

The Distribution and Productivity of Sitka Spruce in Ireland

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Distribution

SINCE 1955, Sitka spruce has been the most widely planted species in Ireland. Forty-five % of the total area of high forest now comprise Sitka spruce. Northern Ireland has 70 % and the Republic of Ireland 41 % of its total forest area under Sitka. These figures include all plantings up to 1974.

The state administers 95 % of all Sitka spruce plantations while the other 5 % is in private ownership (Table 1).

Almost one-third of the total area of the species, is in the West of Ireland while there is 22 and 24 % in the northern and southern regions respectively. Distribution by county and ownership is given in Table 2.

The age class distribution shows that more than 50 % of the total area of the species is ten years old or under while more than 80 % is under twenty years (Table 3).

Productivity

Sitka spruce has for many years been the most important timber producing species in Ireland. Tables 4 and 5 outline production forecasts for the species from 1980 to 2004 for Northern Ireland and the Republic of Ireland. Volumes are given to 7 cms top diameter,

TABLE 1

Distribution of the total area (ha) of Sitka spruce in Ireland by ownership

	State	Private	Totals
Northern Ireland %	29,560 (20)	2,379 (2)	31,939 (22)
Republic of Ireland %	110,753 (75)	4,368 (3)	115,121 (78)
Totals %	140,313 (95)	6,747 (5)	147,060 (100)

¹ Forest and Wildlife Service, Bray, Co. Wicklow.

TABLE 2

Distribution of the total area (ha) of Sitka spruce by county and ownership

County	State	Private	Total	%
Antrim	5,514	444	5,958	4.0
Armagh	736	59	795	0.5
Carlow	1,493	87	1,580	1.1
Cavan	1,917	92	2,009	1.4
Clare	6,365	322	6,687	4.5
Cork	14,691	511	15,202	10.3
Derry	4,983	401	5,384	3.7
Donegal	11,254	124	11,378	7.7
Down	368	29	397	0.3
Dublin	712	49	761	0.5
Fermanagh	9,663	778	10,441	7.1
Galway	10,118	292	10,410	7.1
Kerry	5,523	74	5,597	3.8
Kildare	472	109	581	0.4
Kilkenny	3,357	77	3,434	2.3
Laois	3,234	193	3,427	2.3
Leitrim	5,115	137	5,252	3.6
Limerick	2,752	95	2,847	1.9
Longford	584	21	605	0.4
Louth	438	24	462	0.3
Mayo	6,394	208	6,602	4.5
Meath	319	57	376	0.3
Monaghan	1,181	87	1,268	0.9
Offaly	1,586	42	1,628	1.1
Roscommon	2,482	105	2,587	1.8
Sligo	3,033	173	3,206	2.2
Tipperary	4,464	139	4,603	3.1
Tyrone	8,296	668	8,964	6.1
Waterford	7,689	325	8,014	5.4
Westmeath	1,268	162	1,430	1.0
Wexford	2,950	228	3,178	2.2
Wicklow	11,362	635	11,997	8.2

under 18 cms top diameter and 18 cms top diameter and over. Volume to 7 cms top diameter includes the subsequent two categories i.e. all volume; 18 cms top diameter is taken as an arbitrary figure to divide pulpwood from sawlog.

Two different policy strategies are evident from the Northern Ireland and Republic of Ireland production forecast estimates. The Northern figures show the influence of a "no thinning" policy. The forecasts for the Republic show that normal thinning is the general practice.

TABLE 3

Area (ha) of Sitka spruce by Age Class, ownership and the percentage of total in Ireland

Age Class Years	Northern Ireland			Republic of Ireland			Totals
	State	Private	Total	State	Private	Total	
1-10	15,125	1,217	16,342	56,664	1,263	57,927	74,269
Percentage	10.3	0.8	11.1	38.5	0.9	39.4	50.5
11-20	9,784	787	10,571	38,230	1,381	39,611	50,182
Percentage	6.6	0.6	7.2	26.0	0.9	26.9	34.1
21-30	3,189	257	3,446	8,674	693	9,367	12,813
Percentage	2.2	0.1	2.3	5.9	0.5	6.4	8.7
31-40	1,042	84	1,126	3,997	411	4,408	5,534
Percentage	0.7	0.1	0.8	2.7	0.3	3.0	3.8
41-50	412	33	445	2,820	208	3,028	3,473
Percentage	0.3	—	0.3	1.9	0.2	2.1	2.4
51+	8	1	9	368	412	780	789
Percentage	—	—	—	0.2	0.3	0.5	0.5
TOTALS	29,560	2,379	31,939	110,753	4,368	115,121	147,060
PERCENTAGE	20.1	1.6	21.7	75.2	3.1	78.3	100.0

Production figures can be affected by changes in felling policy. These changes could include reduction or extension of rotations or alternatively felling when trees reach a certain height.

Mean Yield classes

(1) Northern Ireland

The mean Yield Class for Sitka spruce, derived from sample plots used for forecasting from the 1974/75 Inventory, was 14.8m³/ha/annum.

(2) Republic of Ireland

The mean Yield class for Sitka spruce from the 1968 Inventory of State Woodlands was 14.4m³/ha/annum. This was based on crops planted before 1958. The survey of state woodlands currently in progress covers crops planted from 1958 to 1968. The latest indications are that the mean yield class is higher than 14.4.

The mean Yield class for private woodlands is 17m³/ha/annum.

TABLE 4

Sitka spruce production forecast for Northern Ireland (1000sm³) 1980-2004
(Private woodlands not included)

Year	Thinning Yield (cms diam. top)			Felling Yield (cms diam. top)		
	7	Under 18	18+	7	Under 18	18+
1980	21.9	16.6	5.3	11.0	2.9	8.1
1985	34.4	26.1	8.3	19.6	8.9	10.7
1990	39.6	27.9	11.7	141.4	60.5	80.9
1995	34.7	19.7	15.0	119.0	48.7	70.3
2000	29.8	12.3	17.5	186.0	59.7	126.3
2004	22.6	7.6	15.0	600.1	213.5	386.6

Total Yield (cms diam. top)

Year	7	Under 18	18+
1980	32.9	19.5	13.4
1985	54.0	35.0	19.0
1990	181.0	88.4	92.6
1995	153.7	68.4	85.3
2000	215.8	72.0	143.8
2004	622.7	221.1	401.6

TABLE 5

Sitka spruce production forecast for the Republic of Ireland (1000s m³) 1980-2004
(Figures include forecast estimates for State and private woodlands)

Year	Thinning Yield (cms diam. top)			Felling Yield (cms diam. top)		
	7	Under 18	18+	7	Under 18	18+
1980	241.8	188.7	53.1	47.8	4.4	43.4
1985	410.6	343.0	67.6	172.6	14.6	158.0
1990	591.2	494.4	96.8	193.1	19.2	173.9
1995	766.1	617.4	148.7	182.7	20.9	162.7
2000	951.4	725.2	226.2	205.8	21.8	184.0
2004	1080.8	786.8	294.0	240.0	30.8	209.2

Total Yield (cms diam. top)

Year	7	Under 18	18+
1980	289.6	193.1	96.5
1985	583.2	357.6	225.6
1990	784.3	513.6	270.7
1995	948.8	637.4	311.4
2000	1157.2	747.0	410.2
2004	1320.8	817.6	503.2

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Discussion following the papers of J. O'Driscoll and T. J. Purcell

CHAIRMAN: **K. F. Parkin**

Mr. Mooney stated that over the past number of years some 30% of Sitka spruce seed imported for the Forest and Wildlife Service has been of Southern provenances (Olympic Peninsula) and 70% was from the Queen Charlotte Islands. He inquired whether southern provenances had better form than others. **Mr. O'Driscoll** replied that all provenances displayed a range of stem forms. **Mr. McGlynn** noted that the mean yield class of Sitka spruce was higher in private than in State plantations and argued from this in favour of a greater emphasis being placed on support for private forestry. The **Chairman** made the point that differences in yield class could be explained, in part, by differences in land quality between the public and private sectors. In reply to **Dr. Joyce's** observation on the different thinning strategies adopted in the two forest services, the **Chairman** explained that the Northern Ireland no-thinning policy on deep peat and gley soils was based on consideration of the extraction difficulty encountered on these soils, the cost of thinning operations relative to the returns and crop stability implications. **Mr. McEvoy** commented on the production forecasts presented, saying that predictions could be altered by a change in policy such as reducing rotation length. This course might well prove attractive in the context of stability problems.