

## **Analysis of the benefits of livestock to oil palm in an integrated system : evidence from selected districts in Johor, Malaysia.**

### **Abstract**

Symbiotic relationships have been known to exist in Livestock-oil palm integration; this survey demonstrates with statistical figures based on current evidence on only the benefits of livestock on oil palm in an integrated system. Data were collected from 255 respondents under smallholder scheme in districts of Johor for the 2011 production season; basic descriptive statistics and farm budget tools were used for analysis. Results indicate that farmers maintain an average farm size of 2.52 ha to obtain an average Fresh Fruit Bunches (FFB) yield of 18.45 t/ha/yr, representing 2.6 t/ha/yr or 14.1% increase in yield due to livestock integration, an average labour cost of RM5.12/manhour was estimated and Total Variable Cost (TVC) constitute 88% of cost of production as against 12% for Total Fixed Cost (TFC). The research also estimated a reduction in cost of weeding worth RM534.68/ha/yr; from RM568.17/ha/yr down to RM33.49/ha/yr; commensurate to 94% saved cost from weeding operations, 15% reduction in cost of labour and 8.6% reduction in total cost of production due to the influence of livestock grazing. Furthermore, analyses show that FFB accounts for the majority (81%) of the revenue in the integration system, while the livestock constitute (15%), Palm Oil Fronds (POF) (3%) and animal dung (0.03%). Although the revenue from the by-products is meager, but an indicator that revenue diversification is feasible to achieve increase in revenue and finally, a net income of RM7431.479/ha/yr was estimated. The production constraints identified in the smallholder livestock-oil palm integration were grouped into technical, economical, ecological and environmental constraints and suggestions were proffered on the management of the constraints with the view to minimize their militating effects for a more efficient and productive system to enhance better the income of the farmers.

**Keyword:** Integration; Fresh fruit bunches; Palm oil fronds; Net profit model; Johor.