERS									0	1	3	3	2	3	4	2	2	2	1	1	0							11	
	FRUIT SET												0	1	1	1	3	3	3	5	5	6								9
12	BUDS	6																												
	FLOWERS						0	1	2	3	3	3	4	3	3	2	2	2	1	0									12	
	FRUIT SET										0	1	2	3	4	4	4	5	6											9
13	BUDS	4																												
	FLOWERS										0	2	4	4	4	3	2	0											6	
	FRUIT SET													0	1	2	4													3
14	BUDS	6																												
	FLOWERS						0	1	2	3	4	4	2	2	3	2	2	2	1	0									12	
	FRUIT SET										0	2	3	3	4	4	4	5	6											8
15	BUDS	6																												
	FLOWERS									0	2	2	3	1	2	2	2	2	1	0	0	0	1	1	1	1	0		16	
	FRUIT SET											0	2	2	3	3	3	4	5	5	5	5	5	5	5	5	6			14
16	BUDS	6																												
	FLOWERS									0	1	2	3	3	3	3	3	1	2	1	1	1	0						13	
	FRUIT SET											0	1	1	2	2	4	4	5	5	5	5	6							11
17	BUDS	6																												
	FLOWERS							0	1	2	3	4	4	4	2	2	2	1	1	0									12	
	FRUIT SET											0	1	3	4	4	4	5	5	6										8
18	BUDS	6																												
	FLOWERS							0	1	2	3	3	4	2	2	1	2	2	2	0									11	
	FRUIT SET											0	2	3	4	4	4	4	6											7
19	BUDS	6																												
	FLOWERS			0	1	1	2	3	4	3	3	3	3	2	1	1	0												12	
	FRUIT SET									0	1	2	2	3	4	5	5	6												8
20	BUDS	6																												
	FLOWERS							0	1	2	3	4	4	4	2	2	1	1	0	0	0	0	0	0	1	1	1	0	19	
	FRUIT SET											0	1	3	3	4	4	5	5	5	5	5	5	5	5	5	6			15
21	BUDS	7																												
	FLOWERS					0	1	2	2	2	3	4	4	3	3	2	2	1	1	0	0	0	1	1	1	1	0		20	
	FRUIT SET										0	2	3	4	4	5	5	6	6	6	6	6	6	6	7					14
22	BUDS	6																												
	FLOWERS						0	1	2	2	3	3	4	4	3	3	2	2	1	1	0								14	
	FRUIT SET										0	1	2	3	4	4	5	5	5	6										9
23	BUDS	3																												
	FLOWERS						0	1	2	2	3	4	4	3	2	2	1	1	0										11	
	FRUIT SET											0	2	3	3	4	4	5												6
24	BUDS	9																												
	FLOWERS							0	1	2	3	3	2	2	1	1	3	3	4	4	2	2	1	1	1	0			18	
	FRUIT SET										0	1	1	3	3	3	3	4	4	6	6	7	8	8	8	9				15
TOTALS	BUDS	141																												
	FLOWERS		1	2	3	8	20	30	45	63	76	75	59	56	46	42	32	27	11	9	5	5	x	x	2	0			296	
	FRUIT SET			1	2	5	8	22	x	63	80	87	102	108	126	128	133	135	137	137	139	141								215
	DATE	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT - 5.88

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT - 12.17

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT - 8.96

CHART NO. 39
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
THIRD CLUSTER – PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	No. Days Flowering	No. Days Fruit Set
1	BUDS	9																													
	FLOWERS							0	2	2	2	2	1	2	3	3	4	2	3	2	1	1	2	2	1	0				17	
	FRUIT SET											0	2	2	3	3	3	5	5	6	7	7	7	7	8	9					14
2	BUDS	6																													
	FLOWERS								0	1	1	2		3	2	3	3	2	2	1	1	1	1	1	0					15	
	FRUIT SET												0	1	1	1	2	3	4	4	4	5	5	5	6						12
3	BUDS	7																													
	FLOWERS			0	1	2	2	3	2	3	3	3	1	1	1	1	1	1	1	1	1	0								17	
	FRUIT SET						0	2	2	2	3	5	5	5	6	6	6	6	6	7											14
4	BUDS	6																													
	FLOWERS						0	2	2	1	2	1	2	2	1	1	0	1	1	1	1	0								16	
	FRUIT SET								0	1	1	2	2	2	3	3	4	4	4	5	5	6									13
5	BUDS	5																													
	FLOWERS						0	1	2	2	3	1	2	2	3	2	1	1	0											11	
	FRUIT SET									0	2	2	2	2	3	4	4	5													8
6	BUDS	9																													
	FLOWERS							0	1	2	2	2		3	3	4	3	3	3	3	3	2	2	2	0					16	
	FRUIT SET										0	1	1	2	2	3	4	4	5	6	7	7	9								13
7	BUDS	8																													
	FLOWERS							0	1	1	1	2	1	2	2	4	4	4	5	3	3	2	1	0						15	
	FRUIT SET											0	1	1	2	2	2	3	3	5	5	6	7	8							12
8	BUDS	3																													
	FLOWERS												0	1	2	2	3	2	2	1	1	0								9	
	FRUIT SET															0	1	1	2	2	3										5
9	BUDS	6																													
	FLOWERS							0	2	2	3	3	1	2	2	3	2	2	1	0										12	
	FRUIT SET										0	2	2	3	3	4	4	4	5	6											9
10	BUDS	6																													
	FLOWERS						0	1	2	2	2	2	1	2	2	2	3	2	1	0										13	
	FRUIT SET										0	2	2	2	2	3	4	5	6												9
11	BUDS	6																													
	FLOWERS							0	1	1	2	2	2	2	2	3	2	2	1	1	1	1	1	0						17	
	FRUIT SET										0	1	2	2	2	3	3	4	4	5	5	5	6								14
12	BUDS	6																													
	FLOWERS						0	1	1	1	2	1	1	1	2	3	3	2	2	1	1	0								17	
	FRUIT SET										0	1	1	2	2	3	4	5	5	6											14
13	BUDS	7																													
	FLOWERS								0	1	2	3	3	3	3	2	3	3	3	2	2	1	1	1	1	1	0			19	
	FRUIT SET											0	1	2	2	3	3	4	4	5	5	5	6	6	6	7					15
14	BUDS	7																													
	FLOWERS						0	1	2	2	2	2	1	2	3	2	3	3	2	2	1	1	0							15	
	FRUIT SET										0	1	1	2	2	3	3	5	5	6	7										13
15	BUDS	5																													
	FLOWERS							0	1	2	2	3	2	1	1	2	2	1	1	1	1	0								14	
	FRUIT SET											0	2	2	2	3	4	4	4	5											11
16	BUDS	9																													
	FLOWERS							0	1	2	2	2	2	2	3	3	4	3	3	2	1	0								15	
	FRUIT SET										0	1	2	2	3	3	4	6	7	8	9										12
17	BUDS	6																													
	FLOWERS					0	1	2	3	3	4	4	2	2	2	2	1	1	1	1	0									15	
	FRUIT SET										0	3	3	3	4	4	5	5	5	5	6										10
18	BUDS	6																													
	FLOWERS							0	1	2	2	2	2	2	3	2	2	1	1	1	1	1	1	0						16	
	FRUIT SET										0	1	2	2	2	3	3	4	4	5	5	5	5	6							15
19	BUDS	6																													
	FLOWERS			0	1	2	2	3	2	2	3	3	2	3	2	2	1	0												13	
	FRUIT SET								0	1	2	2	2	2	2	4	4	5	6												10
20	BUDS	9																													
	FLOWERS			0	1	1	2	2	2	3	1	2	3	4	4	4	3	2	2	2	2	2	0							19	
	FRUIT SET								0	2	2	2	2	3	3	4	5	5	6	7	7	9									14
21	BUDS	12																													
	FLOWERS			0	1	2	3	3	3	4	3	4	2	5	6	4	4	4	3	1	0									16	
	FRUIT SET									0	1	3	3	5	5	5	7	7	8	9	11	12									12
22	BUDS	6																													
	FLOWERS						0	1	2	2	2	3	1	1	1	1	2	2	3	2	1	0								15	
	FRUIT SET										0	2	2	2	3	3	3	3	4	5	5	6									11
23	BUDS	6																													
	FLOWERS						0	1	3	3	2	1	1	1	1	2	2	2	2	1	1	0								14	
	FRUIT SET								0	1	2	2	3	3	3	3	4	5	5	6											12
24	BUDS	6																													
	FLOWERS						0	1	2	2	3	1	1	1	1	1	0	1	2	1	0									16	
	FRUIT SET										0	2	2	3	3	3	3	4	4	4	5	6									13
TOTALS	BUDS	162																													
	FLOWERS			4	8	19	28	37	49	43	49	40	52	57	57	60	53	43	33	23	16	12	8	4	1	1	1	0		362	
	FRUIT SET						4	7	23	24	42	50	61	70	73	91	103	121	135	143	149	153	158	161	161	161	162	0			287
	DATE	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT – 6.75

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT – 15.08

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT – 11.96

CHART NO. 40
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
FOURTH CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. Plant	Class	Apr 28	29	30	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	No. Days Flowering	No. Days Fruit Set
1	BUDS	9																															
	FLOWERS				0	1	2	2	2	3	2	2	2	3	3	1	2	1	1	1	1	1	1	0								19	
	FRUIT SET											0	1	2	2	2	3	5	6	7	7	7	8	8	8	9							15
2	BUDS	6																															
	FLOWERS										0	2	2	3	4	2	1	2	2	1	1	0										10	
	FRUIT SET												0	2	3	3	4	5	5	6													7
3	BUDS	6																															
	FLOWERS		0	1	2	2	3	2	2	2	2	1	2	1	1	0																12	
	FRUIT SET							0	1	1	2	2	3	3	4	4	5																9
4	BUDS	10																															
	FLOWERS		0	1	1	3	3	3	2	1	1	1	1	1	2	3	2	2	2	1	0											17	
	FRUIT SET						0	1	2	3	3	3	3	3	3	4	5	5	6	7													13
5	BUDS	9																															
	FLOWERS				0	1	1	1	2	2	3	2	1	2	3	3	3	1	0													13	
	FRUIT SET									0	1	3	3	3	3	4	6	7															8
6	BUDS	5																															
	FLOWERS							0	2	2	2	3	3	3	2	2	1	0														9	
	FRUIT SET										0	1	2	3	3	4	5																6
7	BUDS	7																															
	FLOWERS					0	2	2	2	3	2	2	1	2	1	2	2	2	1	1	0											15	
	FRUIT SET								0	1	2	3	3	4	4	4	5	5	6	6	7												12
8	BUDS	6																															
	FLOWERS										0	2	2	2	3	2	2	1	2	1	2	1	1	1	0							13	
	FRUIT SET												0	2	3	4	4	4	5	5	5	6											10
9	BUDS	2																															
	FLOWERS						0	2	2	2	2	0																				4	
	FRUIT SET										0	2																					1
10	BUDS	6																															
	FLOWERS					0	1	2	2	3	3	2	1	2	2	1	1	0														14	
	FRUIT SET									0	1	2	3	3	4	5	5	6															10
11	BUDS	5																															
	FLOWERS					0	1	1	2	2	2	2	1	0	1	1	1	2	1	0												13	
	FRUIT SET									0	1	2	3	3	3	3	4	5															9
12	BUDS	6																															
	FLOWERS				0	2	2	3	3	3	2	1	2	2	1	1	0															13	
	FRUIT SET									0	2	3	3	3	5	5	5	6															9
13	BUDS	10																															
	FLOWERS										0	1	3	3	3	3	2	3	2	2	3	1	1	0								12	
	FRUIT SET												0	1	3	4	6	6	6	8	9	10											10
14	BUDS	7																															
	FLOWERS				0	2	3	3	3	4	2	1	1	1	2	1	1	2	2	1	1	1	0									18	
	FRUIT SET									0	2	3	4	4	4	5	5	5	5	6	6	7											14
15	BUDS	4																															
	FLOWERS						0	2	2	2	2	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0						17	
	FRUIT SET									0	1	1	1	1	2	2	2	2	2	2	2	2	3										14
16	BUDS	7																															
	FLOWERS						0	1	2	2	2	1	2	1	2	2	1	1	0	0	0	1	1	1	1	1	0					20	
	FRUIT SET									0	1	2	3	3	3	4	5	5	6	6	6	6	6	6	7								18
17	BUDS	8																															
	FLOWERS			0	1	3	3	3	3	3	2	2	1	1	1	0	0	0	0	0	0	1	1	1	2	2	1	1	1	0		26	
	FRUIT SET				0	1	1	3	3	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	7				23
18	BUDS	3																															
	FLOWERS				0	1	2	2	3	3	2	1	1	0																		8	
	FRUIT SET								0	1	2	2	3																				4
19	BUDS	13																															
	FLOWERS		0	1	2	3	3	2	1	1	1	2	2	4	2	3	2	2	1	1	1	1	0									19	
	FRUIT SET							0	1	2	2	2	3	3	3	5	6	7	8	10	10	10	10	11									16
20	BUDS	2																															
	FLOWERS				0	2	2	2	1	1	0																					5	
	FRUIT SET							0	1	1	2																						3
21	BUDS	6																															
	FLOWERS		0	2	2	3	3	2	2	2	2	2	1	2	2	1	0															14	
	FRUIT SET							0	1	2	2	3	3	4	4	4	5	5	6														11
22	BUDS	6																															
	FLOWERS		0	1	2	2	3	3	3	2	2	2	2	1	2	1	1	0														15	
	FRUIT SET							0	1	2	2	3	3	4	4	5	5	6															11
23	BUDS	7																															
	FLOWERS			0	1	2	3	3	2	2	2	1	1	1	1	1	1	1	1	0												16	
	FRUIT SET							0	1	2	2	3	3	4	4	5	5	6	6	7													13
24	BUDS	8																															
	FLOWERS				0	1	2	2	2	3	2	1	2	2	3	2	3	2	2	1	1	0										18	
	FRUIT SET								0	1	2	2	3	3	4	5	6	6	7	7	8												14
TOTALS	BUDS	158																															
	FLOWERS			6	11	28	39	41	45	48	40	34	33	37	40	37	30	27	19	13	11	8	8	5	5	3	2	1	1	1	0	340	
	FRUIT SET										3	10	14	28	44	54	62	69	80	95	109	121	127	132	137	139	143	143	145	146	147		260
	DATE	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 6.58

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 14.17

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 10.83

CHART NO. 41
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
FIFTH CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

Columns for May 7–31 and June 1–8. (○ denotes the circled zero mark.)

No. of Plant	Class	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	J1	J2	J3	J4	J5	J6	J7	J8	No. Days Flowering	No. Days Fruit Set
1	BUDS	6																																		
	FLOWERS					○	2	2	2	2	2	2	1	1	1	1	1	○																	12	
	FRUIT SET						○	1	2	2	2	3	3	3	4	4	4	5																		11
2	BUDS	6																																		
	FLOWERS							○	1	1	1	2	1	2	1	1	2	2	1	1	1	1	○	○	1	1	1	1	1	1	○				24	
	FRUIT SET								○	1	1	2	2	2	3	3	3	4	4	4	4	5	5	5	5	5	5	5	5	6						21
3	BUDS	9																																		
	FLOWERS		○	1	2	3	3	4	3	1	1	2	2	1	○																				12	
	FRUIT SET							○	1	2	4	5	5	5	6	6	7																			9
4	BUDS	6																																		
	FLOWERS			○	1	2	3	3	2	2	1	1	1	1	○																				12	
	FRUIT SET							○	1	2	2	3	4	4	4	4	5																			10
5	BUDS	7																																		
	FLOWERS					○	1	2	3	2	1	1	1	2	2	3	2	2	1	○															12	
	FRUIT SET								○	1	2	3	3	4	5	6	7																			10
6	BUDS	8																																		
	FLOWERS					○	2	3	3	2	2	1	1	2	1	1	1	1	2	1	○														15	
	FRUIT SET							○	1	2	3	4	4	4	5	5	5	6	6	7	8															14
7	BUDS	16																																		
	FLOWERS						○	1	1	2	4	3	4	3	3	3	5	5	4	3	5	2	1	1	1	○									18	
	FRUIT SET								○	1	2	3	5	7	7	7	9	10	11	11	14	15	15	15	16											17
8	BUDS	14																																		
	FLOWERS											○	1	2	2	2	3	3	3	4	4	2	4	4	4	4	5	5	4	3	3	○			19	
	FRUIT SET													○	1	2	3	3	3	5	6	6	7	7	7	9	9	10	11	11	14					16
9	BUDS	4																																		
	FLOWERS					○	2	1	2	3	2	2	1	○																					7	
	FRUIT SET							○	1	1	1	2	2	3	4																					7
10	BUDS	6																																		
	FLOWERS					○	1	2	3	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	○						22	
	FRUIT SET							○	1	1	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	6									20
11	BUDS	6																																		
	FLOWERS					○	1	2	3	3	1	1	2	1	1	1	1	1	○																13	
	FRUIT SET							○	2	2	2	3	3	4	4	4	4	5																		10
12	BUDS	6																																		
	FLOWERS				○	1	2	2	2	2	2	2	3	1	1	1	○																		11	
	FRUIT SET							○	1	2	2	3	3	5	5	5	6																			9
13	BUDS	11																																		
	FLOWERS											○	1	3	2	2	3	4	2	3	3	3	3	3	3	4	2	3	2	1	1	1	○		21	
	FRUIT SET												○	1	1	1	1	3	3	4	4	5	5	6	7	7	8	8	9	10	10	10	11			20
14	BUDS	11																																		
	FLOWERS					○	1	3	3	2	3	3	3	1	1	2	1	1	1	1	2	2	2	2	2	1	1	○							22	
	FRUIT SET							○	1	2	3	4	4	6	6	6	7	7	7	7	8	8	8	9	9	9	10	10	11							21
15	BUDS	5																																		
	FLOWERS						○	1	2	2	1	1	1	1	1	1	1	1	1	1	1	○	○	1	1	1	1	1	○						22	
	FRUIT SET								○	1	1	1	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	5								20
16	BUDS	7																																		
	FLOWERS							○	2	2	1	1	1	2	1	2	2	1	○																13	
	FRUIT SET								○	1	2	2	3	3	3	4	4	4	5	6																13
17	BUDS	6																																		
	FLOWERS			○	1	1	3	3	2	2	2	2	1	1	1	1	○																		14	
	FRUIT SET							○	1	2	3	3	4	5	5	5	5	5	6																	11
18	BUDS	5																																		
	FLOWERS				○	1	2	2	2	2	2	1	1	○																					8	
	FRUIT SET							○	1	2	2	4	4	5																						6
19	BUDS	7																																		
	FLOWERS	○	1	2	2	2	1	2	1	2	3	3	3	2	1	1	○																		15	
	FRUIT SET						○	1	1	2	2	2	3	4	5	6	6	6	7																	12
20	BUDS	11																																		
	FLOWERS						○	2	3	2	3	3	3	2	2	2	1	1	1	1	1	1	1	1	○										19	
	FRUIT SET							○	1	3	3	4	5	6	7	7	8	9	9	9	10	10	10	10	11											19
21	BUDS	10																																		
	FLOWERS	○	1	2	2	2	2	2	3	3	4	3	2	2	2	1	1	1	1	1	1	1	○												23	
	FRUIT SET						○	1	2	3	3	4	5	6	6	7	8	8	8	9	9	9	9	10												19
22	BUDS	2																																		
	FLOWERS	○	1	1	1	1	1	1	○																										6	
	FRUIT SET						○	1	2																											2
23	BUDS	11																																		
	FLOWERS						○	2	4	2	3	2	2	3	2	2	1	1	1	1	2	1	1	1	○										18	
	FRUIT SET							○	1	3	3	4	5	5	6	6	7	8	8	9	9	10	10	10	11											18
24	BUDS	6																																		
	FLOWERS					○	1	2	2	1	1	1	1	2	1	1	1	1	1	1	○														17	
	FRUIT SET							○	1	1	2	2	2	3	3	3	4	4	4	4	5															15
TOTALS	BUDS	180																																		
	FLOWERS		3	6	9	17	31	44	40	43	43	41	42	35	30	33	28	22	22	25	20	16	15	16	15	12	10	12	8	5	5	2	1	0	375	
	FRUIT SET		1	7	25	39	49	65	73	91	97	105	115	126	131	134	143	150	154	156	159	163	165	167	171	174	174	177	178	179						330
	DATE	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 7.75

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 15.63

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 13.75

CHART NO. 42
DETERMINATION OF BUDS, FLOWERS AND FRUIT SET
SIXTH CLUSTER - PLOT III
DAILY RECORD

Number of Buds, Flowers and Fruit Set

No. of Plant	Class	May 16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	June 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	No. Days Flowering	No. Days Fruit Set
1	BUDS	4																																	
	FLOWERS		⊘	1	1	1	1	1	1	1	1	1	1	1	1	1	1	⊘																13	
	FRUIT SET							⊘	1	1	1	2	2	2	2	2	2	3																	10
2	BUDS	7																																	
	FLOWERS										⊘	1	2	2	3	2	2	2	2	2	2	2	2	1	2	2	2	1	1	⊘				18	
	FRUIT SET													⊘	1	1	1	2	2	3	3	3	5	5	5	5	6	6	7						15
3	BUDS	6																																	
	FLOWERS		⊘	1	2	2	2	3	2	1	2	2	1	1	1	⊘																		12	
	FRUIT SET							⊘	1	2	2	2	3	3	3	4																			8
4	BUDS	6																																	
	FLOWERS		⊘	1	1	1	1	2	2	2	1	2	1	1	1	⊘																		12	
	FRUIT SET							⊘	1	2	2	3	3	3	4																				7
5	BUDS	7																																	
	FLOWERS		⊘	1	1	1	1	1	2	2	1	3	2	3	4	4	4	2	2	1	⊘													18	
	FRUIT SET							⊘	1	1	1	1	2	2	2	3	3	3	3	3	5	5	6	7											16
6	BUDS	5																																	
	FLOWERS		⊘	1	2	2	2	1	1	2	1	2	2	1	2	2	2	1	1	⊘														16	
	FRUIT SET							⊘	1	2	2	2	2	3	3	3	3	4	4	5															13
7	BUDS	11																																	
	FLOWERS				⊘	2	2	2	3	2	2	4	4	4	6	4	3	4	4	2	1	2	1	1	1	1	1	⊘						23	
	FRUIT SET						⊘	1	2	2	2	3	3	5	6	6	6	8	9	9	10	10	10	10	10	11									20
8	BUDS	4																																	
	FLOWERS								⊘	1	1	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	⊘							18	
	FRUIT SET												⊘	1	1	1	2	2	3	3	3	3	3	4											14
9	BUDS	7																																	
	FLOWERS				⊘	1	2	2	2	2	1	1	3	2	2	2	2	2	1	1	1	⊘												17	
	FRUIT SET							⊘	1	2	2	3	3	3	4	5	5	5	5	6															14
10	BUDS	4																																	
	FLOWERS				⊘	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	⊘												16	
	FRUIT SET							⊘	1	1	2	2	3	3	3	3	3	4																	13
11	BUDS	6																																	
	FLOWERS					⊘	1	1	1	2	2	1	1	2	2	2	2	4	4	2	2	⊘												16	
	FRUIT SET							⊘	1	1	2	2	2	2	4	4	4	6																	12
12	BUDS	4																																	
	FLOWERS		⊘	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	⊘															15	
	FRUIT SET							⊘	1	1	2	2	3	3	3	3	3	4																	12
13	BUDS	7																																	
	FLOWERS										⊘	1	2	2	2	3	3	2	3	2	2	1	2	2	2	2	3	3	2	2	1	⊘		20	
	FRUIT SET													⊘	1	1	2	2	3	3	4	4	4	4	4	5	5	6	7						15
14	BUDS	6																																	
	FLOWERS				⊘	1	1	1	2	1	1	2	1	1	2	1	1	1	1	2	2	1	1	⊘										19	
	FRUIT SET							⊘	1	1	1	2	2	2	3	3	3	3	3	4	4	4	5												16
15	BUDS	8																																	
	FLOWERS				⊘	1	1	1	2	2	2	3	2	2	2	1	2	2	2	2	2	⊘												16	
	FRUIT SET							⊘	1	1	2	2	2	4	4	4	4	4	4	6															12
16	BUDS	6																																	
	FLOWERS						⊘	1	1	1	3	2	1	1	1	1	1	1	1	1	⊘													12	
	FRUIT SET							⊘	1	2	2	3	3	3	3	3	4																		9
17	BUDS	13																																	
	FLOWERS		⊘	1	1	2	3	3	3	3	2	3	3	3	4	3	4	4	4	5	5	3	3	1	1	⊘								22	
	FRUIT SET							⊘	1	1	2	2	3	3	4	5	6	6	7	7	8	10	10	12	12	13									18
18	BUDS	9																																	
	FLOWERS		⊘	1	3	3	3	2	1	2	3	2	1	3	2	2	2	2	2	1	2	2	1	⊘										22	
	FRUIT SET							⊘	1	2	2	3	4	4	5	5	5	5	6	7	7	7	8	8	9										18
19	BUDS	11																																	
	FLOWERS		⊘	1	3	3	4	3	3	3	3	4	4	3	4	3	1	2	2	1	⊘													18	
	FRUIT SET							⊘	1	2	3	3	4	5	5	7	7	9	9	9	10	11													15
20	BUDS	8																																	
	FLOWERS		⊘	1	1	2	2	3	2	2	3	3	2	4	3	2	2	2	2	1	1	1	1	⊘										21	
	FRUIT SET							⊘	1	1	2	2	3	3	4	5	5	6	6	7	7	7	7	8											17
21	BUDS	13																																	
	FLOWERS		⊘	1	3	3	3	3	1	3	3	6	3	5	5	4	4	2	2	1	1	⊘												18	
	FRUIT SET							1	3	3	3	3	6	6	7	9	9	11	11	12	12	13													15
22	BUDS	11																																	
	FLOWERS		⊘	1	3	5	5	4	4	3	2	4	2	4	3	2	2	2	1	⊘														16	
	FRUIT SET							⊘	2	3	4	5	5	7	7	8	9	9	9	10	11														13
23	BUDS	9																																	
	FLOWERS					⊘	1	1	1	1	1	1	1	2	4	3	3	4	6	5	4	3	2	1	⊘									18	
	FRUIT SET								⊘	1	1	1	1	2	2	2	2	3	4	5	6	7	8												14
24	BUDS	6																																	
	FLOWERS		⊘	1	1	1	1	1	1	1	2	3	2	3	1	2	2	1	1	1	1	1	⊘											20	
	FRUIT SET							⊘	1	1	1	2	2	4	4	4	4	5	5	5	5	5	6												17
TOTALS	BUDS	178																																	
	FLOWERS		8	14	24	33	30	36	35	38	42	49	42	54	54	48	45	44	47	37	29	26	16	10	6	6	6	5	2	2	1	0		416	
	FRUIT SET						1	12	22	27	33	42	56	64	75	81	94	101	107	120	131	135	145	153	159	159	159	160	161	164	164	165	160		333
	DATE	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

NUMBER OF BUDS PER MEAN CLUSTER PER MEAN PLANT — 7.42

NUMBER OF DAYS FLOWERING PERIOD PER MEAN CLUSTER PER MEAN PLANT — 17.33

NUMBER OF DAYS SETTING FRUIT PER MEAN CLUSTER PER MEAN PLANT — 13.46

CHART 43

YIELD TABLES

PLOT I

(Weight in grams)

Number Plant	First Cluster	Second Cluster	Third Cluster	Fourth Cluster	Fifth Cluster	Sixth Cluster	Total
1	773.65	1063.50	1132.40	500.8	1026.8	1642.4	6139.55
2	726.45	1013.50	668.70	1739.1	872.7	1441.5	6461.95
3	874.45	848.45	1082.10	1015.8	657.0	1346.7	5824.50
4	893.30	759.60	837.00	1096.6	618.9	1013.5	5218.90
5	972.20	565.90	1036.00	1002.6	1105.3	1005.7	5687.70
6	611.10	838.50	997.10	1312.7	1020.5	1334.0	6113.90
7	825.35	688.00	991.30	1770.9	962.0	1940.0	7177.55
8	636.80	649.80	885.40	1147.2	846.1	724.7	4890.00
9	895.20	655.10	805.00	591.8	234.7	417.4	3599.20
10	900.35	733.50	726.30	1019.1	843.0	869.8	5092.05
11	582.35	1153.70	741.95	1111.7	893.8	999.1	5482.60
12	1460.00	727.35	663.00	1001.0	867.2	716.6	5435.15
Total	10151.20	9696.90	10566.25	13309.3	9948.0	13451.4	67123.05
Av.Wt.per cluster in Lbs.	1.87	1.77	1.94	2.45	1.83	2.47	12.32
Weight Normal Plants	8691.2	18969.55	9903.25	12308.3	9080.8	12734.8	61687.90
Av.Wt.per Cluster in Lbs.	1.74	1.80	1.98	2.47	1.82	2.53	12.34

CHART 44

YIELD TABLES

PLOT II

(Weight in grams)

Number Plant	First Cluster	Second Cluster	Third Cluster	Fourth Cluster	Fifth Cluster	Sixth Cluster	Total
1	886.65	926.15	1097.1	1110.2	1341.4	1218.4	6579.90
2	675.80	1585.30	643.5	955.0	865.2	590.6	5315.40
3	475.25	272.80	783.8	304.4	348.3	892.0	3076.55
4	974.47	1121.80	805.4	668.0	757.0	698.4	5025.07
5	654.50	855.05	853.0	725.6	535.3	242.8	3866.25
6	777.42	1465.70	1117.3	1368.4	860.5	1068.6	6657.92
7	803.10	1020.60	1045.4	1087.4	690.5	909.4	5556.40
8	824.25	417.40	869.8	933.0	826.0	836.6	4707.05
9	1111.10	468.70	869.7	975.4	856.3	882.9	5164.10
10	689.90	959.30	809.5	804.2	1092.4	400.2	4755.50
11	919.55	1181.60	706.6	723.7	643.5	553.3	4728.25
12	1066.95	1184.95	869.0	2204.1	1364.9	536.0	7225.90
Total	9858.94	11459.35	10470.1	11859.4	10181.3	8829.2	62658.29
Av.Wt. per cluster Lbs	1.81	2.1	1.92	2.18	1.85	1.62	11.48
Weight Normal Plants	9383.69	11206.45	9686.3	11555.0	9733.0	7973.2	59537.64
Av.Wt. per cluster Lbs	1.88	2.25	1.94	2.32	1.95	1.59	11.93

CHART 45

YIELD TABLE

PLOT III

(Weight in grams)

Number Plant	First Cluster	Second Cluster	Third Cluster	Fourth Cluster	Fifth Cluster	Sixth Cluster	Total
1	1581.25	716.7	774.9	509.4	465.0	289.5	4336.75
62	1153.50	740.9	860.5	1040.3	815.9	762.8	5373.90
3	478.39	558.9	748.2	218.9	246.4	50.0	2300.79
4	1290.70	569.6	452.7	611.6	2o1.5	453.1	3572.20
5	1649.90	580.4	779.0	849.6	614.4	549.5	5022.80
6	1140.00	709.1	1119.3	1025.3	1509.8	594.6	6098.10
7	1073.80	1067.6	873.7	1364.0	2037.8	1009.3	7426.20
8	1280.75	411.7	568.5	1158.4	1213.9	882.4	5515.65
9	961.80	760.6	585.7	354.2	1074.1	497.8	4234.20
10	806.65	476.2	643.9	677.1	366.4	469.1	3439.35
11	994.20	781.4	793.8	653.0	974.0	390.7	4587.10
12	1016.90	982.1	795.7	881.6	982.6	694.7	5353.60
13	620.40	487.3	691.8	968.6	740.0	648.1	4156.20
14	507.90	714.4	769.8	717.5	847.0	390.8	3947.40
15	643.85	553.3	606.7	204.5	322.8	264.9	2596.05
16	419.9o	607.5	566.3	561.0	740.2	391.0	3285.90
17	900.90	1145.2	983.0	886.0	1286.3	1209.8	6411.20
18	767.80	1187.0	1148.0	501.9	888.5	1494.1	5987.30
19	1191.70	1193.1	1078.1	1664.2	1073.6	1305.9	7506.60
20	825.15	629.9	1113.9	473.7	1138.0	799.7	4980.35
21	707.10	637.9	1091.6	656.2	778.0	528.7	4399.50
22	1079.90	995.1	784.8	957.3	603.7	1005.7	5426.50
23	698.73	735.4	774.4	746.1	817.5	420.9	4193.03
24	972.30	1147.9	689.4	757.4	896.2	460.6	4923.80
Totals	22763.47	18389.2	19293.7	18437.8	20633.6	15563.7	115081.87
Av.Wt per Cluster in Lbs.	2.09	1.69	1.77	1.69	1.90	1.49	10.57
Weight Normal Plants	8617.90	7534.90	7805.50	6351.40	8986.80	7094.20	46390.70
Av.Wt per Cluster in Lbs.	1.89	1.66	1.72	1.40	1.98	1.59	10.23