MF013 MANEJO FORESTAL II

NIVEL	**:**	**PREGRADO**
CARRERA	**:**	**INGENIERÍA FORESTAL**
CARÁCTER	**:**	**OBLIGATORIO**
SEMESTRE	**:**	**2 / 2008**
REQUISITOS	**:**	**MF012, MANEJO I**
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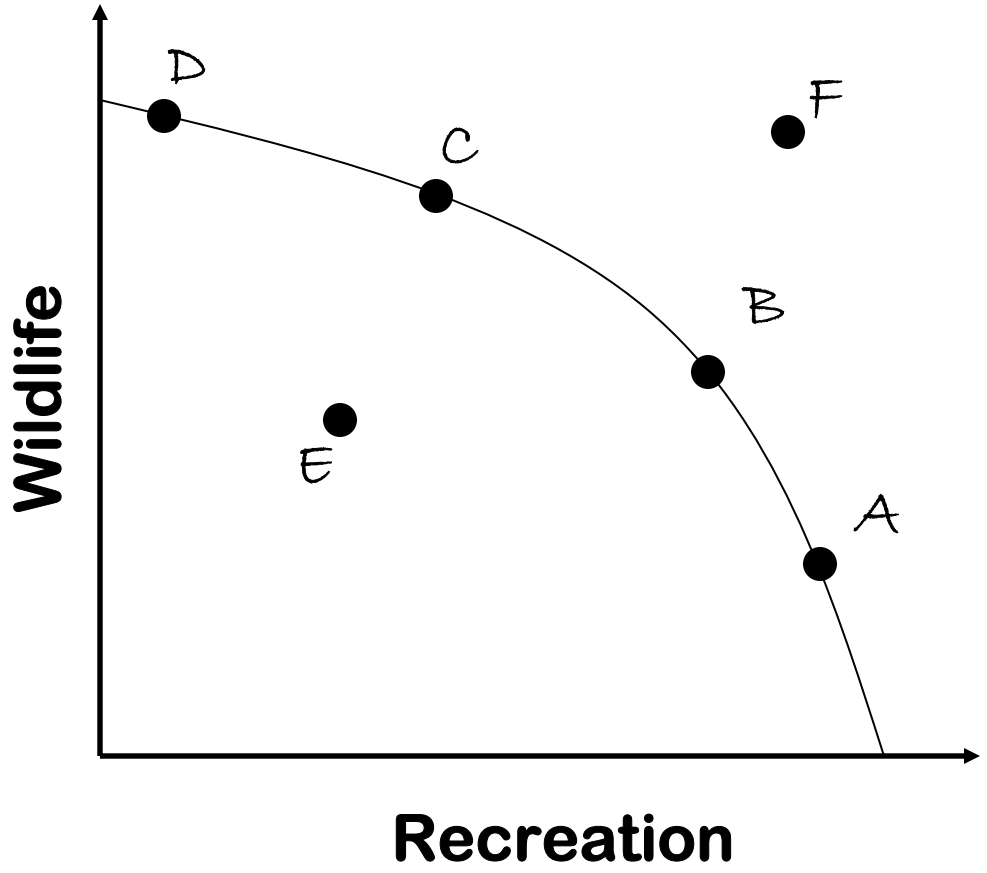
Principles of Economic Forestry

- Economic forestry emphasizes maximizing net benefits of forest ecosystems to humans
- Benefits can be analized at the firm level focused on the accumulation of wealth
- Benefits can be analized at the country´s economy level focused on aggregate measures of economic health

Principles of Economic Forestry

- Economics emphasizes finding “efficient solutions” = highest possible attainment of goals
- Efficiency analysis is used to reduce the conflict in goals that might otherwise exist
- Also to show that managers are not wasting resources

Production Possibility curve for Wildlife & Recreation



Principles of Economic Forestry

- Some methods may help to find efficient solutions to management problems:
  - Benefit – Cost Analysis
  - Marginal Analysis
  - Optimization

Benefit – Cost Analysis

- Comparison of benefits and costs for a number of alternatives so that the one with the highest net benefit can be selected

- Sounds simple!

- Long time frames and multiple outputs make B/C analysis hard!

Marginal Analysis

- Variation of B/C analysis
- MA used to compare change in B and C as you move among alternatives
- You have to ask whether the incremental B exceed the incremental cost
- Hard in ecosystem management

Optimization

- Many forest management problems involve an almost infinite number of alternatives
- A typical forest planning problem involves many stands and multiple actions that can be carried out in each one to achieve the goals of the decision maker
- Optimization may help problems that otherwise might be extremely hard to tackle

Tabla 1. Análisis financiero de regímenes de manejo para *Pinus radiata* (a nivel de la hectárea) bajo distintos escenarios de uniformidad de cultivos de Forestal Mininco S.A.

1. Indicadores Financieros			2. Parámetros únicos			3. Costos fijos anuales			4. Costos variables de cosecha		
VPN	1250	M$/ha	Tasa de interés	**7**	% p.a.	2.1 Arriendo de la tierra	35	M$/ha/año	3.1 Costo de Cosecha	**5**	M$/$m^3$
TIR (calc. iterando H5)	9.6	% p.a.	Valor del Suelo	**500**	M$/ha	2.2 Administración	**25**	M$/ha/año	3.2 Costo de Transporte	**0.1**	M$/$m^3$/km
VES	1490	M$/ha	Longitud de la rotación	**27**	años	2.3 Seguro contra incendios	**25**	M$/ha/año	3.3 Costo Const. Camino	**2.5**	M$/$m^3$
			Distancia a Mercado	**50**	km						

5. Rendimientos por tipo de productos y precios																												
Productos	(M$/$m^3$)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Prn 1 (> 40 cm)	**120**																											**50**
Prn 2 (30-40 cm)	**100**																											**110**
Prn 3 (25-30 cm)	**70**																											**0**
S1S2	**50**																											**29**
S3L3	**40**																											**139**
L1L2	**20**																											**92**
PULP	**15**					**5**				**44**																		**72**
																									Total (m^3 / ha)			**492**

6. Costos																												
Actividades	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Establecimiento (M$/ha)	**500**																											
Podas (M$/ha)						**50**		**60**		**75**																		
Raleos (M$/ha)						**50**				**75**																		
Otros (3) (M$/ha)	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
Cosecha (M$/ha)																												2460
Transporte (M$/ha)																												2460
Caminos (M$/ha)																												1230
Total Costos ($/ha)	585	85	85	85	85	185	85	145	85	235	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	6235

7. Ingresos																												
Ing. Brutos (M$/ha)	0	0	0	0	0	75	0	0	0	660	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26930
Ing. Netos (M$/ha)	-585	-85	-85	-85	-85	-110	-85	-145	-85	425	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	20695
Imp. Renta (M$/ha)	0	0	0	0	0	0	0	0	0	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4139
Ing.Dp.Impto (M$/ha)	-585	-85	-85	-85	-85	-110	-85	-145	-85	340	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	-85	16556
Ing. Descontado	-585	-79	-74	-69	-65	-78	-57	-90	-49	185	-43	-40	-38	-35	-33	-31	-29	-27	-25	-24	-22	-21	-19	-18	-17	-16	-15	2664

Hawkins' Problem
Best combination of productive agents, Hawkins' Property

Assumptions:

Supervisor's wages	40	$/day
Labourer's wages	10	$/day
Value of production	0.7	$/tree released

7

Fixed input (a)	Variable Input (b)	Total output (c)	Average Output per labourer (d) (c/b)	Marginal output (e) (c)	Fixed cost (f)	Variable cost (g)	Total cost (h) (f+g)	Total fixed cost per tree (i) (f/c)	Total variabl cost per tree (j) (g/c)	Total averag cost per tree (k) (h/c) (i+j)	Marginal Unit Cost (l) (L.wages/e)	Marginal Unit Revenue (m) (Val. Prod)	Total marginal revenue (n) (m*e)	Total marginal cost (o) (l*e)	Total gross revenue (p) (m*c)	Total net revenue (q) (p-h)
Supervisor	Labourers	Trees	Trees	Trees	$	$	$	$/Tree	$/Tree	$/Tree	$/Tree	$/Tree	$	$	$	$
1	0	0			40	0	40					0.7				
1	1	15	15.0	15	40	10	50	2.67	0.67	3.33	0.67	0.7	10.50	10.00	10.50	-39.50
1	2	50	25.0	35	40	20	60	0.80	0.40	1.20	0.29	0.7	24.50	10.00	35.00	-25.00
1	3	110	36.7	60	40	30	70	0.36	0.27	0.64	0.17	0.7	42.00	10.00	77.00	7.00
1	4	160	40.0	50	40	40	80	0.25	0.25	0.50	0.20	0.7	35.00	10.00	112.00	32.00
1	5	203	40.6	43	40	50	90	0.20	0.25	0.44	0.23	0.7	30.10	10.00	142.10	52.10
1	6	237	39.5	34	40	60	100	0.17	0.25	0.42	0.29	0.7	23.80	10.00	165.90	65.90
1	7	260	37.1	23	40	70	110	0.15	0.27	0.42	0.43	0.7	16.10	10.00	182.00	72.00
1	8	275	34.4	15	40	80	120	0.15	0.29	0.44	0.67	0.7	10.50	10.00	192.50	72.50
1	9	285	31.7	10	40	90	130	0.14	0.32	0.46	1.00	0.7	7.00	10.00	199.50	69.50
1	10	290	29.0	5	40	100	140	0.14	0.34	0.48	2.00	0.7	3.50	10.00	203.00	63.00