Growing Sweetpotatoes
In the Yazoo-Mississippi Delta

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Summary and Recommendations

1. A light, well drained, sandy loam or loam soil with a clay subsoil is best for growing sweetpotatoes in the Yazoo-Mississippi Delta.

2. Experiments reported in this bulletin indicate that nitrogen gives an economical increase in the yield of sweetpotatoes. Applications of potash and phosphorus, or of a complete fertilizer proved to be unprofitable.

3. Best yields may be expected from the Porto Rico variety. It also has good table quality and keeps well while in storage.

4. On the average farm, a manure heated bed for the production of plants is all that is necessary, though satisfactory flue heated hotbeds may be constructed at negligible cost. About eight bushels of seed potatoes are required to produce enough plants to set an acre.

5. It is recommended that plantings be made on beds in rows 36" wide and that the plants be spaced 12" apart in the drill. Plantings with these spacings will require about 14,500 plants per acre.

6. Only enough cultivations to keep the soil free of grass and weeds are necessary.

7. Sweetpotatoes must be harvested and handled in such a way as to avoid bruising. Grading in the field is best, since they should be handled as little as possible.

8. The potatoes should be placed in a curing house within a few hours after they are dug and kept for ten days at a temperature from 80° to 85°F and a relative humidity of 90 per cent. The temperature of the storage house should then be gradually reduced and maintained as near 55° as possible throughout the storage period.

9. Sweetpotatoes should be so produced as to be relatively free of all diseases which cause losses in field and storage.

CONTENTS

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOILS FOR SWEETPOTATOES</td>
<td>3</td>
</tr>
<tr>
<td>THE EFFECT OF FERTILIZERS</td>
<td>3</td>
</tr>
<tr>
<td>VARIETIES OF SWEETPOTATOES</td>
<td>6</td>
</tr>
<tr>
<td>PLANTING AND CULTIVATION</td>
<td>8</td>
</tr>
<tr>
<td>CARE IN HARVESTING</td>
<td>10</td>
</tr>
<tr>
<td>CURING AND STORAGE</td>
<td>12</td>
</tr>
<tr>
<td>DISEASE AND CERTIFICATION</td>
<td>12</td>
</tr>
<tr>
<td>FERTILIZER IN HILL SECTIONS</td>
<td>14</td>
</tr>
</tbody>
</table>
Growing Sweetpotatoes
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The sweetpotato is one of the principal vegetable foods of the people in the Yazoo-Mississippi Delta. Since it is the general opinion that good yields of high quality sweetpotatoes can not be produced in this alluvial valley, a large portion of the sweetpotatoes consumed are brought in from other areas. Results of experiments at this Station show that high yields of sweetpotatoes can be obtained on the lighter Delta soils, and that the quality of a properly grown and handled crop is good.

Factors affecting the yield and quality of sweetpotatoes are soil type and drainage, soil fertility, variety, and cultural methods. The keeping quality is affected to a very great extent by the time and methods of harvesting, by the effectiveness of safeguards against disease throughout the period of growing, harvesting and storage, and by the methods used in curing and storage.

A combination of conditions favorable to the production of clean stock and the proper handling of such stock through the period of curing and storage, ought to result in as successful a crop of sweetpotatoes in the Delta as elsewhere, either for home consumption or for marketing.

The several factors affecting the production as well as the eating and keeping qualities of sweetpotatoes are briefly discussed in this bulletin. The results of eight year's studies of fertilizers, varieties, curing, and storage at the Delta Branch Experiment Station are presented in support of conclusions reached and recommendations made.

Soils For Sweetpotatoes

Earlier tests showed that the lighter soils were more adapted to sweetpotatoes than were the heavier soils. A light, well drained, sandy loam or loam with clay sub-soil is an ideal soil for sweetpotatoes in the Delta as elsewhere, though they can be grown on others. A moderate amount of organic matter in the soil seems essential for best results. Very fertile soils are not the most desirable for growing table quality sweetpotatoes because on such soils the plant may make excess vine growth and stringy, poor quality roots. The roots are likely to be rough and irregular in shape, too large in size, and the skin will probably be cracked. It is never advisable to plant sweetpotatoes on a poorly drained soil, and if conditions are such that a poorly drained soil must be used, it is important that planting be done on high ridges to insure ample local drainage.

The Effect of Fertilizer

During the eight years, 1930-1937 inclusive, an extensive study was made of the responses of sweetpotatoes under Delta conditions to applications of nitrogen, phosphorus, and potash, and of their various combinations.

These tests were conducted on what is locally known as Deer Creek loam soil that had been planted to cotton for approximately thirty years without rotation or legumes. Fertilizer was applied at the rates per acre of 241 pounds of ammonium sulphate, 241 pounds of
super-phosphate, and 241 pounds of 20% kainit. Unfertilized plots were used as checks. Five-row plots containing 1-10 acres were used, but weights were taken from the three middle rows only. There were four replications of each treatment.

The production record of all plots receiving the different fertilizer treatments from 1930 through 1937 is summarized in table 1. The grades of sweetpotatoes produced, including the percentage of No. 1's, strings, and jumbos, are also shown in table 1. The effect of fertilizer treatments upon shrinkage in curing and storing is indicated in table 2.

**Highest Increase From Complete Fertilizer**

As shown in table 1, the highest yield of sweetpotatoes over the eight-year period was secured from the plot receiving complete fertilizer; the increase over the no fertilizer plot being 102.3 bushels per acre.

The striking influence of nitrogen was shown in plots receiving incomplete fertilization. The second highest yield was secured from plots fertilized with nitrogen only, the increase being 83.2 bushels per acre. Plots receiving nitrogen and potash showed an average increase of 81.5 bushels per acre. Plots fertilized with nitrogen and phosphorus showed an increase of 75.2 bushels per acre. When nitrogen was omitted from the fertilizer application, there was a decided decrease. Plots receiving phosphorus and potash produced 237 bushels per acre more than the unfertilized plots, while on plots fertilized with phosphorus only the increase in yield over the unfertilized plots was 21.2 bushels per acre.

**Nitrogen Only Most Economical**

To produce the complete fertilization increase of 102.3 bushels over the unfertilized plot, required 241 pounds ammonium sulphate, 241 pounds of superphosphate, and 241 pounds of 20% kainit. The 83.2 bushel increase from nitrogen fertilization required the application of 241 pounds of ammonium sulphate only. The difference between the increase from nitrogen alone and from complete fertilizer, amounting to 19.1 bushels per acre, was therefore secured at the cost of 241 pounds of superphosphate, and 241 pounds of 20% kainit.

These data show that nitrogen only gives economical increase in the yields of sweetpotatoes. This element should be applied at the rate of 20 to 40 pounds of nitrogen per acre, obtainable from 125 to 250 pounds of nitrogen fertilizer material, the quantity depending upon the kind of material used. Fertilizer should be applied under the rows at the time the land is bedded in the spring, and preferably two weeks or more before the plants are set. This recommendation applies to average Delta loamy soils.

**Fertilization Improves Grade**

Sweetpotatoes are produced generally in Mississippi and exclusively in the Delta for table stock; and under these conditions, grade has an important bearing upon the commercial value of the crop produced. Table 1 is of interest and importance because it shows that fertilizer practices for the most economical production of large yields of sweet-

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Total Yield (55 lb. bu.)</th>
<th>Yield No. 1's Grades Shown</th>
<th>Per cent Total Yield in Grades Shown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>1930-37</td>
<td></td>
</tr>
<tr>
<td>Complete Fertilizer</td>
<td>345.6</td>
<td>102.3</td>
<td>247</td>
</tr>
<tr>
<td>No Fertilizer</td>
<td>243.3</td>
<td></td>
<td>163</td>
</tr>
<tr>
<td>Nitrogen and phosphorus</td>
<td>318.5</td>
<td>75.2</td>
<td>230</td>
</tr>
<tr>
<td>Nitrogen and Potash</td>
<td>324.8</td>
<td>81.5</td>
<td>238</td>
</tr>
<tr>
<td>Phosphorus and Potash</td>
<td>267.0</td>
<td>23.7</td>
<td>186</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>326.5</td>
<td>83.2</td>
<td>241</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>264.5</td>
<td>21.2</td>
<td>186</td>
</tr>
</tbody>
</table>
potatoes are also conducive to the production of maximum quantities of marketable grades of sweetpotatoes and of minimum quantities of undesirable or unmarketable grades.

During the eight-year period of testing, the lowest percentage and the lowest number of bushels of No. 1 sweetpotatoes was harvested from the unfertilized plot. The largest number of bushels and the fourth highest percentage of No. 1 were complete fertilizer plots. The highest percentage of No. 1 sweetpotatoes was secured from the plot fertilized with nitrogen only, and the total production of No. 1 sweetpotatoes harvested was only 6 bushels less than from the complete fertilizer plot; it was 3 more bushels of No. 1's than was harvested from the nitrogen and potash plots; 11 more bushels of No. 1's than from the nitrogen and phosphorus plots; 55 more bushels of No. 1's than from the phosphorus and potash plots and from the phosphorus plots; and 78 more bushels of No. 1's than from the no fertilizer plot.

Strings and Jumbos

The percentage of strings was low and uniform on all fertilized plots when nitrogen was included whether alone or in conjunction with phosphorus or potash or both. The proportion of strings from all plots receiving nitrogen ranged from 14.6% to 15.7%. The proportion of strings from the no fertilizer plot was 28.4%; from the phosphorus and potash plot 25.6%; and from the phosphorus plot 24.6%.

The yield record of jumbos seems to indicate that just as the improperly nourished plants produce excessive quantities of strings, so do the properly nourished plants produce potatoes of large size. The highest percentage of jumbos, 13%, was harvested from the complete fertilizer plot; this treatment also produced the highest total yield as well as the highest yield of No. 1's. Other fertilizer treatments which, as previously recited, produced highest yields of all grades, highest yields of No. 1's, and lowest yields of strings similarly resulted in considerable production of jumbos. The percentages of jumbos were: 11.3% for nitrogen and phosphorus, 10.2% for nitrogen and potash, and 9.7% for nitrogen alone. Plots not fertilized or fertilized with mixtures containing no nitrogen—which, as previously recited, produced lowest total yields, lowest yields of No. 1's and highest yields of strings—similarly produced lowest percentages of jumbos. The percentage of jumbos from the no fertilizer plots was 3.7%, from the phosphorus and potash plots 3.4%, and from the phosphorus only plots 4.3%.

No Effect On Shrinkage

During five years, 1931-1936 inclusive weighings were made at intervals and records were kept of successive weights of identical packages to determine the effect of the various fertilizer treatments upon shrinkage. The question is important because most sweetpotatoes produced in Mississippi are cured and stored and afterwards sold on the basis of weight, so that often whatever weight is lost through shrinkage is lost in market value. The data in table 2 show shrinkage of sweetpotatoes produced under the several fertilizer treatments. These data do not give all the important information; however, it is evident that no relation exists between fertilizers and shrinkage.

### TABLE 2—INFLUENCE OF FERTILIZATION ON SWEETPOTATO SHRINKAGE DURING CURING AND STORAGE

<table>
<thead>
<tr>
<th>Treatment</th>
<th>1930</th>
<th>1931</th>
<th>1933</th>
<th>1934</th>
<th>1935</th>
<th>5-Year Average</th>
</tr>
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<tbody>
<tr>
<td>Complete Fertilizer</td>
<td>8.4</td>
<td>8.5</td>
<td>9.5</td>
<td>8.3</td>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>No Fertilizer</td>
<td>9.3</td>
<td>13.2</td>
<td>12.0</td>
<td>10.8</td>
<td>11.5</td>
<td>11.0</td>
</tr>
<tr>
<td>Nitrogen and Phosphorus</td>
<td>9.3</td>
<td>13.2</td>
<td>17.2</td>
<td>17.6</td>
<td>11.6</td>
<td>11.4</td>
</tr>
<tr>
<td>Nitrogen and Potash</td>
<td>8.3</td>
<td>13.5</td>
<td>16.2</td>
<td>10.0</td>
<td>11.5</td>
<td>11.9</td>
</tr>
<tr>
<td>Phosphorus and Potash</td>
<td>9.1</td>
<td>10.3</td>
<td>11.4</td>
<td>11.9</td>
<td>11.8</td>
<td>11.9</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>8.5</td>
<td>11.7</td>
<td>15.6</td>
<td>9.1</td>
<td>11.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>9.5</td>
<td>11.8</td>
<td>12.4</td>
<td>11.4</td>
<td>11.5</td>
<td>11.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Per Cent Shrinkage</th>
<th>During Curing and Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>11.0</td>
<td>11.0</td>
</tr>
<tr>
<td>1931</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>1933</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td>1934</td>
<td>16.6</td>
<td>16.6</td>
</tr>
<tr>
<td>1935</td>
<td>11.5</td>
<td>11.5</td>
</tr>
<tr>
<td>Average</td>
<td>11.0</td>
<td>11.0</td>
</tr>
</tbody>
</table>
reveal any worthwhile differences in shrinkage during the curing and storage period or keeping qualities of sweetpotatoes attributable to the fertilizer treatments.

**Varieties of Sweetpotatoes**

The numerous varieties of sweetpotatoes vary considerably in yield, table qualities, content of starch, resistance to disease and storage rots, and shrinkage during storage. To determine the variety or varieties best suited to Mississippi conditions, several of the leading varieties were tested and their characteristics observed. The variety tests were uniformly fertilized, cultivated, and handled so that reliable comparisons might be made.

**Porto Ricos Led All Others**

The Porto Rico, widely planted because of its production, cooking, and keeping qualities, led all other varieties in the Delta test in yields. During the eight years, 1931-1938 inclusive, Porto Rico produced an average of 320.9 bushels per acre.

Triumph, with poor table qualities and mostly produced in Mississippi for starch manufacture, was second in production with an eight-year average of 293.2 bushels per acre. Nancy Hall, a favorite in Mississippi until recent years, produced an average of 200.6 bushels per acre and ranks second in production among the desirable table varieties. Gold Coin produced an average of 287.8 bushels per acre but is considered poorer in quality than Porto Rico and Nancy Hall. Southern Queen, locally referred to as "Negro Choker", produced an average of 211.9 bushels per acre but ranks lowest in table quality of all varieties tested. It is very susceptible to black rot and is a poor keeper. Yellow Yam produced an average of 187.3 bushels per acre during a six year period, at the end of which it was dropped from the test for cause. This variety ranks very high in table quality but is low in production of No. 1 roots, and shrinkage during curing and storing is very high.

Yellow Jersey, Big Stem Jersey, Gold Skin, and Vineland Bush varieties were included in the tests in the beginning. Yellow Jersey has been retained because, though it produced an average of only 168.4 bushels per acre during the eight year period, it appears promising for table use. The Big Stem Jersey, Gold Skin, and Vineland Bush varieties were dropped from the test in 1935 because of low yields or poor quality or both.

**Desirable Grades of Sweetpotatoes**

A study of the sweetpotato variety data by grades reveals additional phases of Porto Rico superiority. Of the five varieties tested through the eight year period, the percentages of sweetpotatoes grading No. 1 was remarkably uniform, and were as follows: Nancy Hall 72.1%; Porto Rico 72.7%; Triumph 72.2%; Southern Queen 71.0%; Yellow Jersey 67.0%. The average yield in bushels of No. 1 sweetpotatoes varied quite widely, however, being 233.3 bushels for Porto Rico, 144.6 bushels for Nancy Hall, 211.7 bushels for Triumph, 150.4 bushels for Southern Queen, and 112.8 bushels for Yellow Jersey.

Minimum production of strings is de-

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**Table 3—Varieties of Sweetpotatoes; Total Yields and Yields in Grades Shown**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Total Yield (5 1⁄2 lb. bu.) per acre</th>
<th>8-Year Average</th>
<th>Comparison With Porto Rico</th>
<th>No. 1 Yield per acre</th>
<th>Per Cent Total Yield In Grade Shown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porto Rico</td>
<td>320.9</td>
<td></td>
<td></td>
<td>233.3</td>
<td>72.7</td>
</tr>
<tr>
<td>Nancy Hall</td>
<td>200.6</td>
<td>-120.3</td>
<td>144.6</td>
<td>72.1</td>
<td>25.5</td>
</tr>
<tr>
<td>Triumph</td>
<td>293.2</td>
<td>-27.7</td>
<td>211.7</td>
<td>72.2</td>
<td>22.4</td>
</tr>
<tr>
<td>Gold Coin*</td>
<td>287.8</td>
<td>-33.1</td>
<td>180.2</td>
<td>62.6</td>
<td>20.3</td>
</tr>
<tr>
<td>Southern Queen</td>
<td>211.9</td>
<td>-109.0</td>
<td>150.4</td>
<td>71.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Yellow Yam*</td>
<td>187.6</td>
<td>-133.3</td>
<td>127.8</td>
<td>68.0</td>
<td>30.4</td>
</tr>
<tr>
<td>Yellow Jersey</td>
<td>168.4</td>
<td>-162.5</td>
<td>112.8</td>
<td>67.0</td>
<td>32.7</td>
</tr>
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*Six-Year Average—dropped in 1936.*
FIGURE 1—TWO-HORSE SWEETPOTATO DIGGER CONVERTED FROM 14-INCH MIDDLE BUSTER

The sweetpotato digger illustrated above was developed by the Agricultural Engineering Department of the Mississippi Experiment Station, and was thoroughly tried out under field conditions in the Laurel area last year. It will turn out seven acres to eight acres of sweetpotatoes per day. The conversion may be made from any middle buster, preferably the 14-inch size, at a cost of $7.50 to $10.00. For eating stock, where cut potatoes are objectionable, it is recommended that 2 disk hiller be used instead of the rolling coulter.

sirable, whatever the purpose for which sweetpotatoes are used. In the production of strings, Yellow Jersey was highest with 32.7%; Nancy Hall, second, with 25.5%; Triumph third, with 22.4%; Southern Queen, fourth, with 17.0%; and Porto Rico, lowest, with 15.6%. In the production of jumbos, none were produced by Yellow Jersey in any of the eight years, followed in order by an eight year average of 1.2% for Nancy Hall, 3.8% for Triumph, 10.5% for Porto Rico, and 11.0% for Southern Queen.

Of seven varieties tested during the five year period 1931-1936, Porto Rico was lowest in per cent of shrinkage, though the difference was small in the instances of five of the seven varieties tested. Porto Rico shrinkage during curing and storage was 15.7%, Gold Coin 16.2%, Triumph 16.9%, Southern Queen 16.9%, Nancy Hall 17.8%. Shrinkage of Yellow Yam during curing and storage was 21.3% and of Yellow Jersey 20.0%.

Varieties for Starch Manufacture

There has recently developed quite a bit of interest in the Delta in the commercial production of sweetpotatoes for starch, though none has been produced for that purpose in the Delta to date. The record of Triumph, as shown in the foregoing tables, is of interest because it is the variety produced for starch manufacturing purposes in the Laurel area. On account of the recent interest in sweetpotato production for starch, new variety studies were begun in 1937 and are being continued and enlarged. Many new varieties heretofore untried in the Delta have been introduced or originated by the United States Department of Agriculture, and are included in these studies because of their possibilities as high producers or because of their high starch content. One or more of these, which are as yet unnamed, show considerable promise.

No attempt was made to correlate production by grades as affected by fer-
FIGURE 2—A NEW USE FOR THE FAMILIAR "SLIDE" IN ASSEMBLING, GRADING, AND PACKAGING

The slide was adapted for use by Lee Graves, Jones County sweetpotato grower, in cooperation with Experiment Station. The converted slide, used alternately with the digger by Mr. Graves and his negro helper and team as pictured above, turned out, picked up, bagged, and loaded on trucks, 5 tons of sweetpotatoes per day. For eating stock it is recommended that the slide be equipped with crates or hampers so that the sweetpotatoes may be graded and placed in containers as picked up in the field and carried to market or storage house without any further handling.

tilizer treatment and variety. It seems significant, however, that while the use of nitrogen only was found most profitable when cost, grade and total production are considered, the Porto Rico variety under the same fertilizer treatment led all other varieties when total production and desirable grades are considered.

Planting and Cultivation

Because of other experimental work under way in the growing of sweetpotato plants, this phase of sweetpotato production was not undertaken in the studies here reported. Results of work by the central station have recently been published, and the grower is referred to Mississippi Experiment Station Bulletin No. 325 for detailed information about building beds and the growing of sweetpotato plants. A copy can be had by writing the Mississippi Agricultural Experiment Station, State College, Mississippi.

The inexpensive, flue heated hot beds, described and illustrated in Station Bulletin No. 325, are intended for the use of commercial growers to produce plants for two acres or more. Sweetpotato plants may be purchased for large scale or small scale production. The grower who desires to produce sweetpotatoes in small quantities, largely for use in his own home, may find the manure heated hot beds satisfactory, or in the event delayed planting is not objectionable, the use of beds without any facilities for heating may be found satisfactory.

Time of Planting

Yields of sweetpotatoes reported in this Bulletin were secured from plantings made about April 15 to May 1st. Numerous experiments have shown the necessity for early planting if maximum yields are to be secured. Experiments by the United States Department of Agriculture in South Carolina have shown
The flue of this bed consists simply of a ditch, 3 feet wide with sides sloping to prevent caving, dug in the center of an excavated area the same width as the bed and 18 inches deep at the fire box end and 6 inches deep at the stack end. Junk iron may be used to cover 12 to 15 feet of the ditch at the fire end. Poles, slabs, boards or anything convenient that will carry the weight of the soil may be used to cover the remaining part of the ditch. Four 12-inch boards nailed together form the smoke stack, and compacted clay soil is best for covering over the flue. This bed should not be longer than 50 feet nor wider than 6 feet, and should be built on a slope with the stack at the higher end or a drainage ditch provided at the fire box end.
that each week's delay in setting out Porto Rico sweetpotatoes from May 15 to July 15 means a reduction of 25 bushels per acre in total yield, including a reduction of 15 bushels in No. 1 yield. Many other experiments have shown that early planting is necessary if highest total yields are expected, notably including those of the Mississippi Station in the sweetpotato starch producing area at Laurel.

**Setting The Plants**

About 14,500 plants are required to set an acre if spaced 12 inches apart in rows three feet wide. The plants should not be removed from the bed before the stems are strong and the roots are well developed. If possible they should be set out immediately after a rain. While pulling the plants, if the roots are plunged into wet sawdust or fine straw and the tub or other container covered with wet burlap, the plants will keep perfectly.

It is important that the roots be well covered when planted, with the soil packed around them from bottom to top. If the soil does not contain an abundant supply of moisture, watering is advised. In any event, a small depression should be left at the surface of the soil so the plants can be watered later if necessary. Best yields have been obtained under Delta conditions by planting on higher-than-average beds in rows 36 inches apart and 12 inches in the drill.

**Cultivation**

Methods of cultivating sweetpotatoes do not differ materially from those employed with ordinary farm and garden crops. Roots should not be disturbed. Clean tillage is important, as the competition for plant food and water by weeds and grass naturally affects the growth of young plants. Loose soil in the middles should be worked toward the drill until a broad flat ridge is formed. Two hoeings and three or four cultivations are generally necessary, and when the vines grow sufficiently to interfere with the cultivation and the sweetpotatoes are free of grass and weeds, cultivation should be discontinued.

**Care In Harvesting**

If sweetpotatoes are grown for the early market they may be harvested when the roots reach marketable size. When they are grown for heavy yields, whether for eating or starch manufacture, they should be dug just before the first killing frost.

Every precaution should be taken to avoid bruising during harvesting. If the sweetpotatoes are to be stored, the skins should not be broken. It is desirable that the soil be comparatively dry at the time of harvesting because moist roots bruise easier than dry ones. Warm clear weather is best for harvesting the crop.

The Agricultural Engineering Department of the central station at State College has recently converted a middle buster into a very practical sweet-potato harvesting implement, which can be made from an ordinary middle buster on any farm where there is a competent blacksmith. A diagram and instructions for making the sweet potato digger may be secured free by writing the Agricultural Engineering Department, Mississippi Agricultural Experiment Station, State College, Mississippi. The sweetpotatoes should be picked up and placed directly into crates according to grade, and carried to the storage house or sold as soon as possible. They may be poured gently into the bins where they are to be cured and kept, or they may remain in baskets, crates, or boxes. It is best to handle them as little as possible. Grading in the field is recommended, in which event a pains-taking overseer, who knows grades, is necessary.

**Curing and Storage**

For best results the sweetpotatoes require a warm moist atmosphere and a uniform temperature in curing. A limited quantity for home use may be placed in crates and cured near the kitchen stove or in a basement near
FIGURE 4—FLUE HOTBED WITH FLUES ABOVE GROUND

Larger capacity, more uniform distribution of heat, and longer life are features of this bed. The fire should be 10 feet from the edge of the bed and the fire box should be 4 x 4 feet. The combustion chamber should be widened towards the bed so that smoke may enter the air space throughout the width of the bed. If made of good lumber, concrete, or brick, this bed would last almost indefinitely; and if made of 2-inch rough cheap lumber it should last at least 3 years without repairs. This type bed may be 10 or 12 feet wide but not longer than 50 feet.
a furnace. Where a large quantity is to be cured, a house of such construction as to permit control of temperature should be provided.

The object of curing sweetpotatoes is to heal wounds as quickly as possible. Experiments have shown that these wounds will heal most rapidly at a temperature ranging from 80° to 85° F. and a relative humidity of 90 per cent. Effective healing will take place in about 10 days storage under these conditions. Therefore the temperature of the storage house should be kept at 80° to 85° and the relative humidity at about 90 per cent for a period of 10 days. Only enough ventilation should be given to prevent condensation of moisture. The old idea of curing was that by driving off a lot of moisture sweetpotatoes were protected against spoilage. The newer conception is to keep the potatoes in a moist atmosphere during curing so as to aid the healing process and to prevent excessive loss of moisture. Rapid and thorough healing will reduce Rhizopus soft rot, surface rot, Fusarium rot, Java black rot, and charcoal rot to a minimum and at the same time will reduce the loss of moisture during storage.

As soon as the curing period is over the temperature of the storage house should be reduced gradually (in about 2 days) to as near 55° as possible. This temperature should be maintained as nearly as practical, throughout the storage period. Temperatures below 50° should be avoided. Short exposure to temperatures between 32° and 50° may not result in injury, but prolonged exposure will lead to injury and decay.

A relative humidity ranging from 35 to 90 per cent should be maintained as far as practicable throughout the storage period. Such high humidities tend to check shriveling and internal breakdown and to further protect roots against infection.

The storage house should be well insulated and so constructed and managed as to avoid condensation of moisture on the roots and on the walls and roof of the storage house. Condensation of moisture on the roots or dripping from the roof tends to stain the roots and favors infection, especially by the black-rot fungus.

If the sweetpotato storage house is properly insulated and provided with proper vents in the floor and roof, condensation can be prevented if the ventilators are opened when the humidity of the storage house becomes too high.

Full information on the curing and storage of sweetpotatoes is conveyed in Leaflet No. 106, "Prevent Storage Rot in Sweetpotatoes", and Farmers' Bulletin 1442, "Storage of Sweetpotatoes". They may be had by writing the United States Department of Agriculture, Washington, D. C. 

Disease and Certification

Sweetpotatoes should be so produced as to be relatively free of all diseases which cause losses in field and storage. Since sweetpotato diseases did not occur originally in Mississippi soils, there are still many farms on which they have not become established and which may remain free, if clean seed and plants are used. For nearly 20 years it has been unlawful in Mississippi to sell or give away seed sweetpotatoes or plants that have not been inspected or certified by the State Plant Board. Any grower who desires to qualify his crop for sale as certified seed or plants is required to file application with the Plant Board before June 15 of each year, since two or more inspections are made in the field. Further requirements are also made for the production of plants, including the approval of bedding locations and the disinfection of seed. Lists of certified growers may be secured from the Plant Board office at State College.

If new land is available for growing the crop, it is by all means preferred. If possible, sweetpotatoes should not be planted in soil which previously has produced a crop of diseased potatoes, since the disease organisms remain in the soil for many years, even though sweetpotatoes are not planted again on the same land.
GROWING SWEETPOTATOES IN THE YAZOO-MISISSIPPI DELTA

FIGURE 5—CONSTRUCTION OF SWEETPOTATO CURING- STORAGE HOUSE

Sweetpotato houses may be constructed from existing homes to keep the cost and effort minimal. Houses designed for the construction may also be used, and are satisfactory when properly built. Blueprints and specifications may be had from Extension Service, Agricultural Engineering Department, State College, Miss.

Sweetpotato houses, houses may be constructed in various sizes to suit the need and purpose. Houses of similar construction may also be used, and are satisfactory when properly built. Blueprints and specifications may be had from Extension Service, Agricultural Engineering Department, State College, Miss.

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Fertilizer For Sweetpotatoes In Hill Sections of Mississippi

"Growing Sweetpotatoes in the Yazoo-Mississippi Delta" was written particularly in answer to problems confronted by farmers of the Yazoo-Mississippi Delta.

It contains, nevertheless, much valuable data of statewide application; and on account of the importance of sweetpotatoes on farms throughout Mississippi and the large number of inquiries received by the Experiment Station for information on growing sweetpotatoes, it was thought advisable to make it available for general distribution.

In only one respect is an important phase of the bulletin not adaptable to conditions throughout Mississippi.

Typical delta soils contain an abundance of phosphorus and potash, and even worn soils of the area need only nitrogen for maximum crop yields.

This is not true in other parts of Mississippi, and outside the delta proper, complete fertilization is required for sweetpotatoes as for cotton.

The Experiment Station's fertilizer recommendation for sweetpotatoes in the hill sections of Mississippi is 500 to 1000 pounds of 4-8-4 or 6-8-4 or 6-8-8 fertilizer per acre, the variation being due to variation in fertilizer requirements of the different soils.

At the Holly Springs Branch Station, the application of 400 pounds of 4-8-4 gave a three-year average (1934, 1935, 1936) yield of 260 bushels of sweetpotatoes per acre; 400 pounds 4-8-8 gave 263 bushels. In 1937, at the same Station, 1000 pounds of 4-8-4 gave an average of 350 bushels per acre, average of two tests; 1000 pounds 4-8-8 gave 376 bushels.

In the Laurel sweetpotato starch producing area, 40 tests of fertilizing the Triumph variety conducted on the three leading soil types for four years, resulted in average yields per acre as follows:

- 800 lbs. 2-8-4 300 bushels
- 800 lbs. 4-8-4 305 bushels
- 800 lbs. 6-8-4 318 bushels
- 800 lbs. 8-8-4 332 bushels

Fertility of soil greatly influenced crop response to fertilizers in the Laurel tests. Soils naturally fertile, or made fertile by turning under winter legumes, responded most economically to the low nitrogen application. Soils less fertile at the time fertilizers were applied responded best to the higher percentages of nitrogen.—Editor.