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SWEETPOTATOES FOR LIVESTOCK FEED

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The cash income of southern farmers is about one third that of the New England and North Central States. In its final analysis, this low income can be largely attributed to inadequate cultivated acres, low yields per acre and a single, cash-crop system of farming. The acreage of crop land is practically fixed by topography and inherent soil fertility, which can not be altered materially. Yields may be increased somewhat by better farming methods or by the use of new crops that by nature produce larger relative yields than the old crops. Any break with the past with regard to the one-crop system will require that livestock be brought more prominently into the agricultural program. These are the basic facts that confront those planning agricultural programs in the South.

If the South increases its livestock production materially, it will require greater production of feeds. For a livestock industry to be profitable in the South, the yields of its feed crops must be somewhat in line with the yields of the feed crops in states now engaged in profitable livestock production. The South is fortunate in the variety and abundance of its protein feeds, but at present it does not grow a single carbohydrate feed, the yield of which will enable it to compete on even terms with the North-Central States in livestock production. Cottonseed meal and peanut meal are protein concentrates available in large quantities in the South and from southern crops. Peanuts, soybeans, cowpeas, and kudzu furnish grazing and hay crops in abundance. The yield of grain crops, however, which must supply the needed carbohydrates is too low in the South to permit production on a competitive basis. The average yield of corn in Iowa for the 12-year period 1928-39 was 37.8 bushels per acre; for Georgia, Alabama, and Florida the yield for the same period was 10.5 bushels. Corn is the basic carbohydrate feed. The difference in the yield of other grain crops is about as great.

It becomes, therefore, obvious that one of the greatest needs of the South today in its livestock program is a crop which will produce more carbohydrates than will corn. The sweetpotato seems definitely to offer such a crop. This old crop of the South is well adapted to the soils and climate of the section, is a dependable crop, will produce much more feed per acre than corn, and is a good livestock feed both as a fresh and as a dried product. The sweetpotato not only will yield several times as much

feed as corn in Alabama but will yield more feed per acre than Iowa corn. These are considerations that should weigh heavily in a fair evaluation of the place of sweetpotatoes in Southern agricultural programs.

Comparison of Corn and Sweetpotatoes

Experiments of the Alabama Agricultural Experiment Station have shown that the sweetpotato compares favorably with corn as a livestock feed, that about three times the yield of feed per acre may be obtained from sweetpotatoes as from corn, and that returns from an acre of sweetpotatoes are considerably higher than returns from the grain crops with which they would compete as a feed.

Comparative food value by chemical analysis. Corn improvement has been the subject of experimental efforts for years; improvement of the sweetpotato has just begun. Corn today, therefore, represents a highly improved crop; great improvements may be expected in sweetpotatoes within the next decade. This may be illustrated by referring to the starch content of the varieties usually grown which run about 22 to 24 per cent, yet one variety of sweetpotatoes has been found which may run as high as 30 per cent starch.

One bushel of corn contains approximately 39 pounds of carbohydrates and about 5.8 pounds of protein (average of 86 analyses). One bushel of undried sweetpotatoes contains approximately 15.0 pounds of carbohydrates and 1.1 pounds of protein (average of 48 analyses). One bushel of corn, therefore, contains about as much carbohydrates as 2.6 bushels of raw or undried sweetpotatoes. One bushel of corn will contain as much carbohydrates and proteins combined as 2.8 bushels of potatoes. Since one pound of protein costs three times as much as one pound of carbohydrates, one bushel of corn should have a relative cost value of 3.1 bushels of potatoes. It is evident, therefore, either on a basis of analysis or of cost that one bushel of corn should be about equal to or at least should not exceed in value three bushels of sweetpotatoes.

Sweetpotatoes when dried to 10 per cent moisture are reduced to about one third of their original green weight. Analyses show that dried potatoes should be approximately equal to corn pound for pound. Dried potatoes contain about 82 per cent carbohydrate exclusive of fibers and 3.2 per cent protein. This would indicate a carbohydrate content 12 per cent higher and a protein content about 7 per cent lower than corn.

Sweetpotatoes supply some vitamin C, calcium, and iron (20). The yellow varieties supply liberal quantities of carotene. Besides the root crop, the sweetpotato vines have a high silage value. The vines supply fairly liberal quantities of protein, calcium, vitamin A, and vitamin C.

Comparative value by feed tests. Results of feeding tests with steers conducted by the Alabama Agricultural Experiment Station in 1941 showed that dried sweetpotato meal had a feeding value of 91.4 per cent that of corn (8). In a later test (9) conducted at the Atmore State Farm in 1942 under the direction of this Station, dried potatoes gave a 28 per

cent higher feeding value than corn pound for pound and gave a return of $33.90 per ton as compared to an assigned base price of $25.00 per ton for ground corn. In the same test 2.24 pounds of raw or undried potatoes gave gains equivalent to one pound of corn; or raw potatoes gave returns equivalent to $11.37 per ton or 31.8 cents per bushel.

Massey (15) obtained 8.2 per cent more milk from dairy cows fed potato meal than from those fed corn meal. The potato-fed cows produced milk having 0.12 per cent higher butterfat and butterfat having 7.14 more units of vitamin A per gram than those fed corn. Cullison (4) reported gains of 1.84 pounds per day for steers fed dried sweetpotatoes, as compared to 1.80 pounds for those fed corn. It required 6.30 pounds of concentrate to produce one pound of gain in the steers fed potato meal as compared to 7.34 pounds for the steers fed corn.

In the Atmore experiments (9), sweetpotato vine silage gave 23 per cent higher gains than corn silage and returned $6.83 per ton, as compared to an assigned base price of $2.00 per ton for corn silage.

On a basis of the feeding tests cited and others (4, 6, 11, 15), it would seem that raw or undried sweetpotatoes have a feeding value equal to about one third or one fourth that of corn and that dried potatoes have a feeding value about equal to corn pound for pound. Furthermore, the vines have been shown to have a high value as silage and as a grazing crop (2, 3, 9).

Relative yield of feed from one acre of sweetpotatoes and one acre of corn. Experiments at various points in Alabama extending over a period of 1 to 11 years have given potato yields having a feeding value per acre of 1.3 to 5.6 times that of corn. The average feed produced from sweetpotatoes on 14 sites at 8 locations in the State averaged 2.9 times that produced from corn at the same places. These results are given in Table 1.

It should be explained that the figures in column 4 show the equivalent bushels of corn represented by the yields of potatoes in column 3. The figures in column 6 are the ratio of feed produced on one acre of sweetpotatoes as compared to one acre of corn. Thus, on the Gulf Coast Substation at Fairhope, 432 bushels per acre of sweetpotatoes were produced on a Norfolk fine sandy loam soil. This yield was equivalent in feeding value to 144 bushels of corn. The average corn yield, however, on comparable soil at the same station was 40 bushels per acre; the feed, therefore, produced on one acre of sweetpotatoes was 3.7 times that produced from one acre of corn. The same information is given for each place in the test.

One of the most interesting comparisons of the relative amounts of feed that may be expected from one acre of corn and one of sweetpotatoes comes from Jones County, Mississippi, where records were kept of the yield of potatoes produced by farmers for the Laurel Starch Plant. The average yield of sweetpotatoes produced in 1938 and 1939 by the 50 farmers in the study was 188 bushels per acre equal in feeding value to 63 bushels of corn (10). The actual yield of corn obtained by the same farmers was 16.3 bushels per acre. These farmers were thus producing almost four times as much feed per acre from sweetpotatoes as from corn.

Table 1. Yields and Relative Amount of Feed Produced from an Acre of Sweetpotatoes and from an Acre of Corn at Different Locations in Alabama

Place	Soil series	Sweetpotatoes		Corn	Ratio sweetpotatoes to corn 1/
		Yield per acre	Feed value in corn equivalent	Yield per acre	
		(Bushels)	(Bushels)	(Bushels)	
South Alabama:					
Fairhope	Norfolk	432	144	40	3.6
Fairhope	Orangeburg	417	139	40	3.6
Fairhope	Norfolk	423	141	40	3.5
Brewton	Norfolk	143	48	35	1.4
Monroeville	Orangeburg	243	81	35	2.3
Central Alabama:					
Auburn	Chesterfield	336	112	30	3.7
Auburn	Chesterfield	507	169	30	5.6
Auburn	Chesterfield	349	116	27.6 2/	4.2
Auburn	Norfolk	281	94	22.3 2/	4.2
Prattville	Greenville	202	67	35	1.9
Prattville	Norfolk	115	38	30	1.3
Thorsby	Ruston	221	74	35	2.1
North Alabama:					
Belle Mina	Decatur	294	98	37	2.6
Crossville	Hartselle	183	61	35	1.7
Average		296	99	33.7	2.9

1/ Ratio of feed from an acre of sweetpotatoes and from an acre of corn.

2/ These yields were the actual yields in an experimental setup; the other yields of corn were yields from a good treatment on experimental plots at the same Station or Experiment Field.

Relative yield of feed from one acre of southern sweetpotatoes and one acre of Iowa corn. The yield of corn in Iowa is the highest in the Nation; it is three times the yield of corn in Alabama. For Alabama farmers to compete on even terms with Iowa farmers in livestock production, they need a crop which will produce as much carbohydrates per acre as Iowa corn. The sweetpotato can do this. In Table 2 are given the yields of potatoes at different points in Alabama, also those near the Laurel Starch Plant, and the relative amount of feed produced on an acre of sweetpotatoes at each place as compared to that produced on an acre of corn in Iowa.

Table 2. Relative Amount of Feed from an Acre of Southern Sweetpotatoes and an Acre of Iowa Corn

Place	Yield of sweetpotatoes per acre	Yield of sweetpotatoes expressed in its corn equivalent	Ratio sweetpotatoes to corn 1/
	(Bushels)	(Bushels)	
Ave. yield of Iowa corn 1928-39	-	37.8	-
Ave. yield sweetpotatoes 8 places in Alabama 1-11-year average	296	99	2.61
Sweetpotatoes Auburn - Field No. 1	241	80	2.11
Sweetpotatoes Auburn - Field No. 2	281	94	2.49
Sweetpotatoes Auburn - Field No. 3	349	116	3.07
Sweetpotatoes Auburn - Field No. 4	507	169	4.47
Sweetpotatoes 1939 Jones County, Miss.	166	55	1.45
Sweetpotatoes 1938 Jones County, Miss.	200	66	1.74

1/ Ratio of feed from an acre of southern sweetpotatoes and an acre of Iowa corn.

The average yield of feed produced from potatoes on the 14 experimental sites in Alabama was 2.61 times the average produced from Iowa corn. It should be pointed out, however, that the potatoes in the Alabama tests were produced on better than average land, whereas the yield of corn in Iowa represents the average of the state. This is not true, however, for yields near the Laurel Starch Plant where farmers produced 1.45 times as much feed per acre in 1939 and 1.74 times as much in 1938 from sweetpotatoes as was produced on an average acre of corn in Iowa during the 12-year period 1928-39. The yield of potatoes on the experimental plots near Auburn ranged from 2.11 to 4.47 times the yield of corn in Iowa. The southern sweetpotato thus can produce not only as much but more feed per acre than Iowa corn.

Comparative returns per acre from sweetpotatoes and corn. In the calculation of returns from potatoes as a feed crop, a price must be set

in line with the price of corn. With corn selling at 75 to 90 cents per bushel, sweetpotatoes should be worth, on a basis of feeding tests, about 25 to 30 cents per bushel. This seems low compared to the price of graded market potatoes, but it must be considered in producing sweetpotatoes for feed that no charge has to be made for containers or for losses in grades and that all of the crop--jumbos and culls--is used. If the crop is dried, there will be no loss in storage or extensive storage charges.

In Table 3 are given the yield, the gross return, and the net value of sweetpotatoes produced on the 14 sites at 8 locations in Alabama where records are available as compared to the yield and value of corn at the same places.

It is pointed out that the average value of sweetpotatoes above all costs was 38 per cent higher than the gross value of corn at the same places. The net returns from sweetpotatoes averaged $34.79 per acre, which is about 3½ times that from corn. The returns from one acre of sweetpotatoes, even at the low value of 25 cents per bushel, are well in line with returns from field crops and higher than returns from grain crops. On the other hand, it should be noted that a profit for potatoes cannot be expected from low yields. Yields of approximately 130 bushels per acre seem to mark the break between profit and loss at 25 cents per bushel. The break would come at about 115 bushels per acre if potatoes should sell for 30 cents per bushel, or at 100 bushels per acre if they should sell for 35 cents. It would probably be safe to assume that prices above 25 cents per bushel would be largely absorbed by corresponding increases in the cost of labor and materials during the war and for some time after the war. A yield of 130 bushels, however, will provide about $14 worth of labor in addition to the value of plants if grown on the farm.

It might be pointed out that the average acre of corn (1) provides only $8 to $9 worth of labor per acre and is grown at a definite loss if this labor is added to the other charges against the crop, yet Alabama in 1939 had 45 per cent of its crop acreage in corn. It is of high importance that due consideration be given to the relative values created on the farm from any two crops compared. It is a recognized fact that the field crops of the South when producing only average yields have not been grown at a profit; they have only provided a modest return for the labor of the farmer and his family.

Value of a measured acre of sweetpotatoes as compared to an acre of corn. In 1941 a study was made to determine what returns might be expected from an acre of potatoes and what were the labor requirements and cost factors involved. The yield of corn was also determined on the same experimental area and cost figures for the Southeast applied to these yields (1). An analysis of the returns from the two crops is given in Table 4 (See Table 5). The vines went into silage, and the cost figures included raking, hauling, shredding, and placing the vines in a trench silo, as well as hauling the potatoes 2.5 miles. Land rental was not included in costs.

Table 3. Comparative Returns from One Acre of Corn and One Acre of Sweetpotatoes

Place	Soil series	Sweetpotatoes			Corn		
		Ave. yield per A.	Gross returns	Est. value above all costs [1]	Ave. yield per A.	Gross returns	Est. value above all costs [2]
		(Bu.)	(Dol.)	(Dol.)	(Bu.)	(Dol.)	(Dol.)
South Alabama:							
Fairhope	Norfolk	432	108.00	67.23	40	30.00	13.53
Fairhope	Orangeburg	417	104.25	63.94	40	30.00	13.53
Fairhope	Norfolk	423	105.75	65.26	40	30.00	13.53
Brewton	Norfolk	143	35.75	3.66	35	26.25	10.68
Monroeville	Orangeburg	243	60.75	25.66	35	26.25	10.68
Central Alabama:							
Auburn	Chesterfield	336	84.00	46.12	30	22.50	7.82
Auburn	Chesterfield	507	126.25	79.04	30	22.50	7.82
Auburn	Chesterfield	349	87.25	43.78	28	21.00	6.68
Auburn	Norfolk	281	70.25	26.22	22	16.50	3.25
Prattville	Greenville	202	50.50	16.64	35	26.25	10.68
Prattville	Norfolk	115	28.75	- 2.50	30	22.50	7.82
Thorsby	Ruston	221	55.25	13.02	35	26.25	10.68
North Alabama:							
Belle Mina	Decatur	294	73.50	31.68	37	27.75	11.82
Crossville	Hartsells	183	45.75	7.26	35	26.25	10.68
Average		296	74.00	34.79	34	25.28	9.94

1/ Cost of producing potatoes based on $1 per M for plants, plus cost of fertilizer used, plus a fixed charge of $10 for labor and other charges independent of yields, plus 3 cents per bushel for each bushel produced. No charge made for land rental.

2/ Cost of producing corn based on economic studies for Southeastern States in 1938, which placed the cost per acre at $9.31 plus $.179 per bushel for each bushel produced (1). No charge made for land rental.

Table 4. Comparative Value of Corn and Sweetpotatoes from an Acre

Crops	Yield	Gross value 1/	Value above cost of labor and materials	Value above purchased material
Sweetpoto roots	349 bu.	$ 87.25	$52.39	$72.95
Vines	7132 lb.	17.83	14.98 2/	17.83
Total	-	105.08	67.37	90.88
Corn	27.6 bu.	20.70	6.45	17.20

1/ Corn valued at 75 cents per bushel, potatoes at 25 cents per bushel, and green vines at $5 per ton.

2/ The cost of fertilizers, plants, and the labor of growing charged to the root crops; only the cost of harvesting, hauling, and shredding the vines charged to the vine crop.

The gross returns from the measured acre of potatoes was $105.08 for the potatoes and vine silage, as compared to $20.70 for the corn. After all costs for labor and material were deducted, there was a return of $67.37 for potatoes, as compared to $6.45 for corn. The value of potatoes above costs was 3.25 times the gross value of corn.

Cost of producing equivalent units of feed from sweetpotatoes and corn. In addition to providing more labor and giving larger profits per acre than corn and producing three times the amount of feed as corn, sweetpotatoes can be produced in the South at a lower cost for equivalent feed units than corn. Several comparisons may be given.

In 1941 tests at Auburn (Tables 4 and 5), a measured acre of potatoes produced 349 bushels, which was equivalent in feeding value to 116 bushels of corn. The cost of producing and harvesting the potatoes (root crop only) was $34.86. Potatoes equivalent to one bushel of corn, therefore, cost 30 cents. On a basis of corn yields in the same experiment and applying past figures for the Southeast (1), the approximate cost of producing one bushel of corn was 53.3 cents.

By a similar comparison, potatoes equivalent to one bushel of corn as produced in the State-wide tests cost approximately 31.6 cents, as compared to an approximate cost for corn of 45.2 cents per bushel. Similarly, it costs the farmers supplying the Laurel Starch Plant 75 cents to produce potatoes equivalent to one bushel of corn, as compared to a cost of 76.5 cents required to produce one bushel of corn (10).

Other Considerations and Comparisons

There are other points of importance that should be considered in fitting the sweetpotato as a crop into Southern agriculture. It is important

to know the labor requirements of the crop and the labor returns from the crop along with the cost of production and returns. It is important also to have some idea of the seasonal distribution of the labor needed for potatoes. A comparison of the cost of production and returns from sweetpotatoes and some grain crop other than corn should be of some interest.

Cost of producing one acre of sweetpotatoes. In 1941 a study was made by this Station to determine the labor requirements and the cost of producing a measured acre of sweetpotatoes. No special machinery was used, and no charges were made for land rental or taxes. Both roots and vines were harvested and used. The results of this study are given in Table 5.

A total of 99 man hours and 41 mule hours was required to grow and harvest the acre of potatoes. Studies in Marion County, Alabama, indicated a labor requirement of 8.27 man days and 6.91 mule days for one acre of sweetpotatoes, with the larger part of the labor being required in April and October (14). In the studies near the Laurel Starch Plant, 123 man hours and 58 mule hours were required to grow and harvest one acre of potatoes (10). The labor used in the study at the Alabama Station was experienced in handling horticultural crops and probably required less time than common inexperienced field labor would require.

The total costs of labor and materials for the acre in the Alabama study was $37.71. Of this amount $14.20 represented the cost of materials purchased off the farm. The acre, therefore, provided $23.51 worth of labor and plants in addition to giving a return of $67.37 above the cost of materials for returns on the investment, land rental, and supervision (see Table 4). If all returns are credited to the enterprise, the one acre of potatoes provided returns of $90.88 to the farm.

The cost studies near the Laurel Starch Plant indicated a total cost of production per acre of $41.88 which included land rental of $3.65.

Seasonal distribution of labor required for the sweetpotato crop. The larger part of the labor needed to produce and harvest potatoes will be required at two periods; the first, during the month of April (or early May in North Alabama) for preparing the land, applying the fertilizer, and setting the plants; the second, during the month of October for harvesting the crop. A small amount of labor will be required in May and June for cultivating and hoeing. This will be divided approximately as follows: 40 per cent required in April; 40 to 45 per cent required in October; and 15 to 25 per cent required in May and June. This will mean some conflict with cotton for labor in April at planting time. There will not be serious conflict with cotton at the other two periods except in North Alabama. In Central and South Alabama the cotton crop will be out of the way before the sweetpotatoes are dug. In North Alabama harvesting of potatoes and picking of cotton will compete for farm labor. Sweetpotatoes will not require very much attention at the critical "cotton chopping" period.

Comparison of Sweetpotatoes and Oats. The comparisons made thus far in this report have been made between sweetpotatoes and corn, because corn is considered the standard carbohydrate concentrate. Comparisons based on oats give about the same relative values.

Table 5. Cost of Growing One Acre of Sweetpotatoes

Materials

1,000 pounds 4-10-7	$ 12.00
10,000 plants @ 75 cents per M.	7.50

Labor of Growing	Man Hours	Mule Hours
Breaking land	4 hrs. 40 min.	9 hrs. 20 min.
Laying off rows	2 hrs. 40 min.	2 hrs. 40 min.
Fertilizer applied	2 hrs. 0 min.	0 hrs. 0 min.
Disking	2 hrs. 40 min.	5 hrs. 20 min.
Listing	4 hrs. 0 min.	4 hrs. 0 min.
Setting plants	23 hrs. 25 min.	0 hrs. 0 min.
Cultivation (2-1/2)	7 hrs. 30 min.	7 hrs. 30 min.
Hoeing	6 hrs. 20 min.	0 hrs. 0 min.
	53 hrs. 15 min.	28 hrs. 50 min.
Labor of Harvesting		
Vines raked off	3 hrs. 30 min.	7 hrs. 0 min.
Plowing up potatoes	2 hrs. 30 min.	5 hrs. 0 min.
Picking up potatoes	26 hrs. 0 min.	
Loading & hauling potatoes 1/	5 hrs. 30 min.	
Loading & hauling vines 1/	8 hrs. 30 min.	
Sub-total	46 hrs. 0 min.	12 hrs. 0 min.
Total	99 hrs. 15 min.	40 hrs. 50 min.

Summary	Total Cost	Purchased off farm	Furnished on farm
99.3 man hours @ 10 cents per hr.	$ 9.93		$ 9.93
40.8 mule hours @ 10 cents per hr.	4.08		4.08
35.0 miles haul @ 12 cents per mi.	4.20	$ 2.20	2.00
1,000.0 # 4-10-7 fertilizer @ $24 per T.	12.00	12.00	
10,000.0 plants @ 75 cents per M.	7.50		7.50
	$37.71	$14.20	$23.51

Products - 349 bushels potatoes
7132 pounds of vines

1/ Distance of haul 2-1/2 miles each way.

Based on Morrison's tables (16) one bushel of sweetpotatoes contains 15.0 pounds and oats 22.9 pounds of total digestible nutrients. With what is known of the relative feeding value of corn and sweetpotatoes, it would appear that one bushel of oats would be equivalent to about 1.6 bushels of undried or raw sweetpotatoes. On a basis of the average yield of sweetpotatoes on Alabama farms, an approximate yield of 53 bushels of oats would be required to give the same feed per acre as sweetpotatoes. The average yield of oats in Alabama, however, over the 1928-37 period was 18.3 bushels per acre or about one-third the yield necessary to produce the same feed as an acre of potatoes.

Based on the average yeilds of the two crops, oats at 45 cents per bushel would gross about $8.24 per acre; sweetpotatoes at 30 cents per bushel would gross about $25.20 per acre.

The yield of sweetpotatoes in the State-wide tests (Table 1) was 296 bushels per acre. The yields of oats on the Experiment Fields and Substations have averaged about 65 bushels per acre. The 296 bushels of sweetpotatoes should have a value of about 185 bushels of oats. The feed, therefore, produced at these locations from one acre of sweetpotatoes was about three times that from one acre of oats.

The value of the 65 bushels of oats at 45 cents per bushel would be $29.25 per acre as compared to $88.80 for the 296 bushels of potatoes at 30 cents per bushel.

Sweetpotatoes for both livestock and market. The opinion is often advanced that the well-shaped uniform potatoes of proper size may be sold as a high grade market potato, leaving the other sizes and grades for feed. Certainly where the market will absorb the better potatoes at a fair to good price, it would be well to take advantage of the opportunity to dispose of such quantities of potatoes as may move on the market at prices much above that which stock feed could command. However, it would be a most serious error to assume that the South can greatly increase the production of sweetpotatoes for livestock use and be assured of a market for the 50 to 70 per cent of high quality potatoes that might be expected from a greatly increased acreage of livestock feed. This should be kept in mind. The market will not be available for this quantity of quality potatoes.

Conclusion

There will be in the South after the war no problem greater than that of finding sufficient acres of land to support the farm population on a fair standard of living. It will not be possible to increase materially the acres of crop land, but it will be possible by choice of crops to increase the amount of profitable labor that may go into the production of an acre of one crop as compared to another crop. Approximately one-half of the cultivated acres in Alabama (45 per cent) is in corn. The average yield of corn in the State is about 12.5 bushels per acre and the gross returns about $10. The farm income of the State will never be materially increased as long as one-half of the cultivated acreage is in a crop that grosses only $10 per acre.

The data presented in this report show that about three times as much feed can be produced from one acre of sweetpotatoes as from one acre of corn, and that the gross and net returns from potatoes are considerably higher than from corn. The same relations have been shown to hold with oats. Other publications of this Station (7, 8, 9) show that potatoes make an excellent livestock feed; still other publications (12, 18) show how potatoes can be converted on the farm, without great cost or expensive equipment, from a succulent and perishable product to a staple concentrate. It would, therefore, appear that progressive farmers should divert at least a part of their corn acreage to sweetpotatoes. More labor will be required for an acre of sweetpotatoes than for an acre of corn, but greater returns for the labor required and greater net returns above all costs may be expected from a well-grown acre of potatoes than from the same acre of corn or oats.

While it would be unwise for a farmer to replace his complete corn acreage with sweetpotatoes, it might be well to point out several possibilities; first, it would be possible for a farmer to plant 40 per cent of his normal corn acreage to corn, 20 per cent to sweetpotatoes, leaving 40 per cent for some new or different cash crop and still produce an equivalent amount of feed on his entire corn acreage; or second, it would be possible for him to plant two-thirds of his normal corn acreage to corn, one-third to sweetpotatoes, and have two-thirds more feed than from corn planted on the entire normal acreage. If a farmer should plant one-half of the corn acreage to sweetpotatoes, he should have twice as much feed available for an expanded livestock program as he has normally had.

The possiblilities offer too much to be passed over without giving serious consideration to the place of this crop on every farm where sweetpotatoes are known to produce well.

It should be emphasized that the comparisons made have been based on normal and not wartime costs and values. During periods of critical labor shortages and high wages and of high prices and high demand for market potatoes, it will be to the advantage of the farmer to direct his efforts to the production of market potatoes.

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