

ESTATE COST MANAGEMENT SYSTEM (ECOMAS)

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Despite the advent of technologies, oil palm management often need to spend an average of one week in preparing monthly performance report of their estates (Malek, 2002; Paimin, 2008). This is essentially an opportunity cost to the managers and supervisors for not attending field operations. More importantly,

cost overruns and other operational inefficiencies are only discovered at the end of the month and thus this defeats the purpose of having financial systems (Wideman, 2005). To optimally utilise the managers' time, they should be equipped with a system that provides instantaneous alerts in reporting field performance and reduce man-days in preparing end-of-month reports.

TABLE 1. FEASIBILITY OF ESTATES UTILISING ESTATE COST MANAGEMENT SYSTEM (ECOMAS)

Harvesting year	Unit	0	1	2	3	4	5	Total
Revenue								
FFB yield (t ha ⁻¹ yr ⁻¹)		6	9	10	12	15	16	-
Additional annual yield increase (%)		0	1	2	3	3	3	-
Yield increase (t ha ⁻¹ yr ⁻¹)		6	9.09	10.2	12.36	15.45	16.48	-
Additional annual yield increase (t ha ⁻¹ yr ⁻¹)		0	0.09	0.2	0.36	0.45	0.48	-
Estate Size		500 ha						
Additional annual FFB volume (t)		0	45	100	180	225	240	-
Additional annual revenue at FFB price of	400 RM t⁻¹	0	18 000	40 000	72 000	90 000	96 000	316 000
	600 RM t⁻¹	0	27 000	60 000	108 000	135 000	144 000	474 000
Discount factor 10%		1	0.91	0.83	0.75	0.68	0.62	-
Cost								
CAPEX (purchase of ECOMAS)	RM	30 000						
Amortised CAPEX	RM	6 000	6 000	6 000	6 000	6 000	6 000	-
OPEX	RM	-	1 000	-	-	1 000	-	-
Total cost	RM	36 000	7 000	6 000	6 000	7 000	6 000	68 000
Discounted cost		36 000	6 370	4 980	4 500	4 760	3 720	60 330
Discounted revenue at FFB price of:	400 RM t⁻¹	0	16 380	33 200	54 000	61 200	59 520	224 300
	600 RM t⁻¹	0	24 570	49 800	81 000	91 800	89 280	336 450
Benefit: cost at FFB price of (RM t ⁻¹)	400 RM t⁻¹	3.72	-	-	-	-	-	-
	600 RM t⁻¹	5.58	-	-	-	-	-	-

Note: estate size: 500 ha.

CAPEX - capital expenditure.

OPEX - operational expenditure.

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THE ECOMAS SYSTEM

Estate cost management system (ECOMAS) was developed to enhance reporting of workflow efficiency in oil palm plantations. Specifically, ECOMAS is tailored towards the needs of small and medium sized oil palm estates by managing cost systematically in upkeep, fertiliser, harvesting, transportation and general charges. ECOMAS works through estate cash flows by storing field records in digital format in a more secure way that can be retrieved easily for month-end reporting. ECOMAS helps in budget fixing and serves as a benchmark in budget planning on every field or block. All daily costs according to field operations (category/sub-category) inserted by the users are automatically calculated and displayed on the field/block map. ECOMAS provides alert mechanism for each block/field to indicate cost overrun.

ECONOMIC EFFICIENCY

The economic benefit of using ECOMAS can be viewed from intangible perspectives. It can be reflected from the reduction in man-days from the preparation of the end-of-month performance report (additional man-days considered as the opportunity cost). On average, a manager assisted

by two assistants, three supervisors and two clerks with a total of 37 man-days would undertake the task and this can be reduced to four man-days (a manager with one supervisor and a clerk) by using ECOMAS (*Table 1*). Thus, 33 man-days are available monthly to intensify field operations. With increases in field supervision, this can lead to improvement of the field performance. FFB yield can be assumed to increase gradually from 1% to 3%. This could enhance the output of an estate up to 240 t. A medium sized estate (for example, 500 ha) could generate benefic cost ratio (BCR) of 1:3.72 and 1:5.58 if the price of FFB is RM 400 t⁻¹ and RM 600 t⁻¹ respectively. This shows that investment in using ECOMAS is financially viable.

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