

**Proceedings of the
SYMPOSIUM ON
INTENSIVE CULTURE OF
NORTHERN FOREST TYPES**



**USDA FOREST SERVICE GENERAL TECHNICAL REPORT NE-29
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**FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE
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FOREWORD

THE NORTHERN FOREST TYPES constitute a vast natural resource for the United States and Canada. For instance, in the eastern United States there are more than 10 million acres of commercial forest land supporting spruce and fir types alone. The magnitude and variety of this resource is such that treating it in any detail at a 3-day meeting was impossible. Rather, the idea that germinated and developed into this symposium was to present a broad picture of the extent of our knowledge of intensive cultural techniques, the status and trends of our research in the northern forest types, and some actual experiences in managing this resource; and to explore those factors that affect our use of the intensive cultural techniques we have at hand.

There is no doubt that we face a new era in the management of northern forests. The production of wood products is no longer the primary objective of many owners, and increased pressure for the social values of our forests is being felt by all landowners. We must recognize these other forest values, which in turn dictates intensification of all aspects of forest management if we are to meet the future demands of a wood-hungry society.

The enthusiastic efforts of the symposium sponsors—the School of Forest Resources, University of Maine; the Maine Bureau of Forestry; the Maine Forest Products Council; and the U.S.D.A. Forest Service—and the individuals behind those efforts, should be commended. Special thanks are due to Great Northern Nekoosa, Inc., and Brooks B. Mills for their help in providing interesting field trips, and to the Casco Bank and Trust Co. for sponsoring the symposium brochure. Also, without the enthusiastic participation of the experts invited to present papers, and the moderators of each session, the Symposium could not have taken place.

—**BARTON M. BLUM**
Symposium Chairman

PUBLISHER'S NOTE

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SYMPOSIUM ON
INTENSIVE CULTURE OF
NORTHERN FOREST TYPES**

*held 20-22 July 1976 at Nutting Hall, University of Maine, at
Orono.*

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- School of Forest Resources, University of Maine
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- Maine Forest Products Council
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EFFECTS OF INCENTIVES PROGRAMS

by

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Abstract

Incentives have played an important role in forestry accomplishments on private forest lands. Direct cost-share assistance programs, such as the Forestry Incentives Program, stimulate additional accomplishments in greater proportion than their actual inputs. Two States currently operate their own "incentives" programs. In addition, the Pacific Northwest Regional Commission has provided funding to supplement Federal cost-sharing in Washington, Oregon, and Idaho.

In 1974 the Forestry Incentives Program treated 257,000 acres on 15,800 separate tracts of forest land. Tract size averaged better than 15 acres with more than three-fourths of the tracts treated exceeding a production capacity of 85 cubic feet/acre/year. Treatment costs are similar to those experienced on industrial and Federal lands.

It is a pleasure to be back in Maine again with old friends. I spent 4 days here in early May visiting some of the woodlands in which we have invested cost-share funds. You currently have here in southern and western Maine a market situation second to none. This is ideal, for it enables a forester to look at all possibilities of getting stand treatments accomplished. But I'm getting ahead of myself. Let's back up a little and get our perspective set on incentives programs in general--what they are--where they came from--how they operate.

Many of our direct "incentives" programs have been in operation for several decades. Programs such as cooperative fire protection and nursery production have been on the scene for more than 50 years. The Agricultural Conservation Program (ACP), under one or more names, has been around since 1936. Forest management assistance, which was formalized by the CFM Act of 1950, really had its beginning in the Norris-Doxey Act of 1937. And the latest, the Forestry Incentives Program (FIP), has been in operation for only a little more than 2 years.

During these years we have come to accept these programs as being basic to the accomplishment of forestry measures on certain private lands. Events over the past few years indicate this attitude may be changing fast. The rescission (and deferrals) requested on FIP and ACP in the past two congressional sessions and the proposed phasing out of the Clarke-McNary Section 2 (CM-2) fire protection funding, along with similar actions in other resource programs, give ample evidence that the Federal role on private lands is being seriously reviewed, and in some areas, questioned as to its propriety or effectiveness. The President's transmittal letter that accompanied the RPA documents to Congress states this in clear and unequivocal terms.

Despite the unprecedented demand for Forestry Incentives Program funds and its accomplishments of the past 2 years in getting tree planting and TSI done on nonindustrial private forest lands, certain groups and individuals insist that direct Federal incentives have no place on private lands. They believe that the unhampered operation of a free market will take care of the demand or need for forestry investments on these lands.

Are such "direct" incentives really necessary? This is not an easy question to answer. Some studies have shown (Yoho and James, 1958) that landowners indicate they would have carried out forestry measures without such assistance. Another recent study (Gregersen, 1975) shows that 41 percent of landowners responding to a questionnaire indicated they could have earned an alternative rate of return without the cost-share assistance. It is difficult to know what a person would have done in a situation he didn't have to face. We do know, however, that when cost-share assistance programs are terminated, such as was the case in 1972, TSI activities on nonindustrial private lands drop drastically. Tree planting activities do not react this quickly. Records show that when REAP was terminated by President Nixon in December 1972, planting and seeding activities did diminish--but only by about 35,000 acres, about 12 percent below the previous year's level. Tree planting activities require pre-planning, matched with the availability of nursery stock, and depending in degree on site preparation. Thus, when cranked-up, tree planting tends to be a more stable operation--not reacting as quickly to short-term fluctuations as is the case with TSI.

It is interesting to note that on the nonindustrial private forest lands tree planting accomplishments reached a peak in 1959 (1,465,000 acres) during the Soil Bank days. There was ample funding from Federal sources and tree nurseries reacted with greatly increased production. As this funding dropped off, an even deeper drop in tree planting activities occurred. By 1962, Federal funding for this purpose had declined to about \$4 million, and tree planting dropped to less than 600,000 acres.

TSI accomplishments peaked in 1958 and declined until 1965, these levels being wholly dependent upon Federal cost-share assistance. So there seems to be little doubt that the presence of Federal incentives payments acts as a catalyst, and in the case of tree planting in a greater proportion than its total amount. The discouraging aspect is that levels of accomplishment for both planting and TSI on these ownerships are woefully below the levels needed--probably even below replacement of current losses. The size of the reforestation and stand improvement job is so immense--and the objectives of owners and constraints facing them are so varied--that a wide variety of approaches (including forest tax relief, loans, insurance, and many other "indirect" incentives) will be needed if these lands are to provide their commensurate share of forest products and services.

Let's take a quick look at some of the direct incentives programs in operation now.

Two States operate their own "incentives" programs

Virginia's RT (Reforestation of Timberlands, 1971) program is restricted to the planting of pine on private lands, both industrial and nonindustrial. It is financed by a levy on the forest products industries. Annual and/or up-to-3-year contracts may be approved. The 1975 planting level under this program exceeded 17,000 acres on 390 tracts of land.

Mississippi's FRDA (Forest Resources Development Act, 1974) program offers both planting and TSI practices on nonindustrial private, State, and municipal lands. It is financed by a special fund which includes the privilege tax on timber and timber products and any monies appropriated therefor. Other provisions closely follow the Federal FIP guidelines, including both site preparation/planting and TSI practices.

Using a somewhat different approach, the Pacific Northwest Regional Commission has granted funds to their three States in the Pacific Northwest (Idaho, Oregon, Washington) to supplement the regular FIP program in that region. The Regional Commission granted \$200,000 to each State to provide incentives to land-owners holding larger tracts than those eligible under FIP and also to assist small forest industries. To date Oregon and Washington have gotten their respective (OFIP and TIP) programs underway, but Idaho is not yet operative.

Perhaps the best known "incentives" program is the ACP (Agricultural Conservation Program). Originally authorized in 1936 as a part of the Soil Conservation and Domestic Allotment Act of 1936, its original intent was to prevent erosion and stabilize rural economies. ACP has been (under a variety of

acronyms) offering cost-share assistance to agricultural producers for a great number of conservation practices. Two forestry practices have been offered along with other county special practices to solve local problems unique to that area. Representative Jamie Whitten, Chairman of the Agriculture Subcommittee, House Appropriations Committee, has testified that more than 7 billion trees have been planted under the ACP since its inception.

In the recent past (1965-1971) funds for forestry practices under the ACP averaged slightly over \$4 million each year on about 380-390 thousand acres. Thirty to 35 thousand landowners were assisted annually by this program. ACP has been unable to forcefully address the backlog in forestry treatments because it is primarily structured for agricultural purposes. In any given year the total amount of funds obligated for forestry purposes rarely exceeded 4 percent of the total national ACP allocation. Usually forestry practices utilized 2 to 3 percent of the budget. This was one of the reasons that a separate cost-sharing program designed specifically to accelerate timber production was necessary.

So now let's take a look at FIP, the newest of the direct incentives programs--what it is supposed to accomplish and how well it is doing to date.

The wording of testimony and the language of the Act make quite clear that the purpose of FIP is timber production. And President Nixon directed that FIP be carried out in a "cost-effective" manner in his message accompanying the legislation (P.L. 93-86). Funds to the States have been allocated on the basis of opportunities for timber production on nonindustrial private tracts less than 500 acres in size. In its first year of operation (1974) Congress did not appropriate any funds for FIP, so ASCS set aside \$9 million from their regular RECP funds to operate the program. This meant that FIP operated under regular program rules that year. With this constraint, it was difficult to optimize timber production goals.

The 1975 FIP funds were truly "incentives" dollars, a hard cash appropriation, "no-year" funds available until expended and with a maximum per person payment of \$10,000/year (as opposed to only \$2,500 maximum under regular program). Fifteen million dollars were made available in May of 1975, and by December of that year these funds were obligated and a backlog of requests in excess of \$8 million existed. The response to FIP has simply been overwhelming.

The Administration requested a rescission of the 1976 FIP funds; Congress refused this proposal; and these monies (\$15 million) were just distributed to the field in late March. An additional \$3.75 million to cover the transition quarter has been made available since July 1 of this year. The current situation on funding is that the Administration did not include funds for FIP in its 1977 budget. The House Subcommittee on Agriculture has just inserted \$15 million in their budget at the time of writing. Now on July 22, I am able to give you an update on its status.

Now let's take a look at what FIP has accomplished along with some indicators of cost-effective performance.

THE 1974 FORESTRY INCENTIVES PROGRAM

Treated		257,000 acres
including	(36%)	100,000 acres of TSI and
	(64%)	157,000 acres of tree planting;
more than		15,800 separate forest tracts
owned by		13,500 landowners

were involved.

Total Federal funds = \$ 8.266 million

Landowner Expend.	=	<u>\$ 3.100 million</u>
TOTAL		\$11.366 million

Considering the four major indexes of cost-effectiveness, 1974 FIP performed well in all.

Tract Size: Seventy-four percent of all the tracts treated were greater than 15 acres in size. In the South, one-third of all treatments were on tracts larger than 51 acres.

Site Productivity: More than 75 percent of all the acres treated under 1974 FIP were on sites capable of producing at least 85 cubic feet/acre/year (1 cord/acre/year). Sixteen percent of sites treated were capable of growing in excess of 121 cubic feet/acre/year. I'm happy to report that the State of Maine topped the Northeastern States in this category.

Kinds of Treatments Applied: Well-recognized practices were applied on the majority of acres treated with 1974 FIP.

The following practices, when applied with reasonable costs, are recognized as yielding favorable financial returns:

Site preparation and planting of southern pines.

Site preparation and planting of red, white, and jack pines.

Precommercial thinning and release in southern pines.

Precommercial thinning and release in maple/beech/birch.

Precommercial thinning and release in Douglas-fir, and ponderosa pine.

These five practices comprised 75 percent of the acres treated in 1974 FIP. There is little doubt that the majority of forest practices utilized in the 1974 FIP were capable of providing good financial returns when properly applied on productive sites.

Treatment Costs: The cost of applying these practices were highly variable between individual States and regions. The national average total cost for site preparation and tree planting was \$52/acre, composed of a

\$37 Federal cost-share, and a

\$15 landowner contribution.

The national average total cost for all TSI measures was

\$30/acre, composed of a

\$22 Federal cost-share and an

\$ 8 landowner contribution.

Costs for a combination of site preparation and planting were lowest here in the Northeast and in the Lake States. Lowest costs for TSI were found in the States of Georgia, Missouri, and Indiana and averaged from \$19 to \$21 per acre.

The average FIP treatment costs are similar to those experienced on industrial and Federal lands. We believe that our costs of installing forestry practices on nonindustrial private forest lands under this program to date are reasonable and prudent.

Of course, a comparison of true cost-effectiveness must include all or most of the indexes above. Our analysis to date shows the FIP to have contributed to the goal of cost-effective timber production.

In closing, I'd like to read you a letter which may typify some smaller private forest landowners' attitudes on incentives and the part they play in profitably growing timber. This letter certainly provides a perspective that foresters and economists often overlook.

Dear President Ford:

I hope you and your family have a very good and successful 1976, especially in November. I am writing directly to you since I am sure you are not aware of certain aspects of the Forestry Incentives Program for 1976.

In Virginia I am a tree farmer, raising loblolly pine, poplar, and native hardwoods on about 300 acres. I bought this land in 1965 for \$30 per acre. It is now worth about \$600-800 per acre. It costs me about \$50 per acre to plant trees and another \$50 per acre to kill the undergrowth two years later. It may cost me another \$25 per acre to kill scrub trees to prepare site for planting.

This means I may have to put in, currently, \$125 per acre for an established acre. I plant 10-20 acres each year. Thus, it will cost me eventually \$1,250 to \$2,400 a year to plant.

I must have this money tied up for 18-25 years in growth till the seedlings become pulpwood. In 18-25 years at 7- $\frac{1}{2}$ percent (which I get at a finance company) the \$1,200-2,400 is worth from \$4,800-9,600. I have been investing that kind of money since 1965, some years less, but averaging that.

Now--I have gotten at least half that money from State and/or Federal programs such as FIP, REAP, and I forget the initials of the earlier program.

I have known for five years it is a bad investment to continue reforestation programs--even with Federal help. But, as FIP is called--INCENTIVE is the word. Like any other human enterprise, a little encouragement has caused me to shut my eyes to the fact my farm could be sold for about \$180,000-\$240,000. If invested, my income would be about \$15,000 per

year--starting NOW, not 18-25 years from now. I want to grow trees, and I want to keep my land in my future and my children's future and in my country's service. Please consider that there are thousands more like me.

Sincerely,

It has been said that there are only two kinds of fools in the world. One says, "It is old and therefore good." The other says, "It is new and therefore better." If forestry on private ownerships is ever to reach its considerable potential, we are simply going to have to take the best from the past and combine these with even better new techniques to create sufficient incentives for the private forest landowner.

The keynote of progress, we should remember, is not merely doing away with what is bad. It involves replacing the best with something even better. We need to keep this in mind as we strive to create a climate in which private forestry can prosper.