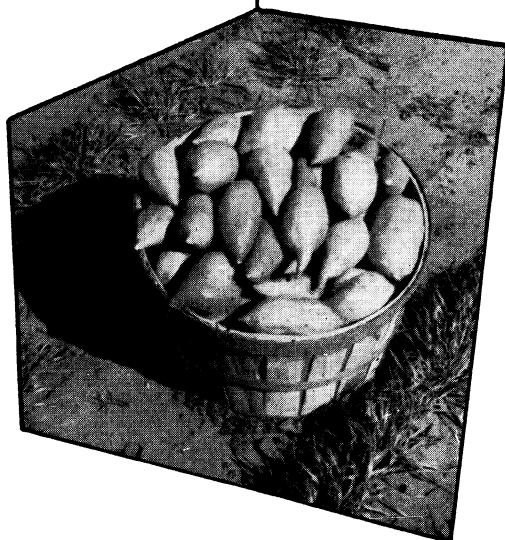


# TANHOMA Sweetpotato

by  
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A  
New  
Variety  
For  
Oklahoma



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# TANHOMA

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## Sweetpotato

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Tanhoma is a high yielding, high carotene variety of sweet potato which is widely adapted in Oklahoma. Tanhoma's external color and high quality are favorable to its use as a replacement for the Porto Rico variety which is characterized by low yields, low carotene content and susceptibility to disease such as wilt or stem rot and internal cork.

The new variety was developed by the Oklahoma Agricultural Experiment Station and released to growers in 1959.

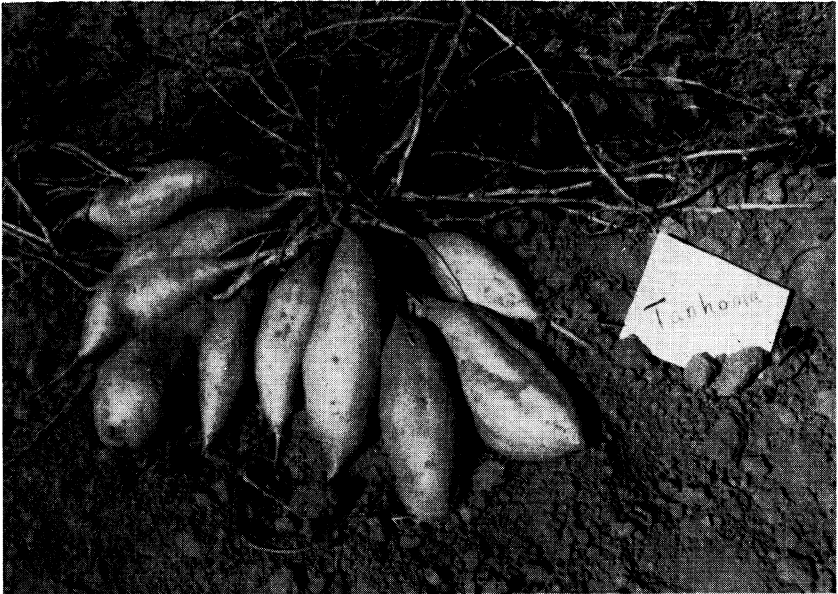
Tanhoma was tested under varied climatic conditions at 19 field locations in Oklahoma during a trial period from 1955 to 1958. Nursery trials were also conducted in Oklahoma for 4 to 5 years at four widely separated locations to determine yielding capacity. Chemical analyses were made on roots to determine baking and canning qualities and vitamin content. In addition, plant production, storage tests and tests of Tanhoma's reaction to major diseases were made.

### ORIGIN

The seedling hill from which the Tanhoma originated was selected from a group obtained from open-pollinated seeds of the female parent, Australian Canner variety, in 1950. The male parent of Tanhoma is unknown. The female parent was introduced into the United States from Hawaii as P. I. 129655 and released by the Mississippi Agricultural Experiment Station in 1948.

### DESCRIPTION

Roots of the Tanhoma have a tan to copper skin color which resembles, to some extent, roots of the Porto Rico. Usually, they show more purple pigment at the proximal ends. Roots are large to medium in size, of fusiform shape tapering some at the ends in some soils and/or seasons, and they may be irregular in shape. The flesh is a uniform bright orange in the raw state and retains this color when baked or processed.



**The roots of Tanhoma are usually smooth with several of Grade No. 1 in each hill.**

Vines are vigorous and long with medium to large stems. Leaves are entire, cordate at the base and the veins are mostly purple below with the pigment extending upward, especially on the midrib. The petioles are green except for a splash of purple at the summit.

## YIELD

Tanhoma average yields varied from 233 to 334 bushels of No. 1 roots in a four-year Regional Trial period. During this time, it ranked first to third in production of No. 1 roots in a group of about 12 varieties and breeding lines entered in this trial.

Table 1 shows that Tanhoma yields ranked second to Redgold in trials conducted at four locations in Oklahoma. Tanhoma averaged 194 bushels per acre of No. 1 roots for all tests as compared to 216 for Redgold, 144 for Allgold and 117 for Porto Rico.

Tanhoma showed some tendency for high, early yields and may have potential for early or "green" market production.\* Early harvests were made near August 20 and September 10 in a three-year "time-of-harvest" test. In this test, Tanhoma averaged 210 bushels per acre the first harvest and 274 bushels the second. Table 2 shows these yields

\*See Oklahoma Agricultural Experiment Station Processed Series P-392.

**Table 1.—Number 1 and total root yields of four sweetpotato varieties in Oklahoma, (1954-58).**

Location (Oklahoma)	No. 1 Roots				Total Roots			
	Tan- homa	Red- gold	All- gold	Porto Rico	Tan- homa	Red- gold	All- gold	Porto Rico
<i>Bushels Per Acre</i>								
Blair*								
Avg. 1954-8	266	292	151	192	438	457	281	373
Bixby								
Avg. 1954-8	148	157	129	135	232	261	225	190
Westville								
Avg. 1955-8	212	231	164	107	405	463	357	145
Idabel								
Avg. 1954-7	143	214	127	69	332	325	235	157
<b>Avg. all tests</b>	<b>194</b>	<b>216</b>	<b>144</b>	<b>117</b>	<b>350</b>	<b>386</b>	<b>274</b>	<b>219</b>
Total number tests	18	14	17	15	18	14	17	15

\* Tests were conducted at the Oklahoma Irrigation Experiment Station, Blair; Oklahoma Vegetable Research Station, Bixby; Eastern Oklahoma Field Station, Stilwell; and Kiamichi Field Station, Idabel.

**Table 2.—Number 1 and total root yields of four sweetpotato varieties harvested on different dates, Oklahoma Irrigation Experiment Station, Blair.**

Variety	year	Number 1 Roots				Total Roots**
		Hvst. 1*	Hvst. 2	Hvst. 3	Hvst. 4	Hvst. 4
<i>Bushels Per Acre</i>						
Tanhoma	1959	200	252	350	446	640
	1960	244	355	429	558	648
	1961	186	225	275	340	480
	<b>Avg.</b>	<b>210</b>	<b>274</b>	<b>351</b>	<b>435</b>	<b>589</b>
Allgold	1959	152	184	440	602	696
	1960	148	192	289	305	462
	<b>Avg.</b>	<b>150</b>	<b>188</b>	<b>365</b>	<b>454</b>	<b>579</b>
Redgold	1961	86	221	402	506	589
Nemagold	1959	120	240	304	432	608
	1960	150	170	215	274	378
	1961	112	135	225	248	332
	<b>Avg.</b>	<b>127</b>	<b>148</b>	<b>268</b>	<b>318</b>	<b>439</b>

\* Harvest 1 was made on or near August 20 and other harvests followed at approximately 20 day intervals until about October 20 for the final or 4th harvest.

\*\* Primary interest is in No. 1 roots; therefore, total root yields are shown for Harvest 4 only.

to be well above those of Allgold, Redgold and Nemagold. The early Tanhoma yields, secured after a growing period of 110 to 130 days, represented 50 to 63 percent of the full growing period of approximately 170 days.

## STORAGE QUALITY

Roots of the Tanhoma variety have, in most cases, kept well in storage. Shrinkage or weight losses in storage have been observed in this variety over a period of several years and they compared favorably with those of other varieties.

A storage test relating to lines and varieties in the Regional Trials was conducted with roots grown in 1955 to 1957, inclusive. Duplicate samples of 30 to 36 No. 1 roots (20 to 24 pounds each) were taken of each variety and placed in crates of suitable size. The roots were cured at 85° and stored at 58° F.

Weight losses were obtained at the end of the curing period (6 days) and at intervals throughout a 200-day storage period which ended about May 10. Table 3 shows results of the three-year test.

## VITAMIN CONTENT AND TABLE QUALITY

Roots of the Tanhoma are high in carotene. The flesh has a uniform orange color in the raw state and a desirable bright orange color when baked. Table 4 shows that the carotene content of Tanhoma exceeds that of Allgold and the other varieties while the vitamin C content (ascorbic acid) is about equal to that of the Redgold and Porto Rico varieties.

Results of cooperative canning and baking tests have been favorable to Tanhoma. In baking tests of nine breeding lines and varieties (1957-58), Tanhoma ranked among the leading five for the "7 quality" factor used to express quality of baked roots. These factors included moistness, freedom from fiber, flavor, texture, intensity and uniformity of color and eye appeal (Table 5).

## DISEASE REACTION

Tanhoma, for the most part, reacts similarly to Allgold in respect to resistance or susceptibility to the major sweet potato diseases. The new variety is tolerant to stem rot caused by *Fusarium oxysporum* f.

**Table 3.—Cumulative weight loss of Tanhoma and other sweetpotato varieties 1955 to 1957\***

Variety	After Curing	After Days in Storage			
		45	90	140	200
<i>(Percent Loss of Original Weight)</i>					
<b>1955 Crop</b>					
Tanhoma	0.8	1.8	8.3	12.8	14.0
Allgold	1.8	5.8	12.6	14.8	15.0
Goldrush	2.0	4.6	11.0	12.9	13.0
Kandee	2.1	5.0	11.0	14.8	15.4
Porto Rico	2.6	5.2	11.6	14.0	15.0
<b>1955 Average</b>	<b>1.86</b>	<b>4.48</b>	<b>10.9</b>	<b>13.9</b>	<b>14.5</b>
<b>1956 Crop</b>					
Tanhoma	1.3	3.0	6.3	7.9	9.0
Allgold	0.9	5.4	4.1	7.2	10.0
Kandee	2.2	4.4	9.8	14.6	19.3
Carogold	1.1	2.6	7.4	6.8	9.5
Porto Rico	1.4	4.0	7.6	10.0	14.0
<b>1956 Average</b>	<b>1.88</b>	<b>3.88</b>	<b>7.01</b>	<b>9.22</b>	<b>12.4</b>
<b>1957 Crop</b>					
Tanhoma	1.5	5.0	6.6	13.8	17.0
Carogold	1.0	2.6	6.0	10.4	10.7
Centennial	0.9	2.4	5.7	11.0	11.4
Porto Rico	1.2	2.6	6.4	9.5	11.6
<b>1957 Average</b>	<b>1.15</b>	<b>3.15</b>	<b>6.18</b>	<b>11.2</b>	<b>12.7</b>
<b>Tanhoma (3-year average)</b>	<b>1.1</b>	<b>3.3</b>	<b>7.1</b>	<b>11.5</b>	<b>13.3</b>

\* Temperature and humidity were kept at desired levels by automatic controls.

**Table 4.—Dry matter, carotene, and ascorbic acid content of Tanhoma roots and other varieties, 1953 and 1958 crops.**

Variety		Dry Matter	Carotene		Ascorbic Acid	
			Fresh Basis	Dry Basis	Fresh Basis	Dry Basis
		<i>Percent</i>	<i>mg/gm</i>			
Tanhoma:	1953	22	14.2	65.5	12.8	59.1
	1958	21	7.8	36.1	14.6	69.6
Allgold:	1953	27	12.8	47.0	23.5	86.3
	1958	28	12.5	44.6	20.5	73.2
Redgold:	1953	27	6.7	24.6	14.9	54.5
Porto Rico:	1953	29	4.1	14.1	16.3	56.0
	1958	30	4.4	14.6	14.6	48.7

Data provided by Department of Biochemistry Oklahoma State University: 1953 by the late Dr. Ruth Reder; 1958 by George Odell.

**Table 5.—Subjective quality rating of baked roots of several sweetpotato varieties\***

Variety	Flesh Color		Texture	Moistness	Free of fiber	Flavor	Eye appeal	Average
	Intensity	Uniformity						
	<i>Rating</i>							
Tanhoma	7.9	7.5	7.5	8.2	7.5	6.6	6.8	6.9
Goldrush	7.6	6.6	7.7	7.8	6.5	5.6	6.9	7.0
Centennial	6.8	6.9	7.2	8.2	7.4	6.9	6.9	7.2
Nugget	7.6	7.4	5.4	6.9	7.3	6.7	6.8	6.9
Porto Rico	4.7	6.1	7.5	7.8	7.2	7.3	5.9	6.6

\* Rated on basis of maximum score of 10 for each quality attribute. Average for 2 years, 1957 and 1958.

Data obtained with the Cooperating Sweetpotato Investigators at Oklahoma, Alabama and Louisiana Agricultural Experiment Stations and U.S.D.A.—Beltsville Station.

The assistance of Mr. George Odel, Department of Biochemistry and Dr. Dorothy Steel of the Department of Home Economics at Oklahoma State University is gratefully acknowledged.

*batatas*. This reaction was consistently demonstrated in seven controlled field tests over the period of 1951 through 1959. Tanhoma is susceptible to root knot caused by the root-knot nematode *Meloidogyne incognita*. This variety would not be recommended where root knot is a problem. It is also susceptible to soil rot caused by *Streptomyces ipomoea* and to scurf caused by *Monilochaetes infuscans*. Tanhoma is considered tolerant in its reaction to internal cork, a virus induced disease. With optimum conditions for disease expression, only trace amounts of cork have been found in the roots.

## OKLAHOMA'S WEALTH IN AGRICULTURE

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Agriculture is Oklahoma's number one industry. It has more capital invested and employs more people than any other industry in the state. Farms and ranches alone represent a capital investment of four billion dollars—three billion in land and buildings, one-half billion in machinery and one-half billion in livestock.

Farm income currently amounts to more than \$700,000,000 annually. The value added by manufacture of farm products adds another \$130,000,000 annually.

Some 175,000 Oklahoman's manage and operate its nearly 100,000 farms and ranches. Another 14,000 workers are required to keep farmers supplied with production items. Approximately 300,000 full-time employees are engaged by the firms that market and process Oklahoma farm products.