

# Subsoil/Chemical - Planting - Return Analysis

Rotation (years)	28
Annual 'Diameter' Growth Maintained after First Thinning (inches)	0.38
Annual Merchantable Height Growth in Feet after First Thinning (Merch. Ht.)	1.0
Acres	100
Seedlings per Acre (Arkansas Native 2nd Generation)	545
Mortality between establishment and 1st Thinning	20%
Mortality between thinnings (after 1st Thinning)	10%
Discount and Reinvestment Rate (alternative investment rate)	5.31%
Management Expenses	15%
After thinning dbh increase (inches; smaller trees removed)	0.50
Seedling Cost per Seedling (pickup, storage, & delivery)	\$ 0.050
Planting Cost per Seedling	\$ 0.080
Cumulative Reforestation Cost	\$ (316)
Intermediate Treatment Investments	\$ (100)
Regular Thinning Target Basal Area	70
Seed Tree Thinning Target Basal Area	NA

**Rotation Length: 28**  
**Acres: 100**  
**Rate of Return: 7.3%**  
**Net Present Value: \$ 458**

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Teddy Reynolds, BSF, RF, SR

		Harvest Volumes per Acre										Numbers below do not include appreciation										
		Diameter & Height Growth				Per Tree		Per Acre		Ton Rate	Harvest		Investment		ROR	NPV	NAV					
Year	Age	Treatment	Trees	Thinned Trees	Dbh. (inches)	Merch. Ht. (feet)	Logs (16 feet)	CF	Tons		CF	Tons	Per Acre	Total	Per Acre	Total	Per Acre	Per Acre	Per Acre			
28	2004	0 Land												\$ (400)	\$ (40,000)	\$ (400)	\$ (400)	\$ (1,703)				
28	2003	0 Chemical Spray												\$ (95)	\$ (9,500)	\$ (95)	\$ (95)	\$ (404)				
28	2003	0 Burn												\$ (35)	\$ (3,500)	\$ (35)	\$ (35)	\$ (149)				
28	2003	0 Subsoil (rip)												\$ (80)	\$ (8,000)	\$ (80)	\$ (80)	\$ (341)				
28	2003	0 Seedlings	545											\$ (27)	\$ (2,725)	\$ (27)	\$ (27)	\$ (116)				
28	2003	0 Plant	545											\$ (44)	\$ (4,360)	\$ (44)	\$ (44)	\$ (186)				
28	2003	0 Grass Spray	545											\$ (35)	\$ (3,500)	\$ (35)	\$ (35)	\$ (149)				
27	2004	1 Seedling Survival	436	109																		
14	2017	14 Thinning #1	177	233	8.5	33	2.06	4.5	0.15	1,049	35	\$ 6	\$ 180	\$ 18,028		\$ 67	\$ 87	\$ 372				
13	2018	15 Fertilization	177		8.9	34	2.13							\$ (100)	\$ (10,000)	\$ (35)	\$ (46)	\$ (196)				
12	2019	16	177		9.3	35	2.19															
11	2020	17	177		9.6	36	2.25															
10	2021	18	177		10.0	37	2.31															
9	2022	19	177		10.4	38	2.38															
8	2023	20	177		10.8	39	2.44															
7	2024	21 Thinning #2	94	75	11.7	40	2.50	17.3	0.58	1,292	44	\$ 20	\$ 740	\$ 74,036		\$ 167	\$ 250	\$ 1,063				
6	2025	22	94		12.0	41	2.56															
5	2026	23	94		12.4	42	2.63															
4	2027	24	94		12.8	43	2.69															
3	2028	25	94		13.2	44	2.75															
2	2029	26	94		13.6	45	2.81															
1	2030	27	94		13.9	46	2.88															
0	2031	28 Final Harvest Seed Trees	94	85	14.3	47	2.94	33.0	1.11	2,792	94	\$ 42	\$ 3,359	\$ 335,879		\$ 462	\$ 789	\$ 3,359				
0	2032	28 Land Sale												\$ 400	\$ 40,000		\$ 55	\$ 94	\$ 400			
													<b>Total (without appreciation)</b>		\$ 4,679	\$ 467,943	\$ (816)	\$ (81,585)	\$ 0	\$ 458	\$ 70	
													<b>Rate of Return - ROR (without appreciation*)</b>								7.3%	
													<b>Net Present Value - NPV (without appreciation*)</b>								\$ 458	

Note:

- 1) Cost of land was included in the analysis and sold at the end without appreciation (\$400/acre).
- 2) Analysis was after costs, without tax treatment, and with no appreciation or inflation added.
- 3) 15% management expense was removed for administrative costs.
- 4) Alternative investment rate was based on August 25, 2003 30-Year Treasury Bill rate of 5.31%.
- 5) ROR = Rate of Return
- 6) NPV = Net Present Value
- 7) NAR = Net Annual Value

<b>Rate of Return - ROR (without appreciation*)</b>	7.3%
<b>Net Present Value - NPV (without appreciation*)</b>	\$ 458

\* Add 5% to include appreciation.