Forage technology adoption in Vietnam: a model study

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Introduction

In North Vietnam, in winter, forage deficits constrain the profitability of dairy farming activities. Since 2004, research has been carried out on alternative technologies, based on intercropping temperate species (mainly *Avena*). In 2006, 30% of the target farmers adopted *Avena* in their farming systems.
To assess the socio-economic impact of *Avena* and to elucidate factors linked to the adoption process, a modelling approach is used.

Methods

A descriptive LP model at farm level (DAIVIE) was created in GAMS, using a bio-economic and integrative approach.

The approach is original in that it develops, on a monthly basis, dynamic relationships between animal (nutrient) requirements and farm supplies with the aim to maximize profit (under agronomic and nutritional constraints).

Two indicators (profit and labour demand) were selected to evaluate the socio-economic impact of *Avena* adoption on Vietnamese dairy farms.

Results and discussion

Avena crops produce high yields of forage with excellent nutritive value. Incorporation of this feed in the ration results in improved lactation persistency. Indicators are promising with regard to farmers adopting the forage, with the exception of a few who mention low yields on poor soils and a higher labour demand.

In all model scenarios, *Avena* was selected as the optimal solution to maximize farmers' profits (Table 1).

Table 1. Socio-economic impact of *Avena* adoption

	Traditional forage system	*Avena* adoption
Profit (€/year)	2,150	2,493
Labour (d/year)	392	436
Labour productivity (€/d)	5.5	5.7

Overall, *Avena* adoption increases farmers' profits (+16%) but requires more labour (+11%). The model shows that the additional labour demand, especially in winter, could discourage adoption because during that period farmers are engaged in other activities and may not wish to resort to hiring labour (Salgado, 2008).

Farmers' dairy experience and dairy herd size do not seem to be crucial factors for *Avena* adoption. On the other hand, forage yields seem to be the main issue constraining *Avena* adoption. Considerations before adopting the forage not only include productivity, but also factors such as traditional practices or preferences.

References

Salgado P., 2008. CIRAD Scientific Report, CIRAD Montpellier, 95 pp.