agriculture
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PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

ECONOMICS OF PASTURES

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INTRODUCTION

Pastures are expensive to establish and maintain, so it is important that they are well managed. The profitability of a pasture is measured by the Gross Margins of the livestock enterprises which utilise that pasture.

In the assessment of pasture costs only the directly allocatable costs are considered; fixed costs are not considered because they are unique to each farm. Dairy farmers in Natal achieved gross margins in excess of R1 200 per hectare in 1989/99, while intensive beef and sheep producers achieved gross margins of between R400 and R800 per hectare.

PASTURE COSTS

A summary of costs for selected pastures for 1990/91 are presented in Table 1. As can be seen fertiliser is the major cost item for dryland pastures, while irrigation costs are significant in the case of irrigated crops. The costs of making hay are high and hence if they can be avoided the particular production system will be more profitable.

A detailed budget for Italian ryegrass is presented in Table 2. Fuel, repair and labour costs for establishing the pasture are specified. If permanent pastures are to be established, then establishment costs need to be incurred only every 3 to 5 years.

Pasture costs of selected pasture species in the Natal Region are updated annually by the Directorate of Agricultural Economics and are obtainable from the Directorate of Agricultural Information, Private Bag X144, Pretoria, 0001.

GROSS MARGINS

Figure 1 illustrates the factors which influence the gross margin per hectare from livestock production. The gross margin per hectare is largely dictated by the stocking rate and gross margin per animal.

Figure 2 shows the relationship between performance per animal and per hectare with changes in stocking rate, all of which must be related to nitrogen use.

Appendix 1 gives a detailed budget for a 100 cows in milk in the Natal Midlands for 1990/91.

The gross margin per hectare is largely dictated by the stocking rate and the gross margin per animal.

In many surveys the major difference in gross margin per hectare the major difference in gross margin per hectare between the top one-third of producers and the average is due to better stocking density. The importance of correct pasture management, including fertilizer use, grazing system and stocking rate is therefore emphasized.

Table 1. A Summary of Costs for Selected Pastures for 1990/91

Pasture and Forage Crops	Allocated Costs Per Hectare							
	Seed	Fert	Sprays	Labour	Fuel & Repairs	Irrig. Fuel	Other	Total
	(R)	(R)	(R)	(R)	(R)	(R)	(R)	(R)
1. White Clover (I)	.	.	.	.	.	.	.	.
Establishment Year	81	738	4	44	227	63	0	1
Maintenance: 8 t/ha	0	56	0	81	73	231	0	157
10 t/ha	0	86	0	81	73	231	0	441
12 t/ha	0	86	0	81	73	231	0	471
								471
2. Coast Cross II (D)	.	.	.	.	.	.	.	.
Establishment Year	36	643	0	75	129	0	0	883
Maintenance: 5 t/ha	0	230	0	18	57	0	0	305
10 t/ha	0	460	0	21	114	0	0	595
15 t/ha	0	684	0	27	164	0	0	875
3. Eragrostis Curvula (D)	.	.	.	.	.	.	.	.
	31	315	0	31	181	0	0	558
Establishment Year	0	354	0	35	183	0	40	612
Maintenance: 5 t/ha	0	726	0	48	245	0	80	1
10 t/ha	0	919	0	64	308	0	120	099
15 t/ha								1
								411
4. Italian Ryegrass (I)	.	.	.	.	.	.	.	.
Establishment and	.	.	.	.	.	.	.	.
Maintenance: 5 t/ha	53	372	0	90	245	254	0	1
10 t/ha	53	704	0	90	265	317	0	014
15 t/ha	53	999	0	90	279	401	0	1
								429
								1

								822
5. Perennial Ryegrass (I)	.	.	.	.	.	.	.	.
	197	1	0	127	336	543	0	2
Establishment Year	66	404	0	125	225	198	0	607
Maintenance: 8 t/ha	66	405	0	125	226	297	0	1
10 t/ha	66	608	0	125	227	395	0	019
15 t/ha		822						1
								322
								1
								635
6. Kikuyu (D)	.	.	.	.	.	.	.	.
Establishment Year	36	643	0	75	129	0	0	883
Maintenance: 5 t/ha	0	230	0	18	57	0	0	305
10 t/ha	0	460	0	21	114	0	0	595
15 t/ha	0	684	0	27	164	0	0	875
7. Lucerne (D)	.	.	.	.	.	.	.	.
Establishment Year	186	1	0	19	170	0	0	1
Maintenance: 5 t/ha	0	284	0	43	341	0	40	658
6 t/ha	0	360	0	44	366	0	48	784
7 t/ha	0	361	0	45	458	0	56	819
		365						924
8. Lucerne (I)	.	.	.	.	.	.	.	.
Establishment Year	186	943	478	97	219	748	0	2
Maintenance: 12 t/ha	0	635	24	120	645	1	108	671
	0	639	24	151	713	090	144	2
14 t/ha	0	641	24	185	749	1	179	622
16 t/ha						110		2
						1		781
						200		2
								978
9. Oats (D)	.	.	.	.	.	.	.	.
Establishment and	.	.	.	.	.	.	.	.
Maintenance: 2 t/ha	21	173	0	14	109	0	0	317
4 t/ha	21	346	0	14	112	0	0	493
6 t/ha	21	518	0	14	115	0	0	668
10. Smuts Finger Grass (D)	.	.	.	.	.	.	.	.
	86	389	0	25	162	0	0	662
Establishment Year	0	171	0	13	55	0	0	239
Maintenance: 5 t/ha	0	351	0	15	110	0	0	476
10 t/ha	0	514	0	18	160	0	0	692
15 t/ha								

11. Stargrass (D)	.	.	.	.	.	.	.	.
Establishment Year	36	643	0	75	129	0	0	883
Maintenance: 5 t/ha	0	347	0	28	238	0	0	613
10 t/ha	0	417	0	30	286	0	0	733
15 t/ha	0	488	0	32	334	0	0	854
12. Teff (D)	.	.	.	.	.	.	.	.
Establishment and	.	.	.	.	.	.	.	.
Maintenance: 5 t/ha	44	347	0	28	238	0	35	692
6 t/ha	44	417	0	30	286	0	42	819
7 t/ha	44	488	0	32	334	0	50	948
Note: D = Dryland I = Irrigated All figures exclude interest on operating capital.								

Table 2. Italian Ryegrass (Irrigated) variable Costs per ha for an Expected Yield of 15 tons/ha

1. **OPERATION VARIABLE COSTS/HA**

Operation	Machinery Used	Tractors				Implements		Total Mach-inery Costs/ha R/Ha	Labour		Total Variable Costs/ha R/Ha
		Time Hr/Ha	Fuel Cost R/Ha	Repair Cost R/Ha	Total Cost R/Ha	Time Hr/Ha	Repair Cost R/Ha		Time Hr/Ha	Cost R/Ha	
Fertilize (x2)	35kw trac + 350 kg mtd. distributor	4.10	20.00	24.12	44.12	3.74	5.78	49.90	9.02	10.82	60.72
Transport	.	.	.	.	.	.	.	.	.	.	.
Fertilizer	46kw trac + 5 ton (4-wheel) trailer	0.11	0.70	0.83	1.53	0.10	0.04	1.57	0.24	0.30	1.87
Lime	35kw trac + 3 ton lime spreader	0.17	0.83	1.01	1.84	0.16	1.23	3.07	0.38	0.45	3.52
Plough	46kw trac + 3 fur.mtd.mouldboard plough	2.08	13.34	15.62	28.96	1.89	2.05	31.01	2.29	2.98	33.99
Disc	35kw + 1.6 m mtd offset disc	1.04	6.63	7.77	14.40	0.94	1.23	15.63	1.14	1.48	17.11

Harrow	35 kw trac + 3.0 m spike-tooth harrow	0.57	2.78	3.37	6.15	0.52	0.07	6.22	0.63	0.82	7.04
Plant	35kw trac + 18 row seed drill	0.81	3.94	4.75	8.69	0.73	10.94	19.63	1.78	2.14	21.77
Roll (x2)	35kw trac + 2.4 m land roller	2.18	10.64	12.82	23.46	1.98	1.72	25.18	2.40	3.13	28.31
Fertilize (x4)	35kw trac + 350 kg mtd. distributor	8.20	40.00	48.24	88.24	7.47	11.56	99.80	18.05	21.66	121.46
Transport	.	.	.	.	.	.	.	.	.	.	.
Fertilizer	46kw trac + 5 ton (4-wheel) trailer	0.11	0.70	0.83	1.53	0.10	0.04	1.57	0.24	0.29	1.86
Irrigate	651mm/ha (fuel & repairs)	.	.	.	.	.	.	426.60	.	46.20	472.80
Total Operation Costs/Ha (A)			99.56	119.36	218.92	.	34.66	680.18	.	90.27	770.45

2. **MATERIAL VARIABLE COSTS**

Seed:	Italian rye-grass seed	:	20.00 kgs/ha	@	R2.660/kg 53.20	53.20
						205.50
Fertilizer:	Lime	:	1500.00 kgs/ha	@	R0.137/kg 205.50	510.87
						163.45
	L.A.N.	:	1071.00 kgs/ha	@	R0.477/kg 510.87	70.10
	Supers (10.5)	:	381.00 kgs/ha	@	R0.429/kg 163.45	48.83
	K.C.L. (50)	:	100.00 kgs/ha	@	R0.701/kg 70.10	
Delivery Charges		:	30 km	@	R16.00/ton : 3 052 tons of fertilizer 48.83	
Total Material Costs/ha (B)						1 051.95

3. **TOTAL VARIABLE COSTS**

Total Variable Costs per Ha (A + B)	1 822.40