PINES OR APPLES?

by

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Recently a study was carried out in the Donnybrook area to compare costs and returns from Pinus radiata and Granny Smith apples.

This was done from the point of view of an orchardist with about 30 acres of spare land, suitable for orchard and therefore, also suitable for P. radiata.

In view of the complex nature of the subject a certain number of assumptions have to be made to avoid becoming too involved.

The method used was to obtain Capital, Maintenance and Production costs for both crops, over a full rotation, - taken as 40 years for both.

The figures quoted on orchards are average figures based on actual costs and returns from a number of orchards in the Donnybrook area; and the pine figures are current Forests Department figures at Grimwade.

If the farmer decides to grow apples, he will go as far as picking the crop. From there it is handled by the packers. If he grows pine, he will sell the timber standing, to be removed by the buyer.

Being an orchardist he already has a tractor, plough, irrigation equipment, spraying equipment etc.

A. COSTS

Are covered under Capital, Establishment, Maintenance to initial Production and Production costs.

CAPITAL

APPLES			PINES		
Tractor	2600/2	$1,300	Tractor	2600/2	$1,300
Plough	1500/2	750	Ploughs	1500/2	750
Rotary Hoe	500/2	250	Tractor Firefighter		400
Spray Plant	1600/2	800	Chainsaw	300/2	150
Fork Lift	400/2	200			
Irrigation Equipt.	1200/2	600			
Sundries	600/2	300			
30 Acres		$4,200			$2,600

OR $140 /acre OR $86.67/acre

Items shown divided by 2 are items he would already have for his orchard

ESTABLISHMENT/ACRE

Cost of Plants	75	Cost of Plants	11.50
Cost of Planting	20	Cost of Planting	11.00
Fertilizer	3	Fertilizer	
Rabbit Fence	100	Rabbit Fence	100.00
	$198		$122.50

MAINTENANCE/ACRE/YEAR To First Production - *Not Annual

8 Years		13 Years	
Cultivation	19	Fire Breaks	0.50
Pruning	30	* Pruning 1	1.00
Irrigation	25	* Pruning 2	1.00
Spraying	50		
	$124		$2.50

$124 x 8 years = $992/acres $2.50 x 13 years = $32.50/acre

Irrigation, spraying, fuel labour packing, freight & cartage, cool storage, repairs and maintenance. Licence, Insurance Commission and Levies and Depreciation Capital.	$614	Fire Breaks Controlled Burning Depreciation on Capital	0.56 1.00 5.50 $7.06
$614 x 32 years = $19,648		$7.06 x 27 years = $194.26	

TOTAL COST PER ACRES OVER 40 YEARS

Capital	140	87.00
Establishment	198	122.50
Maintenance	992	32.50
Production	19,648	194.26
	$20,968	$436.26

B. RETURNS

(1) APPLES

Apples are in the main bought from the growers by the Packing Companies, of which there are about six. The grower picks the crop into 30 bushel bins which are picked up by the packers from the orchard.

They then sort, grade and pack the fruit. The grower receives so much per case from which the packers deduct fees for cartage and packing.

At the sheds the fruit is sorted for three markets - Export, Local and Processing at a ratio of 75%, 20% and 5% respectively,

The order of cash return is Export - $2.68/Bushell
Local - $3.06/Bushell
Processing - .45/Bushell

This varies considerably each year.

As the average tree in this area produces 3 bushells per year and there are 100 trees per acre this gives and average yield of 300 bushells per acre/year.

300 Bushells per acre/year	Export	75%	$603.00
	Local	20%	$183.60
	Processing	5%	$ 6.75
			$793.35/acre

(2) PINES

The price paid by sawmills for pine will affect the value of the returns considerably.

It is hard to set a price that would be obtained because insufficient pine is bought by local mills. The prices used in this study are prices paid in the round in Perth, less deduction for freight from this area.

Prices

4" - 7" Logs - $ 6.00/load
7" - 9" Logs - $ 9.00/load
9" - 15" Logs - $12.00/load

PINE RETURNS BY THINNINGS

Thinning	Loads Acres	4" - 7"	7" - 9"	9"+	Return
1. 13 years	30	100%			30 x 6 = $180
2. 20 years	30	50%	30%	20%	15 x 6 = $ 90 9 x 9 = $ 81 6 x 12 = $ 72
3. 28 years	45	10%	20%	70%	4.5 x 6 = $ 27 9 x 9 = $ 81 31.5 x 12 = $378
4. 35 years	50	10%	10%	80%	5 x 6 = $ 30 5 x 9 = $ 45 40 x 12 = $480
Clear Falling 40 years	80	10%	10%	80%	8 x 6 = $ 48 8 x 9 = $ 72 64 x 12 = $768
					$2,352

Thus the return/acre over 40 years is $2,352 or $58.90 acre/year.

	APPLES	PINES
Total Return over 40 years	$25, 387	$2, 352
Total Costs over 40 years	$20, 968	$ 436
Net Profit per acre over 40 years	$ 4, 419	$1, 916
OR Net Profit per acre/year over 40 years	$110. 50	$48. 00

C. CONCLUSIONS

However as the costs are incurred over a period of 40 years and the returns are received over the same period this reduces the actual value. For example in the case of the return from Apples of $25, 387, this figure discounts back at 5% to $9, 007.

This means that $9, 007 invested now at 5% would amount to $25, 387 in 40 years time.

Thus the discounted profit per acre is - Apples $350/Acre, Pine $255/Acre over 40 years. OR Apples $8. 75/acre/year, Pine $6. 30/acre/year.

PROFIT PER DOLLAR INVESTED

APPLES	PINES
$0. 04	$0. 89

However there are other factors to be considered when viewing these figures. Some of these are as follows:-

(a) For the purpose of this study, it was assumed the land to be planted was pasture. If it was native forest, clearing costs would be higher for orchard than for pine. Orchard $150/acre, Pine $65.

(b) To establish and maintain 30 acres of orchard, to first production, would cost $39, 900 compared to $7, 200 for a plantation.

(c) Pine planting might not be acceptable to a small investor in view of the longer wait for first returns, and subsequent waits between thinnings.

(d) In discounting back costs and returns in this survey, the figure of 5% was used. Using different percentages would make big differences to the figures obtained. It is hard to state a definite figure, and here, 5% was taken as an average. The pine costs are current Forests Department costs at Grimwade, and the returns are prices paid in Perth for round pine, less freight costs from this area.

(e) The future market from pine seems to be fairly certain in view of the rising consumption of softwood in this state. More certain in fact that the future for apples.

(f) It was assumed in this summary that the methods of silviculture used in the pine plantation would be the same as currently used by the Forests Department.

However, a farmer may wish to use different methods.