F.R.I. PROJECT RECORD

NO. 2470

PERMANENT SAMPLE PLOT SURVEY

RADIATA PINE REGIONAL ANALYSIS

(Experimental Plots)

K.R.N. LAW

REPORT NO. 16 JUNE 1990

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CONTENTS

1.0 INTRODUCTION

This report follows on from earlier regional analyses of radiata pine permanent sample plots. Refer to Report No. 15 of the Stand Growth Modelling Co-operative (Law, 1990) for a description of the method used for analysis. Report No. 15 looked at the growth plots in the PSP system whereas this report looks at the experimental plots in the system.
Table 1 shows the percentage of experimental PSPs in each region as compared to the percentage of total forest area in each region.

Table 1. Percentage of Experimental PSPs and Forest Area

Region	# exp PSPs	# Hectares	% exp PSPs	% Hectares
Northland	537	16 703	18	11
Auckland	530	68 014	18	6
Cent. Nth. Island	958	411 914	32	38
East Cst/H. Bay	163	115 501	6	11
Sthn. Nth. Island	64	79 351	2	7
Nels/Marlborough	234	113 985	8	11
West Coast	266	23 629	9	2
Canterbury	89	51 439	3	5
Otago/Southland	112	91 007	4	9
TOTAL	**2953**	**1 071 543**	**100**	**100**

Other than the Central North Island, Nelson/Marlborough and Canterbury regions there are some significant differences between the percentage of experimental plots and the percentage of forest area in each region. Auckland, in particular, has a much higher proportion of experimental PSPs than it does forest area. Northland and the West Coast also show a similar pattern as opposed to the East Coast/Hawkes Bay and Southern North Island regions which have a considerably lower percentage of experimental PSPs than forest area.

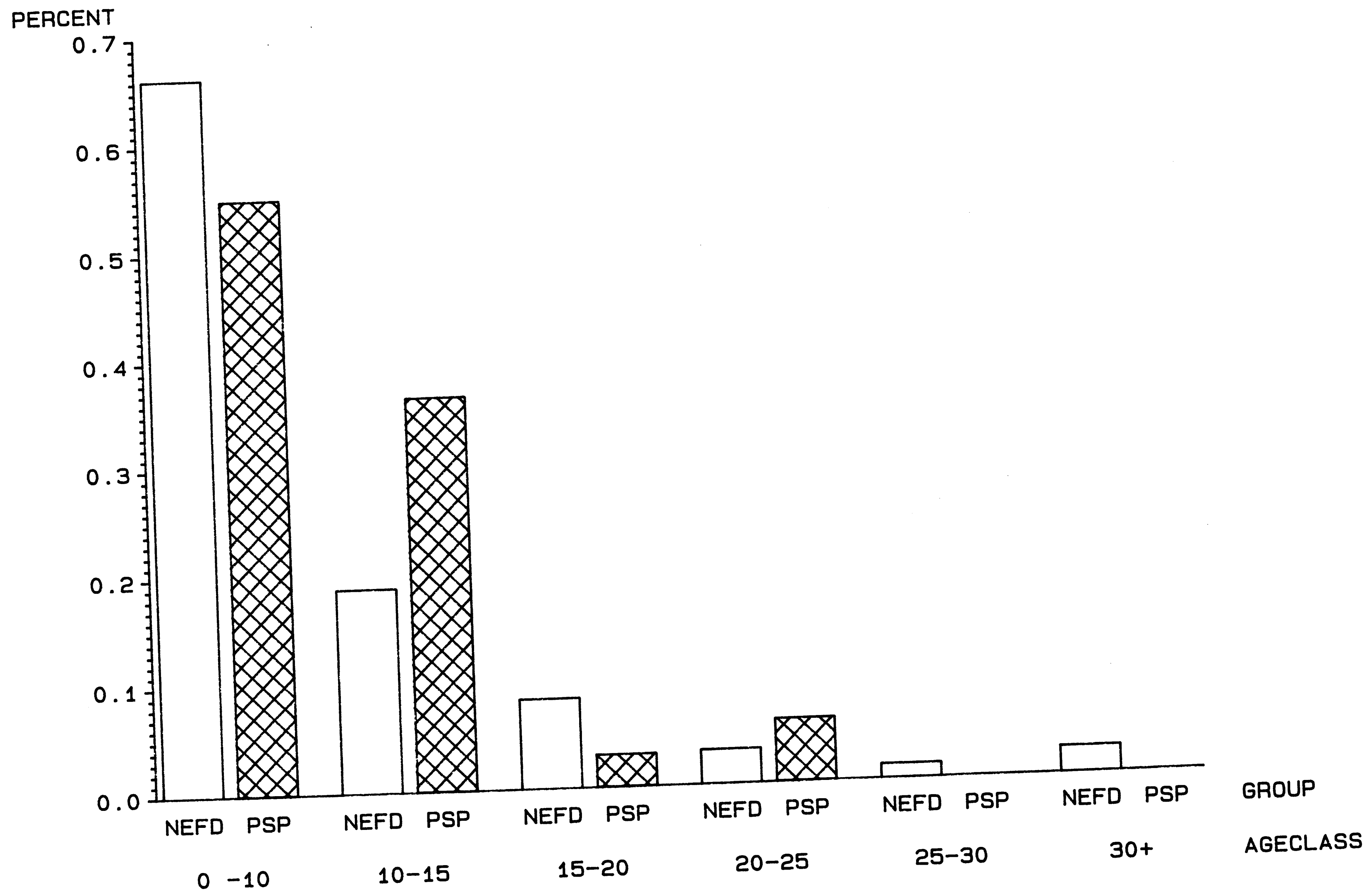
The remainder of this report looks at the radiata pine 'experimental' plots and analyses them in exactly the same way as described for the growth plots (Law, 1990). The experimental plots make up 42% of the total number of current PSPs.

2.0 REGIONAL ANALYSIS

2.1 Northland

PSP SURVEY (Experimental Plots)

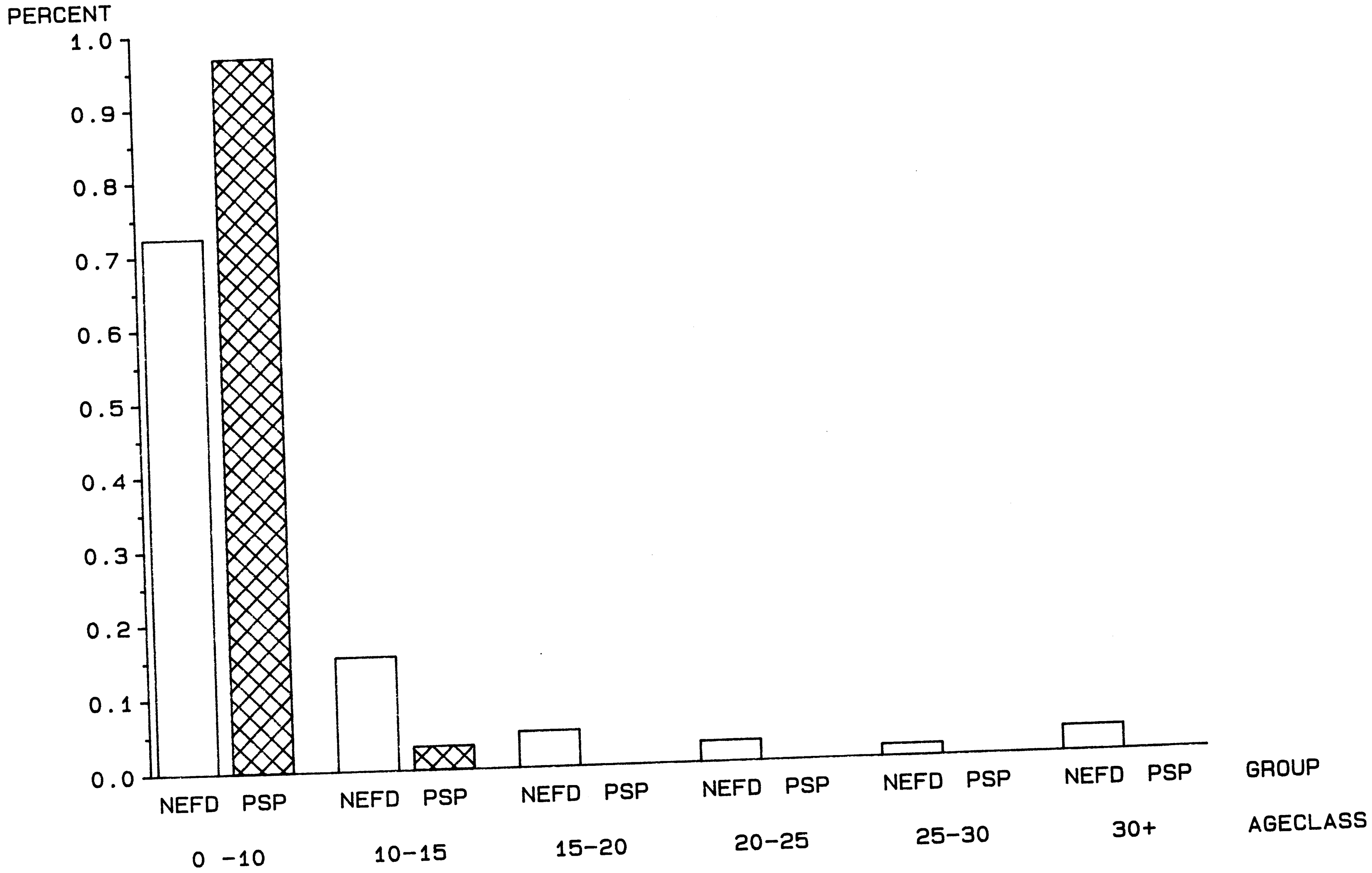
Northland



PSP SURVEY (Experimental Plots)

Northland

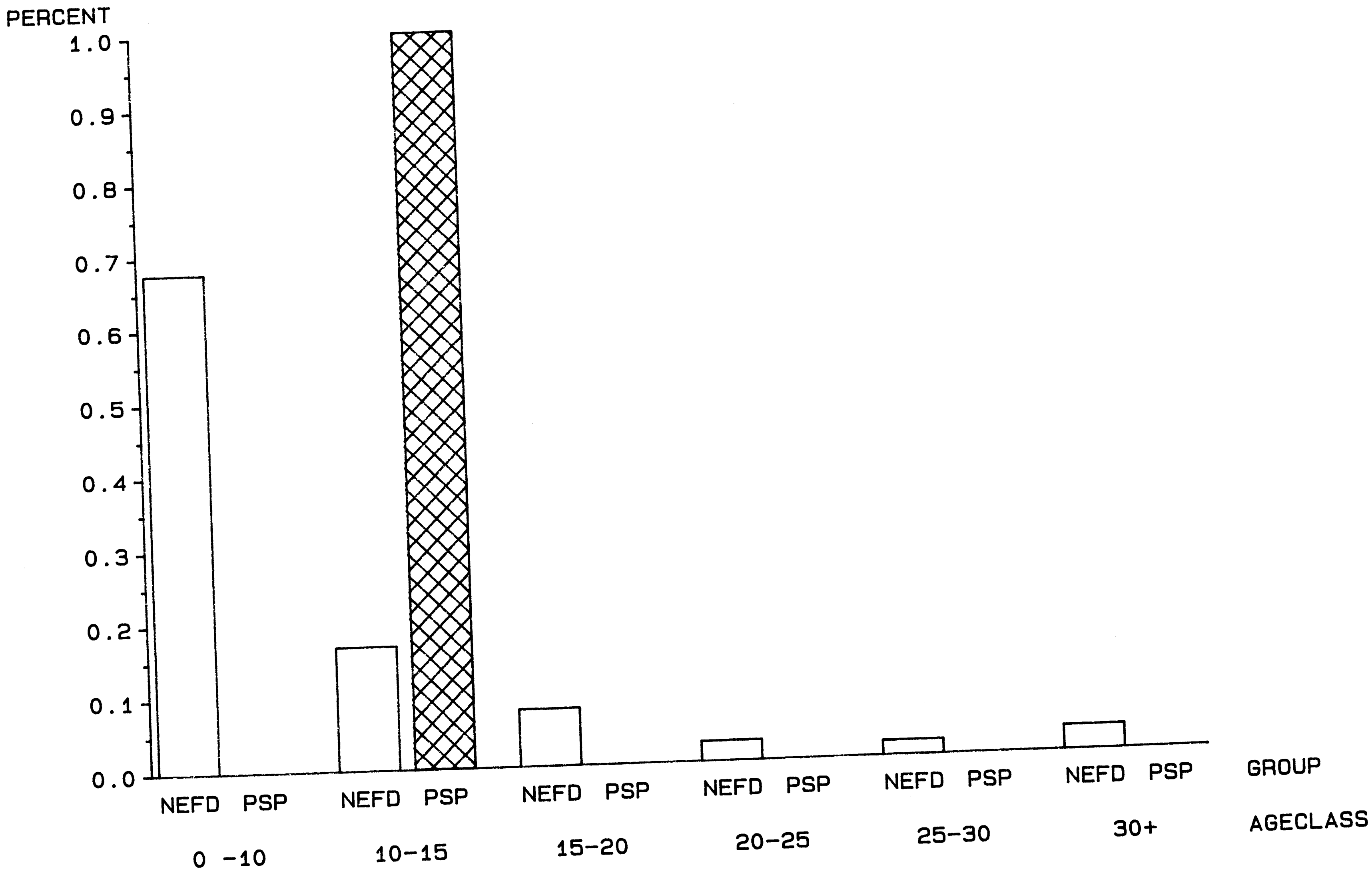
Unpruned & Unthinned



PSP SURVEY (Experimental Plots)

Northland

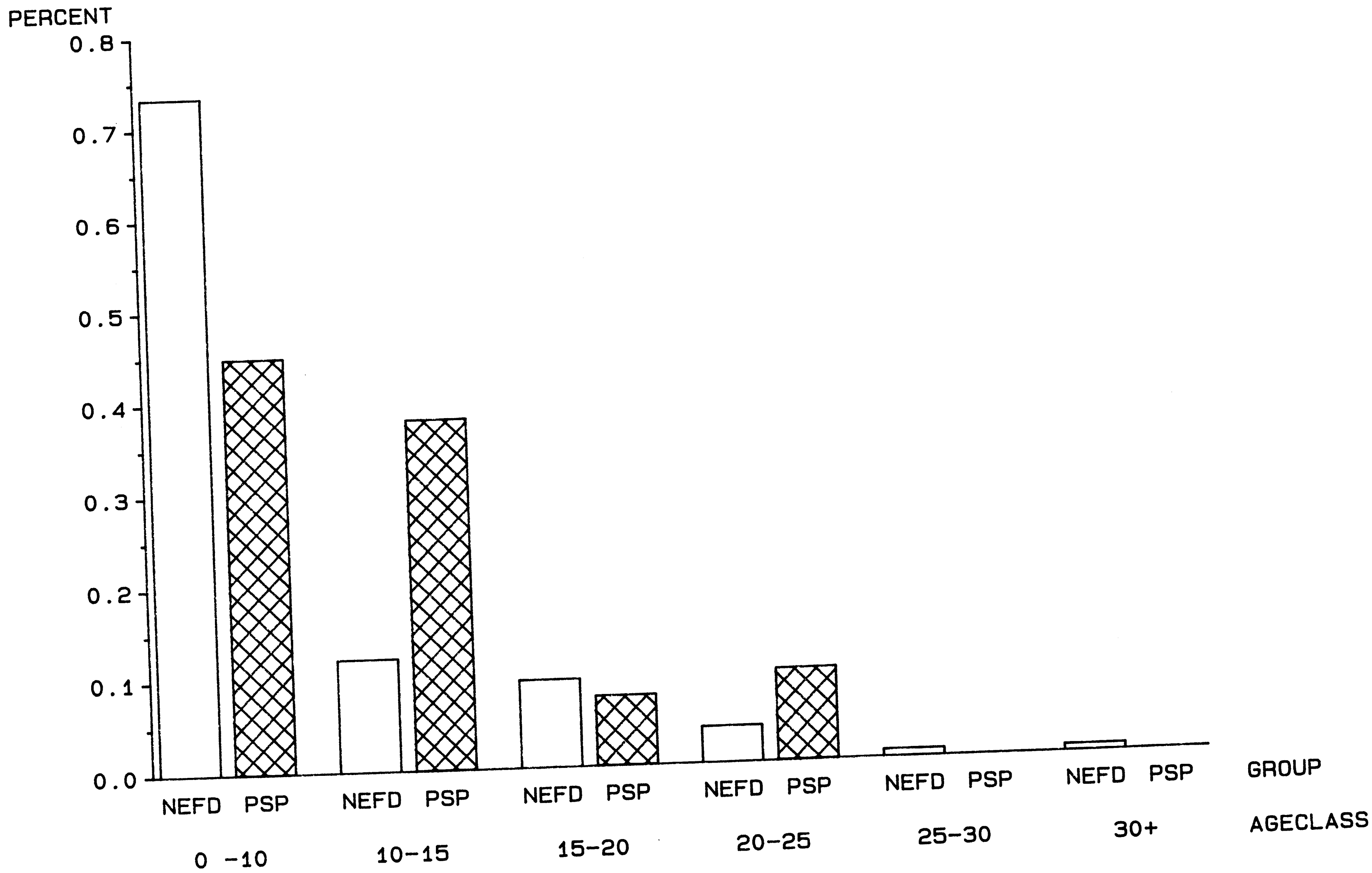
Pruned & Unthinned



PSP SURVEY (Experimental Plots)

Northland

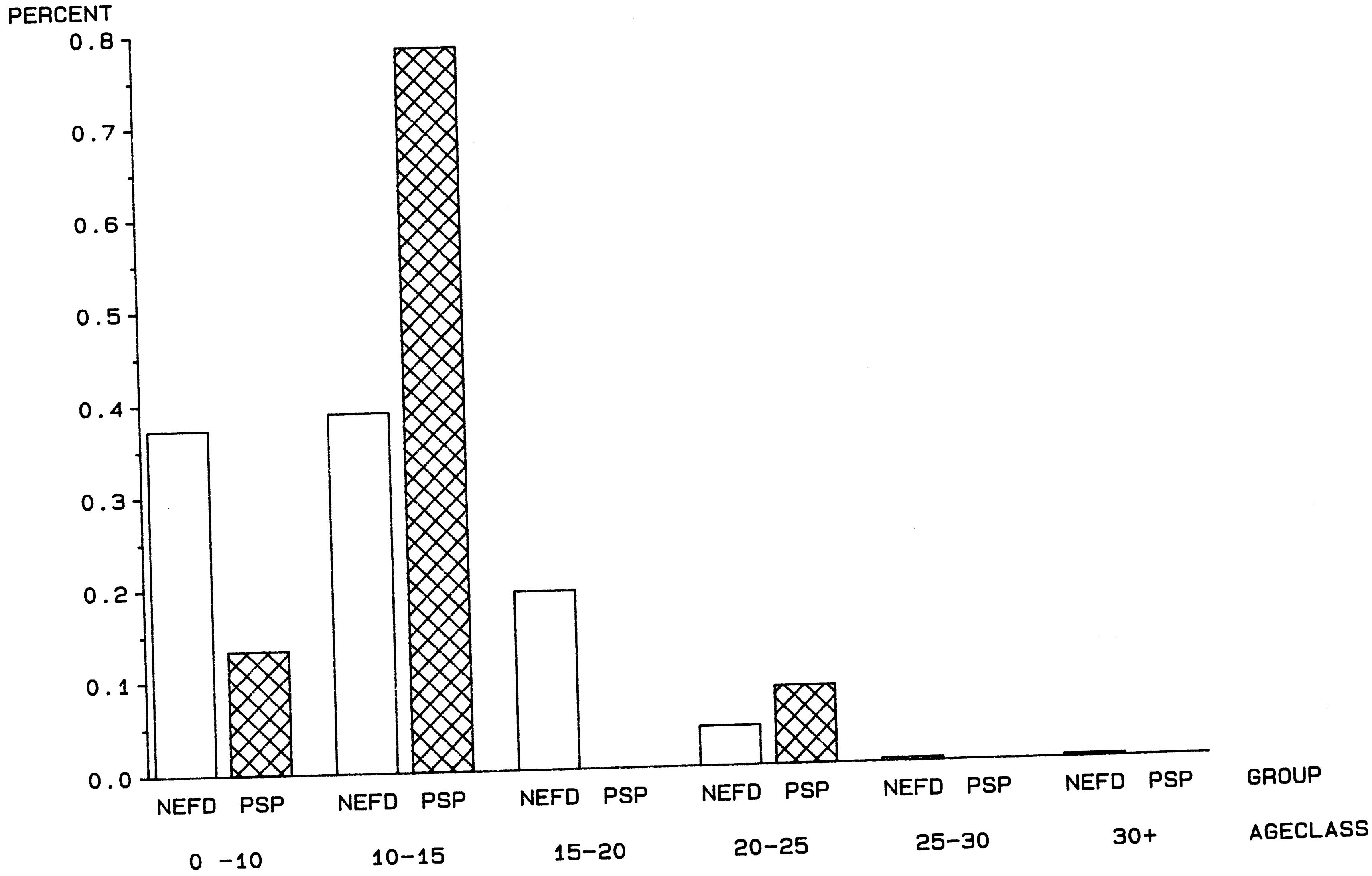
Unpruned & Thinned



PSP SURVEY (Experimental Plots)

Northland

Pruned & Thinned



NORTHLAND (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS / FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	35-39.9	TOTAL
1	2	13	2	2	0	19
2	2	30	1	1	0	34
3	7	41	4	11	0	63
4	14	91	80	6	28	219
5	10	43	133	16	0	202
TOTAL	35	218	220	36	28	537

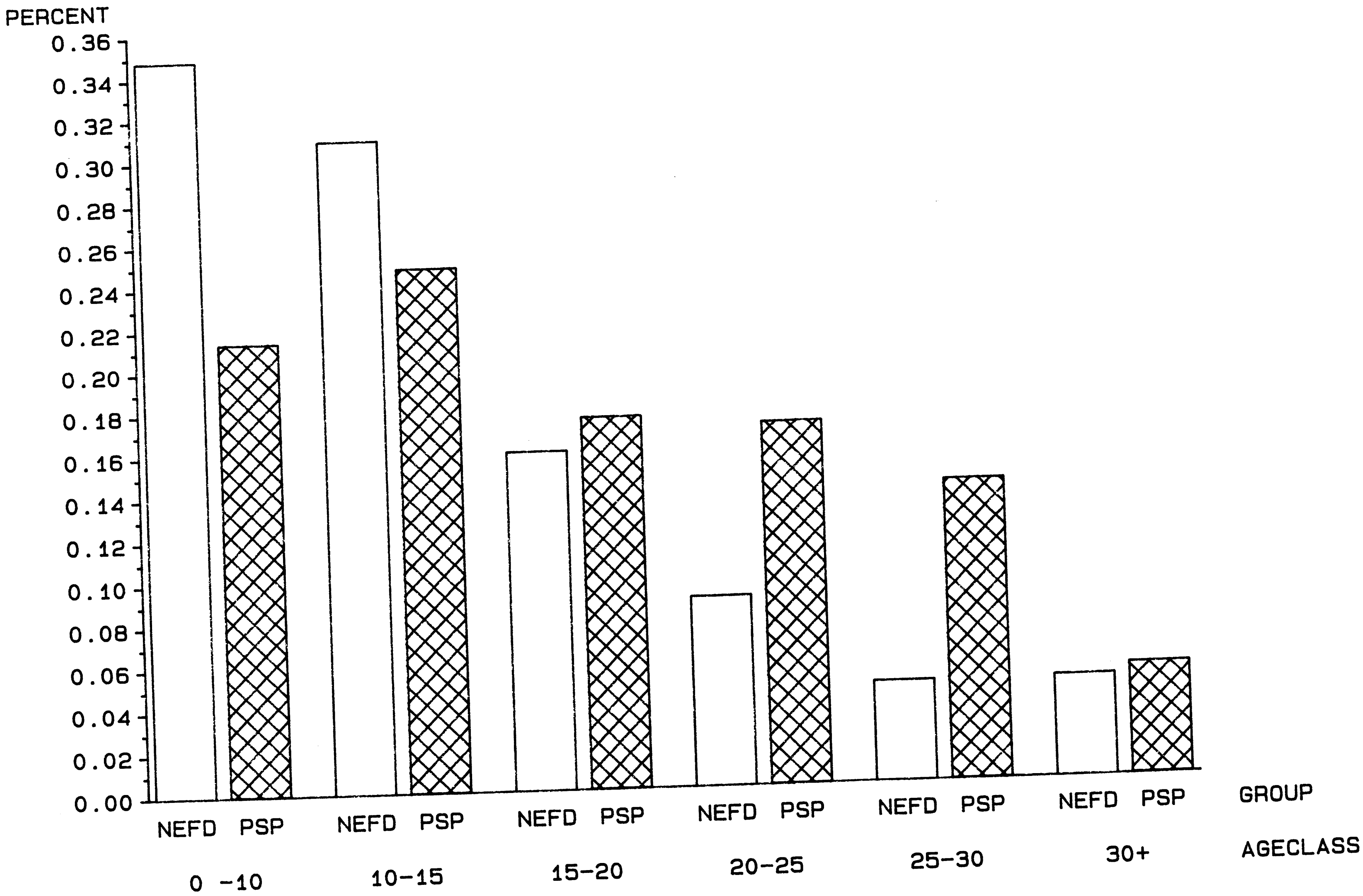
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.2 Auckland

PSP SURVEY (Experimental Plots)

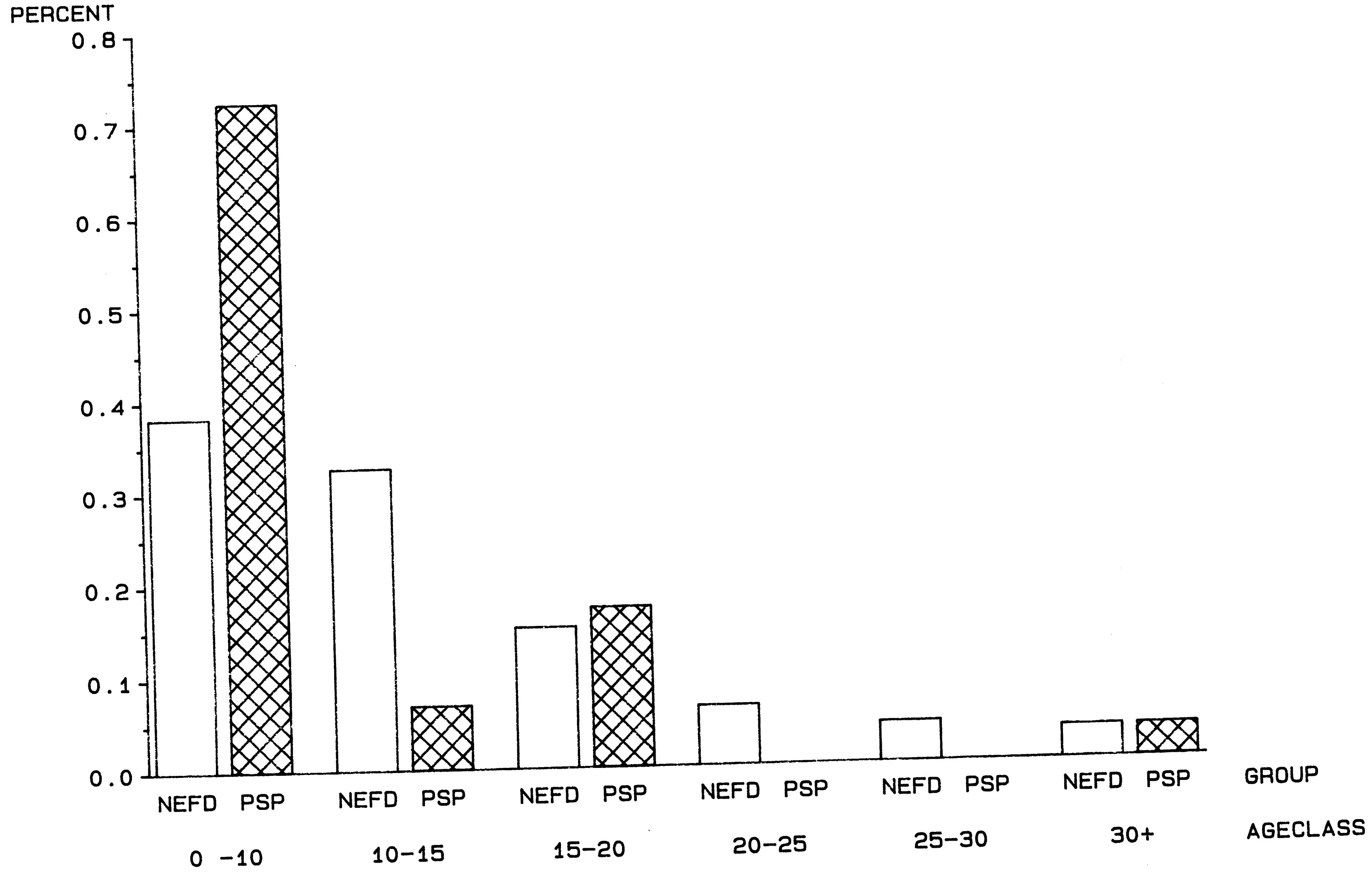
Auckland



PSP SURVEY (Experimental Plots)

Auckland

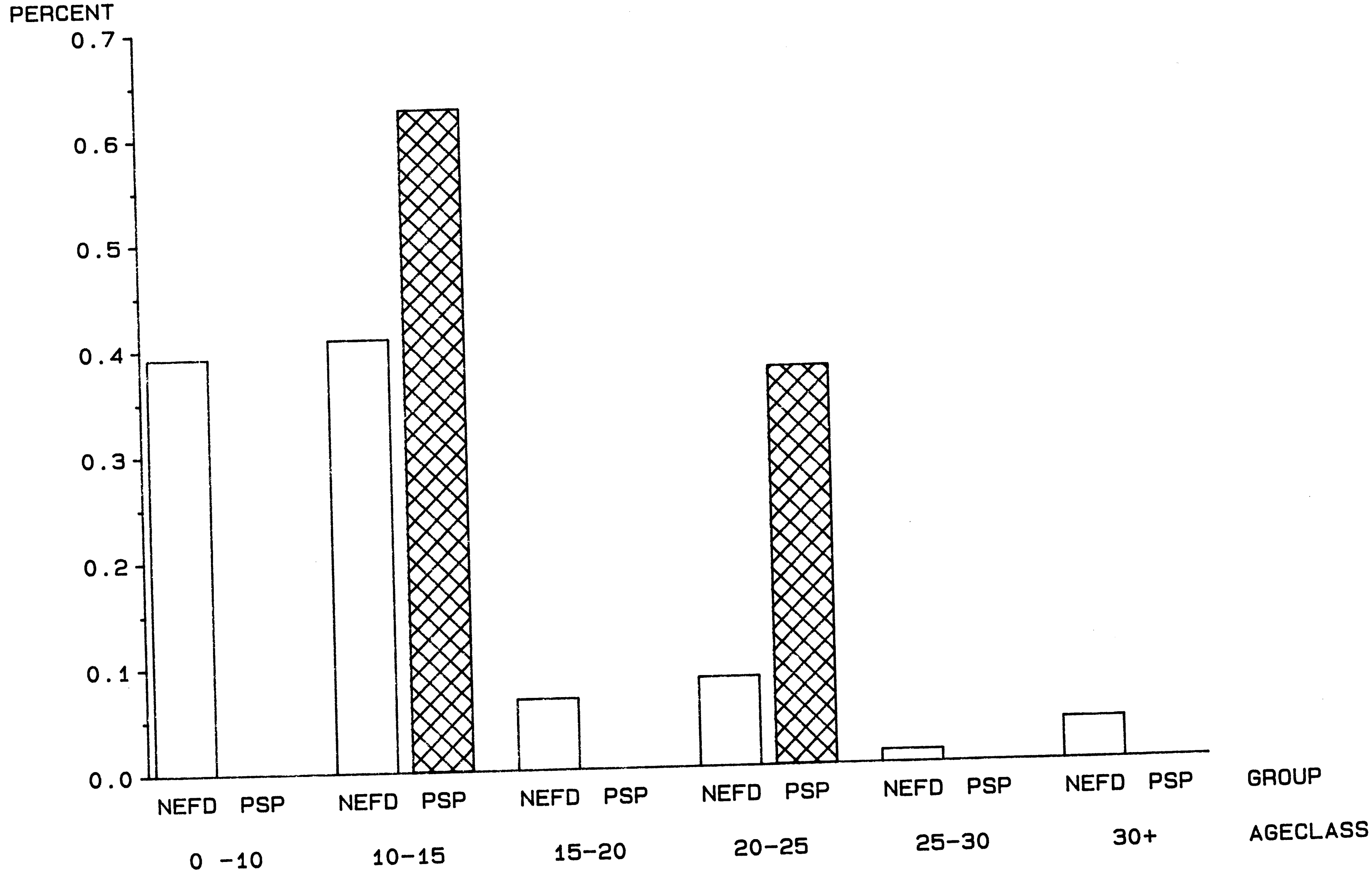
Unpruned & unthinned



PSP SURVEY (Experimental Plots)

Auckland

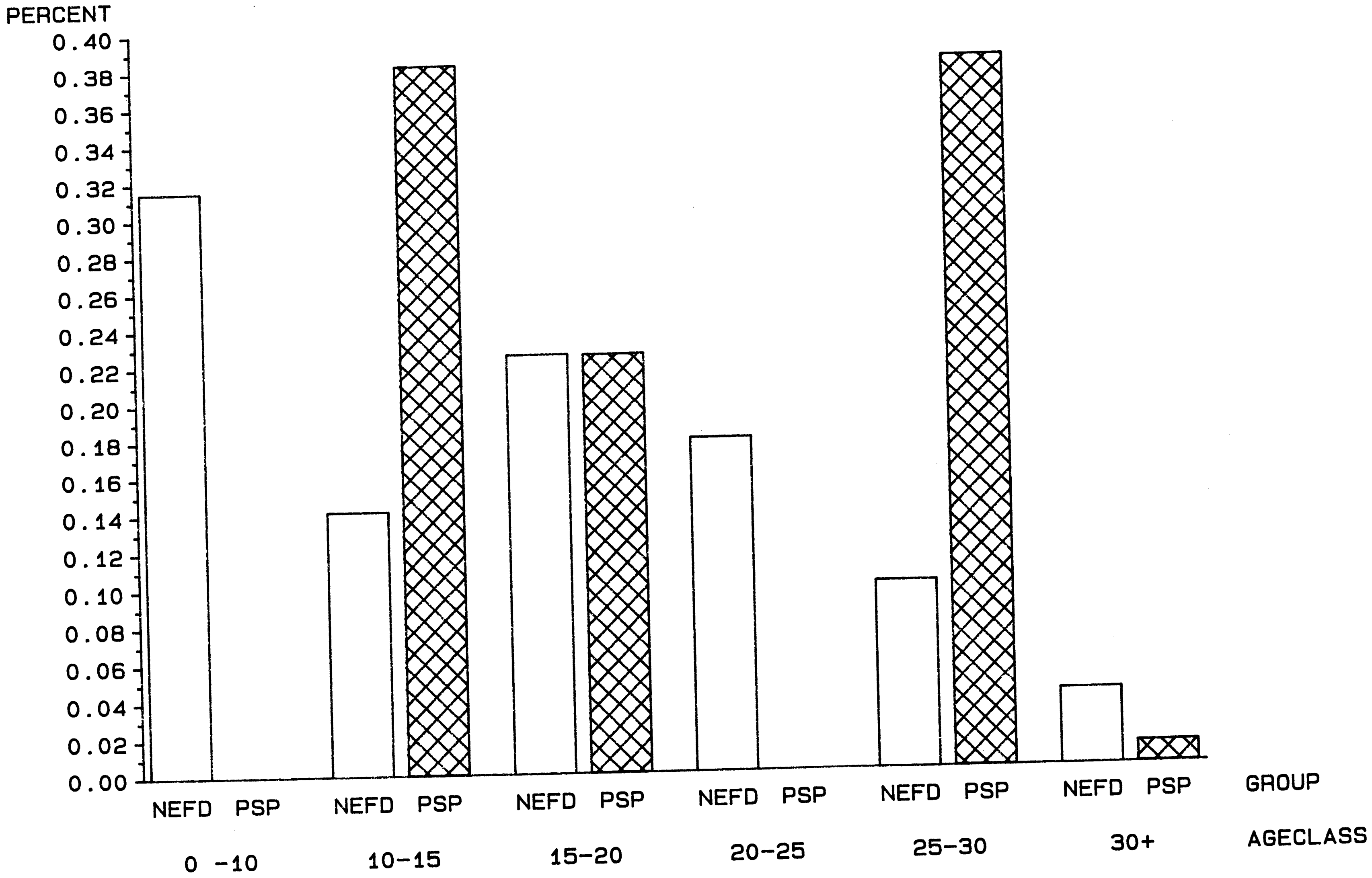
Pruned & Unthinned



PSP SURVEY (Experimental Plots)

Auckland

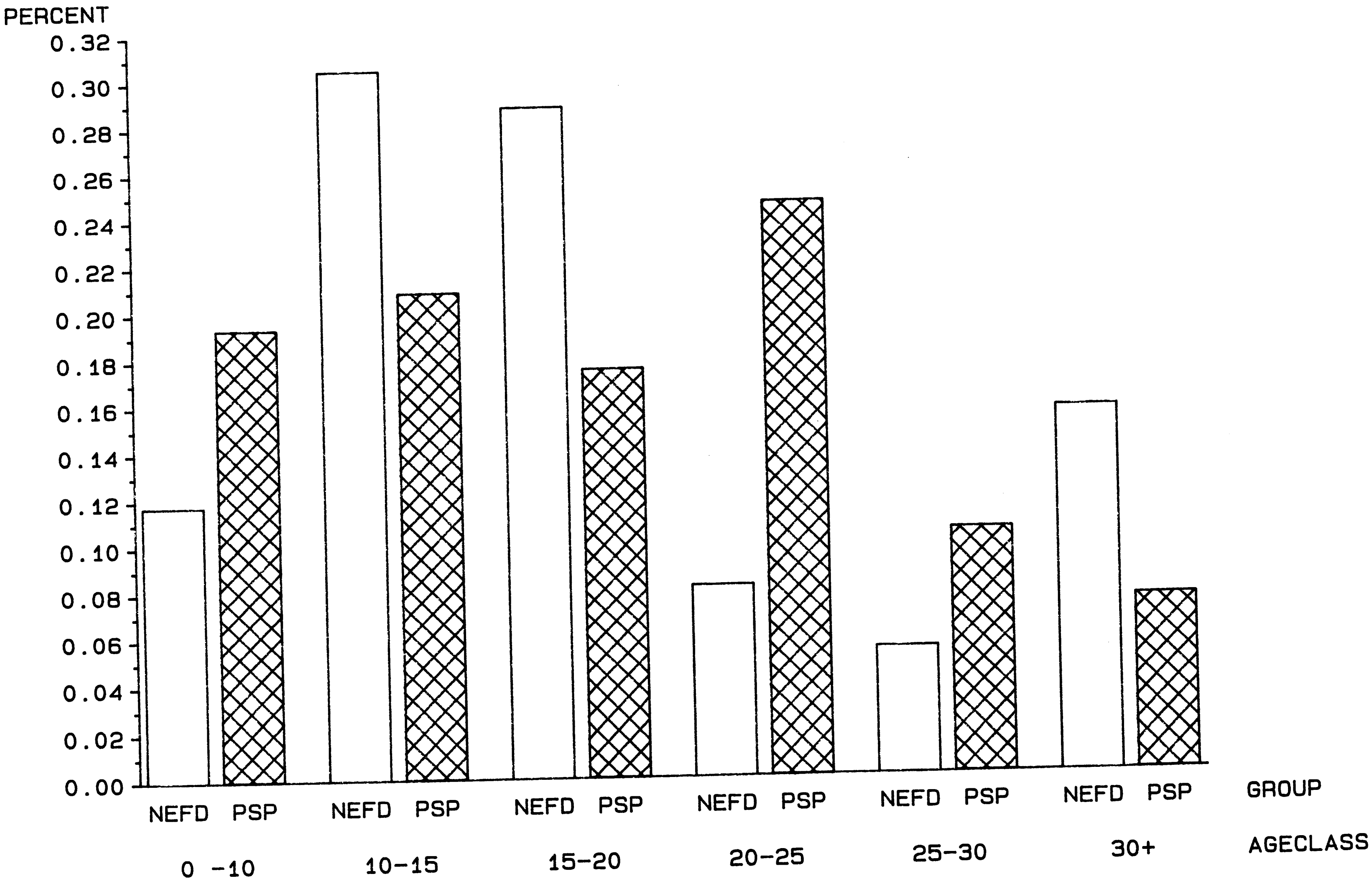
Unpruned & Thinned



PSP SURVEY (Experimental Plots)

Auckland

Pruned & Thinned



AUCKLAND (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS	FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	35-39.9	TOTAL
	1	0	15	65	0	0	80
	2	0	35	61	25	5	126
	3	5	28	79	41	0	153
	4	0	8	32	57	11	108
	5	0	8	15	31	9	63
	TOTAL	5	94	252	154	25	530

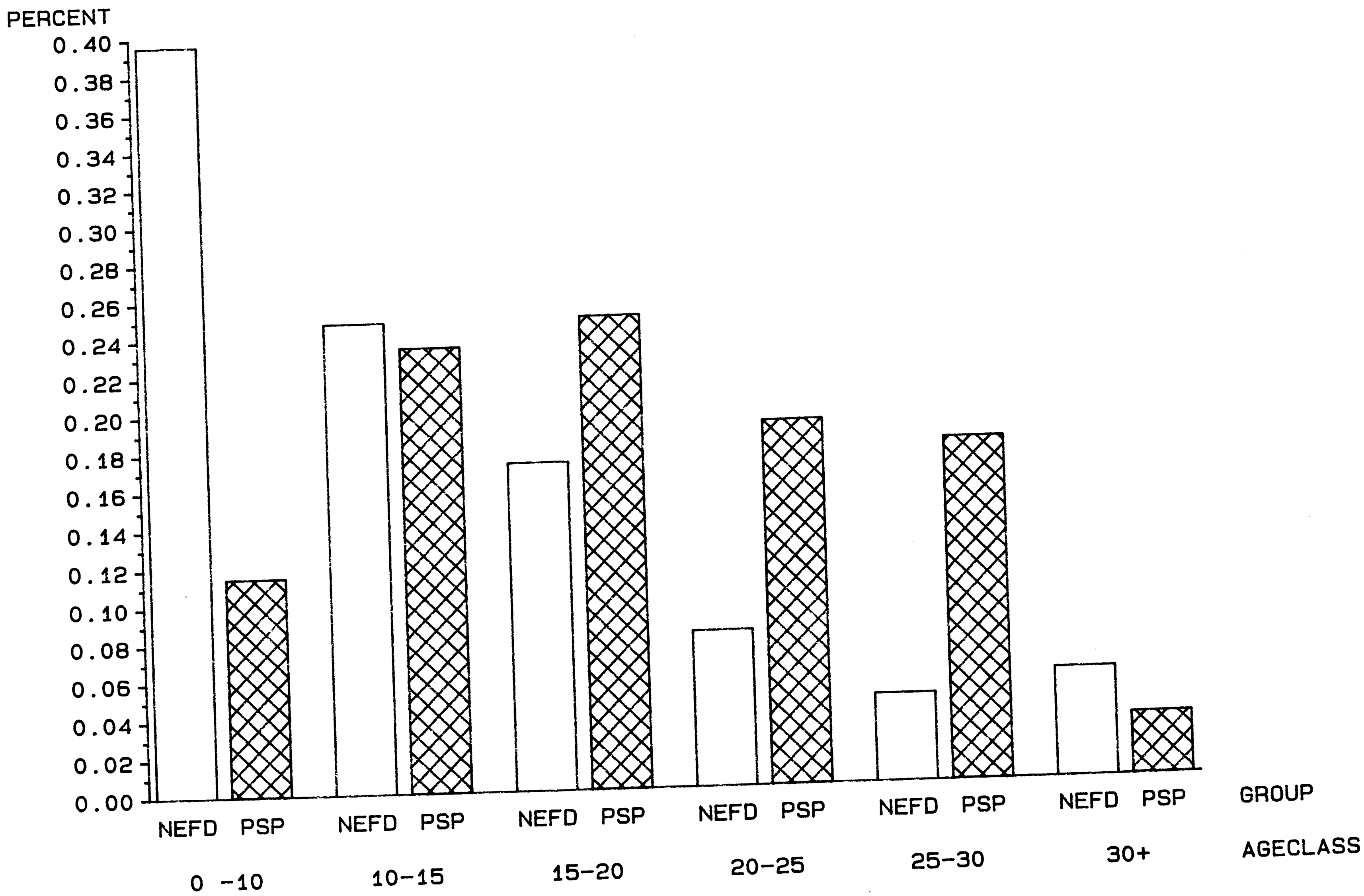
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.3 Central North Island

PSP SURVEY (Experimental plots)

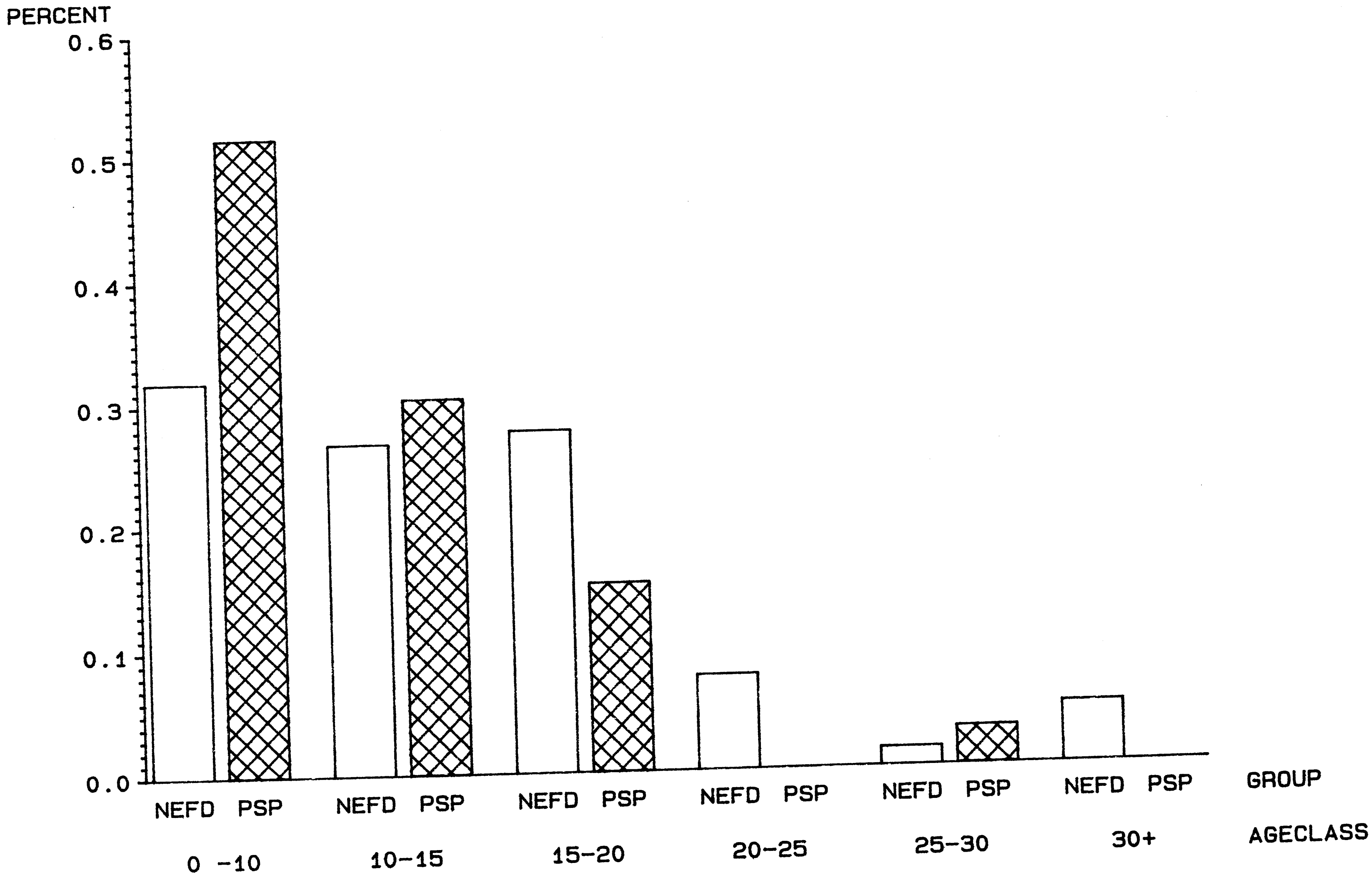
Central North Island



PSP SURVEY (Experimental plots)

Central North Island

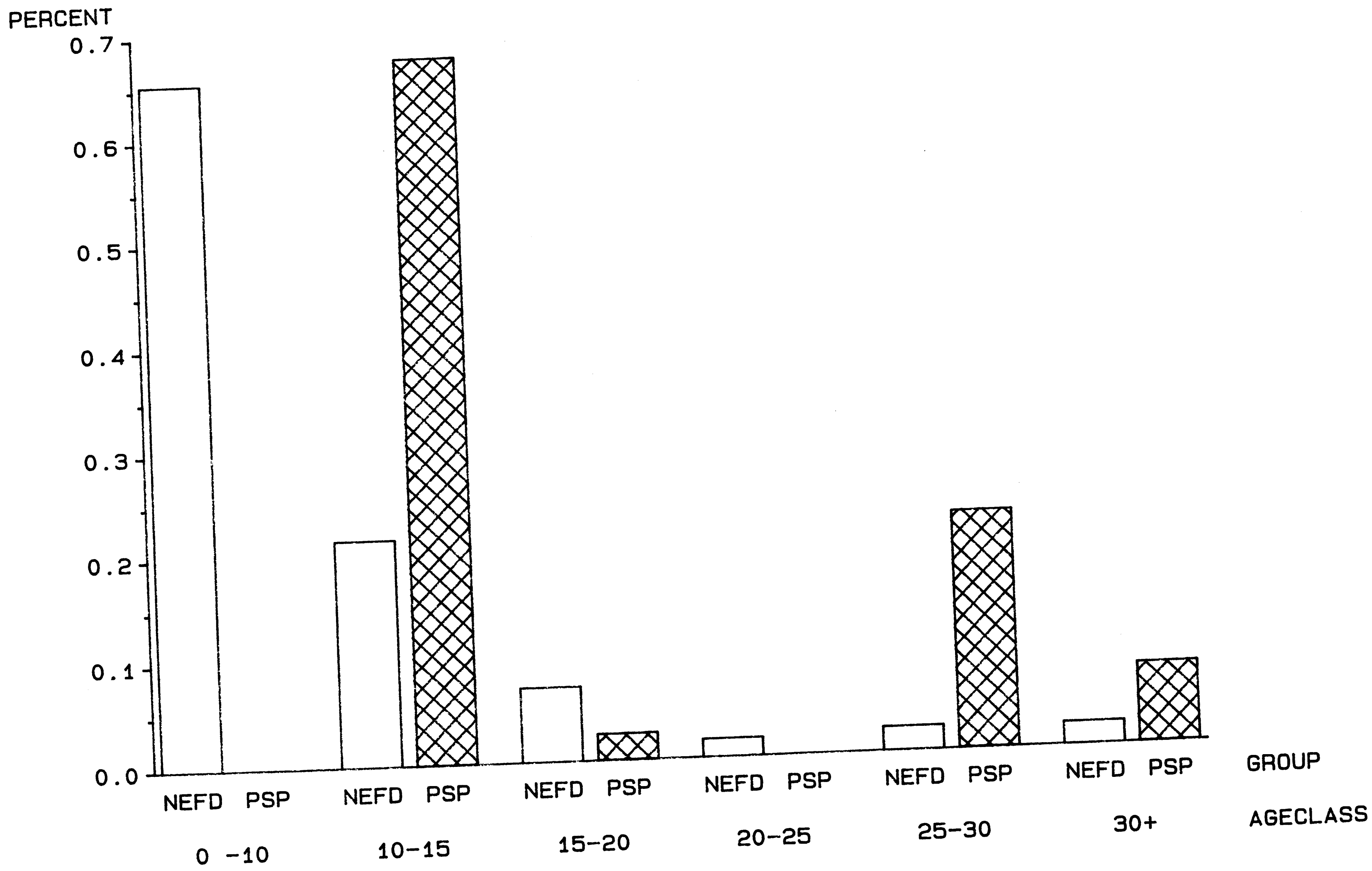
Unpruned & unthinned



PSP SURVEY (Experimental plots)

Central North Island

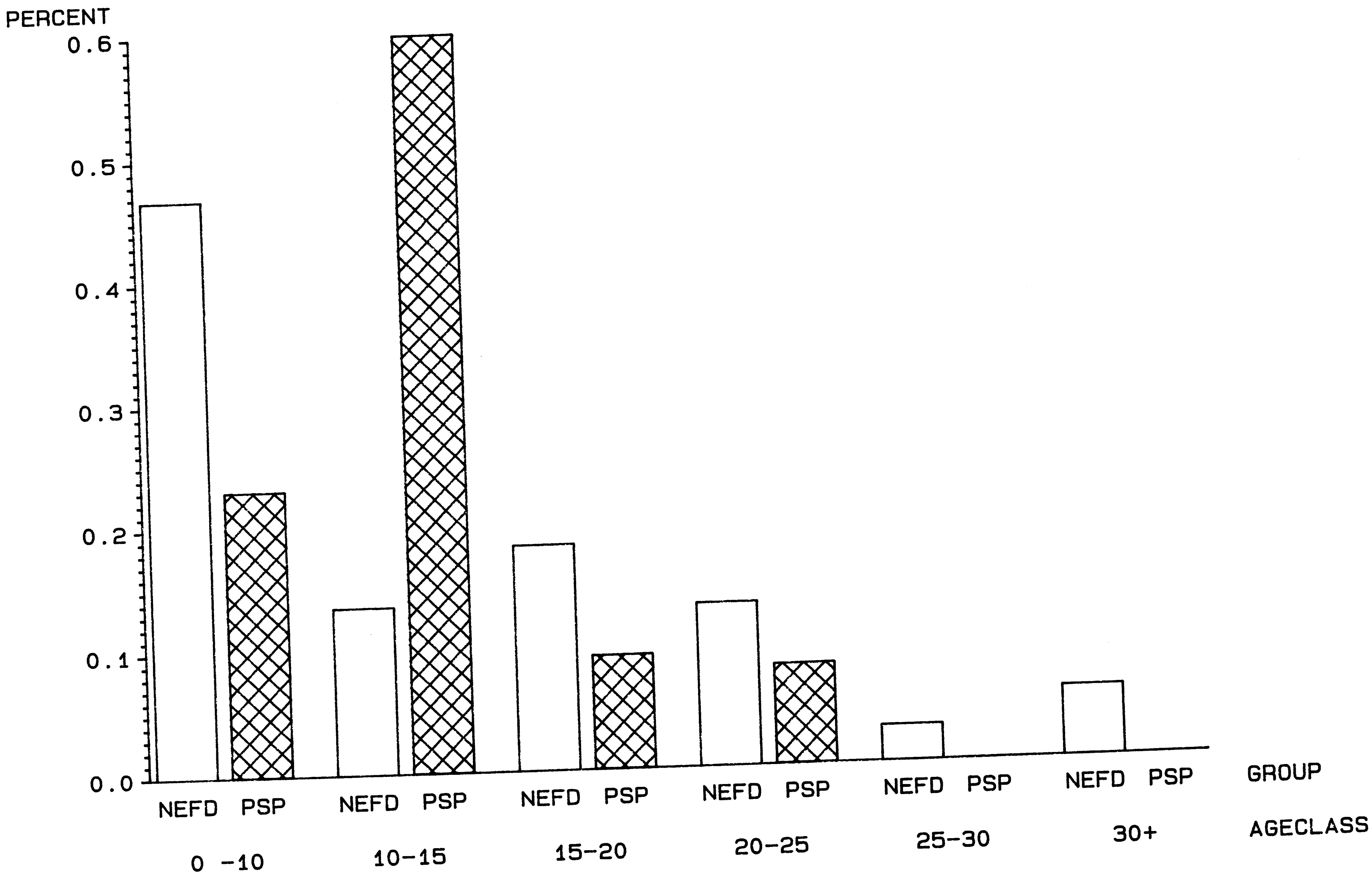
Pruned & Unthinned



PSP SURVEY (Experimental plots)

Central North Island

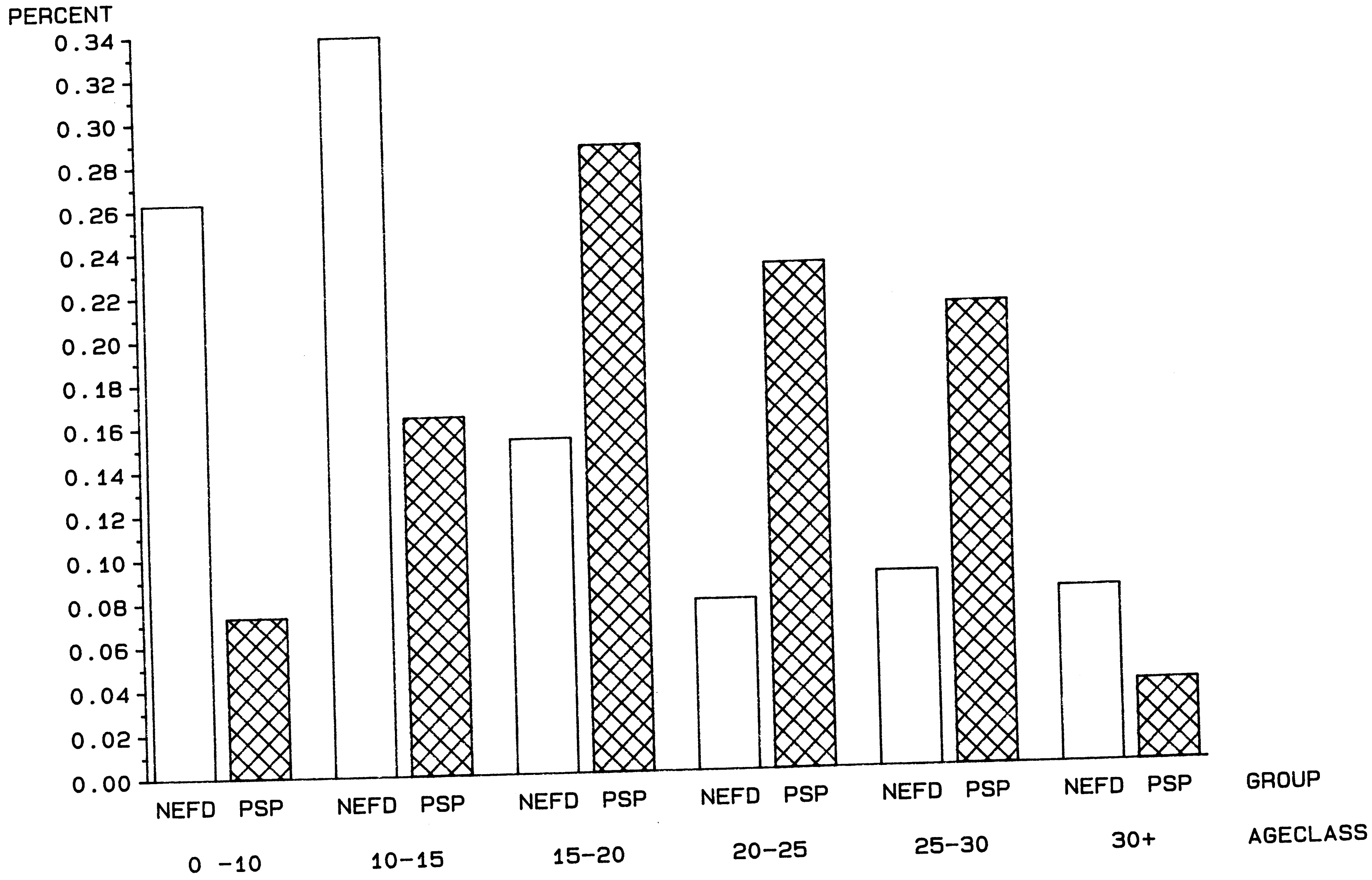
Unpruned & thinned



PSP SURVEY (Experimental plots)

Central North Island

Pruned & thinned



CENTRAL NORTH ISLAND (Experimental plots)

Final Crop Stocking vs Site Index

site index

	FREQUENCY	10-14.9	15-19.9	20-24.9	25-29.9	30-34.9	35-39.9	40-44.9	TOTAL
	0	0	0	0	1	0	0	0	1
	1	0	3	10	106	76	40	6	241
F	2	0	0	13	65	158	19	0	255
C									
S	3	2	1	11	109	102	13	2	240
	4	7	16	24	69	37	11	2	166
	5	0	0	37	10	6	2	0	55
	TOTAL	9	20	95	360	379	85	10	958

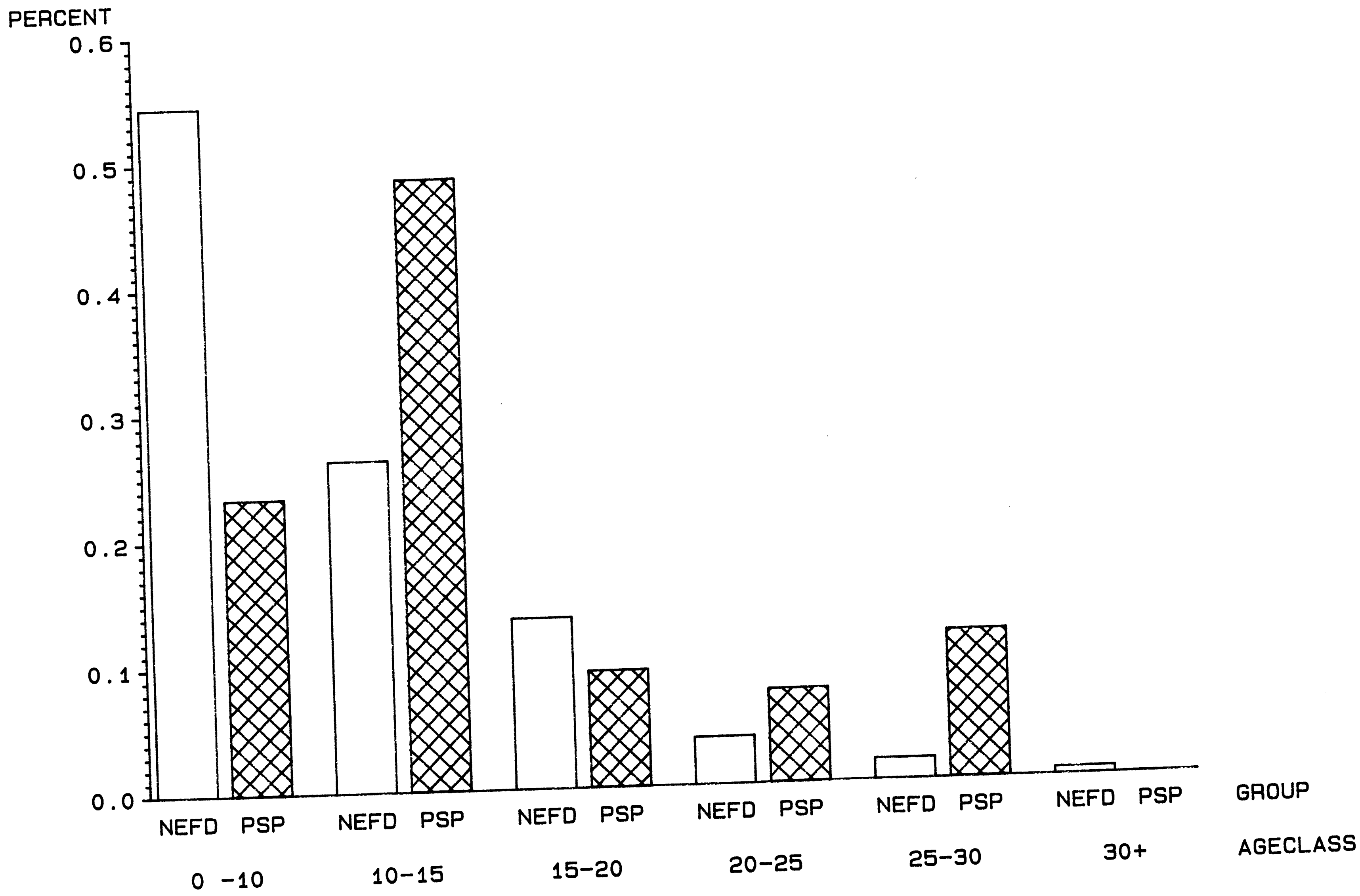
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.4 East Coast/Hawkes Bay

PSP SURVEY (Experimental plots)

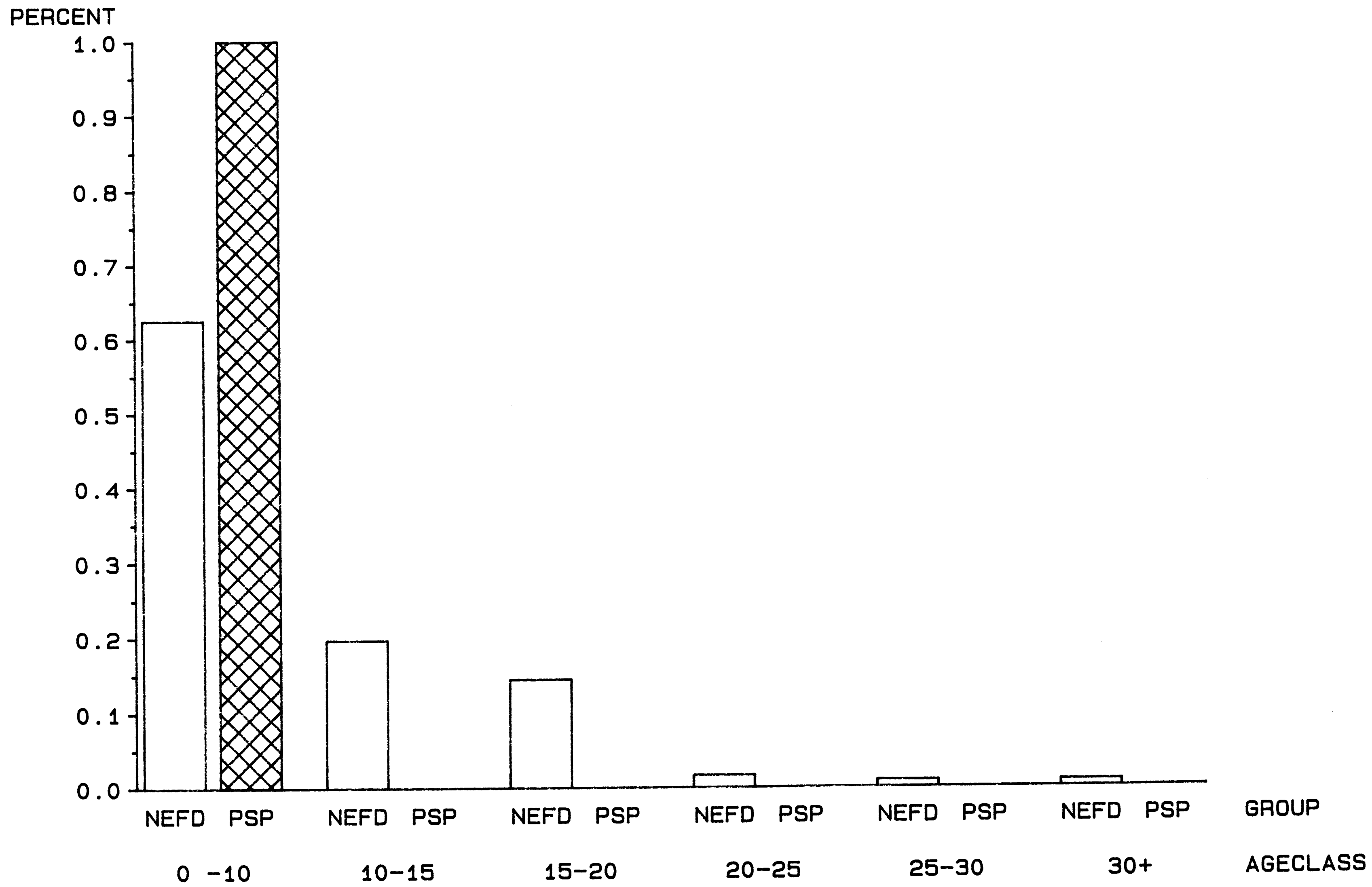
East Coast/Hawkes Bay



PSP SURVEY (Experimental plots)

East Coast/Hawkes Bay

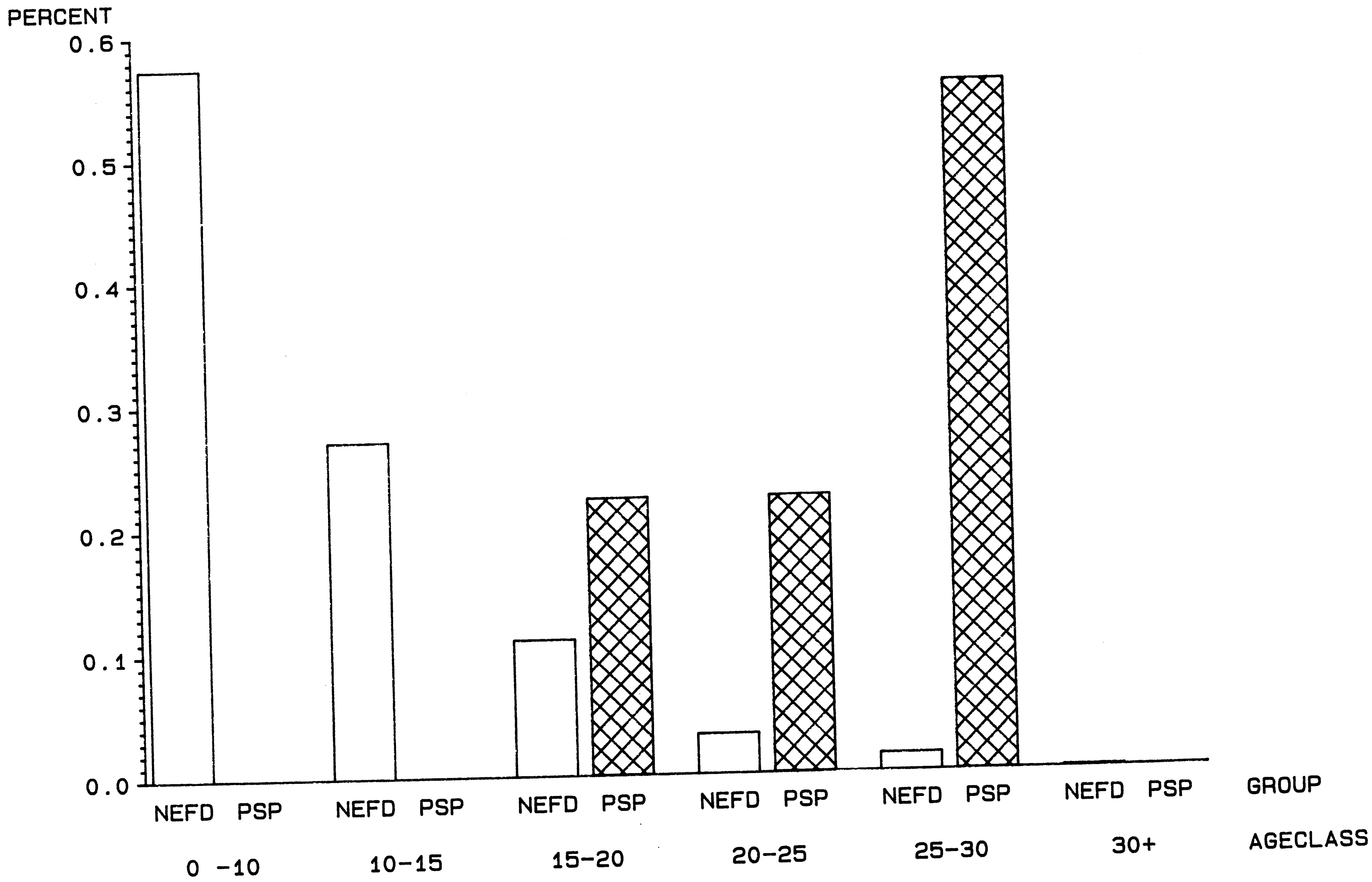
Unpruned & Unthinned



PSP SURVEY (Experimental plots)

East Coast/Hawkes Bay

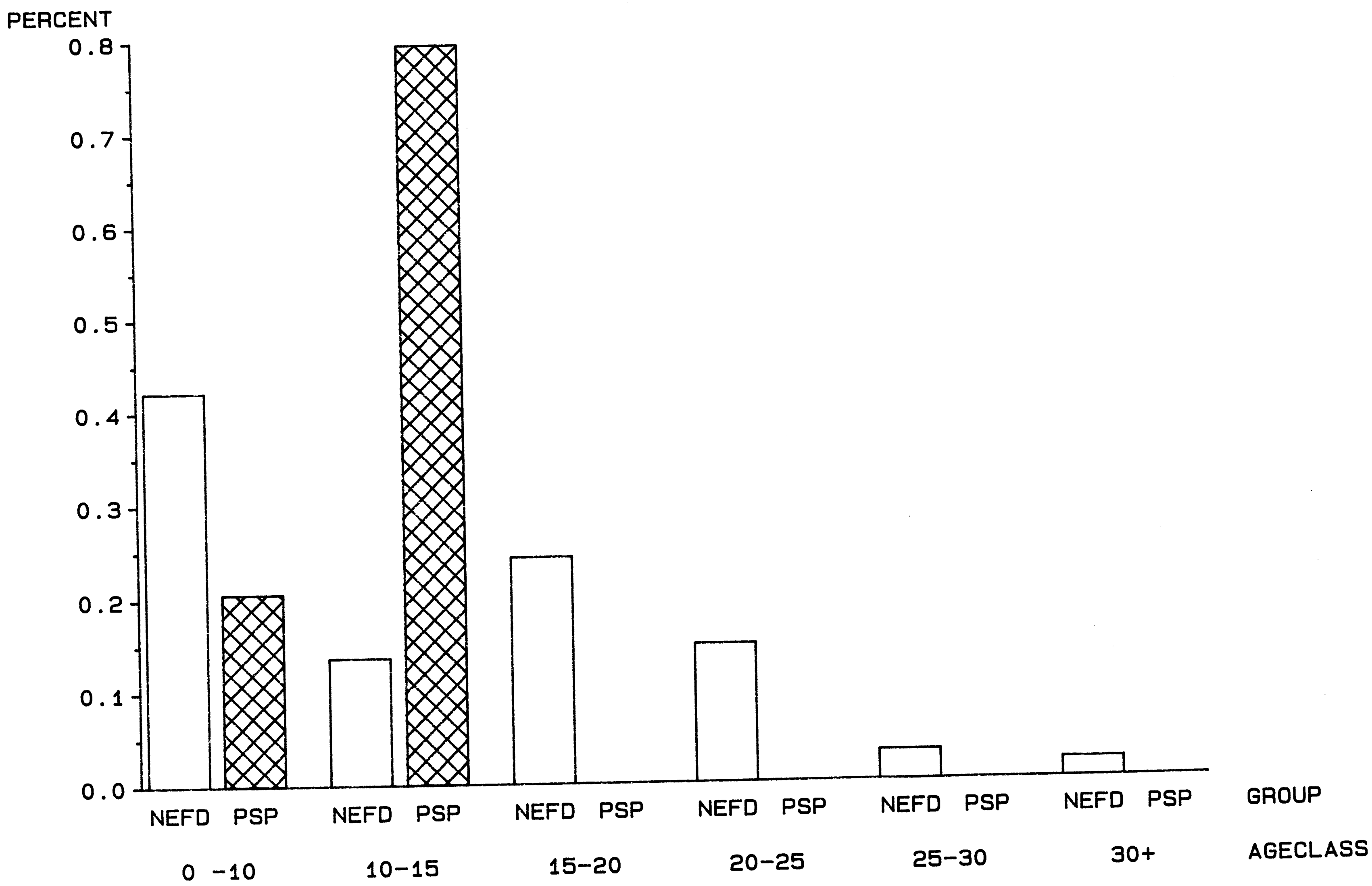
Pruned & Unthinned



PSP SURVEY (Experimental plots)

East Coast/Hawkes Bay

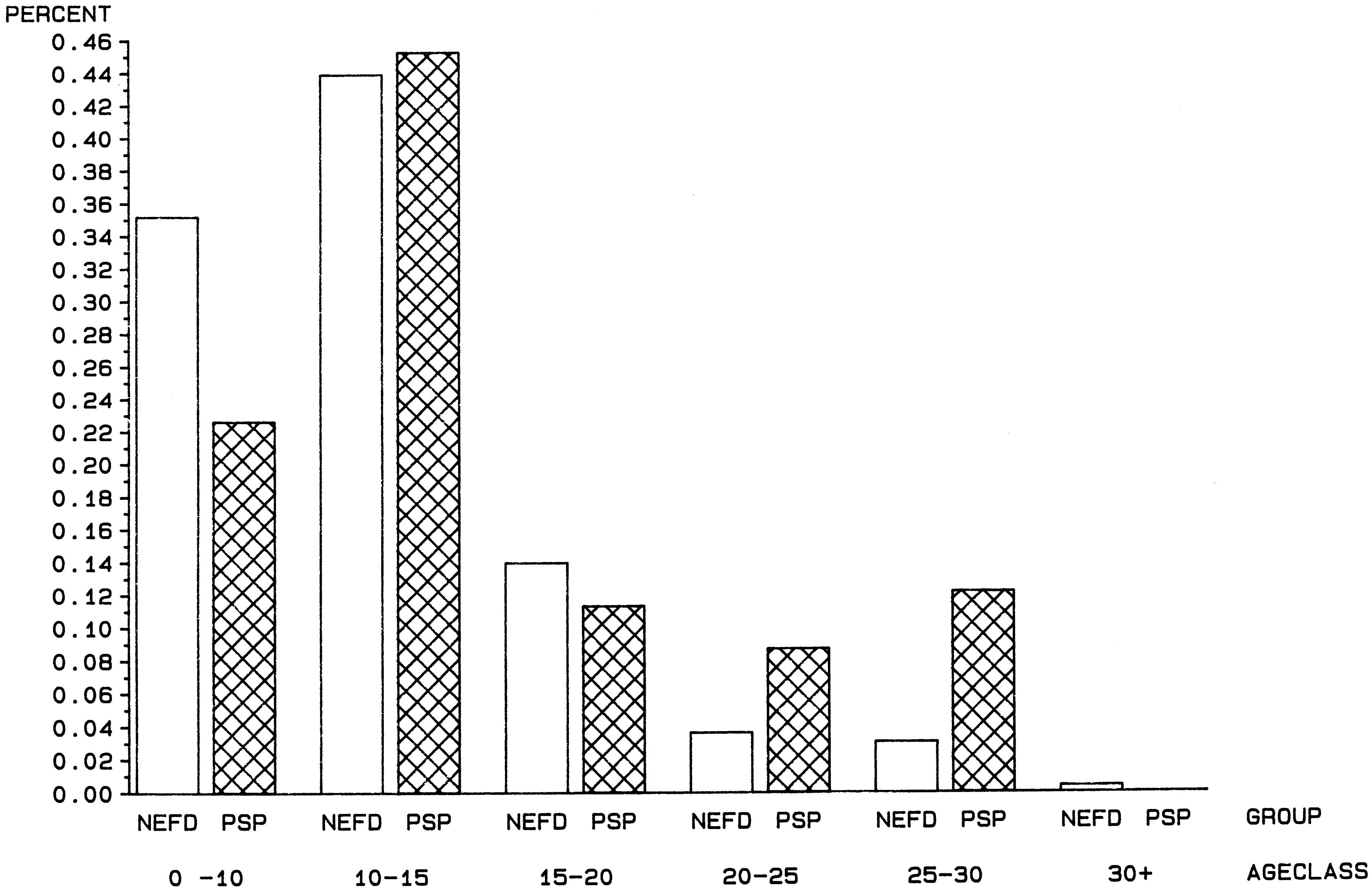
Unpruned & Thinned



PSP SURVEY (Experimental plots)

East Coast/Hawkes Bay

Pruned & Thinned



EAST COAST/HAWKES BAY (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	35-39.9	TOTAL
1	1	2	20	20	2	45
2	1	3	9	22	8	43
3	1	5	11	26	5	48
4	0	3	3	7	0	13
5	2	0	4	5	3	14
TOTAL	5	13	47	80	18	163

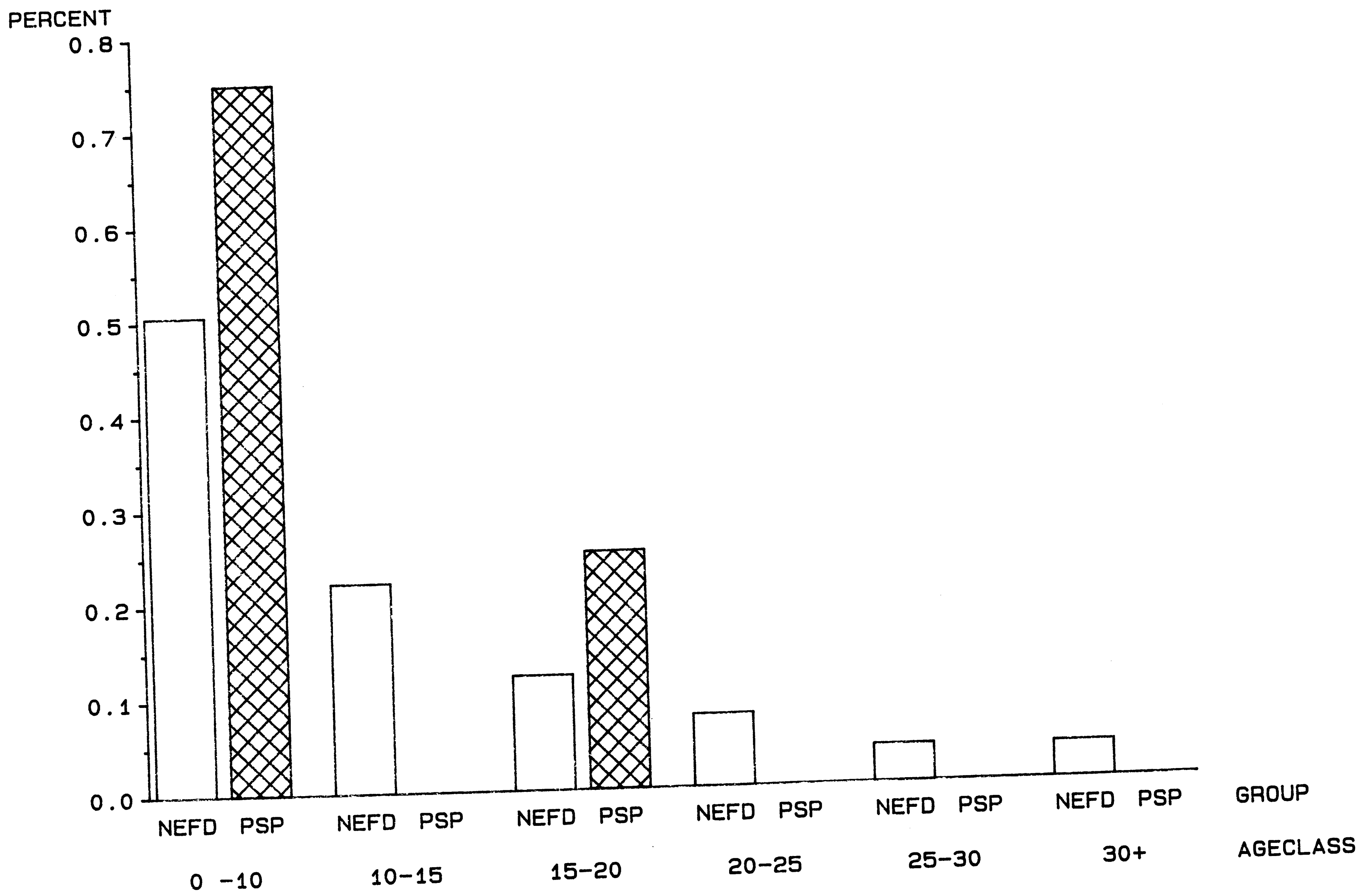
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.5 Southern North Island

PSP SURVEY (Experimental plots)

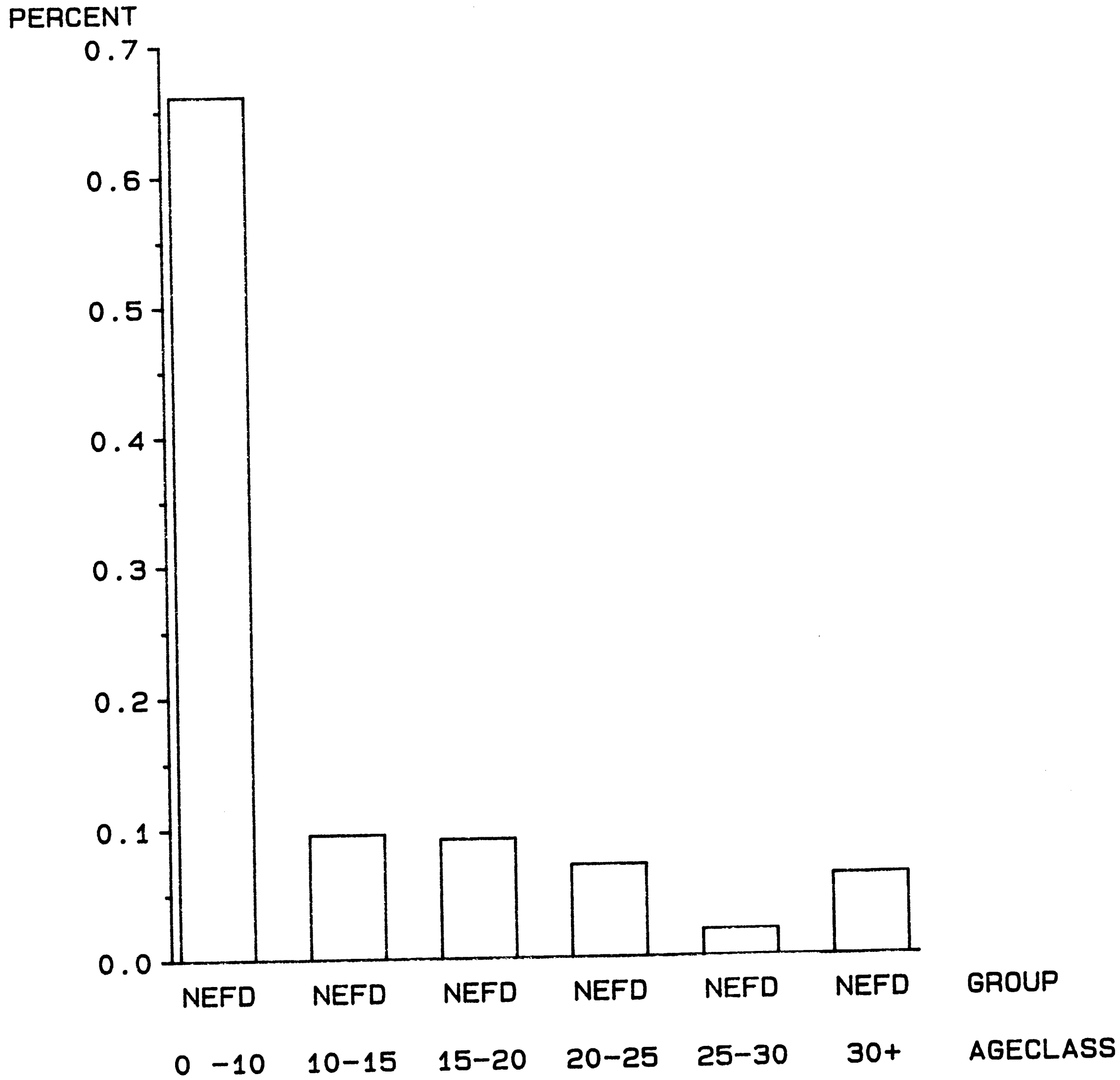
Southern North Island



PSP SURVEY (Experimental plots)

Southern North Island

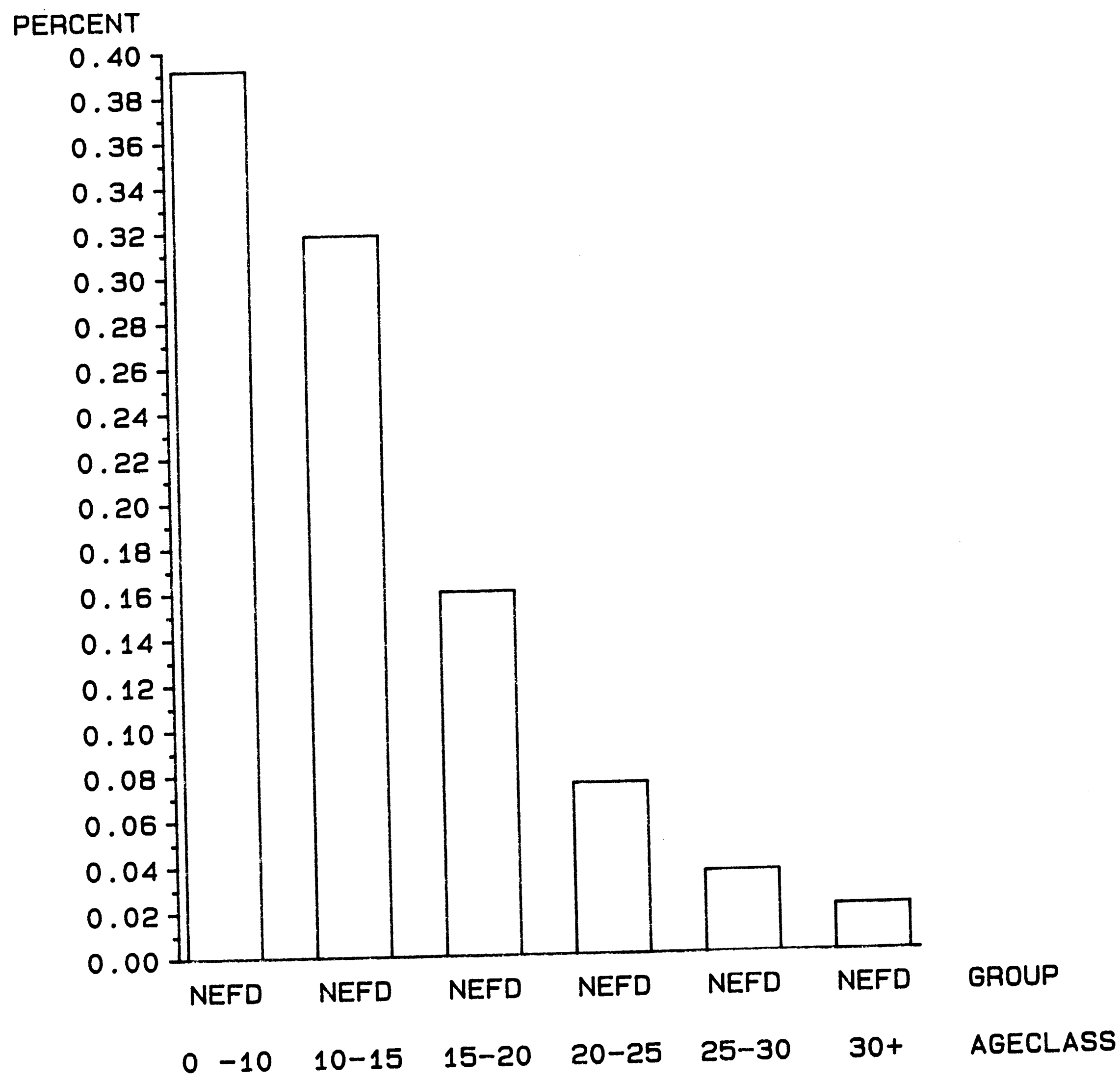
Unpruned & Unthinned



PSP SURVEY (Experimental plots)

Southern North Island

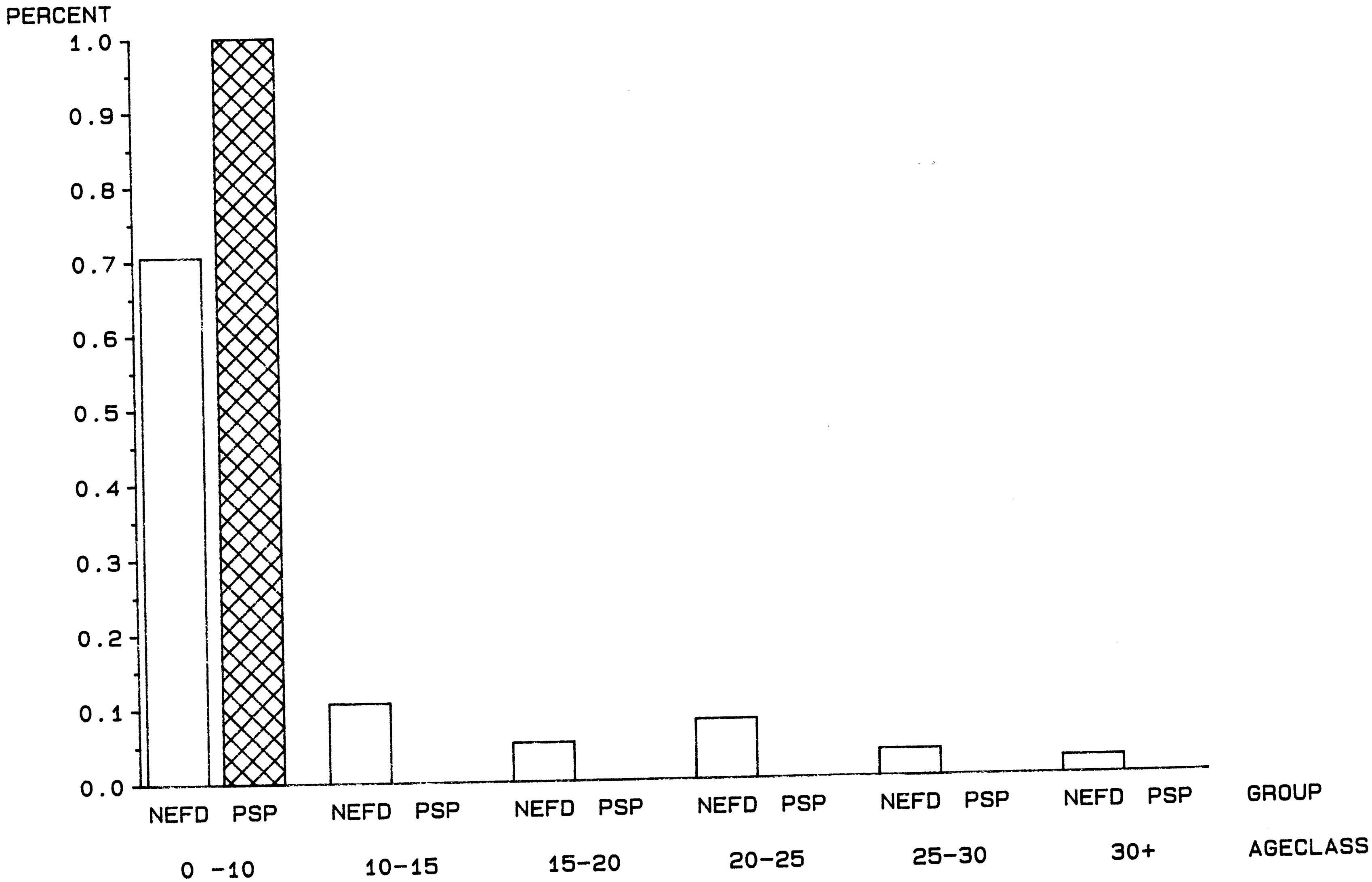
Pruned & Unthinned



PSP SURVEY (Experimental plots)

Southern North Island

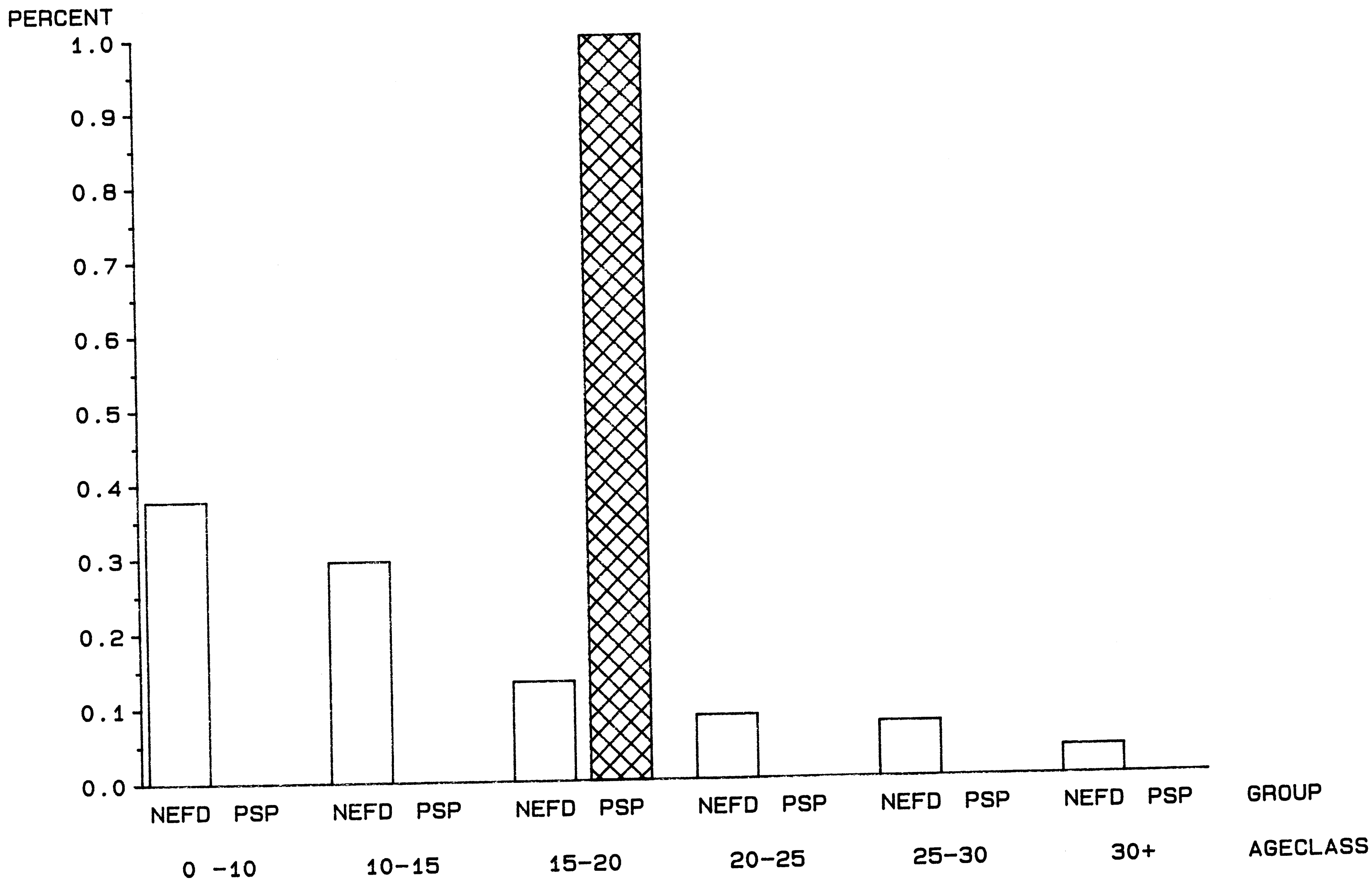
Unpruned & Thinned



PSP SURVEY (Experimental plots)

Southern North Island

Pruned & Thinned



SOUTHERN NORTH ISLAND (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS FREQUENCY	10-	15-	25-	30-		TOTAL
1	0	0	2	0		2
2	0	0	13	1		14
4	32	15	0	0		47
5	1	0	0	0		1
TOTAL	33	15	15	1		64

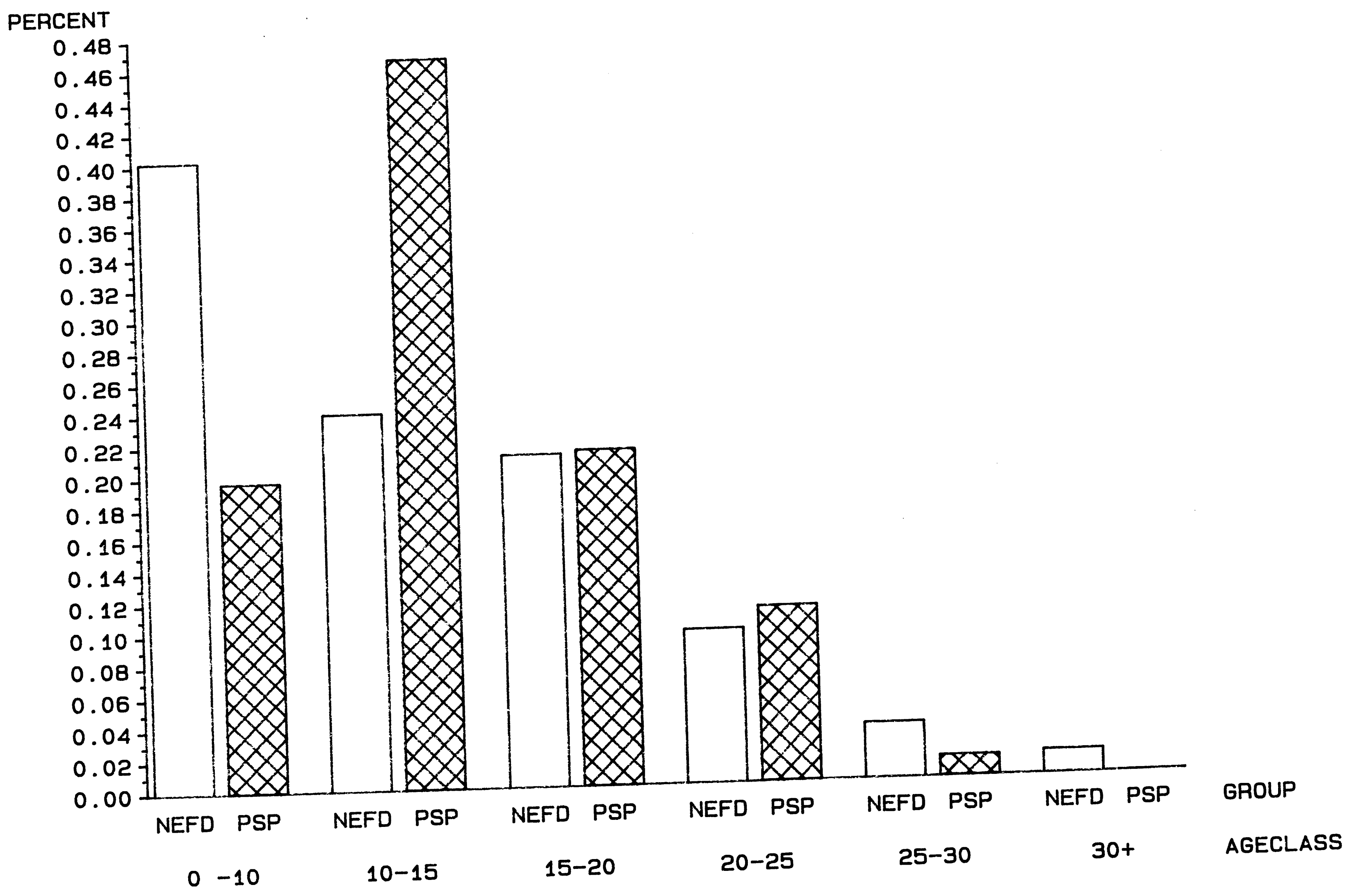
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.6 Nelson/Marlborough

PSP SURVEY (Experimental plots)

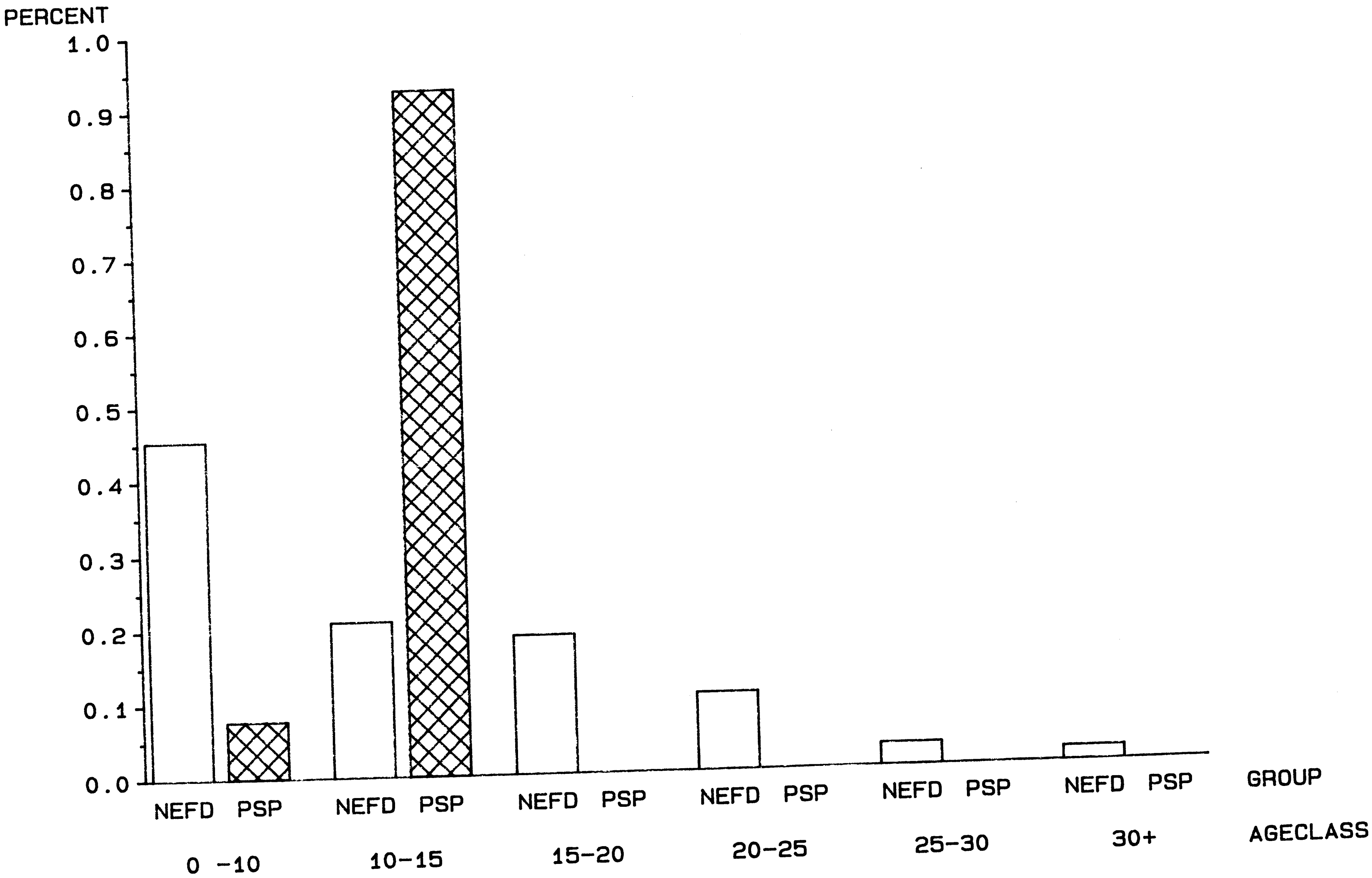
Nelson/Marlborough



PSP SURVEY (Experimental plots)

Nelson/Marlborough

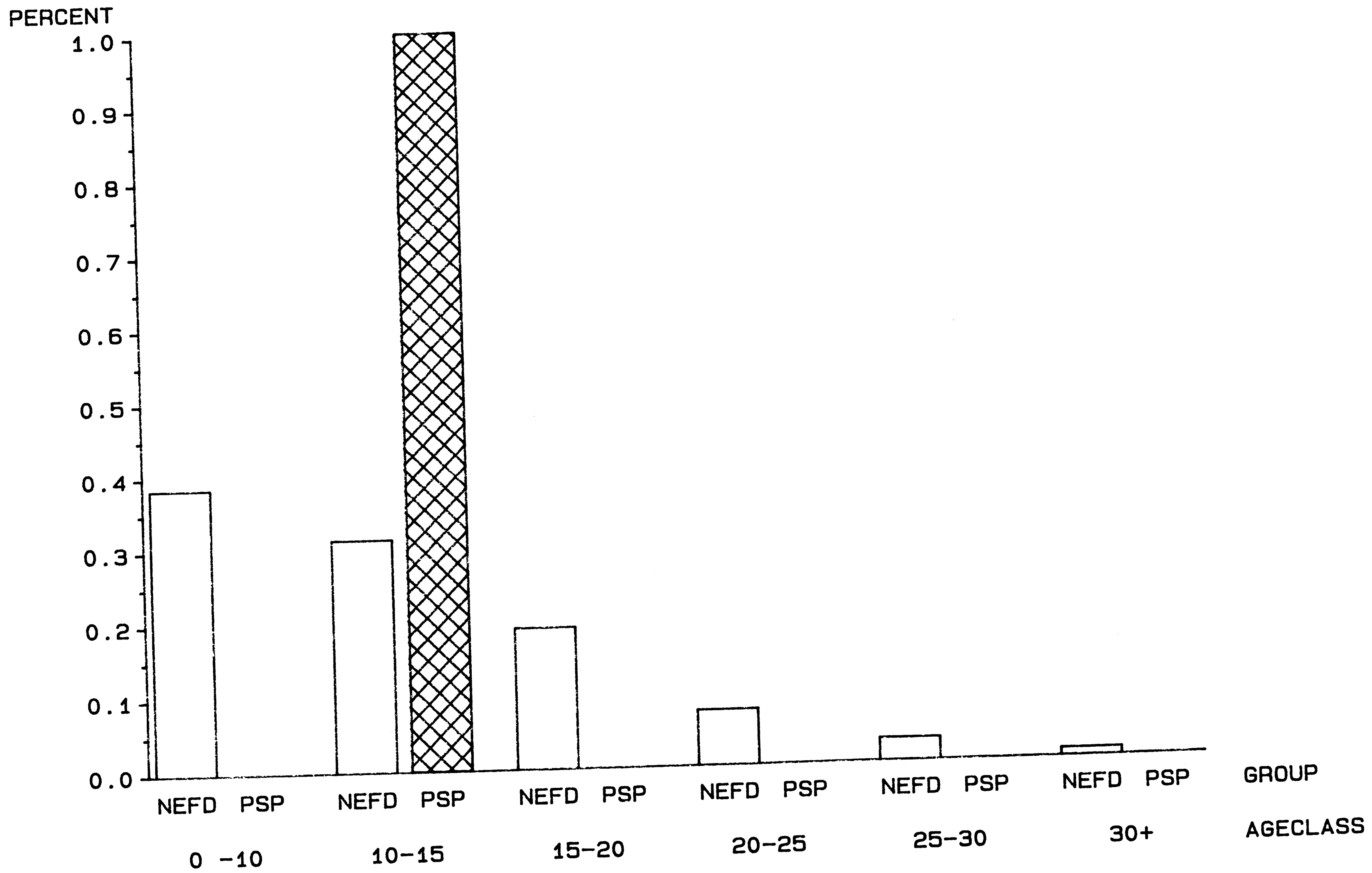
Unpruned & Unthinned



PSP SURVEY (Experimental plots)

Nelson/Marlborough

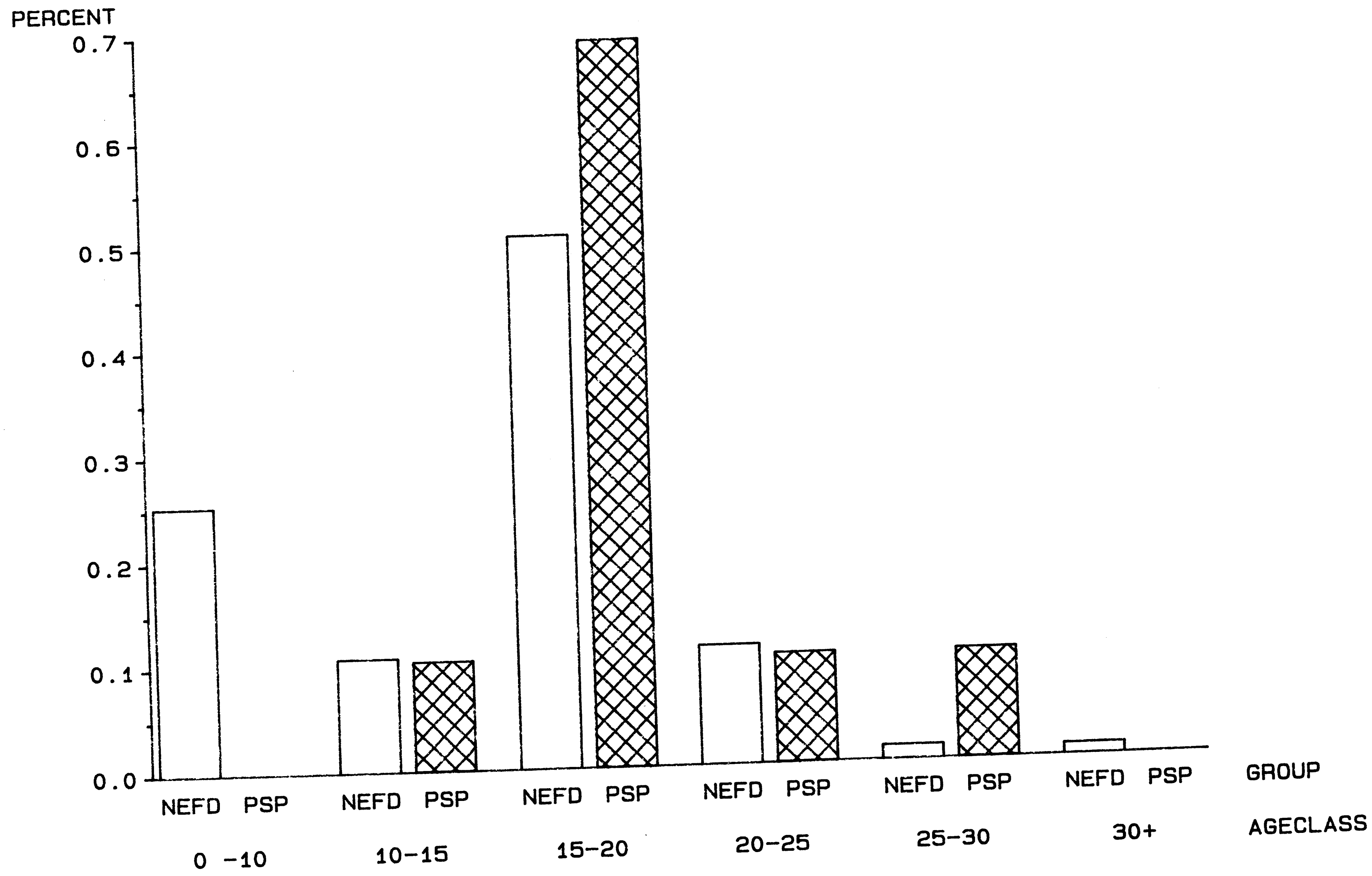
Pruned & Unthinned



PSP SURVEY (Experimental plots)

Nelson/Marlborough

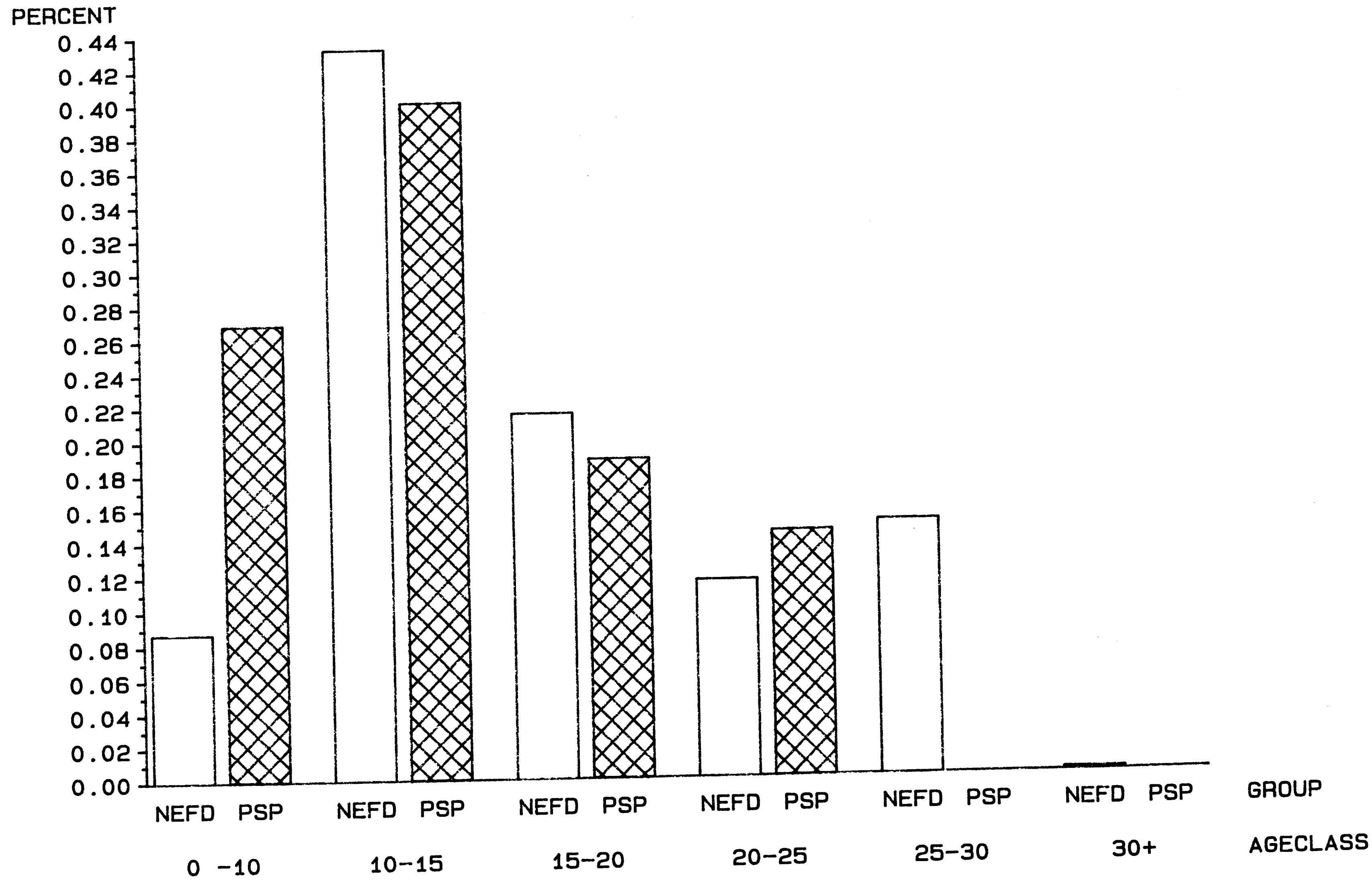
Unpruned & Thinned



PSP SURVEY (Experimental plots)

Nelson/Marlborough

Pruned & Thinned



NELSON/MARLBOROUGH (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	TOTAL
1	6	3	24	2	35
2	0	3	55	47	105
3	1	1	17	16	35
4	2	0	4	8	14
5	0	0	19	26	45
TOTAL	9	7	119	99	234

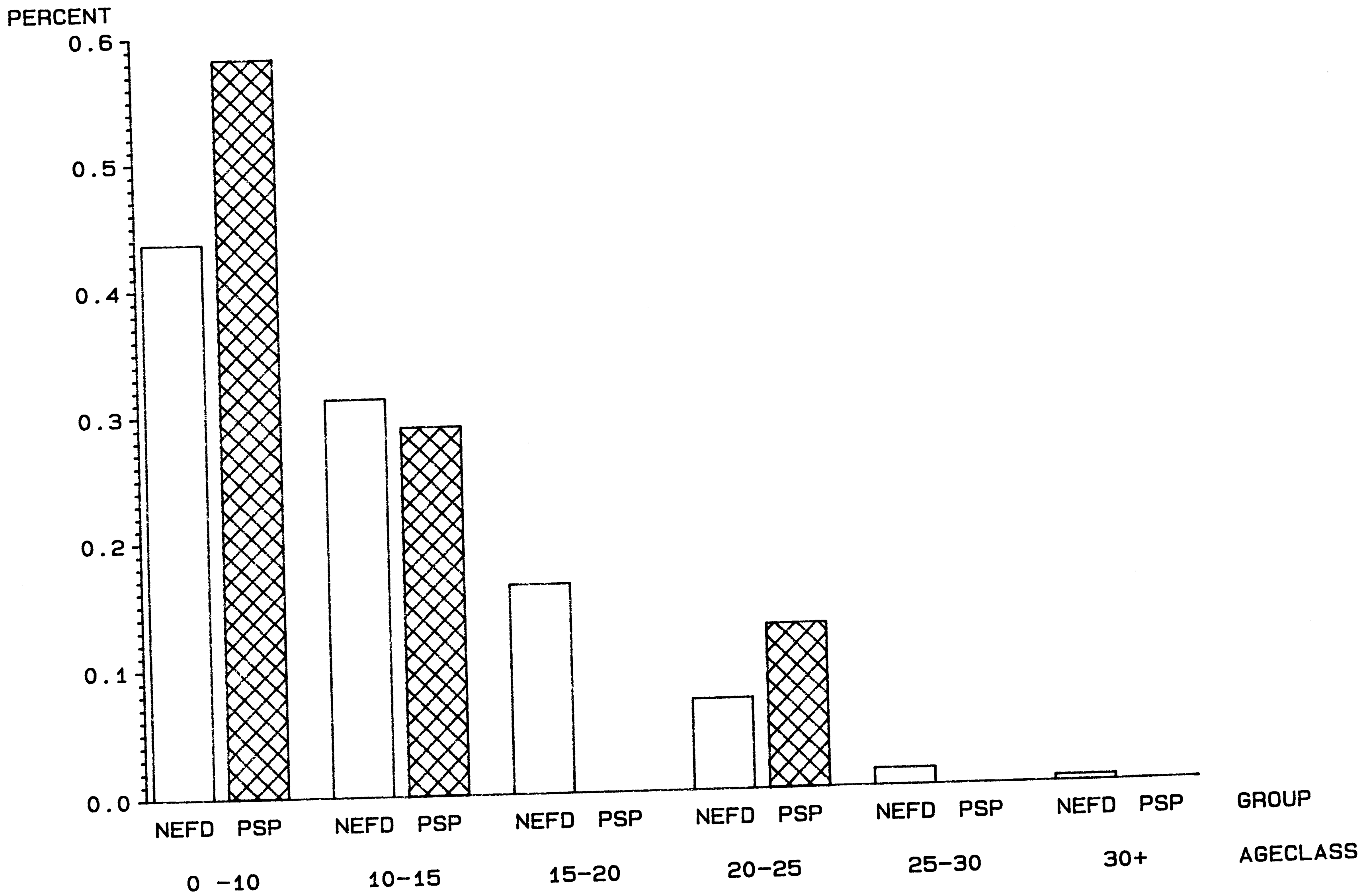
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.7 West Coast

PSP SURVEY (Experimental plots)

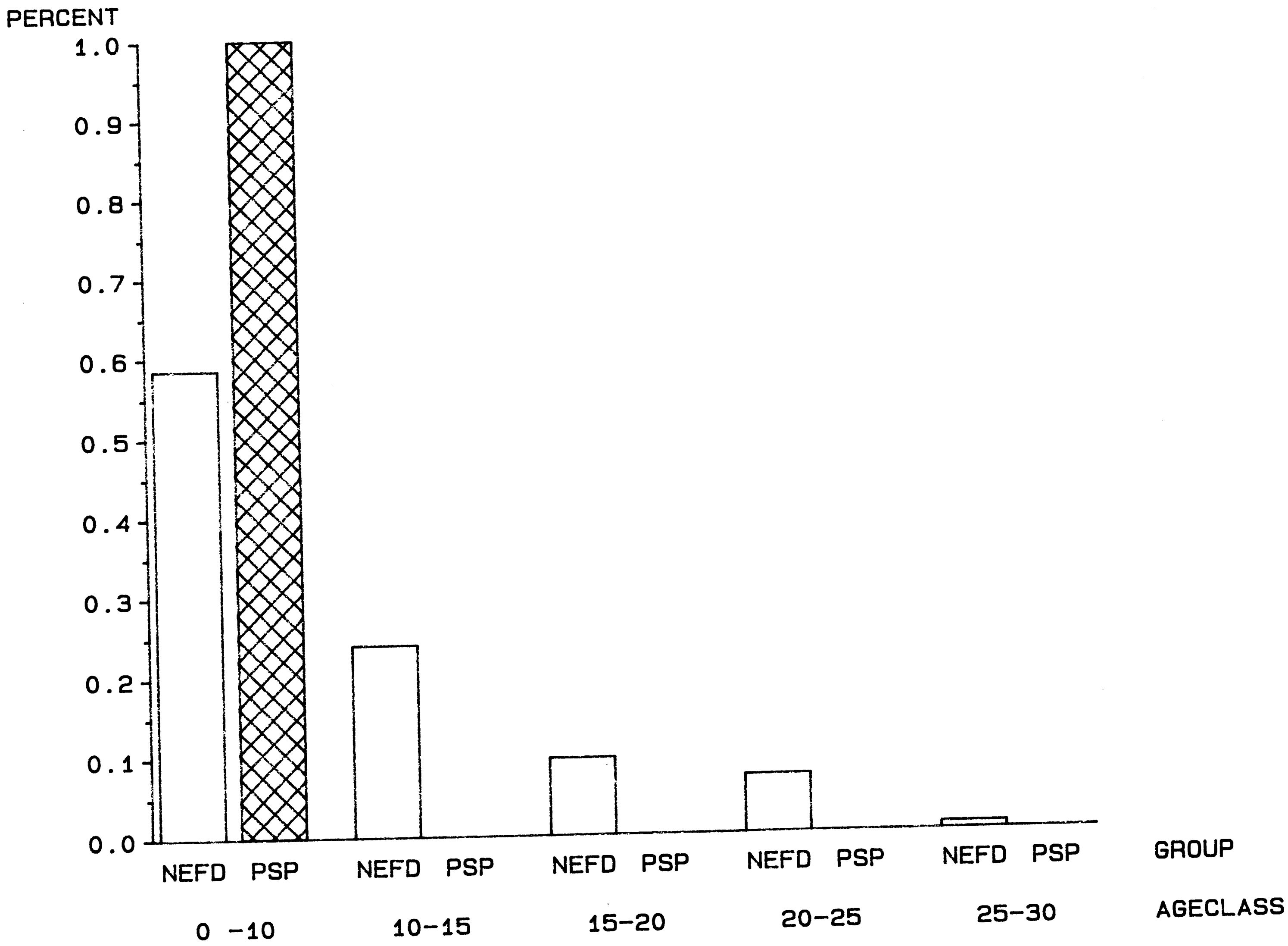
West Coast



PSP SURVEY (Experimental plots)

West Coast

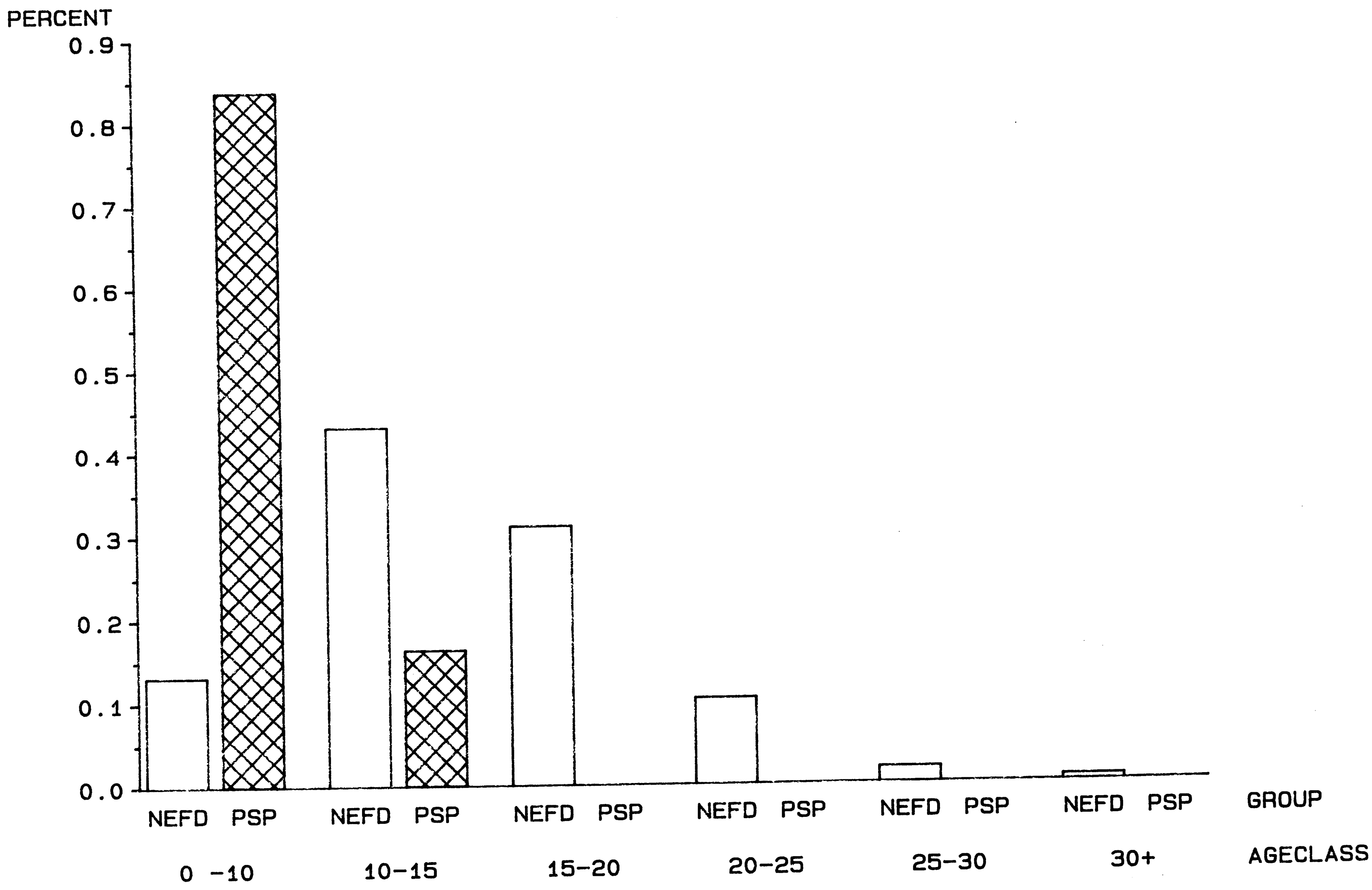
Unpruned & Unthinnned



PSP SURVEY (Experimental plots)

West Coast

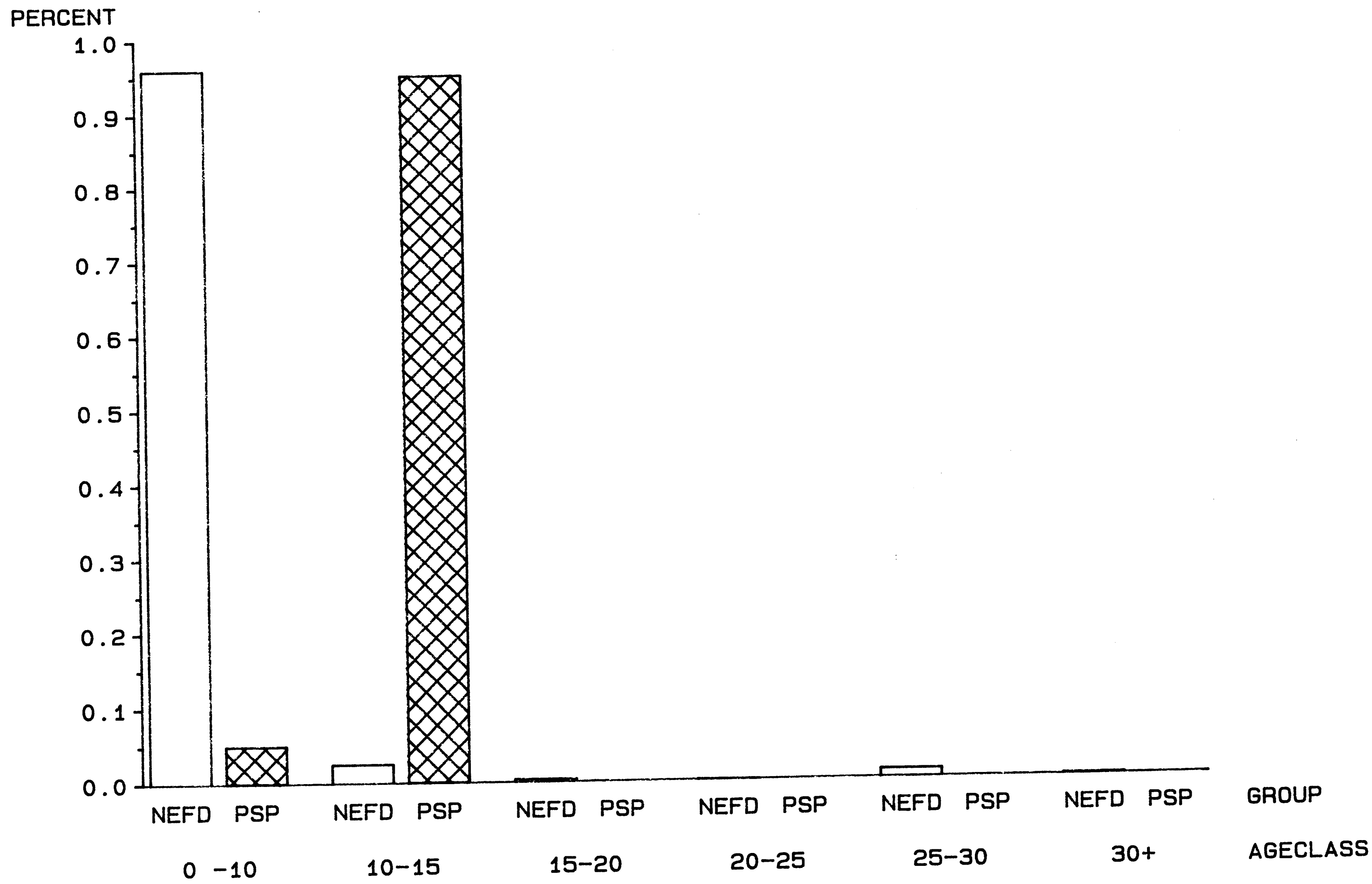
Pruned & Unthinned



PSP SURVEY (Experimental plots)

West Coast

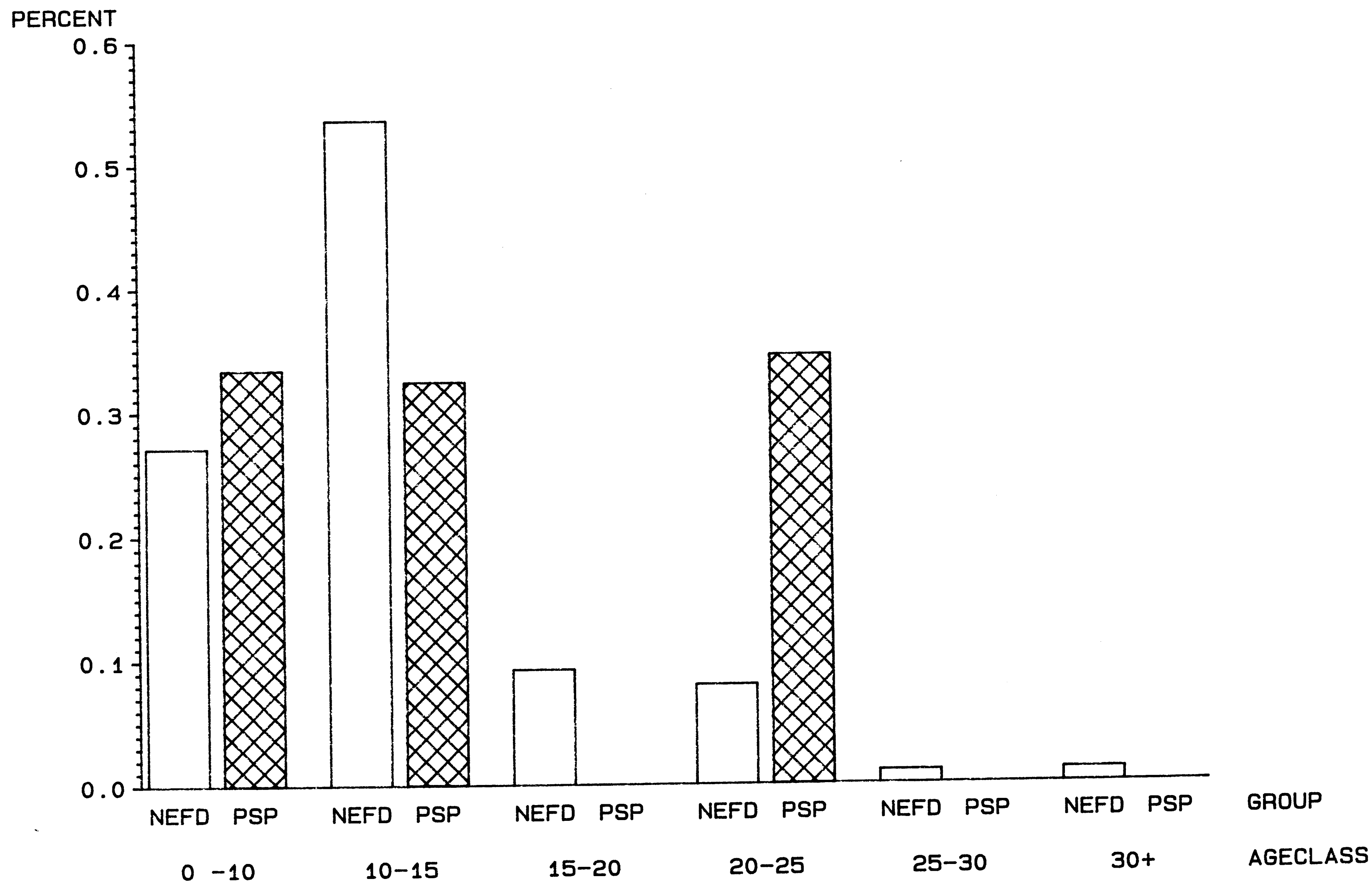
Unpruned & Thinned



PSP SURVEY (Experimental plots)

West Coast

Pruned & Thinned



WEST COAST (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS FREQUENCY	10-14.9	15-19.9	20-24.9	25-29.9	30-34.9	TOTAL
1	0	0	1	1	0	2
2	11	15	19	39	11	95
3	8	8	12	7	0	35
4	0	29	14	0	0	43
5	2	4	44	41	0	91
TOTAL	21	56	90	88	11	266

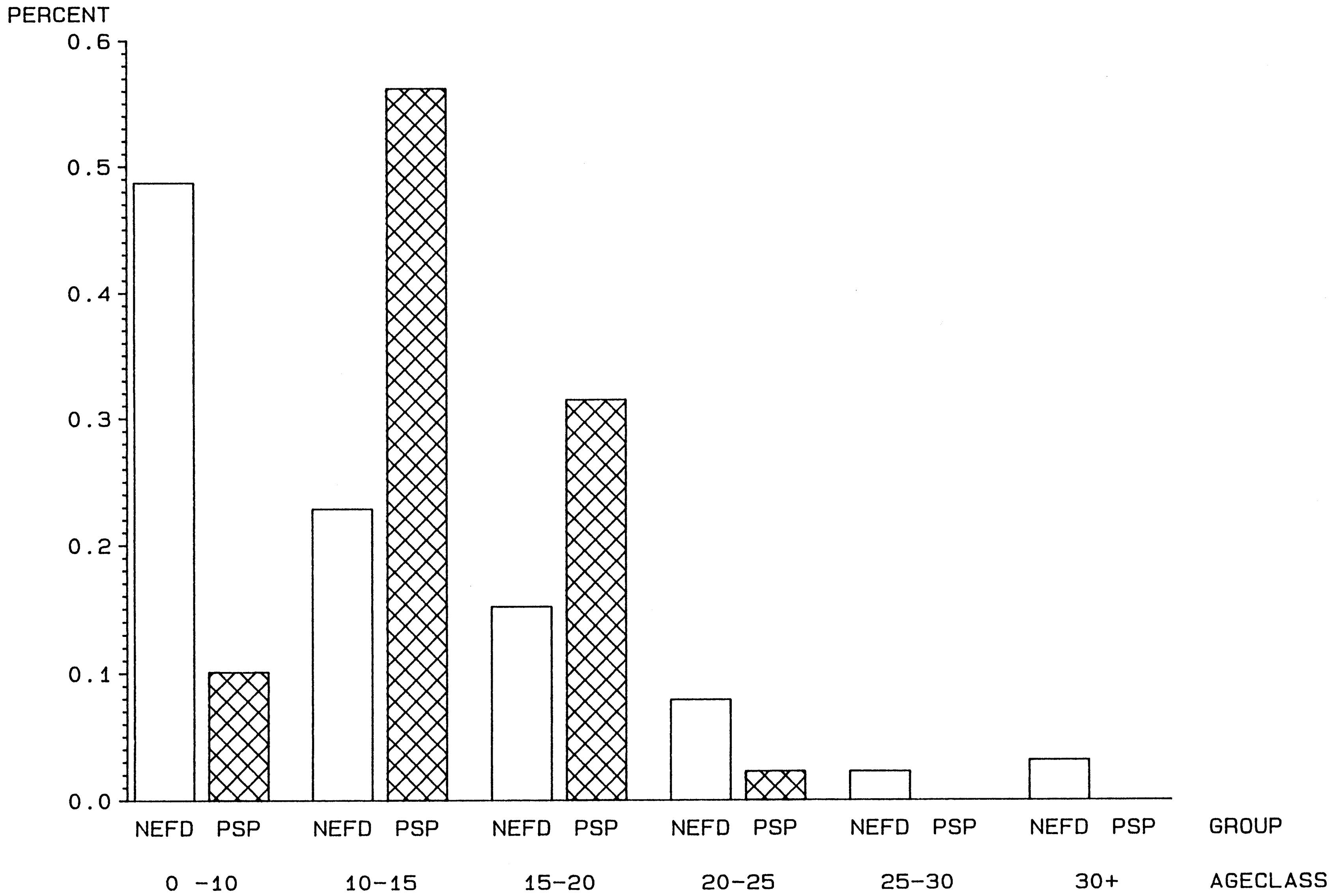
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.8 Canterbury

PSP SURVEY (Experimental plots)

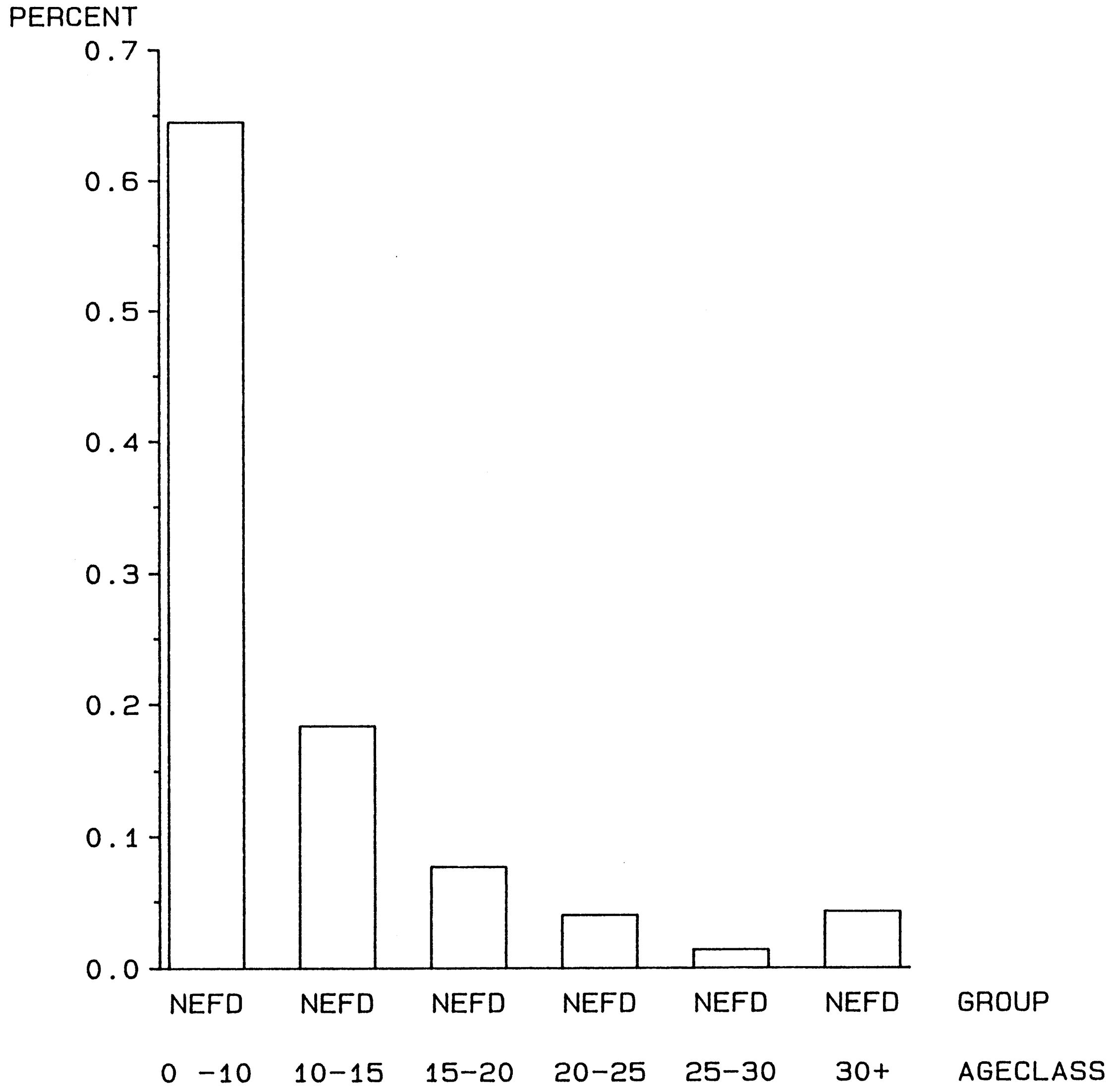
Canterbury



PSP SURVEY (Experimental plots)

Canterbury

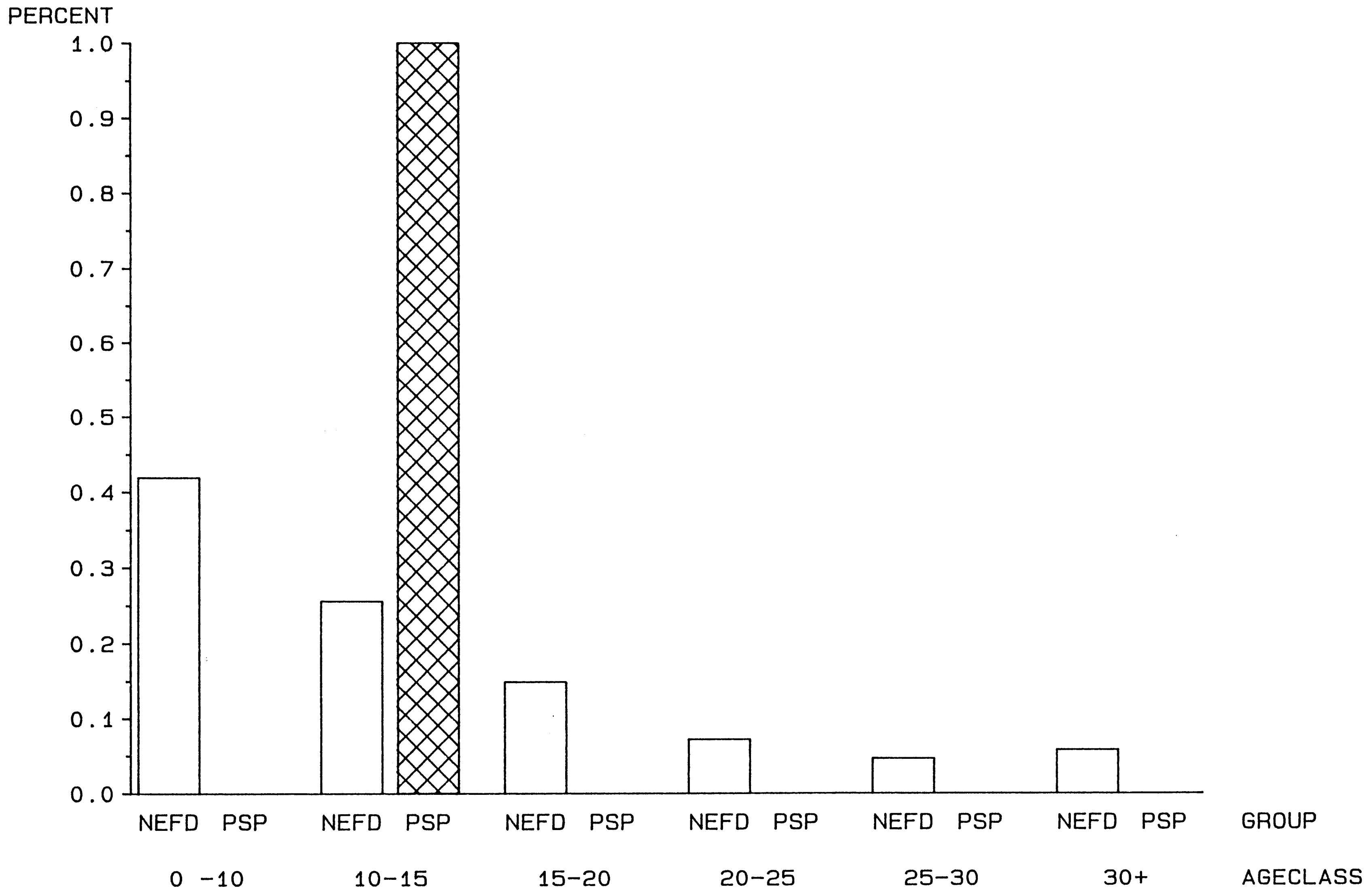
Unpruned & Unthinned



PSP SURVEY (Experimental plots)

Canterbury

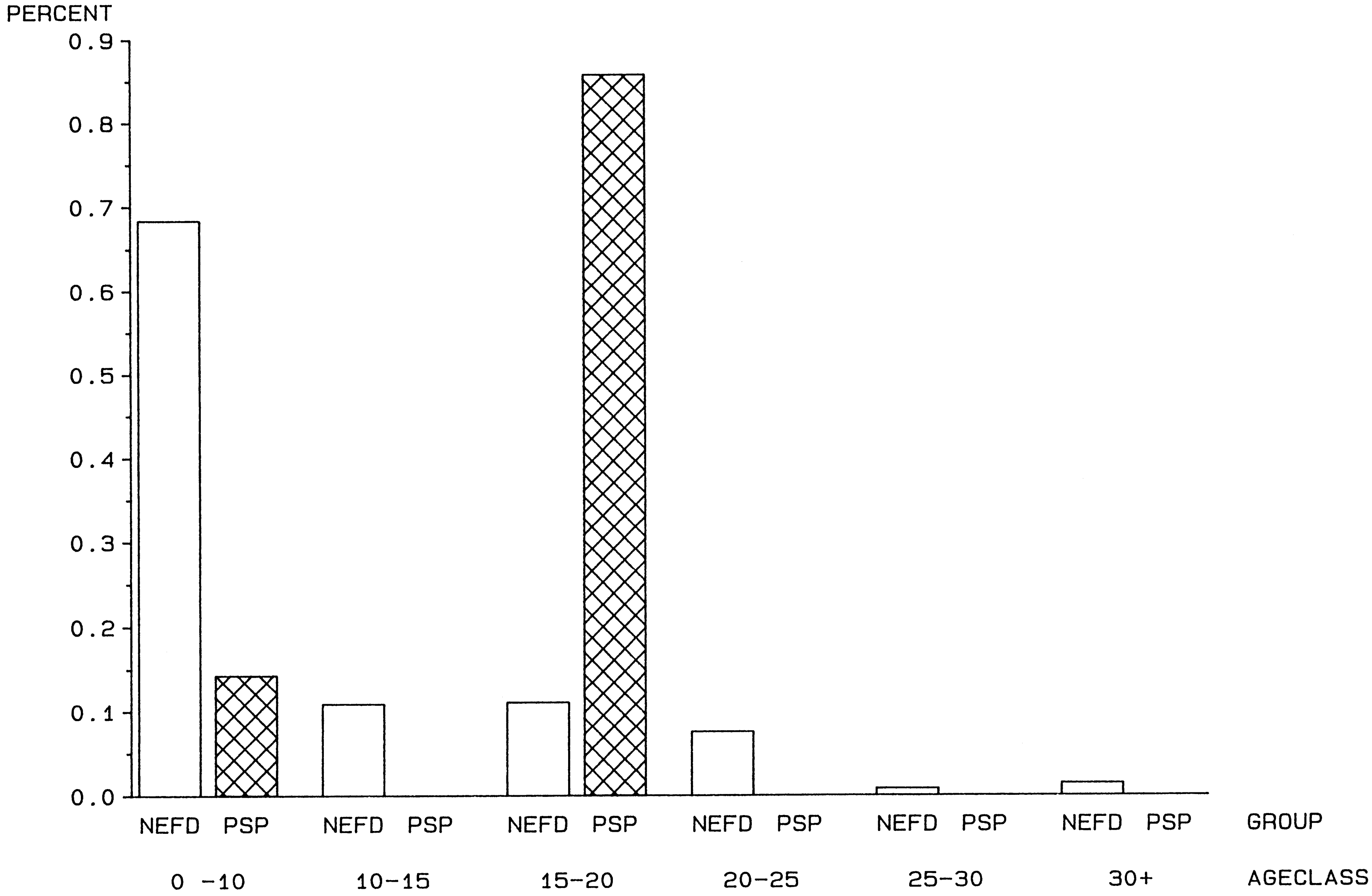
Pruned & Unthinned



PSP SURVEY (Experimental plots)

Canterbury

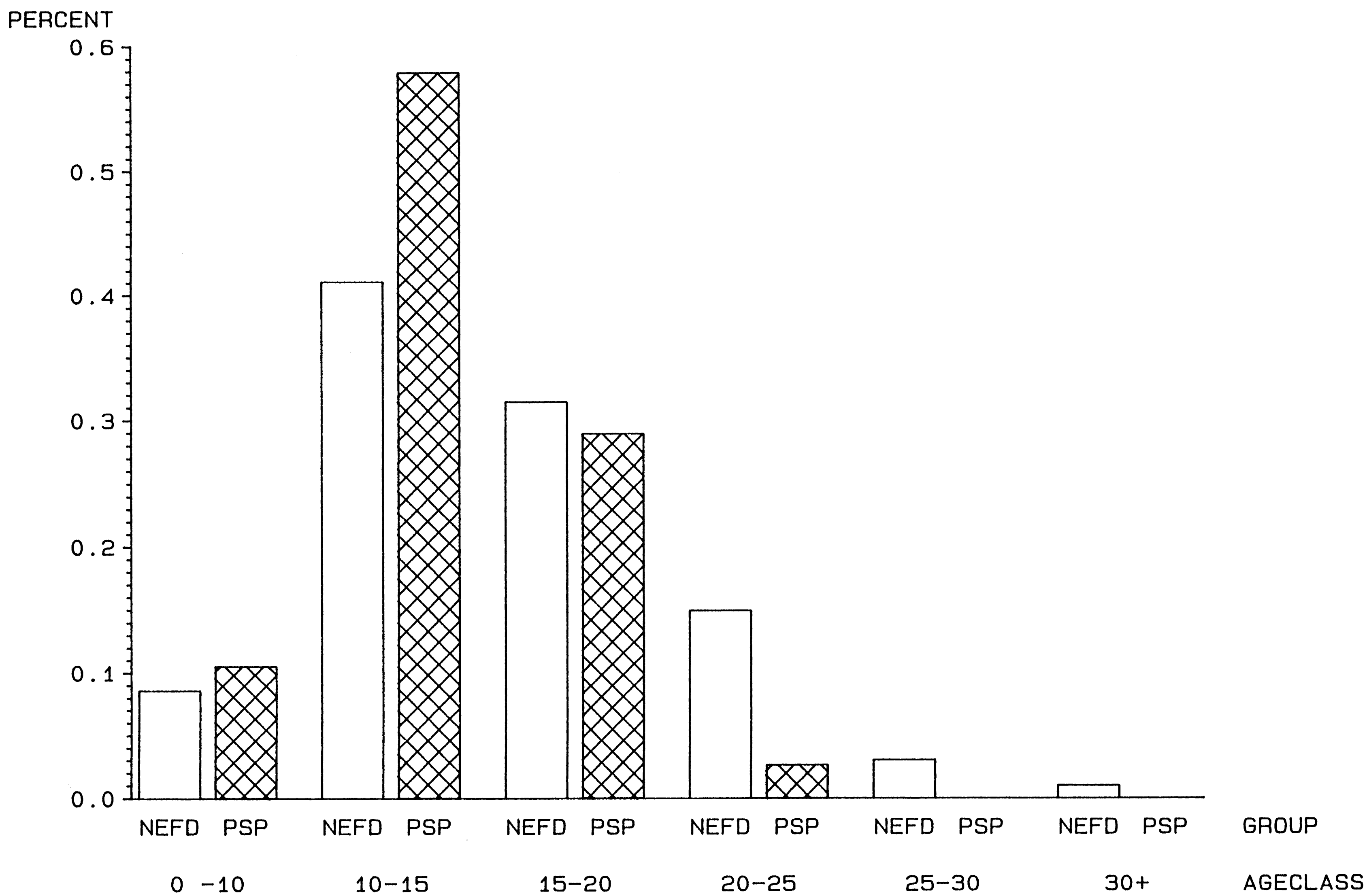
Unpruned & Thinned



PSP SURVEY (Experimental plots)

Canterbury

Pruned & Thinned



CANTERBURY (Experimental plots)

Final Crop Stocking vs Site Index

site index

	FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	TOTAL
F C S	1	6	11	17	0	34
	2	0	8	2	0	10
	3	2	7	10	1	20
	4	7	9	3	0	19
	5	0	6	0	0	6
	TOTAL	15	41	32	1	89

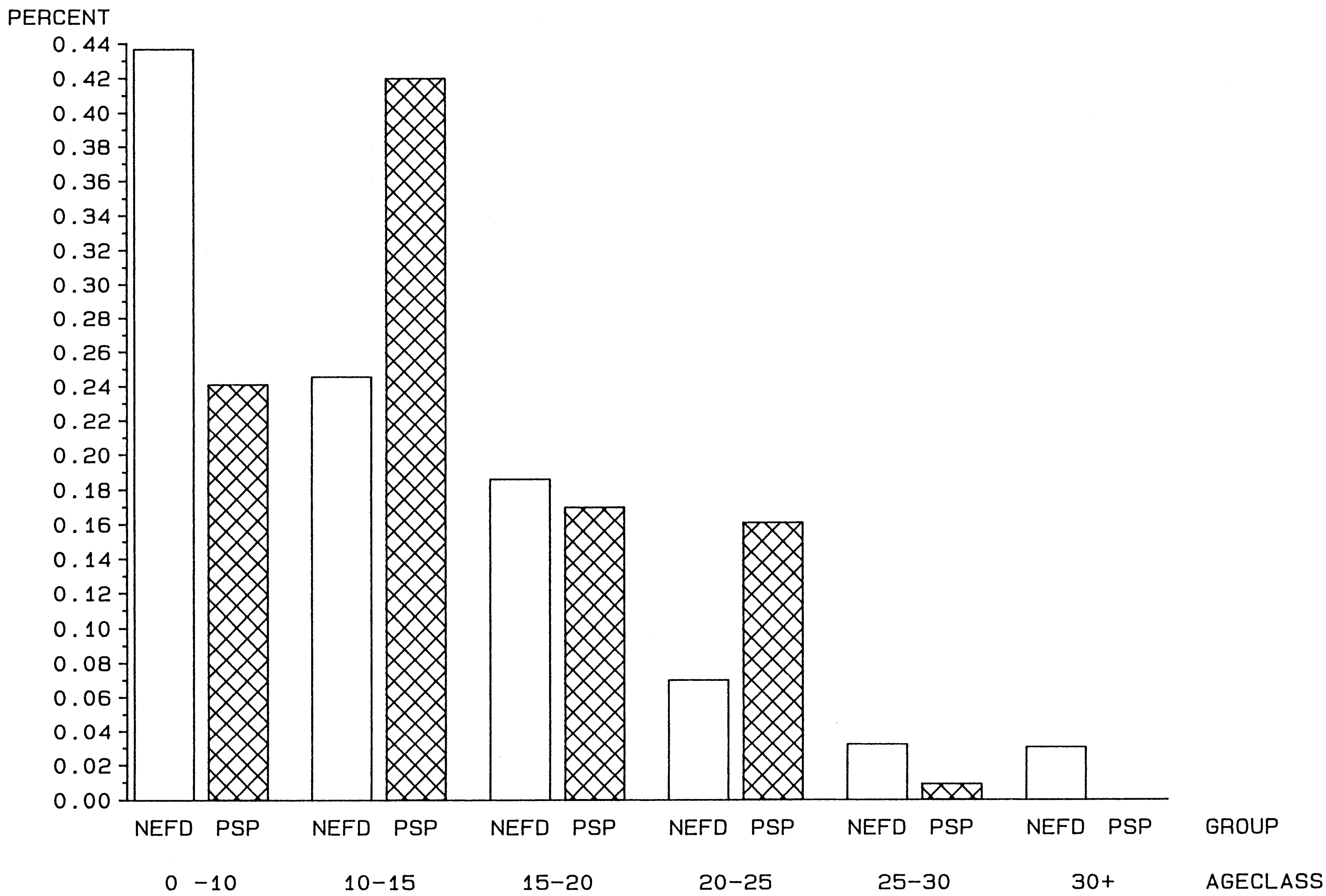
FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

2.9 Otago/Southland

PSP SURVEY (Experimental plots)

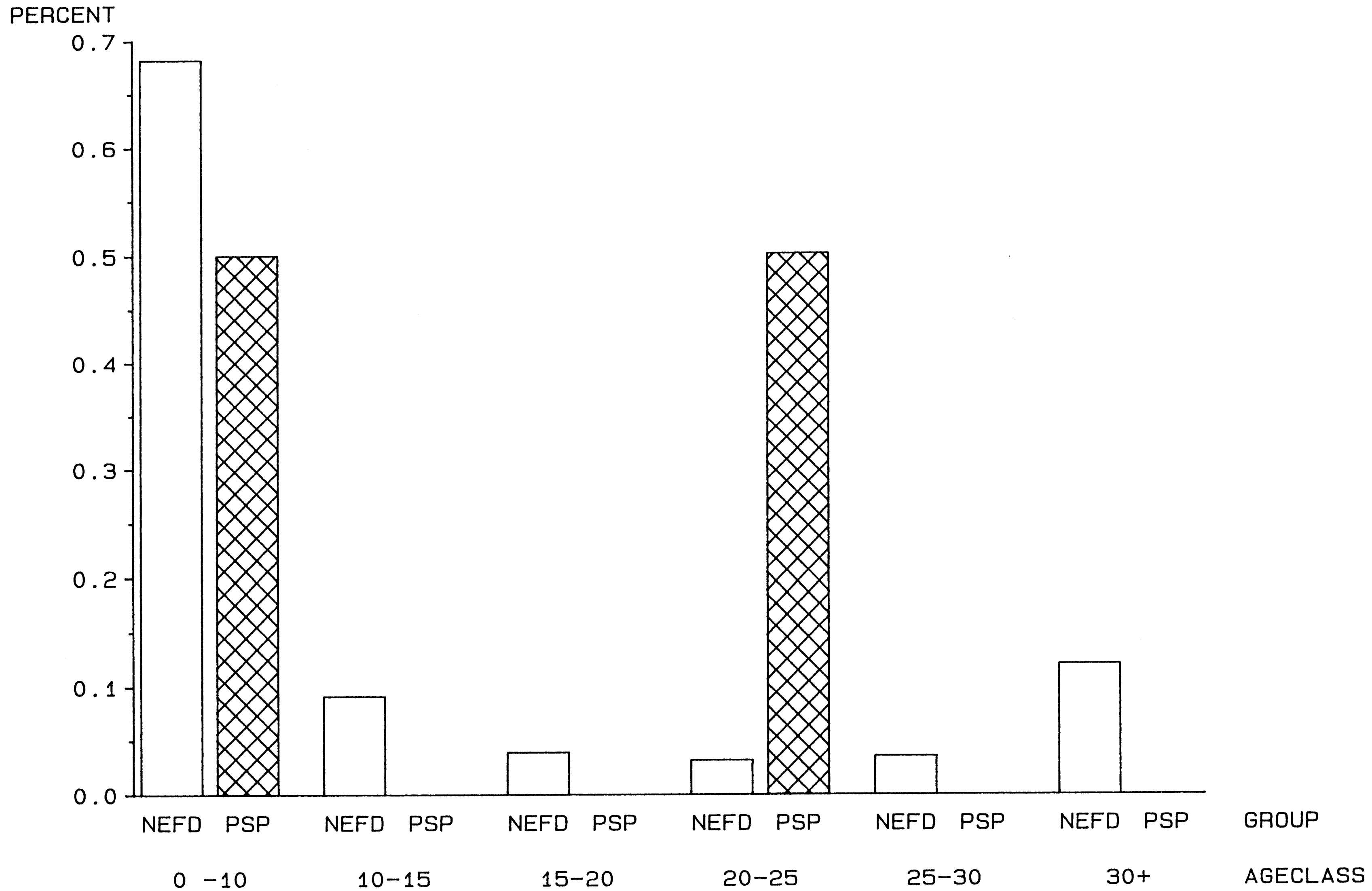
Otago/Southland



PSP SURVEY (Experimental plots)

Otago/Southland

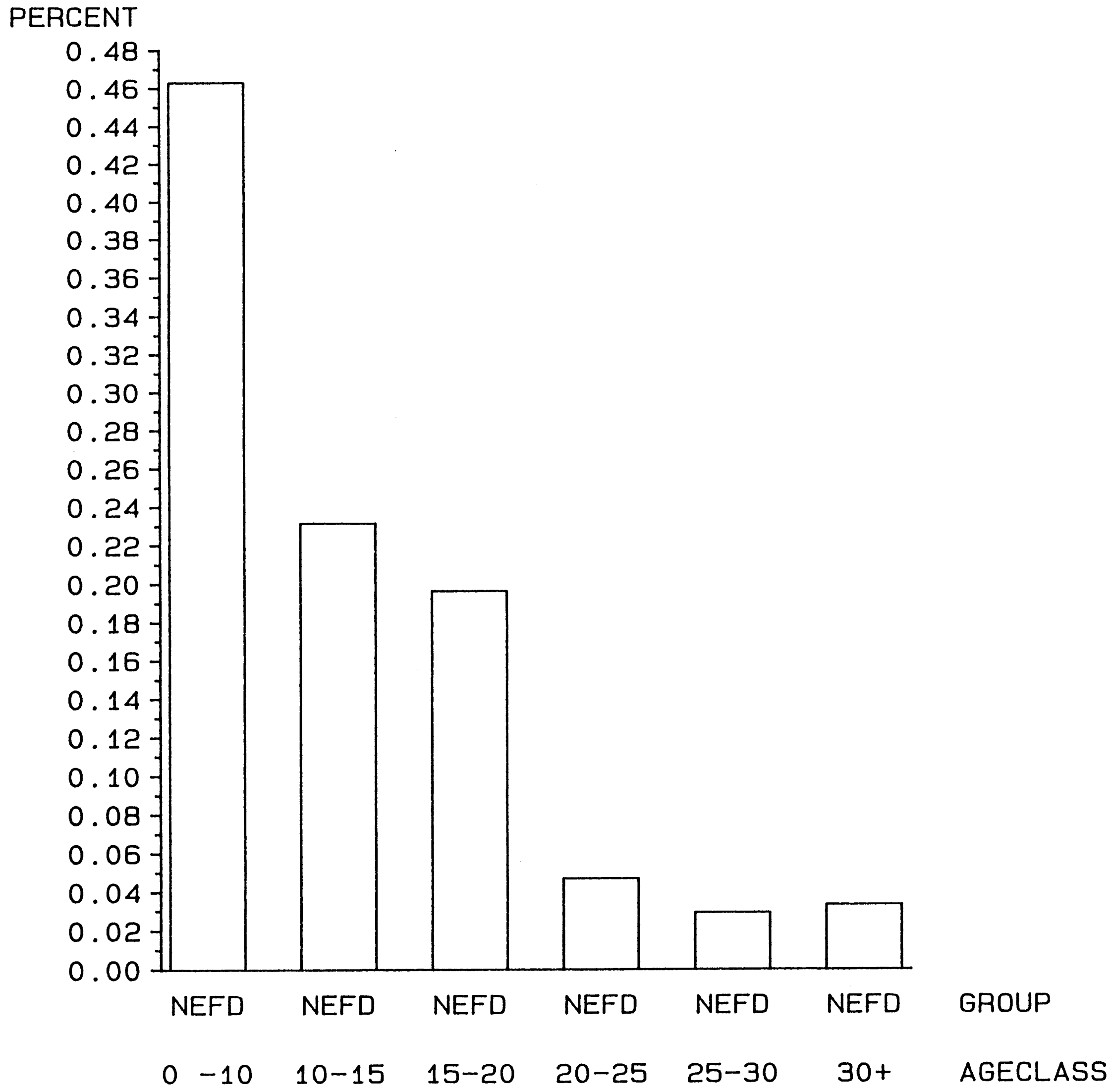
Unpruned & Unthinned



PSP SURVEY (Experimental plots)

Otago/Southland

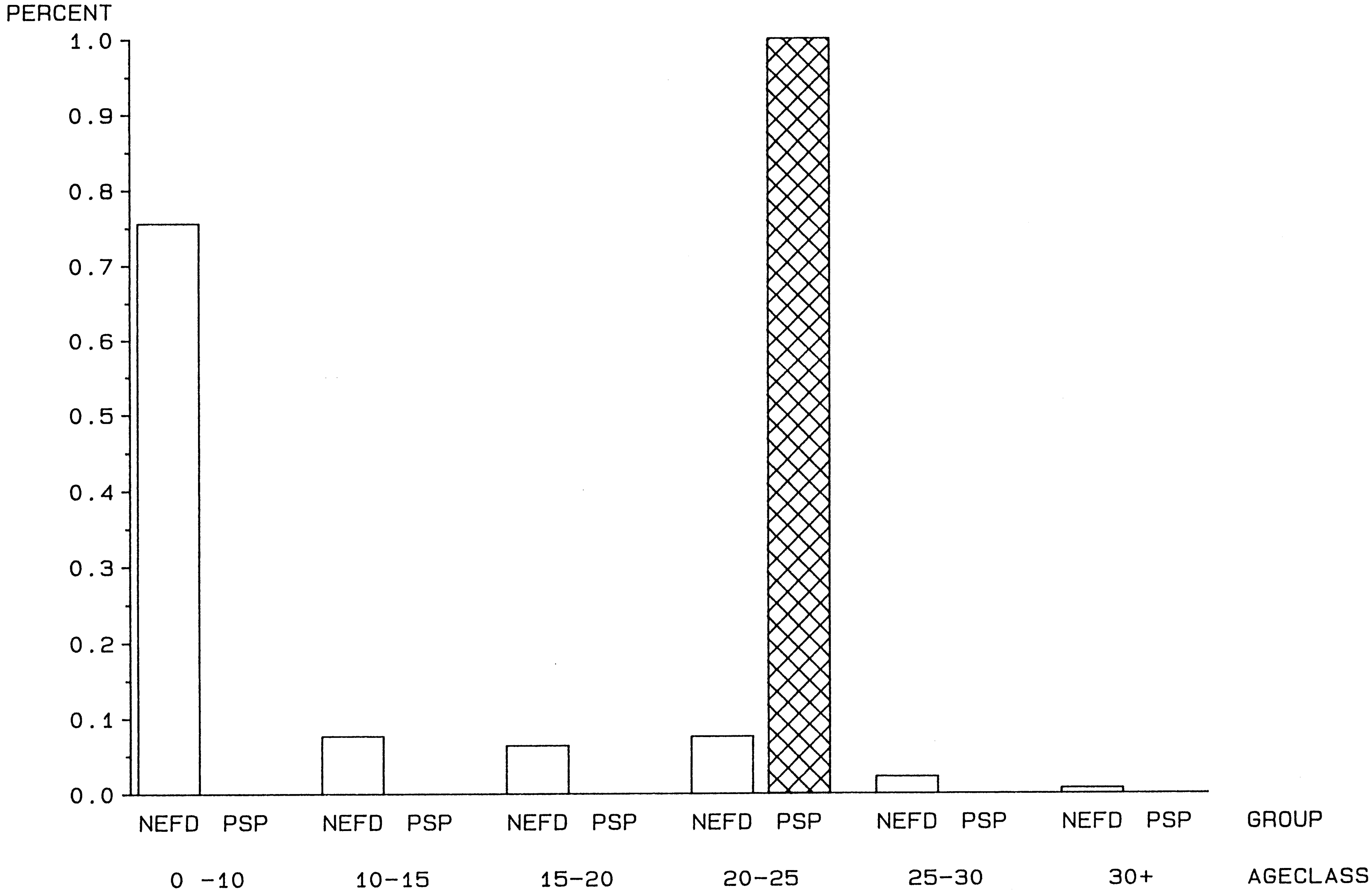
Pruned & Unthinned



PSP SURVEY (Experimental plots)

Otago/Southland

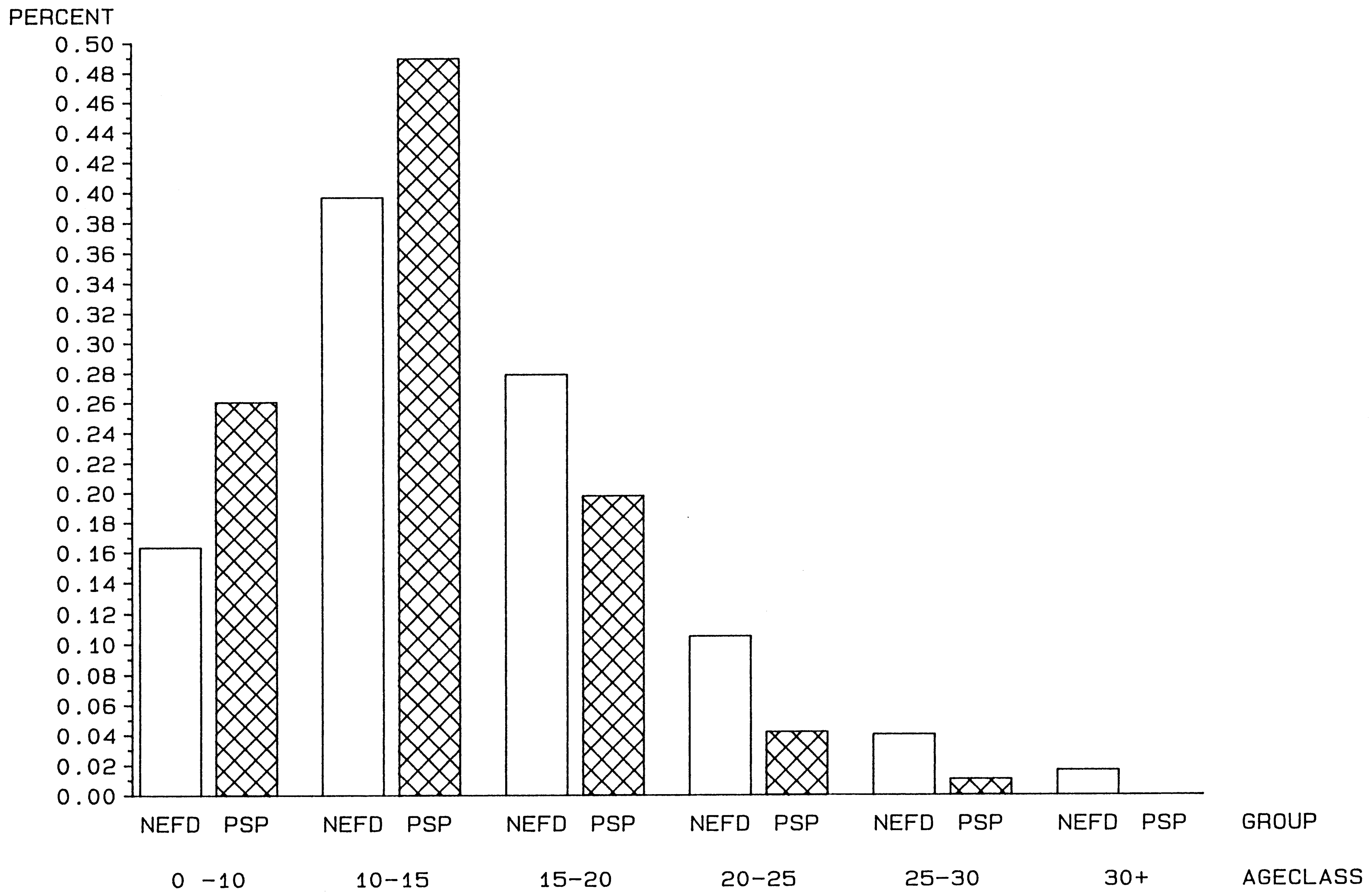
Unpruned & Thinned



PSP SURVEY (Experimental plots)

Otago/Southland

Pruned & Thinned



OTAGO/SOUTHLAND (Experimental plots)

Final Crop Stocking vs Site Index

site index

FCS FREQUENCY	15-19.9	20-24.9	25-29.9	30-34.9	TOTAL
0	3	6	2	0	11
1	6	12	8	0	26
2	4	4	20	10	38
3	3	10	10	0	23
4	0	5	3	0	8
5	2	3	1	0	6
TOTAL	18	40	44	10	112

FCS (stems/ha)

0=0-100
1=100-200
2=200-300
3=300-500
4=500+
5=unthinned

3.0 SUMMARY

As it is easier to identify any patterns in the distribution of the PSPs by looking at the graphs themselves, I have only written a very brief summary for each region.

Northland

There are very few experimental plots over the age of 20 years. In addition, the table shows few plots in the low stocking classes over site index 25m and an unusually high number of unthinned plots.

Auckland

The experimental PSPs range across all age classes but not all age classes are represented in each regime, except for the pruned and thinned regime.

Central North Island

Most age classes are represented in the four different regimes.

East Coast/Hawkes Bay

Most plots appear to be below 500 stems/ha.

Southern North Island

There are very few plots in this region at all, they are all younger than 20 years and at present there are no plots that are unthinned.

Nelson/Marlborough

Most plots have site indices greater than 25m. All age classes are reasonably well represented in thinned plots but not in unthinned plots.

West Coast

Most plots are younger than 15 years old.

Canterbury

There are very few plots in this region at all but they are spread across most stocking classes. There is a reasonable representation of age classes in the pruned and thinned regime but little elsewhere.

Otago/Southland

There are not many plots in higher stocked areas. Most age classes are represented by the pruned and thinned plots but are poorly represented by the other regimes.

5.0 REFERENCES

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