

Cattle Fattening Opportunities on the Upper Part of the Nam Ngum River Basin, Xieng Khouang Province, Laos

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Context and objective

Altitude plains, in Xieng Khouang province, is well-known for native cattle and buffalo production. Many authors reported that chemical soil characteristics are seriously unfavourable and that severe phosphorus deficiency generates animal health problems. Since 2004, a large range of forage species tolerant to drought, aluminium saturation and soil acidity, have been used to regenerate savannah grasslands and to diversify farming production. Specific trials have been carried-out to evaluate adaptability and the seed production of various forage species. The present study seeks to evaluate the agronomic and economic components of cattle fattening using improved forage species (*Brachiaria ruziziensis*) and thermophosphate inputs.

Materials and method

Cattle fattening was carried-out during two wet seasons (2005 and 2006). 1.5ha was manually direct sowed (no-till) on 21st of April 2005 with *B. ruziziensis*. Of five 0.3 ha blocks, four were designated for cattle fattening with one block for seed production. Fertiliser was applied consisting of 60 kg (2005) or 90 kg (2006) N as ammonium sulphate, 80 kg P₂O₅ as thermophosphate and 60 kg K as K₂O per hectare. Every month morphometric data (Fig. 1) was recorded (Estimated weight = breast length²*(breast-tail length)*88.4). Labour inputs and all expenses were also recorded.



Fig. 2: Cattle grazing on *B. ruziziensis* pasture

Regeneration of Savannah grassland

Optimal fattening period

Growth rate differed greatly during the rainy season and between years.

The mean growth rate during the wet season (from end of May to end of October) reached 364 g/day and 539 g/day (Fig. 3), respectively, in 2005 and 2006. In 2005, a steady state was observed from November to the end of March but the overall loss of weight during this period was not very pronounced.

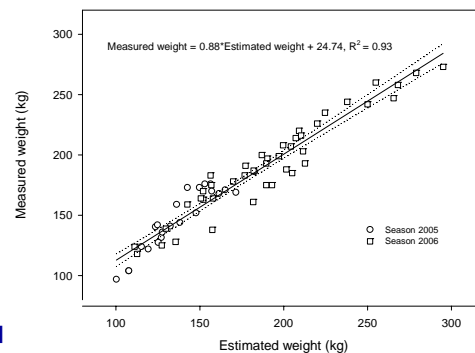


Fig. 1: Regression model and confidence interval (95%) between estimated weight vs. measured weight is given

Economic analysis

In 2005, weight gain and seed production obtained represents a gross income of \$879 (Table 1) and covers all expenses over the first year. In the medium term, the cost of fencing could be reduced by growing living fences. In 2006, bulls fattening represents a gross income of \$804 covering all expenses and generating a net income per ha of \$362 (1.8 tons of paddy) and a labour productivity of 6.6 \$/US.

Improved pastureland 1.5 ha	2005		2006	
	Qty	Total (US \$)	Qty	Total (US \$)
Costs		852		260
Plot fencing & designing		530		0
Land preparation		35		0
Seeds (<i>B. ruziziensis</i>) & fertilizer		272		245
Animals care		15		15
Labour input	160		82	
Fencing & land preparation	23			
Sowing & fertilizer broadcasting	57		2	
Seeds harvesting	30		30	
Bulls management	50		50	
Benefits				
Bulls added value	6	615	8	804
Seeds production (2005)	132	264		
Gross income		879		804
Net income		27		544
labour productivity		0.17		6.64

Table 1: Economic data recorded for bull fattening during two seasons (2005, 2006)

Discussion and Conclusion

This cattle breed used seems well adapted for fattening and showed a strong response to improved fodder. However, this bull fattening activity presented two major constraints.

First, it seems difficult for smallholders to carry out this kind of livestock production without technical support and use of fertiliser (thermophosphate). The second limiting factor could be that the system was first perceived as requiring an initial cash investment.

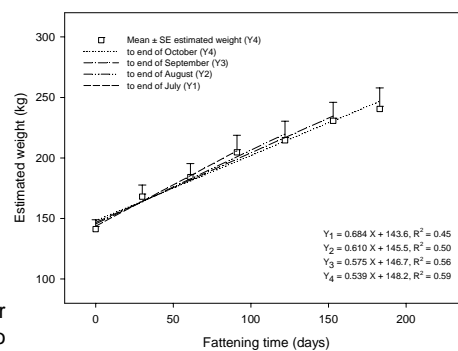


Fig 3: Linear regressions for different fattening periods are given for 2006

Development of specific market channels for forage seed production could indirectly improve pasture management, avoid high stocking rates and generate new income that could be invested in fertiliser and animal care. A global approach involving credit access, technical and political support has to be defined to develop productive and efficient livestock production on this ecology. This poses a great challenge which, if grasped, could yield great benefits on the upper part of the Nam Ngum river basin.

