

# Comparative Irish and American Hardwood Culture

## *II. The Diversity and Effectiveness of Grant Schemes for Promoting Forestry in Rural Areas of the Midwestern U.S. and Ireland.*

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### Summary

Though farming and forestry have traditionally been antagonistic, current economic and environmental necessities are promoting new partnerships. Reforestation efforts on farmland in the US and Ireland are making effective use of government subsidies to farm owners for planting trees, though significant challenges lie ahead. Analysis of the type and objectives of grant schemes, however, shows differences in Irish and American approaches. Irish grants are much more strongly aimed at promoting the business of forestry and cover a wider variety of costs and related infrastructure. Differentials are included to promote farm-forestry and hardwood planting. American grants, particularly annual payments, are much more of an attempt to control soil and water quality degradation, over-production of commodities, and commodity prices. Future success of these grant schemes in both countries will depend on the forestry community's ability to educate an agricultural population and to accept mixtures of agriculture with traditional forestry.

### Introduction

The return of forest cover to agricultural land is a signal of change. In developing countries, this change is often a decrease in soil productivity, the intrusion of uncontrollable weeds, a change in land tenure, but also a diversification of the cropping system. In industrialized countries, the changes are just as complex, but the conversion to forest is more a recognition of the futility of farming, the loss of a tradition. In contrast to the developing-country farmer who considers trees as another crop or part of a needed fallow cycle, the industrialized-country farmer has spent his farming career removing trees. Thus, we should not expect farmers to quickly embrace tree production in the industrialized world; even though conversion can be quite profitable.

Foresters are little different. Having spent decades lamenting the clearing of forests for agriculture, they are quick to support programmes and legislation promoting conversion back to forest cover. But there are always specific definitions and requirements for this forest cover, reflecting traditional forestry values such as compartmentalized stands or target stocking levels.

This antagonistic nature of traditional farming vs. traditional forestry is heightened by the need for annual income in the rural setting. Thus, annual income should be a strong focus for farm-forestry incentives in addition to support for forest establishment and maintenance. Each industrialized country has different programmes addressing these issues. This paper will compare the approaches taken by the U.S. and Ireland.

### Grant Schemes

Both Ireland and the U.S. midwestern state of Indiana (of comparable land areas) have a variety of grant schemes that promote forestry. These derive from three policy tools, (1) Cost-Sharing forestry practices, (2) Annual Payments for converted acreage, and (3) Tax Incentives to promote and maintain conversion to forest cover.

In the U.S., these tools are implemented in national policy. But also, each state typically has several programmes of its own involving cost-sharing

**Table 1.** U.S. federal and state-level (Indiana) agencies from which forestry assistance is available through forestry or agricultural programmes.<sup>1</sup>

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#### Federal

- USDA Forest Service
  - Stewardship Incentive Programme (SIP)
  - Forest Improvement Programme (FIP)
- USDA Agriculture Stabilization and Conservation Service/Soil Conservation Service
  - Agricultural Conservation Programme (ACP)
  - Conservation Reserve Programme (CRP)

#### State

- Indiana Department of Natural Resources, Division of Forestry
  - Classified Forest
  - Classified Field Windbreak
- Indiana Department of Natural Resources, Division of Fish and Wildlife
  - Classified Wildlife Habitat

#### Industry<sup>2</sup>

- Various Forest Products Companies
  - Cooperative Forest Management Programme
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<sup>1</sup> Adapted from Miller and Seifert (1992).

<sup>2</sup> Though not widely found in Indiana, nearby states with a large industry base may have companies helping landowners by providing seedlings and management services.

**Table 2.** Cost-shared activities for forestry in Ireland and Indiana, USA.

	U.S.	Ireland
<b>Afforestation</b>		
Site Preparation	Yes <sup>1</sup>	Yes
Drainage	No	Yes
Planting	Yes	Yes
Fertilization	Yes	Yes
Fencing	Yes <sup>2</sup>	Yes
Fire Protection	Yes <sup>3</sup>	Yes
Establishment needs after planting	Yes <sup>4</sup>	Yes
<b>Stand Tending</b>		
Timber Stand Improvement (including thinning and pruning)	Yes	Yes
Firebreaks/Reservoirs	Yes <sup>5</sup>	Yes
Reconstitution after damage	Yes <sup>6</sup>	Yes
<b>Forest Roads</b>		
Forest Development Grade	Yes <sup>7</sup>	Yes
Extraction Grade	No	Yes
<b>Harvesting Equipment</b>		
Purchase	No	Yes
Development	No	Yes
<b>Research and Pilot Projects</b>		
Aid to Woodland Associations	Yes <sup>8</sup>	Yes

<sup>1</sup> Both for artificial and natural regeneration in some programmes.<sup>2</sup> Only for protective measures against wildlife damage.<sup>3</sup> Possibly under one programme, but not well used.<sup>4</sup> Varies by programme, 1-4 years of weed control after establishment cost-shared.<sup>5</sup> Possibly under one programme, no reservoir construction however.<sup>6</sup> Emergency timber stand improvement funds available for reconstitution after tornados and windstorms.<sup>7</sup> Funds only available for costs related to road design and layout.<sup>8</sup> A small programme exists within the Indiana DNR Division of Forestry to provide funds to private organizations for Forest Stewardship.

and/or tax incentives. Though control of major programmes resides in Washington, even federal programmes are influenced at the state level by local federal agents or state district foresters responsible for specific counties across each state (Table 1). These agents typically work in concert with each other when applying programmes, crossing governmental levels and agencies. Ireland, of course, is small enough to maintain central control, and forestry programmes are administered by the Forest Service. As a result, the programmes fall under one title and there is little confusion as to what is grant-aided or cost-shared, and when and how a farmer or other landowner obtains government support for forestry. This is a problem in the U.S. where the diversity of programmes (Table 1) and their regulations often

leads to farmer confusion or inaction. Certainly, the government agents and foresters are in place to assist farmers and other rural landowners, but even the civil servants appeal to their superiors for consolidation of programmes. Because many of these programmes are political in nature, there is little hope of a more simplified structure and one of the greatest challenges for U.S. rural forestry will remain one of educating the rural landowner of the options and convincing him of the benefits of maintaining or establishing forests.

In addition to the structural simplicity of the Irish cost-sharing grant schemes, the grants themselves are aimed specifically toward forestry (Table 2). The flexibility of the Irish grant schemes is evident in the broad range of forest activities that are cost-shared. This is particularly critical for Ireland given the largely administrative role of the Forest Service and the corporate role of the semi-state land management entity, Coillte. With this dichotomy, some forest activities would inevitably suffer, for example, research into new forest species or silvicultural systems. The grant assistance for research or "Back-up Measures" provides some funds for private research where government agencies are not likely to invest time or money given their respective missions.

Because of the relative lack of research, particularly in relation to integrated farming and forestry, certain forestry practices have been turned down for grant assistance. For example, silvo-pastoralism is not presently accepted for grant aid in Ireland even though such systems (e.g. pasture under black walnut in the Midwest, U.S.: Kurtz *et al.*, 1984, Campbell *et al.*, 1991) have been shown to be profitable elsewhere and grant-aid documents specifically mention agroforestry. Just as it is difficult for farmers in industrialized countries to accept tree crops, it is perhaps difficult for foresters in these countries to accept and support forestry in settings other than contiguous stands of trees.

Certainly, Ireland should not be singled out. In Indiana, the Classified Forest Act does not provide tax relief to forests that are grazed, even though this research is in place (Kurtz *et al.*, 1984). This, of course, is due to the historical abuse of forests by overgrazing and the reluctance to again introduce livestock to the forest. But this also discourages the practice of cutting silage or hay under trees (and there is substantial literature pointing to the increased quality of forage under scattered trees).

It can also be seen from Table 2, that the Irish go far beyond the U.S. in supporting forestry infrastructure in terms of roads, equipment, and aid to woodland associations and cooperatives. This is due to the Irish focus on forestry development whereas many of the U.S. programmes are for agriculture stabilization of prices, production, or soils (Table 3). Concern regarding overproduction as well as farming of marginal, highly-erodible land has driven farm programme development in the U.S., where forestry is only one of several options for farmers. Within these programmes, a balance

is sought for forest cover vs. non-forest/non-crop cover and thus forestry is always promoted as an alternative for land undergoing conversion. Through these cost-share programmes, Indiana forest cover has risen from 15% of the total land area in the 1930's to 19% today, 6,120 hectares of new forest having been planted in the last 5 years.

The introduction in Ireland of the EC-subsidized Western Package and its replacement, the Forestry Operational Program 1989-1993, have combined with falling returns to farming to stimulate a dramatic increase in planting from 7,459 hectares in 1982 to 22,298 in 1991. While State planting has risen, the main thrust of the improvement has come from the private sector. Enticed by these cost-share programmes, the percentage of total planting undertaken by private investors has increased from 7.9% to 49.7% in the same space of time. This increase has resulted in a change in the type of land being planted. New planting mostly takes place on highly productive, sheltered grass/rush lowlands (Convery and Clinch, *In Press*). The objective stated in Ireland's National Development Plan 1994-1999 is to plant 30,000 hectares per year to the year 2000 (Government of Ireland 1993).

Also of note are the Irish rates for cost-sharing. These are variable by landowner class, with a premium for farmers, farmland, and hardwoods (Table 3). U.S. programmes do not differentiate between landowners and thus are less effective as a rural development tool. Additionally, in the U.S. system, hardwoods are preferred in some programmes, but no additional funds are used to cost share hardwood plantings.

Premiums, or annual payments to farmers are also undertaken in both the U.S. and Ireland, but again, the policy aims are different. In Ireland, the premium goes to farmers who convert land to forestry, and until recently farmers had to meet specific income and residency requirements to ensure that primary farmland and farm income was being diverted to forestry (Table 4). Hardwoods also enjoy a greater subsidy as well as having five extra years of premium payment (Irish Forest Service 1990). Farmers who qualify for cost-sharing automatically qualify for premium payments. The U.S. Conservation Reserve Program is designed only to remove marginal lands from production and to place a permanent cover on these lands to halt erosion and water quality degradation. This is a successful, but expensive programme which provides five extra years of premium payment for the planting of trees rather than a herbaceous cover crop. Thus, in the U.S., only farmers with highly erodible soils on their farms are eligible for annual payments to offset loss of annual farm income due to the planting of trees. And only 2.5% of the over 200,000 hectares enrolled in CRP in Indiana have been planted to trees, approximately 5,200 hectares. Clearly, forest is not the preferred cover for U.S. farmers in the Midwest.

State programmes to promote forest cover have concentrated on property tax relief (Table 5). Unlike Ireland where there is no land property tax, each unit of land in the U.S. is taxed annually based on value and primary

Table 3. Cost-share restrictions for Irish and American programmes.

U.S.	Cost Share Rate	Land Area	Maximum Payments	Other Restrictions/Notes <sup>1</sup>
Agricultural Conservation Programme	65%	0.4+ ha 2+ ha for Timber Stand Improvement 400 ha maximum	£365/ha <sup>2</sup> £6700/year	Timber only one of many objectives and cover types.
Forest Improvement Programme	65%	4+ ha 400 ha maximum	£365/ha £33,333/year	Must be in counties with a minimum forest cover and appropriate soils. Timber management only.
Stewardship Incentive Programme	75%	0.4+ ha 2+ ha for Timber Stand Improvement 400 ha maximum	£420/ha £6700/year	Multiple objectives. 3 additional years of weed control cost-shared at 65%. Must have stewardship plan.
Conservation Reserve Programme	50%	Variable - function of per hectare reimbursement until maximum is reached	£280/ha £33,333/year	Take land out of production, no income allowed. Highly erodible land only. Tree cover for 30 years. Less than 50% conifers allowed, and only for wildlife or nurse crop. No grazing.
<b>Ireland</b>				
Afforestation <sup>3</sup>	Variable – Farmers: 85% Other Landowners: 70% Coillte: <sup>3</sup> 65%	Variable – Conifers: 2+ ha (1+ ha when next to existing forest) Hardwoods: 0.25+ ha	Variable – Non-Ag. land: £900/ha Ag. Land: £1,100/ha Hardwoods: £2,000/ha	Minimum plantation width is 40 metres. Species must be approved. Provenance must be certified for some species. Plantation must be fenced. Must be maintained for 10 years. Conifers must be commercial.

Table 3 (Continued)

Woodland <sup>3</sup> Improvement/ Reconstitution	Variable – Farmers: 85% Other Landowners: 70% Coillte: 65%	NA	Variable – Conifers: £900/ha Hardwoods: £2,000/ha	Hardwood stands mostly / Repair damage from natural causes.
Forest Roads	80%	NA	£12/meter	Must meet Forest Service specifications for plantation development or timber extraction grade.
Harvesting Equipment	45%	NA	Variable – Determined by Minister	Investments in felling, processing, and extraction equipment cost-shared. Equipment development for Irish conditions cost-shared.
Research and Association Aid	60%	NA	Variable – Determined by Minister	Projects selected by contribution to forestry sector development.

<sup>1</sup> Each programme has specifications for minimum stocking and maximum spacings.

<sup>2</sup> An exchange rate of £1 = \$1.50 is used in all conversion calculations.

<sup>3</sup> Coillte is the Irish Forestry Board, a semi-state company.

**Table 4.** Annual payment programs for farmers in Ireland and the U.S.

U.S.	Length of Payment	Amount of Payment	Conditions
Conservation Reserve Programme	Trees – 15 years	Variable – bid placed by farmer; typically £124-165/ha <sup>1</sup>	Highly Erodible Land Land taken out of production: <sup>2</sup> Grasses – 15 years Trees – 30 years  Trees only one option of many cover types. Maximum land area defined by available monies and county-specific soil types. No other cost-sharing allowed in addition to 50% for establishment costs.
<b>Ireland</b>			
Forest Premium Scheme	Conifers – 15 years Hardwoods – 20 years	Variable – Conifers: Non-ag. land: £50/ha Ag. land: £116/ha (1st 8 ha) £86/ha (>8 ha) Hardwoods: £116/ha	Annual off-farm income not more than £13,900/yr. Farmer resides on or near plantation. Maximum amount for conifers is £6,000/year. Must meet standards of cost-sharing grant schemes. No other premiums allowed.

<sup>1</sup> An exchange rate of £1 = \$1.50 is used in all conversion calculations.<sup>2</sup> Though still part of law, long-term removal from production is no longer enforced after payments have ended.

use. Where land is converted to forest or where trees are established as windbreaks, the state reduces the tax liability to the landowner to promote the conversion or retention of forest land. Taxes affect forestry differently in each state as some states have additional requirements (e.g. tax on wood from timber harvests). Unlike Ireland, no felling license is required however. For Indiana forestland owners, this programme is attractive if they wish to retain forest cover long-term. As there is a penalty for withdrawal, many landowners are reluctant to commit their land feeling that this will reduce future options. Also, property taxes are used to fund school systems in the U.S., and Indiana communities with a large forest base closely examine each forest allocation, i.e., there is a counter-incentive for communities to deny land reclassification if possible.

**Table 5.** State of Indiana property tax incentive programmes for forestry.

Program	Land Area	Incentive	Restrictions
Classified Forest	4+ ha	Reduce tax liability to £1.65/ha assessed value <sup>1,2</sup>	Area must be contiguous. No buildings except sawmill. No grazing. Classification remains with transfer of land, penalty for withdrawal. At least 740 trees/ha or 9 square metres/ha basal area.
Classified Field Windbreak	15m x 122m minimum size	Reduce tax liability £1.65/ha assessed value	Free tree seedlings from to state. Spacing 5 x 5m at most. At least 3 rows of trees. Agricultural land only.
Classified Wildlife Habitat	6+ ha <4ha in forest	Reduce tax liability to £1.65/ha assessed value	Balance of land area in wildlife cover or food plots. No crop can be raised.

<sup>1</sup> Actual assessed values for farmland in Indiana range from £13 - 17/ha for taxation purposes. Thus, forestry programmes can reduce taxes by 90%. Farm land prices range from £850 - 4900/ha.

<sup>2</sup> An exchange rate of IR£1 = \$1.50 is used in all conversion calculations.

Investment in forestry in Ireland is exempt from income tax and corporation profit tax, and dividends are tax-free to Irish residents. However, losses cannot be offset against taxable income from other sources. Capital gains from the sale of timber by individuals (not companies) are free from capital-gains tax. Standing timber inherited or received as a gift qualifies

for agricultural relief whereby the value of the property for tax purposes is reduced by the lesser of 50% or £200,000. Forestry is exempt from value-added tax and timber sold, leased, or conveyed with land is not liable for stamp duty (Gillmor 1992).

### Proposed Grant Scheme Changes

Though Indiana and U.S. cost-share programmes change somewhat from year to year, modifications are minor and involve fiscal allocations to states or programmes rather than modifications in programme requirements or restrictions. Ireland's grant schemes, however, are quite dynamic, with improvements implemented during each programme cycle. Grants available to all potential investors in forestry are being increased in the Irish Government's new forestry programme (Table 6). At time of writing, these changes were being proposed to, but not as yet approved by the EC Commission. The largest increase (50%) goes to those planting hardwoods.

**Table 6.** Proposed 1994 changes in Irish farm-forestry programmes pending EC Commission approval.<sup>1</sup>

Proposed Cost-Share Grants (£/hectare)				
Non-Ag. Land:				1,300
Ag. Land:	Conifers	- Diverse <sup>2</sup>		1,800
		- Non-Diverse <sup>3</sup>		1,500
	Hardwoods	- Oak and Beech <sup>4</sup>		3,000
		- Other Spp.		2,400
Proposed Annual Premiums <sup>5</sup> (£/hectare)				
Farmers:	Non-Ag.Land:			130
	Ag.Land:	Conifers	Hardwoods	
		Non-Diverse	Diverse	OakandBeech
				Other Spp.
	Severely Disadvantaged <sup>6</sup>	155	190	235
	Less Severely Disadvantaged	190	220	265
	Non-Disadvantaged	220	255	300
Non-Farmers/Companies:	Non-Ag.Land:	Conifers		80
	Ag. Land:	Conifers		100
		Hardwoods		120

<sup>1</sup> Irish Forest Service 1993b.

<sup>2</sup> Less than 60% Sitka spruce or lodgepole pine (*Pinus contorta* Dougl. ex Loud.), and 10% hardwoods where possible.

<sup>3</sup> Sitka spruce and lodgepole pine.

<sup>4</sup> *Quercus* spp. and *Fagus sylvatica* L.

<sup>5</sup> Farmers - payable for 20 years.

Non-Farmers/Companies - payable for 15 years.

<sup>6</sup> Land quality classifications with higher premiums for better quality agricultural land due to higher opportunity costs.

Premiums are also being increased and lengthened, with an increase in the hardwood premium of more than 100%. The objectives outlined by the government are to increase the area under forestry from 7% to 10% of the total land area by the end of the decade, encourage hardwood planting to enhance the environment, improve the welfare of farmers by diversifying agricultural incomes, create over 600 new jobs, and stimulate rural development (Irish Forest Service 1993a).

### Conclusions

The variety of grant schemes in Ireland and the U.S. has had mixed success in promoting forestry and aiding rural development. This mixed success is despite the fact that timber production is often more profitable. For example, a hectare of crop land will provide a farmer with a gross income of approximately £500 for corn or soybeans in the U.S. After costs, a net income of £50-115 is realized. Annual payments for forestry in lieu of crop income can well exceed this amount (Table 4). Additionally, Christmas tree income can approach £1000/ha/year after 6-7 years where markets are strong (Parker, pers. comm.). The mixed success of the U.S. programmes is in part due to the objectives of policies, which are designed for agriculture problem resolution, and not forestry per se. Many farmers choose alternate land uses which do not commit their lands for long periods of time. This mental transition from an annual crop to a long-rotation crop is difficult for farmers, with outright resistance by some organized farmer groups. Resistance is due to the fear of the loss of private property rights on land that receives government aid. Such fears have been justified where wetlands, highly erodible land, or endangered species have been involved. Beyond these problems is the lack of funds for large-scale programmes to promote conversion of agricultural land to forest land. Again, a significant challenge is education of the rural landowners as to the benefit of forests for economic and ecological reasons. The grant schemes of Ireland, being designed specifically for forestry development, are much more effective in both the public and private sectors. With larger benefits for farmers, farmland, and hardwoods, Irish policies aid in rural development to some extent and also try to address the imbalance of conifers and hardwoods. Despite these policies, however, evidence suggests that Sitka spruce (*Picea sitchensis* (Bong.) Carr.) is still the most widely planted species (Convery and Clinch, In Press), and it remains to be seen whether the substantial increases in the hardwood grants and premiums proposed in the new forestry programme will have any impact. Ireland has the additional handicap of its colonial history and the value-system of the rural population which associates hardwood trees with British rule and land confiscation. Thus, the Irish challenge is also one of education. To help in this respect, there is a need to develop extension materials for landowners willing to plant

conifers and particularly hardwoods. Education and extension will promote forestry in both countries.

But in both countries, promoting forestry will aid those already beginning to undertake such endeavors. These are the innovative farmers, but also the lawyers, businessmen, and other mostly middle-class landowners who have idle investment/family land or whose primary occupation does not require an income from the land. For a farmer to set aside farmland for any length of time precludes an annual income, making any such option unworkable, no matter how attractive the long-term financial gains may be. Short-term income is needed to provide food and shelter for the family. Thus, the forestry programmes in place today in these two industrialized countries will promote forestry over agriculture, but only for those who can afford the conversion. In this regard, the Irish system is much more equitable, as most farmers are eligible for premiums. But for forestry to serve as a true rural development tool, forestry programmes must adapt to allow short-term and medium-term income from the land in concert with long-rotation forest products. Also, systems must be developed, and existing systems implemented, which allow agriculture to mix with forestry in time and space, optimizing the flow of products and cash from a unit of land. These systems are being developed worldwide. The real challenge is to convince traditional farming and traditional forestry advocates that the two can be mixed successfully and be implemented in farm-forestry policy, a formidable task. Simply, forestry as a rural-development tool must consider the farmer as well as the forest.

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