# FORESTRY ACCOMPLISHMENTS

## *in southeastern Ohio under the U.S. Agricultural Conservation Program, 1957-64*


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# THE HILL COUNTRY

THE HILL COUNTRY occupies the southeastern part of Ohio (fig. 1). Here more than one-third of the land area is covered by forests that are privately owned. The extent of this forest area (3.2 million acres), and the forest products from it have a considerable impact on the economic well-being of this region.

Estimates of potential timber growth in the region range from 100 to 300 board feet per acre per year. If the most conservative estimate of 100 board feet per acre is used, the privately owned forest land of this region could provide approximately 320 million board feet annually.

Many markets for this timber already exist. In almost all these markets, quality is stressed. Veneer- and cooperage-quality timber bring premium prices, and good-quality sawtimber finds a ready market. In addition, new wood-using industries are constantly seeking locations that can provide an assured source of quality timber.

Estimates of the growth-cut relationship in the Hill Country indicate that at present less than one-half of the annual growth is being cut. Thus there appears to be no dearth of low-quality timber.

Figure 1.—The Hill Country of Ohio and its subregions.


## A PROBLEM & AN OPPORTUNITY

A basic problem in the Hill Country of Ohio is to up-grade the quality of timber and get trees or other cover back on abandoned land. This is admittedly a long-term venture; but the opportunity to establish a stable wood-using industry that will benefit the landowner, the logger, and the region as a whole, make the task worthwhile.

One answer to this problem lies in the forestry practices portion of the U.S. Agricultural Conservation Program (ACP), which, in conjunction with the forestry service activities of the

Ohio Department of Natural Resources, has provided since 1957 for financial assistance and technical advice in such practices as timber-stand improvement, tree pruning, site preparation for tree planting, fencing of woodlots, and tree planting. The financial assistance is considerable, covering in some cases 80 percent of the cost of the practice. The technical assistance is free for the asking, and this combination of financial assistance and technical advice is available to any forest landowner who is conscientiously interested in returning his forest land to a productive state.

In view of the fact that much of the Hill Country is an area of low income and chronic unemployment and has been designated a part of the Appalachian Region, an analysis of the forestry practices of the ACP in this area is timely. The role of the ACP in economic development and in the long-term task of up-grading the forest resource of the Hill Country should be clearly defined and its rate of accomplishment of the overall task noted. The mere existence of forestry practices in the ACP is no assurance that the problem is being adequately attacked. Further, this analysis is admittedly but one facet of the myriad information that is necessary to formulate an economic analysis of the forest resource.[1]

## THE PROGRAM

The forestry program of the ACP is carried out under practices designated as A-7 and B-10.[2] The A-7 practice provides for cost-sharing assistance in tree planting; the B-10 practice provides for timber-stand improvement, site preparation, pruning, and fencing.

The accomplishments of the program vary annually by county and are determined by the total appropriation for the program, the guidelines established by the national and state development groups, the overall amount of money made available for all conservation practices within a county, and the general outlook of the elected county committee. This committee, which is made up of local farmers, in the final analysis determines the proportions of

[1] A brief analysis for each of the three subregions of the Hill Country is presented in the Appendix.

[2] Descriptions of the A-7 and B-10 practices are presented in the Appendix.

Table 1.—*Accomplishments under forestry practices of the Agriculture Conservation Program in the Hill Country of Ohio, 1957-64*

| Forestry practice | | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | acres | 1,484 | 2,093 | 2,383 | 2,841 | 2,106 | 4,113 | 3,518 | 2,559 | 21,097 |
| Site preparation | acres | 3 | 13 | — | 25 | 69 | 22 | 15 | — | 147 |
| Pruning | acres | 66 | 206 | 53 | 421 | 103 | 104 | 135 | 107 | 1,195 |
| Fencing | rods | 7,873 | 6,122 | 12,802 | 11,262 | 11,850 | 13,450 | 7,896 | 8,065 | 79,320 |
| All B-10 practices | acres | 1,553 | 2,312 | 2,436 | 3,287 | 2,278 | 4,239 | 3,668 | 2,666 | 22,439 |
| | rods | 7,873 | 6,122 | 12,802 | 11,262 | 11,850 | 13,450 | 7,896 | 8,065 | 79,320 |
| A-7 practice | acres | 1,878 | 1,619 | 1,968 | 2,031 | 1,938 | 1,834 | 1,892 | 1,442 | 14,602 |
| Total | acres | 3,431 | 3,931 | 4,404 | 5,318 | 4,216 | 6,073 | 5,560 | 4,108 | 37,041 |
| | rods | 7,873 | 6,122 | 12,802 | 11,262 | 11,850 | 13,450 | 7,896 | 8,065 | 79,320 |

Table 2.—*Total ACP assistance for forestry practices in the Hill Country of Ohio, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | $20,802 | $30,241 | $ 33,525 | $ 34,116 | $ 30,888 | $ 57,728 | $ 51,477 | $38,948 | $297,725 |
| Site preparation | 72 | 92 | — | 64 | 1,451 | 228 | 168 | — | 2,075 |
| Pruning | 1,532 | 3,176 | 972 | 1,296 | 2,381 | 3,056 | 3,556 | 2,645 | 18,614 |
| Fencing | 7,870 | 6,390 | 18,947 | 16,719 | 14,975 | 19,935 | 11,724 | 12,101 | 108,661 |
| All B-10 practices | $30,276 | $39,899 | $ 53,444 | $ 52,195 | $ 49,695 | $ 80,947 | $ 66,925 | $53,694 | $427,075 |
| A-7 practice | 51,314 | 54,317 | 57,302 | 62,271 | 67,777 | 65,806 | 63,236 | 38,183 | 460,206 |
| Total | $81,590 | $94,216 | $110,746 | $114,466 | $117,472 | $146,753 | $130,161 | $91,877 | $887,281 |

the available appropriations that are to be applied to the various practices.

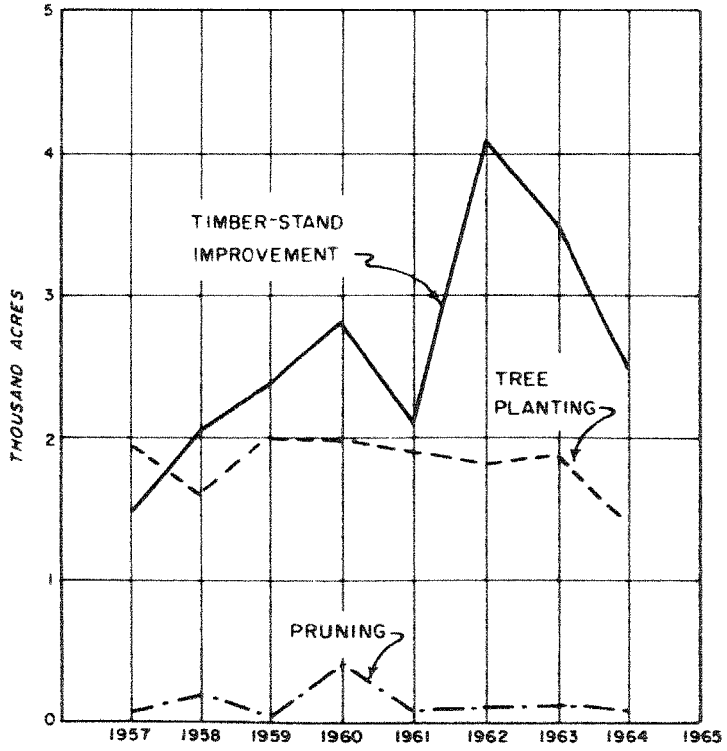
## ACREAGE ACCOMPLISHMENTS

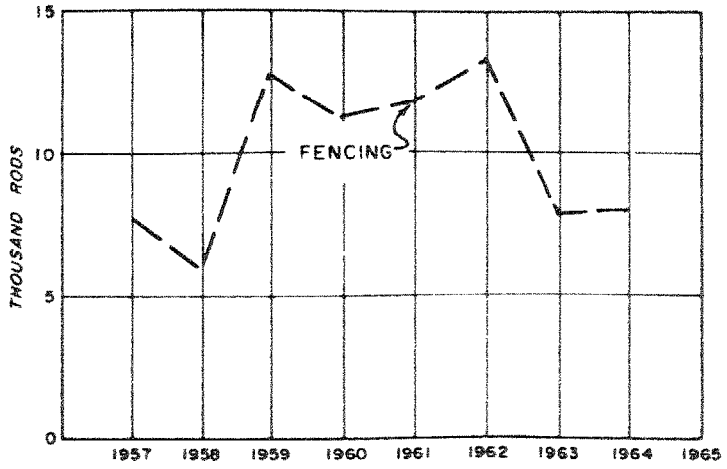
In general, forestry accomplishments under the ACP have increased during the 8-year period 1957-64. Forest improvements were made on a total of 37,041 acres, about 4,630 acres annually (table 1). Approximately 57 percent of this total acreage underwent timber-stand improvement; 39 percent tree planting; 3 percent pruning; and less than ½ percent site preparation. In addition to the acreage improved, more than 79,000 rods of fencing were erected to protect the forest from grazing livestock.

Distinct trends are evident in these accomplishments. Since 1957, the overall trend has been an increase in tree planting and cultural operations. The peak of this increase was reached in 1962 when a total of some 6,000 acres were improved and more than 13,000 rods of protective fencing were erected. However, since 1962 the trend has been downward and the total tree-planting and cultural operations have decreased by some 500 acres and 1,500 acres in 1963 and 1964, respectively.

Though a knowledge of overall trends is of considerable importance, a more concise portrayal of the effect of ACP is revealed in an analysis of the individual cultural operations (fig. 2). In timber-stand improvement work, which has been accomplished on an average of some 2,640 acres annually over the 8-year period, the annual accomplishment has been rather erratic. In contrast, the annual achievements of tree-planting and pruning operations, which average some 1,850 acres and 149 acres, respectively, have remained relatively stable. Fencing, the single feature of the forestry practices whose accomplishment is measured in lineal terms (an average annual rate of some 9,900 rods), exhibited the most erratic record. The greatest increase in fencing occurred in 1959, when a gain of 109 percent over the previous year was made; the greatest lag in fencing occurred in 1963, when the annual achievement diminished by some 41 percent over that of the previous year.

Figure 2.—On-the-ground accomplishments of the forestry practices of the Agricultural Conservation Program in the Hill Country of Ohio, 1957-64.



The erratic annual accomplishments of the various forestry practices underscore the need for vigilance in what must necessarily be a long campaign to return the forests to a more productive state. Thus, another and probably most important question arises: What are the needs of the forests of this area, and to what extent is the ACP meeting these needs?

An answer to the first part of this question has already been recorded in the Ohio Soil and Water Conservation Needs Inventory of 1961, which showed that by 1975 some 2.8 million acres in the Hill Country of Ohio will need conservation treatment (see Appendix III).[3] According to this report, approximately 430,000 acres need tree planting, 1.4 million acres need timber-stand improvement, and about 1 million acres need to be fenced from animals. Commendable as the 8-year achievement of the forestry practices of the ACP may appear, the overall goal set by the Conservation Needs Inventory has not been reached. The 22,000 acres of timber-stand improvement represent only 1.6 percent of the estimated need, and the 14,600 acres of tree planting about 3.4 percent of the need. A comparison of accomplishment and need for fencing is not calculable.

On an average basis, the annual timber-culture achievement on some 2,800 acres represents 0.2 percent of the estimated need, and the annual tree-planting rate of 1,825 acres represents 0.4 percent of the need. Assuming that these annual rates are maintained through 1975, accomplishments under ACP forestry practices will account for only 3.7 percent of the timber-stand-improvement work and 7.6 percent of the tree planting that was recommended in the Conservation Needs Inventory.

## DOLLAR COSTS

A consideration of the dollar amounts involved will provide another measure necessary for an assessment of the costs involved in fulfilling even a small portion of the conservation needs. Total cost-sharing assistance provided by the ACP for the 8-year period amounted to $887,000, of which 52 percent was for tree planting

[3] Reeser, Robert M. OHIO SOIL AND WATER CONSERVATION NEEDS INVENTORY. Ohio Agr. Ext. Serv., Columbus, Ohio. 1961.

under the A-7 practice, 34 percent was for timber-stand improvement, 12 percent for fencing, and 2 percent for pruning under the B-10 practice (table 2). Site preparation accounted for less than ½ percent.

Cost-sharing assistance for tree planting is the greatest expenditure for forestry practices in the Hill Country. It averaged some $57,500 annually, or approximately $31.50 per acre. For the most part, these expenditures have been remarkably stable (table 3 and fig. 3). Since 1962, cost-sharing assistance for tree planting has

**Figure 3.—Dollar cost-sharing assistance for tree planting under the A-7 practice of the Agricultural Conservation Program in the Hill Country of Ohio, 1957-64.**

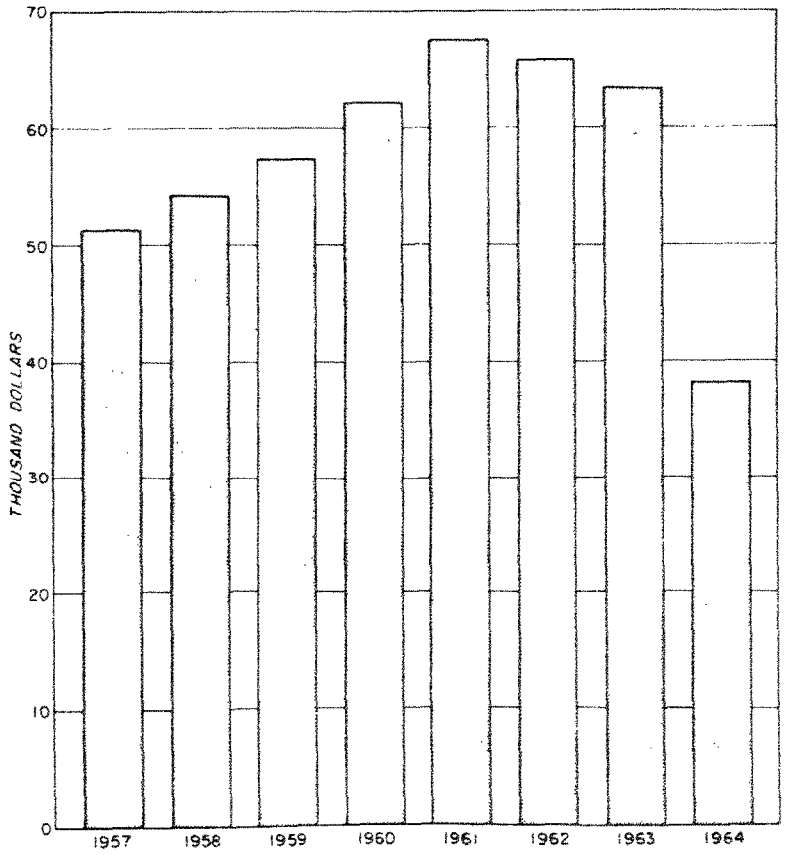


Table 3.—*Annual rate of change of cost-sharing assistance for forestry practices, in percent*

| Year | Tree planting | Timber-stand improvement | Fencing | Pruning & site preparation | All forestry practices |
|---|---|---|---|---|---|
| 1957 | — | — | — | — | — |
| 1958 | + 5.9 | +45.4 | — 18.8 | +103.7 | +15.5 |
| 1959 | + 5.5 | +10.9 | +196.8 | — 70.3 | +17.5 |
| 1960 | + 8.7 | + 1.2 | — 11.8 | + 39.9 | + 3.4 |
| 1961 | + 8.8 | — 9.5 | — 10.4 | +181.8 | + 2.6 |
| 1962 | — 2.9 | +86.9 | + 33.1 | — 14.3 | +24.9 |
| 1963 | — 3.9 | —10.8 | — 41.2 | + 13.4 | —11.3 |
| 1964 | —39.6 | —24.3 | + 3.2 | — 29.0 | —29.4 |

decreased, and there has been a corresponding reduction in acreage planted.

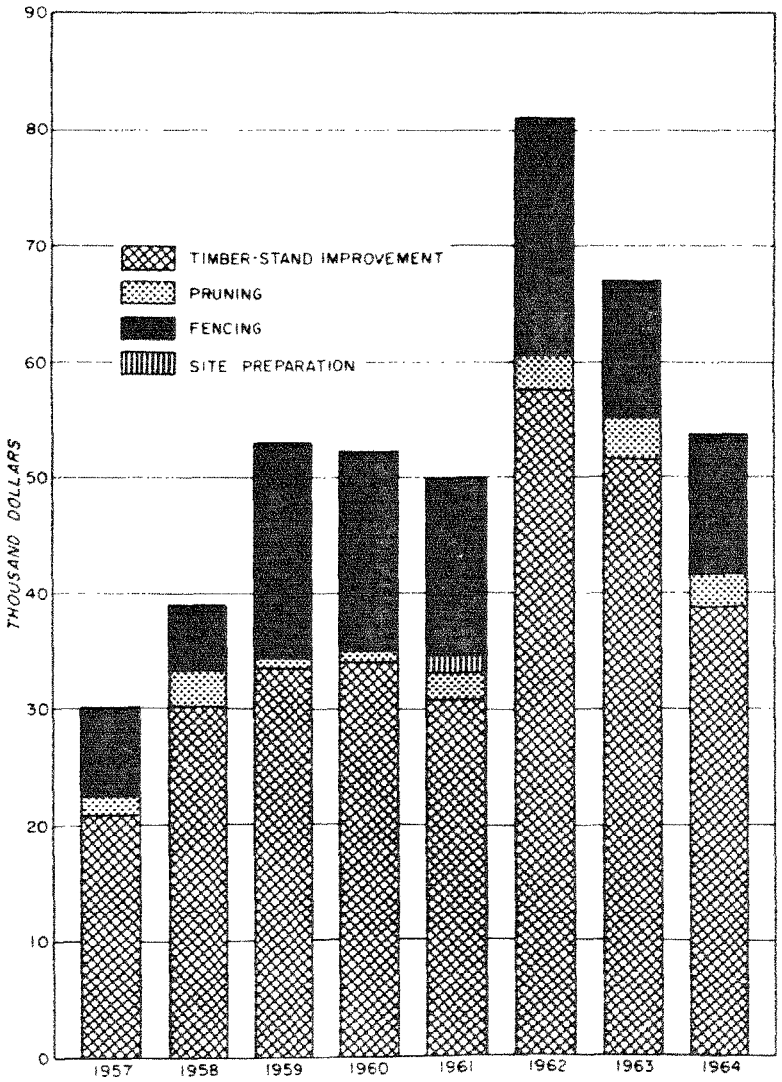
Assistance for timber-stand improvement, the second largest expenditure for forestry practices, averaged some $37,200 annually, or approximately $14.10 per acre. However, these expenditures have been very erratic over the 8-year period, registering annual rates of change in dollar costs as high as 87 percent (table 3 and fig. 4).

Fencing accounted for the greatest percentage of variation in annual expenditures, ranging between a low of $6,400 in 1958 and a high cost of $19,900 in 1962 (table 3). The average annual cost-sharing assistance amounted to $13,600, or about $1.30 per rod.

Pruning and site preparation were relatively minor in expenditures for forestry practices in the Hill Country, averaging some $2,600 annually. This annual cost-sharing assistance also fluctuated over an annual rate of change of as much as 182 percent (table 3). Average per-acre costs for pruning and site preparation amounted to $15.58 and $14.12, respectively.

Total annual cost-sharing assistance for all practices did not vary as widely as assistance for individual practices (table 3). Annual average assistance amounted to $110,910, ranging from a low of $81,590 in 1957 to a high of $146,750 in 1962.

**Figure 4.—Dollar cost-sharing assistance for timber culture operations under the B-10 practice in the Hill Country of Ohio, 1957-64.**




This review of dollar costs illustrates that, although total cost-sharing assistance over the 8-year period was fairly stable, this stability was lacking within the individual practices. To a great

extent, this signifies a need for establishing annual achievement goals for each of the individual cultural practices and, more specifically, goals that are predicated more closely on region-wide needs than on the diversity resulting from participation.

## PARTICIPATION

The accomplishments of the ACP forestry practices can be measured in yet another manner: on the basis of owner participation. On the average, approximately 600 owners, or only 1.7 percent of the forest-land owners of the Hill Country, participated annually in the forestry practices of the ACP (table 4). Some 65 percent of these participants engaged in tree planting while 35 percent undertook timber-culture practices.

Although tree planting accounted for the greatest percentage of participation, the trend exhibited over the 8-year period was definitely downward (fig. 5). It waned from a high of 535 participants in 1957 to a low of 297 in 1964. This reduction in participation, however, was more or less offset by the increase in acreage planted per participant; and, as a result the annual acreage planted has not reflected the downward trend in participation.

In the B-10 practices, the trend in participation was generally upward until 1962; then the course was reversed. Participation in this practice fluctuated from a low of 133 participants in 1957 to a high of 309 in 1962. Approximately 1,700 individuals participated in one or more activities of the B-10 practice over the 8-year period. Some 58 percent of the participants were involved in timber-stand improvement, 31 percent in fencing, and 10 percent in pruning. Only 1 percent undertook site preparation.

One other comparison should be made to place the forestry practices of the ACP in proper perspective: a comparison of the forestry practices with the total gross outlay for ACP assistance (table 5). For the most recent 4-year period, 1961-64, an average of only 6.4 percent of the total gross assistance was applied to forestry practices. It is important to note that in the last year of record (1964) this proportion was reduced to 5.1 percent.

Table 4.—*Number of participants in forestry practices of ACP in the Hill Country of Ohio, 1957-64*

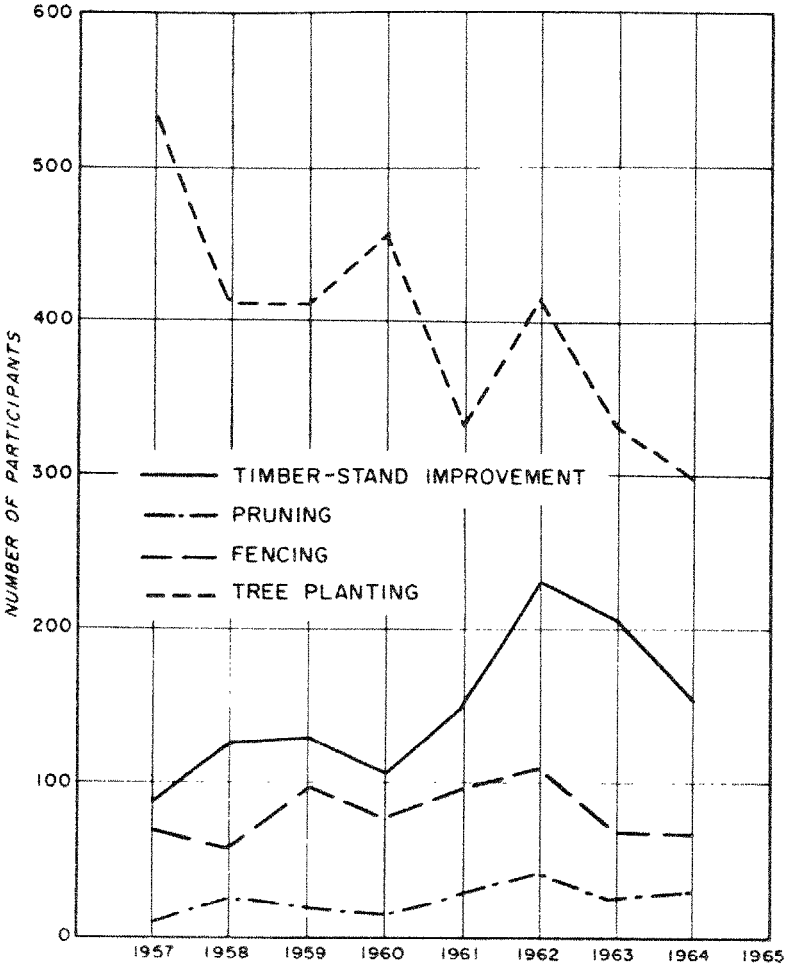
| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | 83 | 125 | 128 | 105 | 151 | 231 | 205 | 151 | 1,179 |
| Site preparation | 1 | 2 | — | 2 | 3 | 4 | 13 | — | 25 |
| Pruning | 11 | 25 | 18 | 14 | 29 | 42 | 25 | 31 | 195 |
| Fencing | 69 | 58 | 96 | 77 | 97 | 110 | 69 | 68 | 644 |
| All B-10 practices[1] | 133 | 170 | 199 | 170 | 229 | 309 | 279 | 223 | 1,712 |
| A-7 practice | 535 | 410 | 411 | 456 | 333 | 416 | 331 | 297 | 3,189 |
| Total | 668 | 580 | 610 | 626 | 562 | 725 | 610 | 520 | 4,901 |

[1] Non-additive because of owners participating in more than one practice.

Table 5.—*Comparison of total gross Agricultural Conservation Program assistance and assistance for ACP forestry practices in the Hill Country of Ohio, 1961-64*

| Forestry practice | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|
| B-10 forestry practices | $ 49,695 | $ 80,947 | $ 66,925 | $ 53,694 | $ 251,261 |
| A-7 forestry practice | 67,777 | 65,806 | 63,236 | 38,183 | 235,002 |
| Total | $ 117,472 | $ 146,753 | $ 130,161 | $ 91,877 | $ 486,263 |
| Total gross ACP assistance | $1,882,547 | $2,048,379 | $1,863,109 | $1,795,086 | $7,589,121 |
| Percent of forestry practice in total gross ACP payments | 6.2 | 7.2 | 7.0 | 5.1 | 6.4 |

Figure 5.—Participation in forestry practices of the Agricultural Conservation Program in the Hill Country of Ohio, 1957-64.




## CONCLUSION

The purpose of this article has been to define the gap that exists between the accomplishments of the Agricultural Conservation Program and the estimated need for accomplishment by 1975 as presented by the Conservation Needs Inventory. Of necessity it has been descriptive rather than definitive. However, it presents a detailed insight into the costs and accomplishments of

and participation in the program, which till now has not been available.

It should be stated that the ACP, by itself, was never intended to accomplish the entire goal of assisting woodland owners in renewing and improving their timber stands. The anticipated accomplishment of approximately 4 percent of the estimated timber-culture work and 8 percent of the estimated tree planting needed by 1975 must be supplemented by other private and public efforts if the goals are to be reached.

Accomplishments of individual forestry practices have been rather erratic, showing the need for close stewardship of the program if it is to achieve its goals. A desirable degree of stability might be expected in the program if annual goals for the individual timber-culture practices were established on a regional or even a county basis. Furthermore, depending on the kind and extent of the land, there may be sufficient justification for reassessing the emphasis—or lack of emphasis—on forestry practices in the ACP.

■

# APPENDIX



## I

## A SUBREGIONAL APPROACH

The preceding discussion presented quantitative data for the Hill Country of Ohio as a whole. However, even within this 26-county area there are differences that merit consideration from a subregional approach. The quality and extent of open land, which determines in part the need for tree planting; and the quality, age, and extent of the forest, which determines participation in such activities as timber-stand improvement and pruning, are but a few of the items that must be considered in developing a subregional approach.

The benefits that accrue from this more intensive approach warrant the effort. Information derived from such an analysis focuses attention on the requirements of the forest resource of the subregions and the extent to which these requirements are being met. A discussion of the subregions emphasizes changes that occur within the program in a particular subregion.

In this respect, the Hill Country of Ohio can be divided into three distinct subregions: East-Central, Southeastern, and South-Central (fig. 1).

### East-Central Subregion

Although only 29 percent of the land is forested, the estimated conservation needs of the East-Central Subregion are the greatest in the Hill Country. The Conservation Needs Inventory indicates that some 234,000 acres require tree planting, about 631,000 acres need timber-stand improvement, and more than 434,000 acres need fencing. These conservation needs represent about 54 per cent of the tree planting, 46 percent of the timber-stand-improvement work, and 42 percent of the fencing that is recommended in the Hill Country.

Approximately 59 percent of the assistance money appropriated for forestry practices in the Hill Country from 1957 to 1964 was used in the East-Central Subregion. Within the subregion, the conservation improvement effort is almost equally divided among tree planting and cultural operations (tables 6 and 7).

Participation in the forestry practices here is the greatest for any of the subregions, accounting for some 3,000 participants over the 8-year period, or 62 percent of the total Hill Country participation (table 8.)

The relatively concerted effort on forestry practices in this subregion is further demonstrated by the fact that an annual average of 8.3 percent of the total gross ACP cost-sharing assistance for the East-Central Subregion was applied to forestry practices (table 9). This was the highest percentage appropriated for forestry practices for any of the subregions of the Hill Country.

If this effort continues and the average annual rates of achievement are maintained (1,304 acres of timber-stand improvement and 1,140 acres of tree planting), the accomplishments of the forestry practices of the ACP in the East-Central Subregion of the Hill Country from 1958 to 1975 will account for 3.7 percent of the needed timber-stand-improvement work and 8.8 percent of the required tree planting.

### Southeastern Subregion

Approximately one-half of the land area of this subregion is forested; and conservation needs are estimated at 119,000 acres of tree planting, 546,000 acres of timber-stand improvement, and 339,000 acres of fencing. This represents approximately 28 percent of the tree planting, 40 percent of the timber stand improvement, and 33 percent of the fencing that is required in the entire Hill Country according to the Conservation Needs Inventory.

Approximately $29,000 is expended annually for forestry practices, which represents 26 percent of such cost-sharing assistance in the Hill Country (tables 10 and 11). Tree planting, which is the major activity, accounts for about 62 percent of the total assistance; and cultural practices account for the remaining 38 percent.

Only 26 percent of the participants in ACP forestry practices are located in this subregion (table 12). Almost 70 percent of them are engaged in tree planting and 30 percent in cultural practices. An average of 8.0 percent of the total gross ACP cost-sharing assistance is applied for forestry practices (table 13).

If tree planting and timber-stand improvement continue at the same average annual rate of 588 acres and 535 acres, respectively, the accomplishments of ACP since 1958 will account for 8.9 percent of the estimated tree-planting needs and 1.8 percent of the estimated timber-culture operations needed by 1975 in the Southeastern Subregion.

### South-Central Subregion

Despite the fact that this subregion contains more forest acreage than any of the other subregions, the estimated conservation needs are smaller. Approximately 77,000 acres require tree planting, 195,000 acres require

Table 6.—*Total ACP assistance for forestry practices in east-central Ohio, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | $13,192 | $15,462 | $16,752 | $20,967 | $19,823 | $31,272 | $23,425 | $19,354 | $160,247 |
| Site preparation | 72 | 72 | — | 64 | 197 | 210 | 45 | — | 660 |
| Pruning | 911 | 2,611 | 879 | 1,145 | 1,824 | 2,503 | 3,201 | 2,109 | 15,183 |
| Fencing | 5,302 | 3,604 | 10,863 | 7,292 | 7,537 | 13,144 | 5,835 | 5,387 | 58,964 |
| All B-10 practices | $19,477 | $21,749 | $28,494 | $29,468 | $29,381 | $47,129 | $32,506 | $26,850 | $235,054 |
| A-7 practice | 33,923 | 38,630 | 40,847 | 41,457 | 45,136 | 33,704 | 37,435 | 18,949 | 292,081 |
| Total | $53,400 | $60,379 | $69,341 | $70,925 | $74,517 | $80,833 | $69,941 | $45,799 | $527,135 |

Table 7.—*Accomplishments under forestry practices of Agricultural Conservation Program in east-central Ohio, 1957-64*

| Forestry practice | | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | acres | 849 | 965 | 884 | 1,345 | 1,024 | 1,819 | 1,286 | 1,160 | 9,332 |
| Site preparation | acres | 3 | 3 | — | 25 | 14 | 21 | 3 | — | 69 |
| Pruning | acres | 43 | 160 | 48 | 412 | 84 | 88 | 112 | 83 | 1,030 |
| Fencing | rods | 5,302 | 3,604 | 7,290 | 4,936 | 5,987 | 8,779 | 3,890 | 3,591 | 43,379 |
| All B-10 practices | acres | 895 | 1,128 | 932 | 1,782 | 1,122 | 1,928 | 1,401 | 1,243 | 10,431 |
| | rods | 5,302 | 3,604 | 7,290 | 4,936 | 5,987 | 8,779 | 3,890 | 3,591 | 43,379 |
| A-7 practice | acres | 1,287 | 1,114 | 1,390 | 1,233 | 1,211 | 941 | 1,182 | 757 | 9,115 |
| Total | acres | 2,182 | 2,242 | 2,322 | 3,015 | 2,333 | 2,869 | 2,583 | 2,000 | 19,546 |
| | rods | 5,302 | 3,604 | 7,290 | 4,936 | 5,987 | 8,779 | 3,890 | 3,591 | 43,379 |

Table 8.—*Participation in forestry practices of ACP in east-central Ohio by number of farms, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | 55 | 70 | 64 | 63 | 99 | 133 | 96 | 74 | 654 |
| Site preparation | 1 | 1 | — | 2 | 2 | 3 | 1 | — | 10 |
| Pruning | 9 | 20 | 16 | 12 | 24 | 37 | 22 | 25 | 165 |
| Fencing | 48 | 36 | 58 | 35 | 49 | 69 | 39 | 31 | 365 |
| All B-10 practices[1] | 89 | 97 | 109 | 95 | 139 | 186 | 140 | 115 | 970 |
| A-7 practice | 367 | 304 | 310 | 302 | 200 | 244 | 193 | 163 | 2,083 |
| Total | 456 | 401 | 419 | 397 | 339 | 430 | 333 | 278 | 3,053 |

[1] Non-additive because of owners participating in more than one practice.

Table 9.—*Comparison of total gross ACP assistance and assistance for ACP forestry practices in east-central Ohio, 1961-64*

| Forestry practice | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|
| B-10 forestry practices | $ 29,381 | $ 47,129 | $ 32,506 | $ 26,850 | $ 135,866 |
| A-7 forestry practice | 45,136 | 33,704 | 37,435 | 18,949 | 135,224 |
| Total | $ 74,517 | $ 80,833 | $ 69,941 | $ 45,799 | $ 271,090 |
| Total gross ACP assistance | $855,618 | $886,824 | $771,549 | $741,024 | $3,255,015 |
| Percent of forestry practice in total gross ACP assistance | 8.7 | 9.1 | 9.1 | 6.2 | 8.3 |

Table 10.—*Total ACP assistance for forestry practices in southeastern Ohio, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | $ 4,759 | $ 7,779 | $ 7,390 | $ 5,518 | $ 4,179 | $10,603 | $ 9,070 | $ 8,007 | $ 57,305 |
| Site preparation | — | — | — | — | 1,254 | — | — | — | 1,254 |
| Pruning | 621 | 545 | 93 | 151 | 557 | 553 | 240 | 304 | 3,064 |
| Fencing | 1,376 | 1,285 | 4,910 | 4,517 | 5,160 | 4,502 | 3,164 | 2,275 | 27,189 |
| All B-10 practices | $ 6,756 | $ 9,609 | $12,393 | $10,186 | $11,150 | $15,658 | $12,474 | $10,586 | $ 88,812 |
| A-7 practice | 12,453 | 11,678 | 13,391 | 18,064 | 19,686 | 28,958 | 22,664 | 17,560 | 144,454 |
| Total | $19,209 | $21,287 | $25,784 | $28,250 | $30,836 | $44,616 | $35,138 | $28,146 | $233,266 |

Table 11.—*Accomplishments under forestry practices of Agricultural Conservation Program in southeastern Ohio, 1957-64*

| Forestry practice | | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | acres | 348 | 512 | 539 | 380 | 227 | 827 | 722 | 546 | 4,101 |
| Site preparation | acres | — | — | — | — | 55 | — | — | — | 55 |
| Pruning | acres | 23 | 36 | 5 | 9 | 19 | 16 | 8 | 12 | 128 |
| Fencing | rods | 1,379 | 1,198 | 3,387 | 3,030 | 3,987 | 3,065 | 2,160 | 1,515 | 19,721 |
| All B-10 practices | acres | 371 | 548 | 544 | 389 | 301 | 843 | 730 | 558 | 4,284 |
| | rods | 1,379 | 1,198 | 3,387 | 3,030 | 3,987 | 3,065 | 2,160 | 1,515 | 19,721 |
| A-7 practice | acres | 484 | 385 | 479 | 687 | 628 | 818 | 624 | 598 | 4,703 |
| Total | acres | 855 | 933 | 1,023 | 1,076 | 929 | 1,661 | 1,354 | 1,156 | 8,987 |
| | rods | 1,379 | 1,198 | 3,387 | 3,030 | 3,987 | 3,065 | 2,160 | 1,515 | 19,721 |

Table 12.—*Participation in forestry practices of Agricultural Conservation Program in southeastern Ohio by number of farms, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | 21 | 32 | 33 | 18 | 24 | 47 | 32 | 40 | 247 |
| Site preparation | — | — | — | — | 1 | — | — | — | 1 |
| Pruning | 2 | 4 | 2 | 2 | 5 | 5 | 2 | 4 | 26 |
| Fencing | 14 | 12 | 25 | 22 | 29 | 28 | 16 | 13 | 159 |
| All B-10 practices[1] | 31 | 43 | 53 | 37 | 55 | 65 | 44 | 53 | 381 |
| A-7 practice | 138 | 81 | 82 | 130 | 102 | 145 | 121 | 110 | 909 |
| Total | 169 | 124 | 135 | 167 | 157 | 210 | 165 | 163 | 1,290 |

[1] Non-additive because of owners participating in more than one practice.

Table 13.—*Comparison of total gross Agricultural Conservation Program assistance and assistance for ACP forestry practices in southeastern Ohio, 1961-64*

| Forestry practice | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|
| B-10 forestry practices | $ 11,150 | $ 15,658 | $ 12,474 | $ 10,586 | $ 49,868 |
| A-7 forestry practice | 19,686 | 28,958 | 22,664 | 17,560 | 88,868 |
| Total | $ 30,836 | $ 44,616 | $ 35,138 | $ 28,146 | $ 138,736 |
| Total gross ACP assistance | $421,987 | $469,436 | $435,895 | $388,555 | $1,715,873 |
| Percent forestry practice of total gross ACP assistance | 7.3 | 9.5 | 8.1 | 7.2 | 8.0 |

Table 14.—*Total Agricultural Conservation Program assistance for forestry practices in south-central Ohio, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | $2,851 | $ 7,000 | $ 9,383 | $ 7,631 | $ 6,886 | $15,853 | $18,982 | $11,587 | $ 80,173 |
| Site preparation | — | 20 | — | — | — | 18 | 123 | — | 161 |
| Pruning | — | 20 | — | — | — | — | 115 | 232 | 367 |
| Fencing | 1,192 | 1,501 | 3,174 | 4,910 | 2,278 | 2,289 | 2,725 | 4,439 | 22,508 |
| All B-10 practices | $4,043 | $ 8,541 | $12,557 | $12,541 | $ 9,164 | $18,160 | $21,945 | $16,258 | $103,209 |
| A-7 practice | 2,938 | 4,009 | 3,064 | 2,750 | 2,955 | 3,144 | 3,137 | 1,674 | 23,671 |
| Total | $6,981 | $12,550 | $15,621 | $15,291 | $12,119 | $21,304 | $25,082 | $17,932 | $126,880 |

Table 15.—*Accomplishments under forestry practices of Agricultural Conservation Program in south-central Ohio, 1957-64*

| Forestry practice | | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | acres | 287 | 616 | 960 | 1,116 | 855 | 1,467 | 1,510 | 853 | 7,664 |
| Site preparation | acres | — | 10 | — | — | — | 1 | 12 | — | 23 |
| Pruning | acres | — | 10 | — | — | — | — | 15 | 12 | 37 |
| Fencing | rods | 1,192 | 1,320 | 2,125 | 3,296 | 1,876 | 1,606 | 1,846 | 2,959 | 16,220 |
| All B-10 practices | acres | 287 | 636 | 960 | 1,116 | 855 | 1,468 | 1,537 | 865 | 7,724 |
| | rods | 1,192 | 1,320 | 2,125 | 3,296 | 1,876 | 1,606 | 1,846 | 2,959 | 16,220 |
| A-7 practice | acres | 107 | 120 | 99 | 111 | 99 | 75 | 86 | 87 | 784 |
| Total | acres | 394 | 756 | 1,059 | 1,227 | 954 | 1,543 | 1,623 | 952 | 8,508 |
| | rods | 1,192 | 1,320 | 2,125 | 3,296 | 1,876 | 1,606 | 1,846 | 2,959 | 16,220 |

Table 16.—*Participation in forestry practices of Agricultural Conservation Program in south-central Ohio by number of farms, 1957-64*

| Forestry practice | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Timber-stand improvement | 7 | 23 | 31 | 24 | 28 | 51 | 77 | 37 | 278 |
| Site preparation | — | 1 | — | — | — | 1 | 12 | — | 14 |
| Pruning | — | 1 | — | — | — | — | 1 | 2 | 4 |
| Fencing | 7 | 10 | 13 | 20 | 19 | 13 | 14 | 24 | 120 |
| All B-10 practices[1] | 13 | 30 | 37 | 38 | 35 | 58 | 95 | 63 | 369 |
| A-7 practice | 30 | 25 | 19 | 24 | 31 | 27 | 17 | 24 | 197 |
| Total | 43 | 55 | 56 | 62 | 66 | 85 | 112 | 87 | 566 |

[1]Non-additive because of owners participating in more than one practice.

Table 17.—*Comparison of total gross Agricultural Conservation Program assistance and assistance for ACP forestry practices in south-central Ohio, 1961-64*

| Forestry practice | 1961 | 1962 | 1963 | 1964 | Total |
|---|---|---|---|---|---|
| B-10 forestry practices | $ 9,164 | $ 18,160 | $ 21,945 | $ 16,258 | $ 65,527 |
| A-7 forestry practice | 2,955 | 3,144 | 3,137 | 1,674 | 10,910 |
| Total | $ 12,119 | $ 21,304 | $ 25,082 | $ 17,932 | $ 76,437 |
| Total gross ACP assistance | $604,942 | $692,119 | $655,665 | $665,507 | $2,618,233 |
| Percent forestry practice of total gross ACP assistance | 2.0 | 3.1 | 3.8 | 2.7 | 3.0 |

timber-stand improvement, and 264,000 acres require fencing. This represents only 18 percent of the planting, 14 percent of the timber-stand improvement, and 25 percent of the fencing needed in the entire Hill Country.

Only 14 percent of the cost-sharing assistance for forestry practices in the Hill Country is expended in this subregion (tables 14 and 15). Unlike the other subregions, the emphasis is on cultural operations. Some 81 percent of this assistance is utilized for cultural work and only 19 percent for tree planting.

Only 12 percent of the participants in the forestry practices in the Hill Country are in this subregion (table 16). This small number of participants is reflected in the fact that only 3 percent of the ACP assistance for this subregion is applied to forestry practices (table 17).

If the same average annual rate of achievement is maintained (98 acres of tree planting and 965 acres of cultural work), the ACP from 1958 to 1975 will account for 2.3 percent of the estimated tree-planting needs and 8.9 percent of the estimated cultural improvements needed by 1975.

# II

# FORESTRY PRACTICES OF THE AGRICULTURAL CONSERVATION PROGRAM

## A-7 Practice: Tree Planting for Forestry Purposes

Federal cost-sharing will be allowed for the establishment of a stand of trees on farmland for purposes other than the prevention of wind or water erosion. The following are the minimum requirements.

a. The planting must be made in accordance with a plan approved by the local Forest Service representative.

b. Trees must be planted at a rate of at least 680 trees per acre (8-foot by 8-foot spacing or equivalent) and not more than 890 trees per acre (7-foot by 7-foot spacing or equivalent), unless the local Forest Service representative determines that a smaller or larger number is desirable.

c. Plantings must be protected from fire and grazing.

d. Federal cost-sharing may be allowed for permanent fencing (excluding boundary and road fences) where needed to protect the planted area from grazing. Where a fence is necessary, it shall consist of at least three strands of barbed wire or its equivalent, with black locust (or equally durable) posts spaced no farther than 1 rod apart.

e. No Federal cost-sharing will be allowed for planting orchard trees, planting for ornamental shrubs, or planting primarily for Christmas trees.

f. Cost-sharing for replanting may be allowed only when the losses of trees are more than 50 percent due to natural causes over which the farmer has no control, such as extreme drought, insects, diseases, rodents,

or fire, other than that due to owner's carelessness. The Federal cost-share is: (1) 80 percent of the cost, not to exceed $3.60 per 100 trees planted, and (2) $1.50 per rod for fencing.

## B-10 Practices

*Woodland improvement.* — For many of the improvement measures listed below, Federal cost-sharing may be allowed, to obtain a fully stocked woodland of high-quality trees. Any woodland that has a continuous or nearly continuous crown cover and then will be managed primarily for successive forest crops is eligible under this practice.

No Federal cost-sharing will be allowed for any area from which merchantable products are harvested in the process of carrying out the practice, unless the Forest Service representative determines that the primary purpose of the operation is to improve a residual stand of trees. The area must be protected from fire and grazing, and domestic animals must be excluded.

The practice must be carried out in accordance with a plan approved by a local Forest Service representative.

a. *Timber-stand improvement.*—The thinning of dense stands and releasing of desirable seedlings and young trees by removing or killing competing and undesirable vegetation shall be done by cutting, girdling, or by chemical treatment of the diseased, cull, or weed trees or other undesirable vegetation. The proper level of good growing stock must be retained.

b. *Site preparation for natural reseeding.*—Federal cost-sharing will be limited to areas: (1) that have a sufficient number of desirable seed trees for natural reseeding; (2) that will not restock unless brush, dense litter, and other material on the forest soil is broken up or removed so that soil is exposed, and (3) on which the seed trees will be left until the area is restocked.

c. *Pruning coniferous stands.*—Federal cost-sharing for pruning crop trees will be allowed only under the following requirements: (1) pruning all dead branches and all live branches up to one-half the height of the tree but not less than 9 feet and not more than 17 feet; (2) a minimum of 150 and a maximum of 250 trees per acre that are well distributed through the stand and that are judged to be final sawtimber crop trees will be selected for pruning, but no cost-sharing will be allowed for pruning any trees over the 250 maximum; (3) pruning must be done with a saw and cuts must be flush with the main stem of the tree; and (4) shaping and shearing trees within stands to be harvested for Christmas trees are not eligible practices.

Technical forestry assistance must be utilized in selecting crop trees.

d. *Permanent fencing.*—Federal cost-sharing may be allowed for permanent fencing (excluding boundary and road fences) where needed to protect the woodland areas for grazing. Where a fence is necessary, it shall consist of at least three strands of barbed wire or its equivalent, with black locust (or equally durable) posts spaced no farther than 1 rod apart.

The Federal cost-share is: (1) 75 percent of the estimated cost of timber-stand improvement; (2) 75 percent of the estimated cost of site

preparation for natural reseeding; (3) 75 percent of the estimated cost of pruning coniferous stands; and (4) $1.50 per rod for fencing.

## III

# CRITERIA EMPLOYED BY THE OHIO SOIL AND WATER CONSERVATION NEEDS INVENTORY

The conservation needs on forest and woodland deal with the problems associated with the development, protection, and management of the forest and soil resources.

Forest land withdrawn from timber utilization, incapable of yielding usable wood products because of adverse site conditions, or so inaccessible as to be unavailable economically was disregarded, except for measures necessary to protect such areas for watershed, wildlife, or recreational uses, or to protect adjacent productive forest and woodland.

Table 18 shows the acreage of forest and woodland estimated to need treatment in each of the following groups:

a. *Establishment and reinforcement of timber-stand.*—The acreage is made up of three components: (1) land that is expected to shift to forest and woodland from other uses by 1975, except the acreage that should be put in trees to check erosion and the acreage needed for shelterbelts and windbreaks; (2) land that was classified as forest and woodland in 1958 but that was less than 10 percent stocked or was stocked with unsatisfactory species; (3) land that was more than 10 percent stocked in forest and woodland in 1958 but needed reinforcement. Ordinarily this did not include any acreage stocked to 40 percent or more. The acreage estimates include only the proportionate part of the acreage needing reinforcement. For example, a total area of 50,000 acres might need reinforcement but the planting needed to accomplish this would be equal to only 35,000 acres of full-scale establishments; thus the 35,000 acres was the amount included in the estimate.

b. *Improvement of timber stands.* This is the 1958 acreage of forest land on which stand-improvement measures are recommended as feasible under good forest management. Estimates were limited to acreages and timber types expected to return the costs of such improvement within 15 to 20 years.

c. *Protection of timber stand from animals.*—This is the acreage of forest land that in 1958 was not receiving adequate protection from animals, including rodents—land on which protection is considered feasible and practical under good forest management. The estimate includes the need for protection from domestic animals.

Table 18.—*Estimated acreage of forest and woodland in the Hill Country of Ohio that needed conservation treatment in 1952, by subregions*

| County | Establishment of timber stand | Improvement of timber stand | Protection from animals | Total |
|---|---|---|---|---|
| EAST-CENTRAL SUBREGION | | | | |
| Belmont | 28,454 | 56,700 | 12,000 | 97,154 |
| Carroll | 18,629 | 69,300 | 29,500 | 117,429 |
| Coshocton | 25,568 | 84,950 | 66,746 | 177,264 |
| Guernsey | 14,000 | 65,000 | 59,770 | 138,770 |
| Harrison | 21,000 | 20,000 | 27,748 | 68,748 |
| Holmes | 14,050 | 49,158 | 32,000 | 95,208 |
| Jefferson | 28,475 | 70,000 | 25,000 | 123,475 |
| Monroe | 20,707 | 65,838 | 37,000 | 123,545 |
| Muskingum | 20,291 | 70,200 | 77,000 | 167,491 |
| Noble | 22,315 | 41,686 | 31,768 | 95,769 |
| Tuscarawas | 21,000 | 38,400 | 36,000 | 95,400 |
| Total | 234,489 | 631,232 | 434,532 | 1,300,253 |
| SOUTHEASTERN SUBREGION | | | | |
| Athens | 2,000 | 112,000 | 50,000 | 164,000 |
| Hocking | 5,000 | 74,022 | 57,710 | 136,732 |
| Meigs | 4,800 | 67,650 | 44,000 | 116,450 |
| Morgan | 29,954 | 47,612 | 35,000 | 112,566 |
| Perry | 18,000 | 45,860 | 55,036 | 118,896 |
| Vinton | 15,000 | 87,800 | 7,500 | 110,300 |
| Washington | 44,067 | 110,714 | 90,089 | 244,870 |
| Total | 118,821 | 545,658 | 339,335 | 1,003,814 |
| SOUTH-CENTRAL SUBREGION | | | | |
| Adams | 1,000 | 14,000 | 34,676 | 49,676 |
| Gallia | 14,000 | 25,000 | 40,000 | 79,000 |
| Highland | 7,500 | 12,510 | 25,020 | 45,030 |
| Jackson | 6,000 | 13,500 | 12,574 | 32,074 |
| Lawrence | 12,000 | 9,000 | 33,000 | 54,000 |
| Pike | 14,000 | 30,000 | 22,000 | 66,000 |
| Ross | 20,300 | 40,500 | 81,000 | 141,800 |
| Scioto | 2,350 | 50,000 | 16,000 | 68,350 |
| Total | 77,150 | 194,510 | 264,270 | 535,930 |
| All subregions | 430,460 | 1,371,400 | 1,038,137 | 2,839,997 |

Source: Reeser, Robert M., *Ohio Soil and Water Conservation Needs Inventory*. Ohio Agricultural Extension Service.