

VIRGINIA AGRICULTURAL EXTENSION SERVICE

FORESTRY EXTENSION PLAN OF WORK  
(Name of Project)

for

Calendar Year 1959

Major phases of project  
or subdivisions of  
project covered \_\_\_\_\_

Name of Worker\*

Percentage of time  
devoted to entire  
project by each worker

Statewide  
Statewide  
Statewide  
Statewide

Carl J. Holcomb  
C. E. Gill  
A. B. Lynn  
W. A. McIlfresh

100  
100  
100  
100 (reported for  
duty January  
2, 1958)

Date submitted: May 23 . 1959 . Signed: Carl J. Holcomb  
Project Leader

Date approved: May 23 . 1959 . Signed: \_\_\_\_\_  
Head of Department

Date approved: May 23 . 1959 . Signed: W. H. Doughty  
State Director  
of Extension

Date approved: JUN 17 1959 . 1959 . Signed: Carl Ferguson  
Administrator,  
Federal Extension Work  
U.S.D.A.

\* If phases of project are divided between two or more workers, indicate assignment to each.

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## The Forest Situation

### General

Virginia is a forested state. From the beginning of our history until the present, land has been cleared for one crop or another. Each generation finds that the battle to produce on some soils and in some areas is an unprofitable enterprise. Land is abandoned and trees return to heal the soil.

Twenty-five years ago fertilizer was introduced on a scientific basis to improve our crops. It has succeeded beyond the fondest expectations of its advocates and has raised the income, the standard of living and the welfare of a large portion of our population. In the process farmers have abandoned four percent of the least profitable crop land to the forces of nature.

She has taken the challenge. In the past 20 years she has again spread her mantle of trees over eroded, impoverished soil. Over a million more acres are in forests again, raising our total of forest land to 16,000,000 plus acres.

The question before extension is - are our citizens going to recognize our forests as a crop, and a protector and rebuilders of the soil, as a reservoir for our precipitation and a regulator of our streams, a home, shelter and provider for wildlife, a refuge from the cares of making a living? Will our forests be used for all these purposes and in addition be used to build up the wealth and economic activity of our Commonwealth, or will we continue the cycle of clearing unproductive land only to abandon it again?

Our people are intelligent, capable of making wise decisions if they

understand the facts. Perhaps extension has failed to present the facts in an understandable way. Let us see what the facts are and how they may be used to bring our forests into a more productive state, to use them to build up our wealth and to allow them to serve all the other purposes of which they are capable.

#### The Forest Situation

From the Census we learn that in 1910 we had 19,496,000 acres in farms, or 76% of our total land area. In 1955 we had 14,685,000 acres in farms or 58% of our total land area.

In 1910, 43% of our farms were in woods. In 1955, 45% were classified by farmers as woodlands. At present, 72% of our farmers are also woodland owners.

Until recently, we had very little reliable information on forest acreages and growth except what we could get from Census data. In 1930 the National Forest Survey was established. Since that time the total forest area of the United States has been inventoried and some of it reinventoried. Not only have the facts of timber volumes, growth, quality and drain been measured but also the areas of land in other uses have been estimated for the first time. The data from these surveys for the United States and for Virginia are presented in Table 1 for comparative purposes. The percentage of forest land in Virginia is twice that of the country as a whole.

Table 1. - Land Area - United States and Virginia Compared

<u>Type of Land Use</u>	<u>U. S. Acres</u>	<u>% of Total</u>	<u>Virginia</u>	<u>% of Total</u>
Forest	664,194,000	34	15,832,000	62
Crop	411,151,000	21	4,225,000	17
Pasture	693,337,000	36	3,943,000	15
Other	<u>170,661,000</u>	<u>9</u>	<u>1,532,000</u>	<u>6</u>
Total	1,939,343,000	100	25,532,000	100

The Forest Survey also establishes the ownership pattern of forest land. In Table 2 the ownership pattern of forest land for the United States and Virginia is compared.

Table 2. - Ownership of Commercial Forest Land - United States and Virginia compared

<u>Type of Ownership</u>	<u>U. S. Acres</u>	<u>% of Total</u>	<u>Virginia</u>	<u>% of Total</u>
Farm	165,217,000	34	8,848,000	58
Other private	130,670,000	27	3,586,000	23
Federal	103,124,000	21	1,417,000	9
Other Public	27,216,000	5	100,000	1
Industrial	<u>62,382,000</u>	<u>13</u>	<u>1,334,000</u>	<u>9</u>
Total	488,609,000	100	15,285,000	100

Not only is our percentage of forest land almost double that of the rest of the country, 81% of ours is in small private ownerships. We have over 211,000 forest land owners in Virginia, most of whom own less than 500 acres.

The first Forest Survey of Virginia was made in 1940. Its purpose,

as a part of the National Survey, was to determine the volume and quality of our timber, its growth and the rate at which it was being cut or lost through disease and other causes. In 1956 the first resurvey was made with the same objectives. Thus, for the first time, we not only have a true picture of our forest resource, we are also able to make a comparison with the situation in 1940.

Table 3 compares the different types of forest and other acreages for the two survey years. The great changes are the reversion of cropland to forest and other uses.

Table 3. - Forest Survey - Gross Land Area (Va.) by Broad Use Class

Forest	1940	1957	Difference	% Change
Commercial	14,412,000	15,449,900	+ 1,037,900	+ 6.7
Public reserved <sup>1/</sup>	235,900	259,400	+ 23,500	+ 9.1
Non-commercial <sup>2/</sup>	<u>184,400</u>	<u>404,200</u>	<u>+ 219,800</u>	<u>+ 54.4</u>
Total Forest	14,832,300	16,113,500	+ 1,281,200	+ 8.0
Non-Forest				
Agriculture	5,954,700	(		
Abandoned cropland	380,100	( 8,156,200	- 1,602,900	- 16.4
Pasture	3,424,300	(		
Marsh	272,500	229,500	- 43,000	- 15.8
Other <sup>3/</sup>	<u>671,500</u>	<u>907,700</u>	<u>+ 236,200</u>	<u>+ 26.0</u>
Total non-forest	10,703,100	9,293,400	- 1,409,700	- 13.1
Total Area	25,535,400	25,406,800	- 128,600 <sup>4/</sup>	- 0.5

<sup>1/</sup> Forest areas from which no commercial cutting is allowed.

<sup>2/</sup> Land too poor for growth of commercial-size timber.

<sup>3/</sup> Incorporated cities, roads, power lines, etc.

<sup>4/</sup> Discrepancy in land area between the two surveys.

Some of the land reverting to forest has good cropping characteristics and could conceivably be cleared again. There is some thinking that we will improve the quality of our food and fiber plants and our ability to grow more crops per unit of land. If this becomes a reality as it has with corn, it may be several decades before the need for more cropland results in another round of forest clearing.

Percentage-wise, a radical change is not to be expected in forest land ownership.

Table 4. - Ownership of Commercial Forest Land - 1957

<u>Type of Forest Land</u>	<u>Acres</u>	<u>% of Total</u>
Public	1,527,200	9.9
Farm	10,085,100	65.3
Wood-using industries	1,238,700	8.0
Other private	<u>2,528,900</u>	<u>16.8</u>
Total	15,449,900	100.0

Public ownership has increased very little in the past twenty years. The only noticeable change going on at present is in the purchase of farm lands by the paper companies. In number of acres, they are increasing their holdings considerably. Some concern is being expressed in a few eastern counties where the mills have had an aggressive land buying policy (Table 5). Some counties feel that large blocks of land in industrial ownership may hinder local development. The mills contend that they are only buying land to provide themselves with a portion of their raw material. They have also assured local people that their ownership of land will not hinder other industrial growth.

Table 5. - Ownership of Forest Land by Wood-using Industries - 1957

<u>Region</u>	<u>Total Forest Acres</u>	<u>Industry Ownership</u>	<u>% of Total</u>
Coastal Plain	4,067,100	758,600	18.7
Northern Piedmont	2,492,500	140,500	5.6
Southern Piedmont	3,747,300	300,400	8.0
Northern Mountain	2,398,000	4,100	0.2
Southern Mountain	<u>2,745,000</u>	<u>35,100</u>	<u>1.3</u>
Total	15,449,900	1,238,700	8.0

One of the most valuable benefits of the two Forest Surveys is the comparison that can be made of current volumes of various species and size classes of timber with 1940. In general the comparisons indicate that we have been over-cutting our most valuable species and that the trees for which there is little demand are left to invade the areas formerly occupied by the more desirable ones.

If we compare our pines and especially our loblolly pine in its present condition with 1940, it is evident that we have been cutting it faster than it is being grown (Tables 6, 7, 8, 9.)

Table 6. - Comparison of Sawtimber Volumes 1940 and 1957  
Million Board Feet

<u>Species Group</u>	<u>1940</u>	<u>1957</u>	<u>Change</u>	<u>% Change</u>
Yellow pines	11,882	10,834	- 1,048	- 9.7
Other softwoods	841	831	- 10	- 1.1
Soft hardwoods	5,459	6,595	+ 1,136	+ 20.6
Hard hardwoods	<u>12,230</u>	<u>16,255</u>	<u>+ 4,025</u>	<u>+ 32.9</u>
Total	30,412	34,515	+ 4,103	+ 13.5

Table 7. - Comparisons of Volumes in All Sound Live Trees 5.0" and over  
1940 and 1957 - Million Cubic Feet

<u>Species Group</u>	<u>1940</u>	<u>1957</u>	<u>Change</u>	<u>% Change</u>
Yellow pines	3,994	3,839	- 155	- 4.0
Other softwoods	255	304	+ 49	+ 19.0
Soft hardwoods	1,933	2,526	+ 593	+ 30.7
Hard hardwoods	<u>4,255</u>	<u>3,797</u>	<u>+ 1,542</u>	<u>+ 36.2</u>
Total	10,437	12,466	+ 2,029	+ 19.4

Table 8. - Board Foot Volume per Acre of Merchantable Sawlog  
Material by Area and Year

<u>Year</u>	<u>Coastal Plain</u>	<u>Piedmont</u>	<u>Mountain</u>	<u>State</u>
1940	3,000	1,310	1,070	1,690
1956	3,713	1,801	1,726	2,278
Change	+ 713	+ 491	+ 656	+ 588
% Change	+19.2	+27.3	+38.0	+25.8

Table 9. - Cubic Foot Volume per Acre of Merchantable Material  
by Area and Year

<u>Year</u>	<u>Coastal Plain</u>	<u>Piedmont</u>	<u>Mountain</u>	<u>State</u>
1940	1,106	716	478	745
1956	1,163	746	646	822
Change	+ 57	+ 30	+ 168	+ 77
% Change	+ 4.9	+ 4.0	+26.0	+ 9.3

Hardwoods, in contrast, are increasing rapidly in both acreage and in volume.

Within our three physiographic regions the growth potential and actual growth of trees varies considerably. As we move west both the species and growth capabilities change. In the Coastal Plain area the light, sandy soils will produce excellent pine timber. Volume growth under managed conditions can be as great as two cords or 1,000 board feet per acre per year for the life of the stand. As we move west the growth capabilities are lower. The favorite tree, loblolly pine, will not grow as well in most of the Piedmont and is not acclimated to the Mountain section. Eastern white pine will grow as well in some sections of the Mountains as loblolly pine does in the East. However, hardwood trees are the rule west of the Blue Ridge. On the better soils, north and east slopes especially and in the coves, yellow-poplar, northern red oak and several other valuable species make forestry as potentially a profitable enterprise as in the Coastal Plain. On many sites, however, growth is below the average for the State.

In each of the regions there was an increase in timber volume per acre between the two surveys (Table 10, 11). By referring to (Tables 6, 7, 8, 9) it is evident that almost all of this increase is in hardwood trees.

Table 10. - Acreage of Softwoods and Hardwoods by Region and Year  
Thousand Acres

	<u>Coastal Plain</u>	<u>Piedmont</u>	<u>Mountain</u>	<u>State</u>
	1940			
Softwoods	2,414.3	2,757.0	1,059.1	6,230.4
Hardwoods	<u>1,504.2</u>	<u>3,070.2</u>	<u>3,605.8</u>	<u>8,181.6</u>
Total	3,919.2	5,827.9	4,664.9	14,412.0
	1957			
Softwoods	1,854.9	1,909.8	738.2	4,502.9
Hardwoods	<u>2,212.2</u>	<u>4,330.0</u>	<u>4,404.8</u>	<u>10,947.0</u>
Total	4,067.1	6,239.8	5,143.0	15,449.9

Table 11. - Per cent change in net board feet volume, sawtimber size trees and in net standard cord volume, all trees 5.0"  $\phi$  over in size, by species group, calendar year 1956.

<u>Region</u>	<u>Species Group</u>				
	<u>Yellow pine</u>	<u>Other softwoods</u>	<u>Soft hardwoods</u>	<u>Hard hardwoods</u>	<u>All Species</u>
	% volume change - sawtimber trees				
Coastal Plain	$\uparrow$ 0.8	$\uparrow$ 0.7	$\uparrow$ 2.0	- 0.3	$\uparrow$ 0.6
No. Piedmont	- 4.1	- 15.0	$\uparrow$ 2.9	- 0.8	- 0.7
So. Piedmont	$\uparrow$ 0.6	$\uparrow$ 1.1	$\uparrow$ 2.9	- 1.5	$\uparrow$ 0.2
No. Mountain	$\uparrow$ 1.7	$\uparrow$ 2.0	$\uparrow$ 2.0	$\uparrow$ 1.1	$\uparrow$ 1.4
So. Mountain	$\uparrow$ 2.9	- 2.2	$\uparrow$ 3.7	$\uparrow$ 1.2	$\uparrow$ 1.6
	% volume change in all trees				
Coastal Plain	$\uparrow$ 1.2	$\uparrow$ 1.1	$\uparrow$ 2.8	$\uparrow$ 0.8	$\uparrow$ 1.4
No. Piedmont	- 3.5	- 4.8	$\uparrow$ 3.4	$\uparrow$ 0.5	0.0
So. Piedmont	$\uparrow$ 0.8	$\uparrow$ 1.6	$\uparrow$ 3.4	$\uparrow$ 0.3	$\uparrow$ 1.1
No. Mountain	$\uparrow$ 2.3	$\uparrow$ 2.3	$\uparrow$ 3.2	$\uparrow$ 2.7	$\uparrow$ 2.7
So. Mountain	$\uparrow$ 3.4	- 0.1	$\uparrow$ 4.8	$\uparrow$ 2.9	$\uparrow$ 3.2

While this increase is an improvement in total volume, it is a very slow improvement. At the average rate of growth over past 17 years, it would take over a hundred years for our stands to come into a state of full productivity. Further, if the two survey years are compared, this increase is at a decreasing rate, indicating that our progress toward full productivity of our stands is slowing down (Table 12).

Table 12. - Increase in board feet and cubic feet per acre in 1940 and in 1956 all forest land, Virginia

	<u>Board Feet</u>	<u>Cubic Feet</u>
1940	22	12.3
1956	13	8.8

Timber volumes do not tell the entire story. Many trees in an unmanaged stand are crooked, rotten, limby or of species that are not merchantable. Under unmanaged conditions, the situation cannot change. Further, under cutting practices that have existed since we first started cutting trees, the best has been taken and the poorer trees left to take over. All comparisons (Tables 13,14,15,16,17), with one exception, show an increase in cull trees.

The trend has been reversed somewhat in the Coastal Plain. Here more forest land is under management. Inferior hardwood trees have been removed or killed. Loblolly pines have been planted in their place.

Table 13. - Comparison of Timber Volumes in Merchantable and Cull Trees, 1940 - 1956, in Cords

<u>Year</u>	<u>Merchantable Material</u>	<u>Cull Trees</u>	<u>All Material</u>	<u>% Culls</u>
1940	146,952,900	29,434,300	176,387,200	16.7
1956	174,479,000	31,685,000	206,164,000	15.4
Change	↑27,526,100	↑ 2,250,700	↑ 29,776,800	
% Change	↑ 15.8	↑ 7.1	↑ 14.4	

Table 14. - Relationship Between Sound and Cull Tree Volumes 1940 and 1957 Million Cubic Feet

<u>Species Group</u>	<u>1940</u>	<u>1957</u>	<u>Change</u>	<u>% Change</u>
Softwoods				
All trees	4,459	4,519	↑ 60	↑ 1.3
Cull trees	210	376	↑ 166	↑ 44.1
Sound trees	4,249	4,143	- 106	- 2.5
Hardwoods				
All trees	7,607	10,509	↑2,902	↑ 27.6
Cull trees	1,419	2,186	↑ 767	↑ 35.1
Sound trees	6,188	8,323	↑2,135	↑ 25.7

Table 15. - All Trees, by Softwood and Hardwood and Region,  
1940 and 1957 Million Cubic Feet

<u>Species Group</u>	<u>1940</u>	<u>1957</u>	<u>Change</u>	<u>% Change</u>
<b>Softwoods</b>				
Coastal Plain	2,318	2,310	- 8	- 0.3
Piedmont	1,723	1,636	- 87	- 5.0
Mountains	<u>418</u>	<u>573</u>	<u>+ 155</u>	<u>+ 37.1</u>
Total	4,459	4,519	+ 60	+ 1.3
<b>Hardwoods</b>				
Coastal Plain	2,237	2,813	+ 576	+ 25.8
Piedmont	2,904	3,840	+ 936	+ 32.2
Mountain	<u>2,466</u>	<u>3,856</u>	<u>+ 1,390</u>	<u>+ 56.4</u>
Total	7,607	10,509	+ 2,902	+ 38.1
Grand Total	12,066	15,028	+ 2,962	+ 24.6

Table 16. - Cull Trees by Softwood and Hardwood and Region  
1940 and 1957, Million Cubic Feet

<u>Species Group</u>	<u>1940</u>	<u>1957</u>	<u>Change</u>	<u>% Change</u>
<b>Softwoods</b>				
Coastal Plain	63	71	+ 8	+ 12.7
Piedmont	97	184	+ 87	+ 89.7
Mountains	<u>30</u>	<u>121</u>	<u>+ 91</u>	<u>+ 303.3</u>
Total	210	376	+ 166	+ 79.0
<b>Hardwoods</b>				
Coastal Plain	360	323	- 37	- 10.3
Piedmont	391	638	+ 247	+ 63.2
Mountains	<u>668</u>	<u>1,225</u>	<u>+ 557</u>	<u>+ 83.4</u>
Total	1,419	2,186	+ 767	+ 53.4
Grand Total	1,629	2,562	+ 933	+ 57.3

Table 17. - Number of Sound and Cull Trees, by Region, Million trees, and number per acre

	<u>Coastal Plain</u>	<u>Piedmont</u>	<u>Mountain</u>	<u>State</u>
Sound Trees	2,185,559	3,073,204	1,822,227	7,080,990
Cull Trees	601,730	1,062,394	1,503,528	3,167,652
Total # Trees	2,787,289	4,135,598	3,325,755	10,249,642
Total per Acre	685	663	647	663
Cull Trees per Acre	168	170	292	205

Volume in merchantable trees does not tell the whole story. All trees, by virtue of their growth, start out with many limbs. These limbs result in knots in the trees. Not until the limbs fall off and the knots heal over do we have the clear lumber which has the structural strength (softwoods) and the clear surface (hardwoods) that make it valuable. Quality, or grade, is a function of size as well as good management. Not until a softwood tree approaches 10 inches in diameter and a hardwood tree 14 inches does it begin to put on quality growth.

All hardwood sawtimber was graded in the survey of 1956. Table 18 indicates that we have a very small percentage of our hardwood trees in high quality material. When it is realized that only with good prices are sawlogs above the grade of 3 profitable for factory grade lumber, we appreciate the low state of our timber resources.

Table 18. - Quality of Hardwood Trees - Virginia  
Million Board Feet

	<u>10-14 inches</u>	<u>16 inches and up</u>	<u>All Trees</u>
Grade 1	0	2,105,800	2,105,800
Grade 2	539,800	2,650,700	3,190,500
Grade 3	2,348,300	2,814,900	5,163,200
Grade 4	<u>7,762,700</u>	<u>4,781,700</u>	<u>12,544,400</u>
Total	10,650,800	12,353,100	23,003,900

There is an area where the Forest Survey does not inform us of the condition of our timber stands. It does not tell us of the potential of the trees in terms of future individual improvement nor does it tell us if we have sufficient reproduction to produce future timber crops.

A large but unknown portion of our present hardwood stands is in sprout growth. Most sprout growth will not result in quality timber. Such trees are frequently in clusters of two or more around an old stump. They are subject to rot and do not have the vigor necessary for optimum growth.

Nearly one-fourth of our farm woods are grazed. When woods are grazed reproduction is non-existent or usually of undesirable species. The larger trees become stag-headed, subject to rot and early death from compaction of the soil. The water absorption and retention capacity of the soil is also lowered.

Farm woodlands average 67 acres per farm. Many farms have considerably more and many less. Where the acreage is small, the farmer has a difficult time selling partial cuts. Where the acreage is large, he must

depend on others to do his cutting for him.

Other factors which result in poor or no management of the farm timber crop are lack of interest, lack of know-how, lack of proper equipment, scattered markets and inability to get woods labor.

Most timber buyers want to buy timber by the boundary and cut by destructive methods. Too few are interested in cutting marked timber. If they do, and are not bound by a rigid contract, they frequently will not honor a verbal one.

Landowners on the other hand, will sell without a contract. It is difficult for them to see the value of hiring a consulting forester or a lawyer to help them in a timber sale. Either could frequently save them both dollars and grief.

## Timber Production and Use

Lumber production in the U. S. has changed very little during the past 50 years except during depression periods. Consumption, however, has dropped from 507 board feet per capita in 1905 to 234 board feet in 1956. Increased population is maintaining volume production.

Although lumber production is dropping, this does not mean that non-wood substitutes have taken its place. Wood in physical structure raw materials account for approximately 25% of all construction materials. It is predicted that they will hold their own for the rest of the century at least.

In Virginia, lumber production has been drastically reduced from the beginning of the century. In 1909, we were 9th in lumber production in the United States with a production of about 2 billion board feet or 2½% of the total production for the year. In 1958, we produced less than three-fourths of a billion board feet.

Our pulpwood production, which helps to supply mills in four states besides our own, has increased from less than a million cords in 1946 to approximately 1½ million cords at the present time. The trend is for a continued increase.

Prices of pulpwood have not kept pace with the prices of lumber nor with the price of paper. This is undoubtedly due to several factors - none of which the landowner or the pulpwood cutter can control. These are (1) the abundance of raw material (relatively speaking), (2) unorganized owners and producers (3) lack of competition among buyers.

Other products cut from our forests include veneer logs, poles and piling, excelsior wood, cooperage bolts, ties and props, posts and fuelwood.

Veneer logs, poles and piling are high value products. We can sell more of each if we will grow them. The other miscellaneous products are low value products. Consumption is not a big factor in timber sales.

Virginia is not only a forested state (with twice as much forest land percentage wise as the U. S. and twice the farm forest acreage in comparison with all farms) but also a major manufacturer of wood products. In comparing the wood-using industries in Virginia and the United States with all industries, on a percentage basis we have over twice as many industries and employees and double the payroll. The value added in manufacture to products made from wood is also twice the national average (Table 19).

Table 19. - Comparison of Census Statistics for All Industries and Wood-using Industries, 1954 - Virginia and United States

<u>Industry</u>	<u>Establishments</u> #	<u>Employees</u> #	<u>Payroll</u> \$	<u>Value added</u> <u>to Manufacture</u> \$
Virginia				
All	4,398	239,733	760,454,000	1,629,041,000
Wood-using	2,409	48,954	132,923,000	254,758,000
% of "all"	54.8	20.4	17.5	15.6
United States				
All	286,817	15,651,924	62,993,321,000	116,912,526,000
Wood-using	56,761	1,525,840	5,348,319,000	9,735,763,000
% of "all"	19.8	9.7	8.5	8.3

Virginia's proximity to markets gives her a competitive advantage in selling her furniture, paper and other wood products. Within a 24 hour

truck haul or less live over one-half the population of the United States with over one-half the income. Virginia forests contain almost all of the species of trees needed for almost all products made from wood. As can be noted in Figure 1 most of the large cities of the United States lie within the 24 hour or less truck hauling distance from Virginia. The new Federal highway construction program will cut down the time to move freight from Virginia to other states.

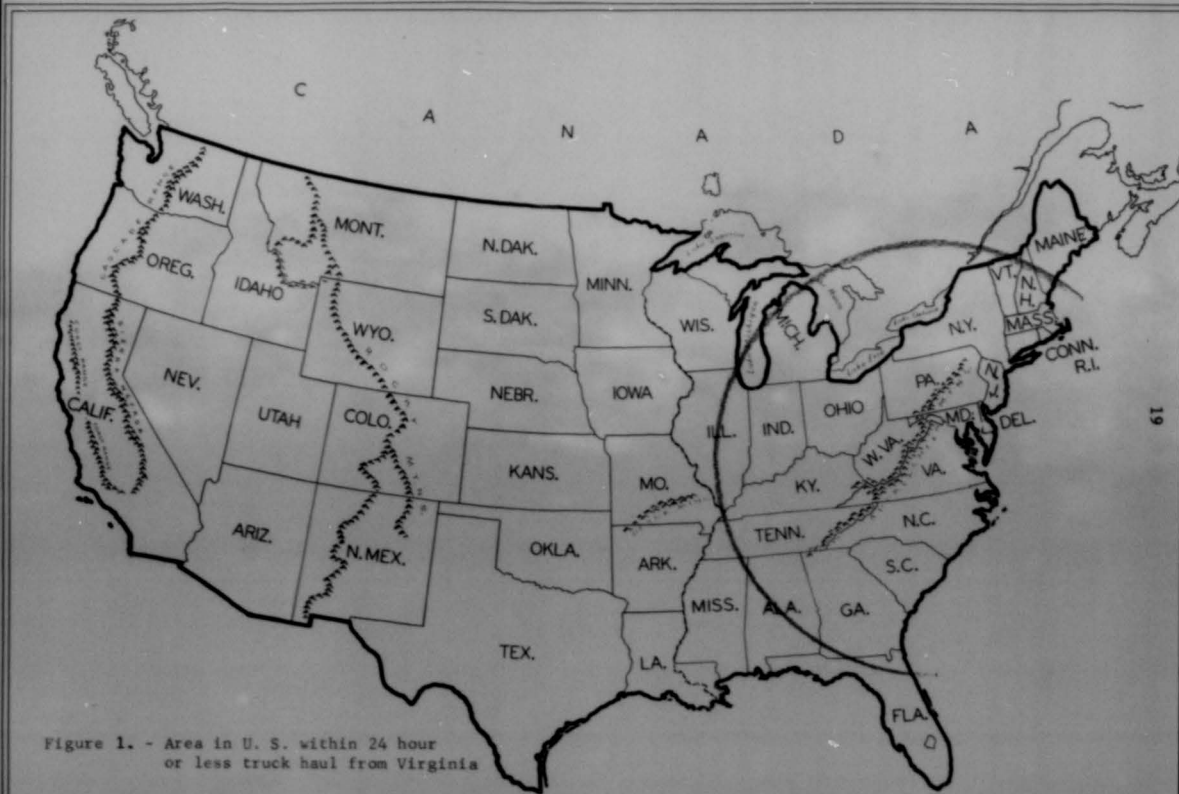


Figure 1. - Area in U. S. within 24 hour  
or less truck haul from Virginia

## FOREST PRODUCTION AND IMPROVEMENT

While Virginia has lagged behind other southern states in the practice of forestry, our timber stands appear to be in about the same growing condition as other southern states. This is undoubtedly because the heavy drain on our forests started somewhat later.

We are not up to other southern states in many of our forest practices. However, we are fast catching up in many fields. Our fire record is very eviable. We have probably almost reached the saturation point for some time in tree planting.

The following tables present some of the tangible evidence of our progress in forest improvement.

Our fire protection system is becoming the envy of the nation. While we can still have bad fire years, as we did in 1952 (Table 20), the quality of our fire-fighting organization and the response of the people to fire protection has eliminated much of the danger from fire. If the fire record of the past 10 years is used as a guide, there is one chance in 12 that any one acre of forest land will be burned over the next 50 years. If the fire record for the past three years can be used as a guide, there is one chance in 57 that any one acre will be burned over in the next 50 years. Part of the success in our maintenance of a low fire record is due to the backing given the forest fire laws in the courts and by juries.

Table 20. - Fire Record - Specified Years - Virginia

<u>Year</u>	<u>Number of Fires</u>	<u>Area Protected Acres</u>	<u>Area Burned Acres</u>	<u>Size of Ave. Fire Acres</u>	<u>% Area Burned</u>
1925	811	9,163,471	128,281½	159.1	1.40
1930	2,554	9,579,224	333,023 3/4	131.5	3.48
1935	1,029	10,723,385	25,498	24.7	.24
1940	2,246	11,928,325	44,322 3/4	19.7	.37
1945	1,465	13,830,651	30,921 3/4	21.1	.22
1950	2,083	13,014,861	19,563	9.4	.150
1951	1,955	13,014,861	15,980½	8.2	.123
1952	2,494	13,014,164	111,571	44.7	.86
1953	2,461	12,976,783	32,762½	13.3	.25
1954	2,318	12,976,783	16,952	7.31	.131
1955	1,506	12,976,783	15,840½	10.52	.12
1956	1,417	12,976,783	9,019	5.17	.07
1957	1,039	12,976,783	3,571	3.44	.028
1958	1,083	14,004,844	4,303	3.97	.031

In tree planting we have lagged behind the other southern states.

At the end of 36 years of growing and distributing forest tree seedlings we had but 33,000 acres of successful plantations. During the past 10 years we have planted 148,958,000 trees. 90,049,000 have been planted in the past three years. If all the trees planted during the past 10 years resulted in successful plantations, we should have an additional 150,000 acres of plantations.

Tree planting is likely to range between 40 and 45 million per year for the next few years unless some new incentive is devised. This will be considerably less than many other southern states.

The ACF has been progressively more helpful in bringing more forest land under management. This is most likely due to the 80% cost share payments being made since 1955. There has also been a greater emphasis made on the use of the ACF for forestry practices since that time. Table 21 shows the use of the ACF in forestry work for 1953-1957.

Table 21. - Forestry Practices Under the Agricultural Conservation Program - Virginia

<u>Year</u>	<u>Number of Farms</u>	<u>Acreage Planted or Improved</u>	<u>Forestry Payments as % of Total</u>
1953	117	918	0.2
1954	221	2,238	0.5
1955	671	10,866	2.4
1956	1,019	13,950	4.1
1957	1,150	14,471	4.0

The cooperative Forest Management program (sponsored by the Federal Government and operated by the Virginia Division of Forestry) is another aid to good management. It has been in operation since 1957 and emphasizes the marking of timber before it is cut. An average of 30,000 acres per year is marked under the program.

The pulp and paper mills also have conservation foresters who mark timber in addition to their duties as timber buyers. These men are also helpful in assisting in demonstrations, field days and other educational activities.

### Major Problems

The growing, harvesting, processing and marketing of forest products are but separate phases of a one industry. A weakness in one phase results in problems in another. For example, low volume of growing stock results in high harvesting costs. Loggers, therefore, use the quickest and cheapest (in their opinion) means of harvesting timber. This too, frequently results in complete ruination of the future growing stock. Most sawmills are poorly equipped and insufficiently operated. Therefore, they must pay low stumpage prices. Their poor quality output brings low returns. A vicious circle results.

For too long extension has concentrated on the growing of timber. If forestry is to succeed, the problems of the whole industry must be faced. This does not mean that the entire job is the responsibility of extension. The extension program is still education. It must, however, encompass the whole field of forestry, not just the timber growing phase. Problems solved in one area will help to solve problems in others - as well as encourage and make work in the other fields more attractive.

The major problems holding back a healthy forest economy are as follows:

1. The farm woods is not considered one of the farm crops. Most farm management plans leave our forest land as one of the possible sources of income.
2. Land no longer used for crops or pasture is left to be seeded in by whatever woody plants are available as a seed source.
3. The growing stock on the average wooded acre is of low quality, has a large percentage of cull trees and is too low in volume for optimum growth returns. This is particularly true of hardwoods.
4. Most timber is cut without any consideration for the remaining growing stock or for the regeneration of a new stand.

5. Large acreages of cut-over land are growing back to inferior species, sprout growth and otherwise undesirable material.
6. Too many landowners do not have the ability, the interest, the equipment nor are they able to hire labor to do woods work.
7. Timber operators are not forestry conscious nor do they have any interest in the forest land from which they cut timber. They are unskilled in good forestry practices, a knowledge of costs of harvesting timber and are frequently operating on too limited capital to carry on a progressive operation.
8. Most small operators are also timber operators. Frequently they handle both the cutting and milling operations. Their technical and managerial skill is limited. They operate on too little capital and feel no responsibility for their future timber supply.
9. Utilization of the wood in the tree is poor, beginning at the time the tree is cut and frequently carrying through to its ultimate use.
10. Markets for thinings, some species, small quantities of merchantable species and low grade material do not exist. This is true of some localities and for most hardwood species.
11. Landowners do not know the location of the best markets for the material they have to sell, small operators may not know specifications or markets for select products. Manufacturers often have difficulty in getting the quantity and quality of the material they need.
12. The consuming public has little knowledge of species, quality and specifications of the timber it uses. The postwar boom created a sellers market that has lowered public respect for wood as a building material. This in turn has created a market for many wood substitutes.
13. War-related, recreation and wildlife values are not being given proper consideration in timber management.
14. The public does not realize the importance of good forest management to the economy of the state.
15. Most county agents do not feel competent to appraise the forestry situation in their counties, to develop forestry programs or to give simple advice on forestry practices.

Work to be done and Methods of Procedure

Objective 1. To improve forest management

Methods to be used:

1. Continue the establishment of forest demonstration woodlands integrated into farm management plans. Use them for forestry tours, field days, etc. Encourage their use by other agencies.
2. Continue the forestry clubs which have been in operation for the past six years (in cooperation with paper mills and Virginia Division of Forestry).
3. Organize a series of forestry field days centered around equipment to be used for farm forestry operations.
4. Continue to encourage the use of the service work of the Virginia Division of Forestry.
5. Continue to encourage the use of the forestry practices of the Agricultural Conservation Program and the Soil Bank.
6. Prepare a set of posters to bring good forestry practices and aids to forestry to the attention of landowners.
7. Work with timber and sawmill operators to teach them how to carry out good forestry practices while logging.
8. Hold a series of schools, statewide on tree planting, thinning and forest improvement practices.
9. Work with Rural Development specialists in developing forest industries and county - wide forestry programs.
10. Work with county agents in organizing and carrying out forestry programs developed by county extension forestry committees.
11. Prepare appropriate subject matter material to help carry out objective 1.

Objective 2. Work with Timber and Sawmill Operators to Improve their Harvesting, Processing and Marketing

Methods to be used:

1. Hold schools in cooperation with the Lumber Manufacturers Association of Virginia to teach better harvesting methods, improved methods of sawing, how to grade logs and lumber.

2. Make a study of woods and sawmill waste and the possible markets for waste material. This will be done in cooperation with Agronomy, Poultry, Dairy Science and Agricultural Engineering.

3. Prepare appropriate subject matter material to help carry out objective 2.

Objective 3. Provide information to landowners on specifications and markets for their raw materials and to sawmill operators on specifications and markets for their raw materials

Methods to be used:

1. Prepare an AMA project request to provide information to farmers and sawmill operators on available markets for forest products and thereby assist wood-using industries in obtaining raw materials and outlets for lumber.

Objective 4. Provide the consuming public with information on specifications of timber used in home construction and protection needed to prevent decay and other damage

Methods to be used:

1. Radio and TV programs.  
2. News releases.  
3. Prepare appropriate subject matter material.

Objective 5. Teach the public the importance of good forest management in the economy of the State

Methods to be used:

1. Youth program

a. 4-H clubs

- (1) Expand 4-H project material.
- (2) Improve the awards program to encourage participation.
- (3) Continue to encourage county-wide forestry projects.
- (4) Encourage greater participation in the 4-H forestry demonstration program.
- (5) Establish father & son 4-H forestry contests on State-wide basis.

(6) Establish forestry judging contests.

(7) Teach forestry at 4-H camps.

b. School Children

(1) Continue to provide subject matter material for classroom use.

(2) Work with Department of Education in preparation of subject matter material for their forestry judging contests.

(3) Prepare additional material for classroom use.

c. Adult Groups

(1) Prepare subject matter material based on Timber Resource Review and Forest Survey for talks and news articles.

(2) Plan series of meetings to present the results of the 1956 Forest Survey to and Timber Resource Review to lay groups (under consideration only).

(3) Encourage speaking engagements before specialized groups such as Chamber of Commerce, bankers, etc.

(4) Prepare series of TV programs on the values and uses of our forests.

(5) Assist in teaching forestry at Teachers' Conservation Short Course (VPI, Virginia State College and William & Mary College)

(6) Work with Home Demonstration Agents on forestry study programs for Home Demonstration clubs.

Objective 6. To give extension personnel competence in appraising forestry situations, the ability to conduct forestry programs and the knowledge to give advice on simple forestry problems.

Methods to be used:

1. Conduct forestry training courses for all agents. These should be held annually until all agents are given training.
2. Encourage forestry participation at district training meetings.

3. Keep agents up to date on new developments in forestry through news letters.

#### Results Expected and Methods of Measuring

Based on past experience progress will be slow for most of the objectives. Results will be difficult to measure. This is especially so because of the many agencies contributing to forestry education. No one group can determine the proportionate effect of his work on the overall program. There is some statistical evidence of progress which can be shared:

(1) Acres of forest establishment or improvement under the ACP, (2) Management plans prepared and volumes of timber marked by service foresters, (3) number of trees planted and (4) acreage planted to trees under the Conservation Reserve of the Soil Bank program.

Within extension forestry's exclusive field the number of 4-H projects taken and completed, the number of 4-H camps attended and the number of participants in 4-H forestry demonstrations can be used to evaluate results.

On the county level encouragement given to forestry through extension forestry committees, development of forestry programs and participation by landowners can be used as a measure of progress.

The most tangible measurements, which must also be shared with other agencies, is the report of forest conditions as determined by reinventories by the National Forest Survey. These are expected to be made every eight or nine years in the future.

## V. Projected Program Needs

There are several long term objectives which need attention. Because the time is not right, time is not available to work on them or for other reasons they must wait for a more propitious time to work on them.

They may be cataloged as follows:

1. The development of marketing facilities whereby small quantities of a variety of products can be assembled at specific points for consolidation into marketable quantities.
2. Better coordination of the activities of the various forestry agencies and groups in the State.
3. Better communication between the sawmills and paper mills of the state to coordinate their activities and to solve mutual problems.
4. The development of methods for easier and cheaper harvesting of forest products.
5. Encouragement by users of low grade forest products to landowners by purchasing material from managed forests rather than on the open market.
6. Providing seminars or short courses for professional foresters to keep them abreast of latest techniques and developments in forestry.

Methods to be used for meeting these objectives will be considered.

Information will be sought which may help to get a better understanding of these problems and methods in other areas which may have been used to solve them.