A longitudinal survey of Cattle Production in Cambodia

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Smallholder cattle production in Cambodia

Approximately 80% of Cambodia’s population live in rural areas, with many relying on agriculture for income and livelihoods
• 3.4 million cattle
• >99% owned by smallholder farmers

Cattle often have mixed uses including draught power and transport, fertilizer and biogas, cash storage (or a ‘bank’) when money is needed, and for beef production

Increasing demand for red meat both domestically and neighboring countries has presented an opportunity for Cambodian cattle producers to supply this demand

Increasing cattle production and profitability offers a pathway to help alleviate rural poverty

Wet and Dry seasons

Traditional husbandry
Aims

As part of the 5 year ‘Best practice health and husbandry of cattle, Cambodia’ project a longitudinal cattle production survey was conducted.

The survey had two key aims relating to cattle production

1. To establish baseline cattle production data
2. To measure any significant differences a selection of ‘best practice interventions’ would have on cattle production at the farmer and village level

Improving productivity

Improving profitability

What is ‘Best practice’?

Best practice is a method or process considered to be more effective and efficient at delivering an outcome than another method or process.

Best practice can adapt and change through the process of seeking improvement.

Systems approach involves consideration of multiple processes within the enterprise that may be influencing outcomes in interdependent systems.

Method

6 Villages in 3 Provinces, a ‘High’ and ‘Low’ Village in each province

Best practice intervention program was delivered to high intervention villages in a systems approach

Practical interventions;
- FMD & HS vaccinations (HI & LI)
- Deworming (HI)
- Forage plot development (HI)
- Regular weighing (HI & LI)

Education interventions on the topics (HI)
- Biosecurity
- Disease control
- Forage growing and nutrition
- Reproduction
- Marketing
- Workshops
- Cross-visits
- Farmer meetings

Kampong Cham
Kandal
Takeo
Results: Age and weight at start of project

- **n = 1416**
- Average age at start = 3.53 years
- Problem: high variation, low $R^2$ value, multiple other factors influencing relationship

**REML – Cattle weight**

The impact of the intervention on weight was not statistically significant for all weights, due to the interactions in the model ($F = 179.3$, df = 1, $P = 0.471$)

However, the impact was significant when assessing the individual differences at the later stage of the project using Least Significant Difference

Using this method, the final 3 weights were significantly different (LSD 5%)

Therefore not significant when combined, but significant at later stages of project once the accumulating impact took hold.

REML – Cattle weight

Over 7,400 weight data entries over 4 years

**Cattle weights in Intervention Groups**

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**Weight and age of cattle**

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The intervention effect was statistically significant using REML \((F = 113.72, df = 1, P = 0.01)\) using Backward selection \((n = 243)\).}

**Average Daily Gain in Intervention Groups**

High Intervention cattle more than doubled average daily gain (ADG).

**Cattle Average Daily Gain**

**Impacts on disease & reproduction**

**Disease**

No reports of either HS or FMD in high intervention villages

1 Report of FMD in one low intervention village during 2010 epizootic

**Reproduction**

More calves born in high intervention villages, slightly shorter inter-calving interval
Conclusions

Weight and Average Daily Gain (kg):

- Strong evidence for ‘Best practice health and husbandry of cattle, Cambodia’ intervention package has led to an increase in cattle weights and average daily gains
- In the High Intervention groups, average daily gains (kg) were 2.4 times higher than Low Intervention group in all cattle during 4 year project – WEIGHT GAIN MORE THAN DOUBLED
- Education, treatment and new technology (forage) impacts have a lag period to translate into measurable improvements in cattle

Conclusions – Cattle production

Implementing village level interventions through a systems approach focused on animal health and husbandry can lead to improvements in cattle growth.

Thank you. Questions?