What is the price of these seedlings?

8.5 mm

INTENSIVE INTENSIVE INTENSIVE

STANDARD SEEDLINGS 1 / LARGE 1

LARGE 1 / STANDARD SEEDLING 1

LARGE 2 / STANDARD SEEDLING 2

STANDARD SEEDLINGS 1 / LARGE 1

LARGE 2 / STANDARD SEEDLINGS 2

STANDARD SEEDLINGS 2 / LARGE 2

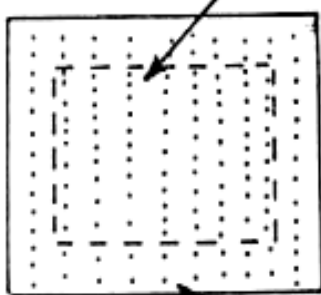REP. 3   REP. 1   REP. 2   REP. 3

DITCH
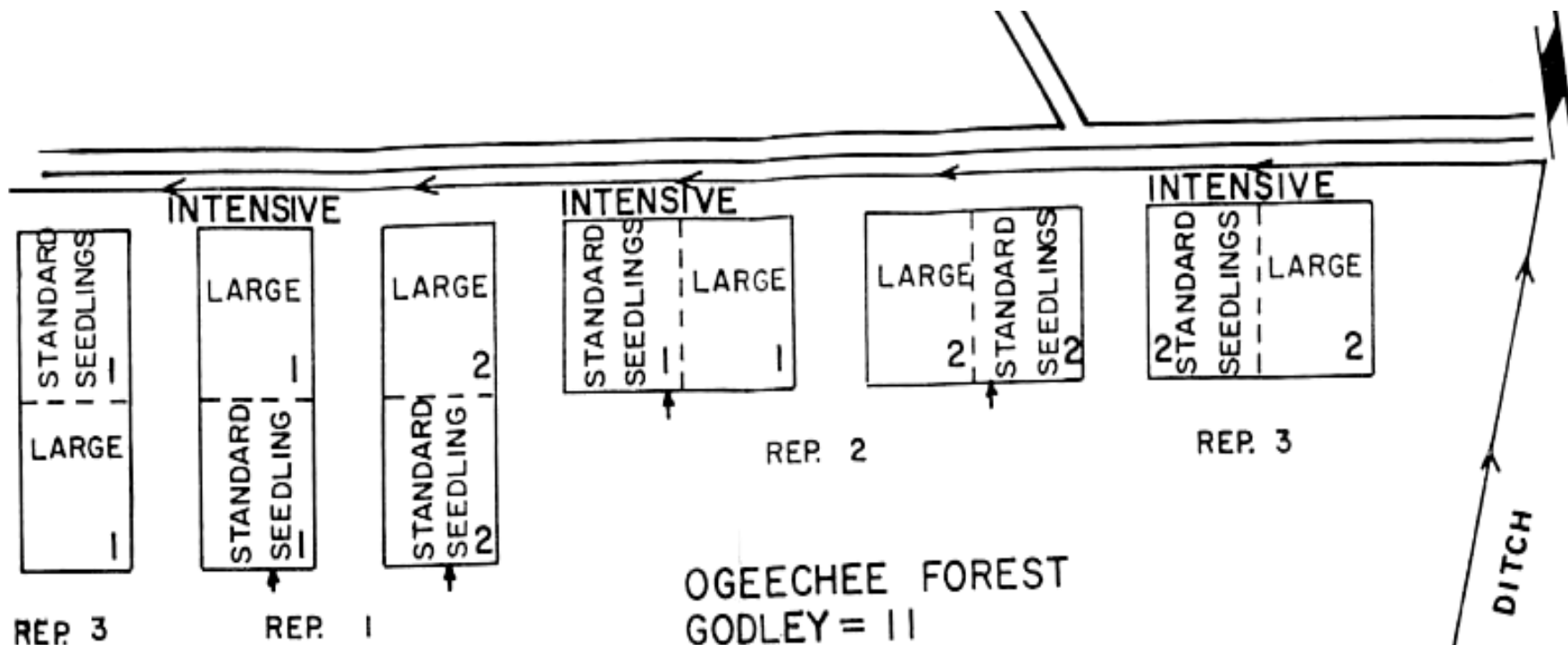
OGEECHEE FOREST
GODLEY = II

SEEDLING SIZE X INTENSIVE
MANAGEMENT STUDY
LOCATION TWO
PLANTED 2-3-93

NET PLOTS
8 ROWS X 10 SPACES

GROSS PLOTS
10 ROWS X 14 SPACES

Site locations

- Hamilton Ridge site in Hampton County, South Carolina

- Godley site in Tattnall County, Georgia

Growth and Yield Models

- TaedaRCD –
  by Euan Mason

- RCDlob –
  by Curtis VanderSchaaf

http://www.fore.canterbury.ac.nz/euan/taedaRCD.htm

Yield model for *Pinus taeda* on two selected sites with variable
initial seedling size and vegetation management intensity
Model and software by Euan G. Mason, University of Canterbury

Simulation	Location	Veg. Mgt.	Seedlings			
1	Godley	Normal	Select	Go	Graphs	Info
2	Godley	Normal	Select	Delimited output: ☐		

Age (years)	Mean height (m)		Basal area/ha (m²)		Mean dbh (cm)		Stems/ha		Volume/ha (m³)	
	1	2	1	2	1	2	1	2	1	2

http://www.fore.canterbury.ac.nz/euan/taedaRCD.htm

Root collar diameter	Relative Frequency
4 mm	0.31
5 mm	0.52
6 mm	0.17
7 mm	0
8 mm	0
9 mm	0
10 mm	0
11 mm	0

Small plants   Large plants

Register

Root collar diameter	Relative Frequency
4 mm	0
5 mm	0
6 mm	0
7 mm	0.31
8 mm	0.32
9 mm	0.2
10 mm	0.1
11 mm	0.07

Small plants   Large plants

Register

http://www.fore.canterbury.ac.nz/euan/taedaRCD.htm

Yield model for *Pinus taeda* on two selected sites with variable
initial seedling size and vegetation management intensity
Model and software by Euan G. Mason, University of Canterbury

Simulation	Location	Veg. Mgt.	Seedlings
1	Godley ▾	Normal ▾	Select	Go	Graphs	Info
2	Godley ▾	Normal ▾	Select	Delimited output: ☐

Age (years)	Mean height (m)		Basal area/ha (m²)		Mean dbh (cm)		Stems/ha		Volume/ha (m³)	
	1	2	1	2	1	2	1	2	1	2
0	0.3	0.4	0	0	0	0	1405	1405	0	0
1	0.7	0.8	0	0	0	0	1478	1478	0	0
2	1.6	1.9	0	0	0	0	1475	1475	0	0
3	2.6	3	0	0.1	0.3	1	1473	1473	0	0
4	3.8	4.2	0.3	1.2	1.6	3.2	1471	1471	0	2
5	4.9	5.5	1.6	3.8	3.7	5.7	1470	1470	3	8
6	6	6.6	4	7.2	5.9	7.9	1468	1468	9	18
7	7.1	7.8	7	10.8	7.8	9.7	1467	1467	18	31
8	8.2	8.9	10.2	14.2	9.4	11.1	1466	1466	31	46
9	9.3	10	13.3	17.2	10.8	12.2	1466	1466	45	63
10	10.3	11.1	16.2	19.8	11.9	13.1	1465	1465	61	79
11	11.3	12.1	18.7	22	12.8	13.8	1464	1464	77	96
12	12.3	13.1	20.9	23.9	13.5	14.4	1463	1463	93	113

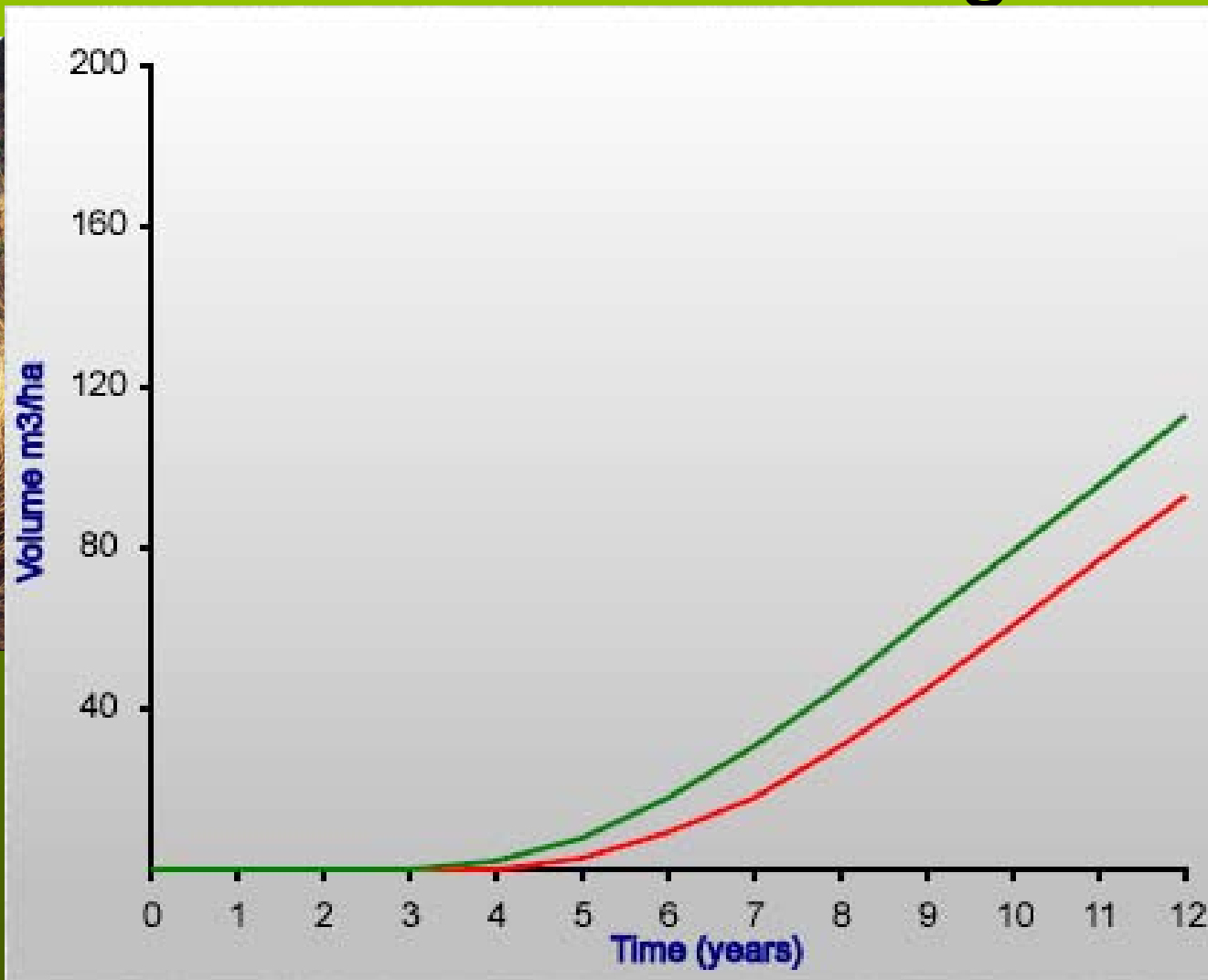http://www.fore.canterbury.ac.nz/euan/taedaRCD.htm
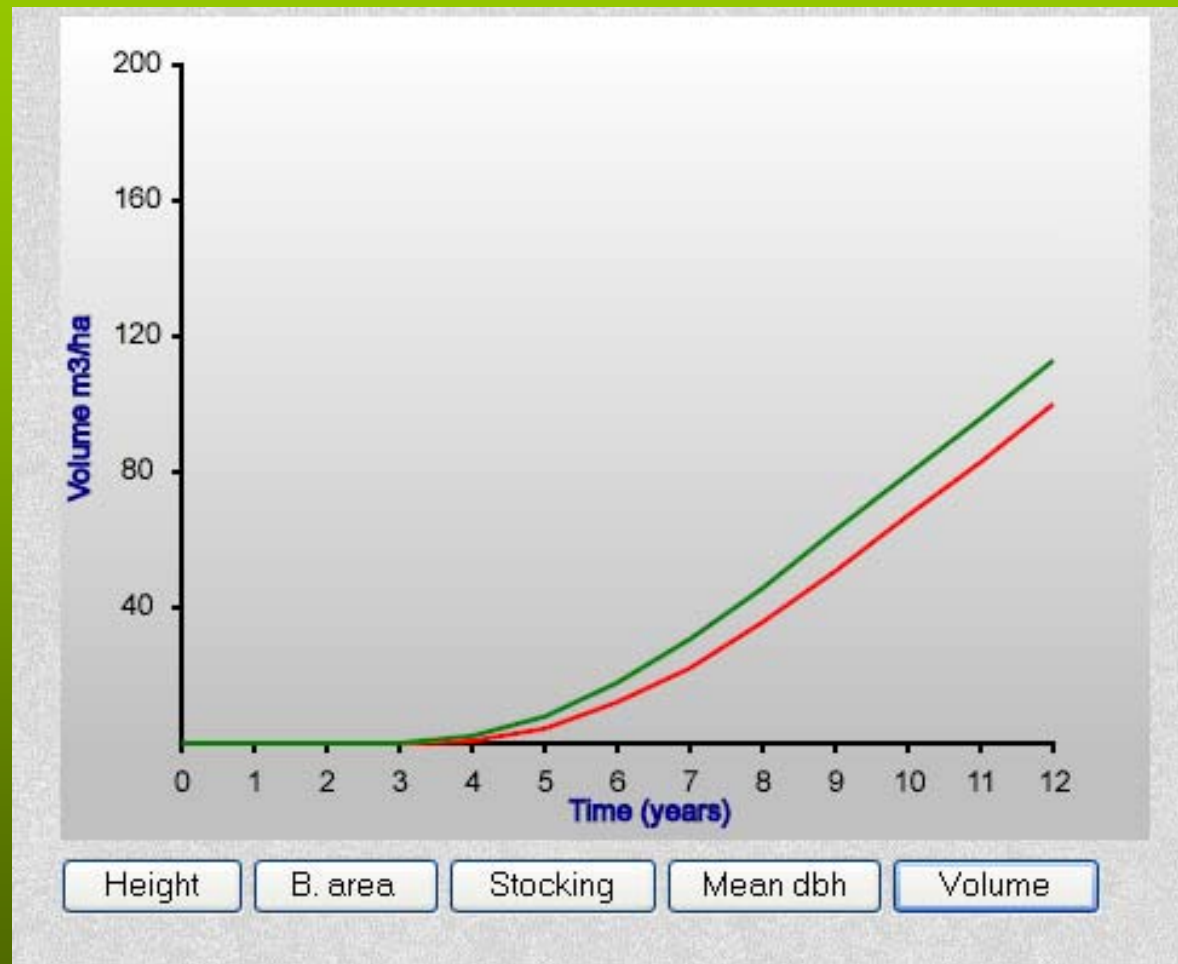
What is the growth advantage of planting 8.5 mm seedlings instead of 4 mm seedlings?

about 283 cubic feet/acre by age 12 yr

(20 extra cubic meters/ha)   - regular silviculture

What is the growth advantage of planting 8.5 mm seedlings instead of 4 mm seedlings?

Which option produces more wood at age 12 yr?

Which option produces more wood at age 12 yr?
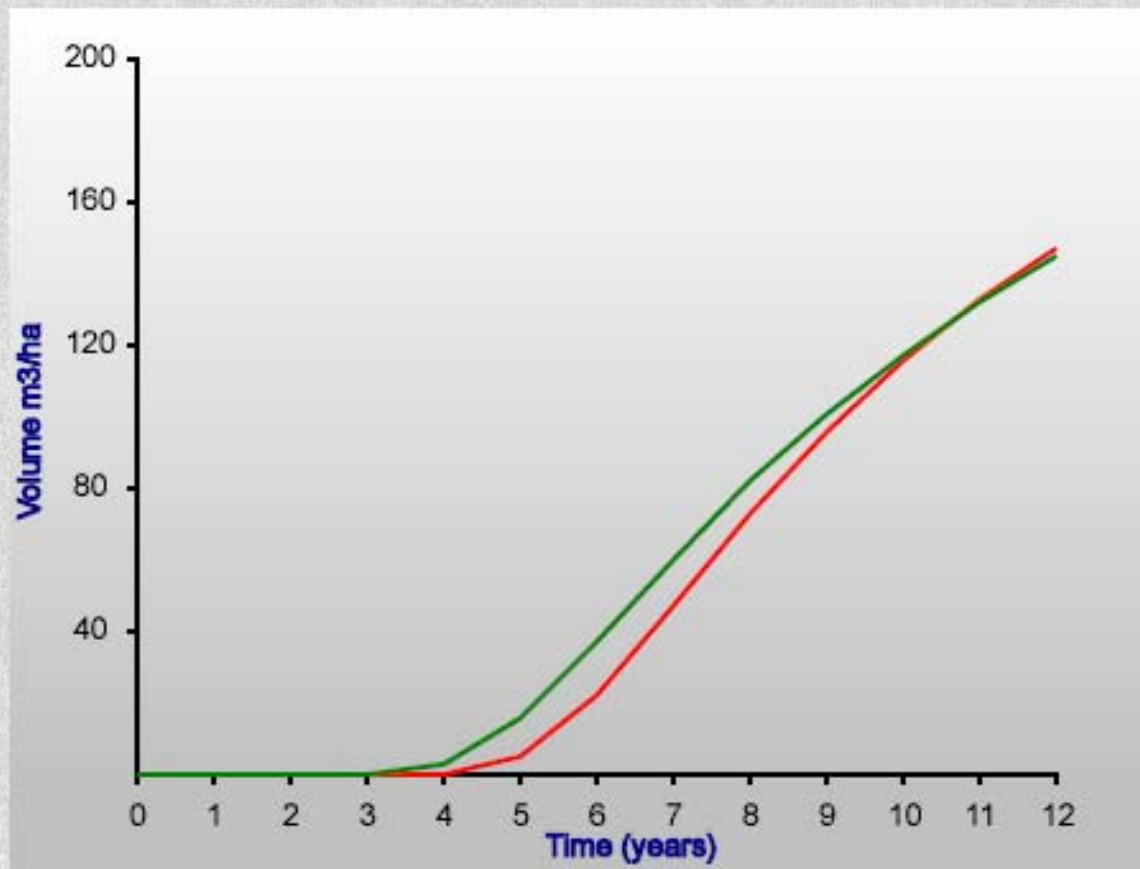

Hamilton ridge 145   147 cubic meters/ha

Godley   113   180 cubic meters/ha

Which option produces more wood at age 12 yr?

Is this treatment economical?

INTENSIVE

REG RCD

- Shear-rake-pile bed
- DAP at planting
- Velpar and Oust at planting

- Shear-rake-pile bed
- DAP at planting
- Velpar and Oust at planting
- 2 insecticide - yr 1
- Arsenal + Escort -yr 1
- Arsenal + Escort - yr 2
- 2 insecticide - yr 2
- KCl + DAP - yr 3

$290

$466

- Shear-rake-pile bed
- DAP at planting
- Velpar and Oust at planting

- Shear-rake-pile bed
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- Velpar and Oust at planting
- 2 insecticide - yr 1
- Arsenal + Escort -yr 1
- Arsenal + Escort - yr 2
- 2 insecticide - yr 2
- KCl + DAP - yr 3

http://filebox.vt.edu/~cvanders/RCDlob062006.exe

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Growth

Standard Seedlings

Age	QMD	TPA	BAA	AHT	CUBIC	PULP	CHIP	SAW	NPV	EAE	IRR
							Tons per Acre				
1	0.00	497	0	2.0	0	0	0	0	-458.77	-486.30	0.0
2	0.31	497	0	5.1	0	0	0	0	-462.33	-252.17	0.0
3	0.54	497	1	9	-3	0	0	0	-465.69	-174.22	0.0
4	0.79	497	2	12	2	0	0	0	-468.86	-135.31	0.0
5	1.79	493	9	16	46	0	0	0	-471.85	-112.02	0.0
6	2.79	493	21	20	148	0	0	0	-474.67	-96.53	-49.0
7	3.79	493	39	24	332	2	0	0	-465.90	-83.46	-32.7
8	4.79	493	62	28	619	12	0	0	-426.90	-68.75	-17.0
9	5.50	493	81	32	929	23	0	0	-384.91	-56.59	-9.3
10	5.92	493	94	36	1,201	33	0	0	-354.76	-48.20	-5.4
11	6.26	493	105	39	1,526	45	0	0	-321.28	-40.74	-2.3
12	6.56	492	116	43	1,811	55	0	0	-297.55	-35.49	-0.5
13	6.85	492	126	46	2,138	67	0	0	-272.08	-30.73	1.0
14	7.10	488	134	49	2,437	77	0	0	-254.05	-27.33	2.0
15	7.33	487	143	52	2,753	87	1	0	-231.72	-23.86	2.9
16	7.53	486	150	55	3,060	93	6	0	-186.26	-18.43	4.1
17	7.70	485	157	58	3,356	99	11	0	-149.33	-14.25	4.9
18	7.90	480	163	61	3,691	95	25	0	-62.35	-5.76	5.9
19	8.07	471	167	63	3,955	88	40	0	9.57	0.86	6.2
20	8.29	462	173	66	4,376	72	69	0	149.89	13.07	7.5
21	8.40	459	177	68	4,584	64	84	0	196.74	16.72	7.8
22	8.54	456	181	70	4,875	54	103	0	259.68	21.57	8.1
23	8.66	454	186	72	5,142	44	123	0	313.91	25.51	8.4
24	8.81	442	187	74	5,414	32	141	0	347.73	27.71	8.5
25	9.05	424	189	76	5,805	20	162	0	392.72	30.72	8.6

Planting density: 500   Average RCD: 3.00   Regeneration scenario: 1

Morphologically-improved Seedlings

Age	QMD	TPA	BAA	AHT	CUBIC	PULP	CHIP	SAW	NPV
							Tons per Acre		
1	0.00	397	0	2.5	0	0	0	0	-331.77
2	0.37	397	0	6.0	0	0	0	0	-335.33
3	0.63	397	1	10	-1	0	0	0	-338.69
4	0.90	397	2	14	5	0	0	0	-341.86
5	1.90	394	8	18	47	0	0	0	-344.85
6	2.90	394	18	22	141	0	0	0	-347.67
7	3.90	394	33	26	306	3	0	0	-337.70
8	4.90	394	52	30	559	12	0	0	-302.27
9	5.90	394	75	34	916	25	0	0	-250.78
10	6.75	394	98	38	1,330	41	0	0	-197.94
11	7.09	394	108	42	1,622	51	0	0	-170.81
12	7.38	393	117	45	1,905	61	0	0	-148.69
13	7.64	393	125	48	2,186	71	0	0	-129.76
14	7.87	392	132	51	2,472	78	3	0	-92.56
15	8.07	392	139	54	2,751	77	14	0	-5.32
16	8.26	392	146	57	3,027	70	31	0	104.85
17	8.43	391	152	60	3,303	56	55	0	242.46
18	8.58	391	157	63	3,568	39	81	0	376.55
19	8.77	384	161	65	3,865	21	108	0	494.31
20	8.90	383	166	67	4,119	12	125	0	548.96
21	9.02	383	170	70	4,360	8	138	0	573.43
22	9.12	383	174	72	4,592	5	149	0	584.88
23	9.23	382	177	74	4,822	3	159	0	585.68
24	9.32	381	181	76	5,045	2	168	0	578.13
25	9.43	378	183	77	5,273	2	175	0	560.31

Planting density: 400   Average RCD: 7.00   Regeneration sce

What is the growth advantage of planting 8.5 mm seedlings instead of 4 mm seedlings?

about 212 cubic feet/acre by age 12 yr
And about 85 cubic feet/acre by age 25 yr
regular silviculture

Which option produces more wood at age 12 and 25 yr?

Which option produces more wood at age 12 and 25 yr?

| 64 tons | 73 tons | age 12 yr |
| 186 tons | 192 tons | age 25 yr |

Which option produces a greater Present Value at age 25 yr?

Which option produces a greater Net Present Value at age 25 yr?

$620/acre

$493/acre   age 23

What is the economic advantage of planting 8.5 mm seedlings instead of 4 mm seedlings?

NPV = $555/acre

NPV = $620/acre

or about $0.13 extra per seedling

Which option produces more wood at age 12 and 25 yr?

72 tons	82 tons	age 12 yr
192 tons	201 tons	age 25 yr

12/1/93
INTENSIVE
LARGE RCD

Each run is slightly different (does not represent average response).

Run	Standard	MI seedlings	difference
1	180	188	8
2	179	183	4
3	178	189	11
4	178	191	13
5	182	187	5
6	179	186	7
avg	179	187	8

You can use these G&Y models to
justify growing morphologically improved seedlings
at low seedbed densities.

In some cases, the value is 17 cents per seedling.

12/1/93

LARGE RCD

QUESTIONS?

12/1/93

INTENSIVE

LARGE RCD