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1965 HARVEST, CROSSETT FARM FORESTRY FORTIES

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SOUTHERN FOREST EXPERIMENT STATION

In 1937 the Southern Forest Experiment Station set up two farm forestry forties at Crossett, Arkansas, to demonstrate the feasibility of managing small tracts of shortleaf and loblolly pine.

On one tract the timber stocking was reasonably adequate, and on the other it was badly depleted. The tracts therefore became known as the "good" and the "poor" forty (somewhat arbitrarily, as the latter comprises 34 acres). The aim of management was to grow as many large, high-quality logs as possible, together with pulpwood, posts, and perhaps poles. A system of partial, or selection, cutting was decided on, and a harvest was scheduled for each year, beginning in 1938 for the well-stocked forty and in 1939 for the depleted forty.

The 1965 harvest was the twenty-eighth consecutive one from the good forty, and the twenty-seventh from the poor forty. This year, the cut from the poor forty was largely pulpwood, because about 10 acres needed thinning. Much of the cut from the good forty was of trees 23 inches d.b.h. or over. Most of these trees were still growing at a good rate, but it

was thought best to reduce potentially large losses from lightning and insects, especially since the trees were very close to financial maturity.

Stumpage returns, that is, values of the standing trees marked for cutting in 1965, were \$15.21 per acre from the poor forty and \$20.37 from the good forty (tables 1 and 3). The average stumpage returns over the life of the demonstration, which included some years when prices were low, have been \$9.15 per acre per year on the poor forty and \$12.01 on the good (tables 2 and 4). These are all gross values. It would be necessary to deduct annual costs and carrying charges, if any, to get net returns. For these comparisons, no adjustments for dollar value differences resulting from long-term inflation have been attempted.

In 1937 the management possibilities for these tracts did not appear bright. Both contained about as many cull and undesirable hardwoods as pine, and many of the pines were limby, crooked, or contained fire scars. Pine stocking on the good forty was reasonably satisfactory—about 21 cords per acre in trees of

Table 1.—*Good forty: products cut, 1965*

Item	Logs	Pulpwood	Total
	<i>Bd. ft. (Doyle)</i>	<i>Standard cords</i>	
Volume cut	19,559	7.02	...
VALUE (DOLLARS) ON STUMP			
Total value	779.82	35.10	814.92
Per unit	39.87	5.00	...
Per acre	19.49	.88	20.37
VALUE (DOLLARS) DELIVERED AT MARKET			
Total value	1,122.10	117.58	1,239.68
Per unit	57.37	16.75	...
Per acre	28.05	2.94	30.99

Table 2.—*Good forty: total harvest, 1938-65, inclusive*

Item	Logs	Pulpwood	Fuelwood	Posts	Total
	<i>Bd. ft. (Doyle)</i>	<i>Standard cords</i>	<i>Standard cords</i>	<i>Number</i>	
Volume cut	419,441	427.80	228.45	418	...
Per acre	10,486	10.70	5.71	10.45	...
VALUE (DOLLARS) ON STUMP					
Total value	12,458.50	842.16	131.72	20.90	13,453.28
Per unit	29.70	1.97	.58	.05	...
Per acre	311.46	21.05	3.29	.52	336.32
Per acre-year	11.12	.75	.12	.02	12.01
VALUE (DOLLARS) DELIVERED AT MARKET					
Total value	18,549.31	3,885.54	2,210.22	62.70	24,707.77
Per unit	44.22	9.08	9.67	.15	...
Per acre	463.73	97.14	55.25	1.57	617.69
Per acre-year	16.56	3.47	1.97	.06	22.06
VALUE (DOLLARS) AT ROADSIDE					
		Total			Per acre
1965 cut		1,027.30			25.68
Cut to date		19,080.52			477.01

all sizes—but the poor forty had only about half the trees and volume needed.

By 1951, most of the hardwoods 4 inches and larger d.b.h. had been cut or girdled on both tracts. The early elimination of these hardwoods, plus annual harvests that were limited to about half of the pine growth, permitted the pine stocking on the poor forty to increase to 4,500 board feet plus 9 cords of pulpwood per acre by 1950. Of equal interest is the fact that products equivalent to the volume on each

tract in 1937 had been cut from the good forty by 1955 and from the poor forty by 1956. Moreover, this was accomplished during the period that the volume and quality of the growing stock on each tract was increased.

The seventh 100-percent inventory of the growing stock on each forty was completed after the growing season of 1965. As is indicated in table 5, trees in the 4- to 12-inch d.b.h. size classes on both forties continued to increase in numbers during the 1960-65 period.

Over the same period there was an average increase of one saw log size tree per acre on the poor forty and a decrease of three saw log size trees per acre on the good forty. Such changes were in addition to, or in spite of, harvests that removed some trees of most size classes from each forty each year. However, during the 5-year period, much of the harvest cutting on the good forty was concentrated in the larger diameter classes.

Annual growth, both in cubic and board feet, was appreciably less for the years 1960-65 than for the 1956-60 period. This had been expected, because growing season rainfall was appreciably below normal during 3 out of the 5 years.

The once poor forty is no longer in that condition and the good forty continues to have excellent earning possibilities. It will be of interest to measure and compute the values of the harvests for the next 28 years.

Table 3.—*Poor forty: products cut, 1965*

Item	Logs	Pulpwood	Total
	<i>Bd. ft. (Doyle)</i>	<i>Standard cords</i>	
Volume cut	8,454	36.07	...
VALUE (DOLLARS) ON STUMP			
Total value	337.06	180.35	517.41
Per unit	39.87	5.00	...
Per acre	9.91	5.30	15.21
VALUE (DOLLARS) DELIVERED AT MARKET			
Total value	485.01	604.17	1,089.18
Per unit	57.37	16.75	...
Per acre	14.26	17.77	32.03

Table 4.—*Poor forty: total harvest, 1939-65, inclusive*

Item	Logs	Pulpwood	Fuelwood	Posts	Total
	<i>Bd. ft. (Doyle)</i>	<i>Standard cords</i>	<i>Standard cords</i>	<i>Number</i>	
Volume cut	207,259	342.91	158.42	220	...
Per acre	6,096	10.09	4.66	6.47	...
VALUE (DOLLARS) ON STUMP					
Total value	7,203.45	1,094.74	94.71	8.09	8,400.99
Per unit	34.76	3.19	.60	.04	...
Per acre	211.86	32.20	2.79	.24	247.09
Per acre-year	7.85	1.19	.10	.01	9.15
VALUE (DOLLARS) DELIVERED AT MARKET					
Total value	10,461.45	4,358.59	1,088.76	28.27	15,937.07
Per unit	50.48	12.71	6.87	.13	...
Per acre	307.69	128.19	32.02	.83	468.73
Per acre-year	11.40	4.75	1.18	.03	17.36
VALUE (DOLLARS) AT ROADSIDE					
		Total		Per acre	
1965 cut		803.29		23.63	
Cut to date		12,169.03		357.91	

GOOD FORTY

Table 5.—Number of pine trees and volume per acre

Year	Trees		Volume			Growth yearly	
	4 to 12 in. d.b.h.	12 + in. d.b.h.	4 + in. d.b.h.	12 + in. d.b.h.		4 + in. d.b.h.	12 + in. d.b.h.
	-- Number --		Cu. ft.	Standard cords	Bd. ft. (Doyle)	Cu. ft.	Bd. ft. (Doyle)
1937	102	30	1,793	21.2	5,074	...	...
1941	91	31	1,872	22.1	5,766	81	244
1946	51	31	1,740	20.5	6,454	52	372
1951	46	36	1,968	23.2	8,295	98	596
1956	48	32	1,733	20.5	7,438	50	249
1960	82	34	2,008	23.7	8,364	125	504
1965	112	31	1,995	23.6	7,781	90	328

POOR FORTY

Year	Trees		Volume			Growth yearly	
	4 to 12 in. d.b.h.	12 + in. d.b.h.	4 + in. d.b.h.	12 + in. d.b.h.		4 + in. d.b.h.	12 + in. d.b.h.
	-- Number --		Cu. ft.	Standard cords	Bd. ft. (Doyle)	Cu. ft.	Bd. ft. (Doyle)
1937	68	17	976	11.5	2,341	...	...
1941	71	21	1,214	14.3	3,135	86	231
1946	68	19	1,179	13.9	3,701	57	251
1951	105	25	1,501	17.7	4,583	121	391
1956	131	24	1,480	17.5	4,339	75	264
1960	163	29	1,863	22.0	5,304	174	514
1965	173	30	1,952	23.0	4,982	144	404