

Royal University of Agriculture
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Kingdom of Cambodia
Nation Religion King

Referent : Dr. Chhum Phith Loan

Title : Utilisation of natural feed resources for sustainable animal production in Cambodia.

Abstract :

The main crop, cultivated by Cambodia farmers, along the Mekong river either for their own food supply or for sale in the country are maize, soy bean, green bean, red bean, sweet potato and cassava.

Of these cassava and sweet potato are fast growing local crops of which the farmer only utilise the roots and tubers for human consumption, whereas the leaves and stem are thrown away. In comparison with other cultivated crops, cassava and sweet potato are relatively cheaper. The low market value and reported high nutritive value of cassava leaves make them suitable as animal feed in a sustainable animal production system in the rural areas in Cambodia.

Laboratory Analyses carried out at the Martin-Luther-University in Halle (Germany) during June, 2001 confirmed that the cassava leaves have a high crude protein content (32,02 %) in DM) a high metabolisable energy content. Cassava leaf meal can be incorporated up to 20 % in the chicken diet (Gomey et al., 1983 and Ravindran et al., 1986). The energy rich roots of sweet potato can replace maize up to a level of 40 % in the diet of growing pig (Dominguey, 1992).

Cassava- and sweet potato leaves as well as sugar cane leaves and their by-products can be utilised as feed supply for ruminants during the dry season.

The utilisation of natural feed resources can lead to reduce of production. On the other hand crossing of local race with exotic breeds to produce animals with high genetic potential for production, simultaneously adapted to high temperatures (prevailing in the tropics), and with resistance local diseases will improve performance if suitable feed available. Both option, therefore, should be exploited simultaneously to synergistically contribute to increased production and respond to the demand of the free market and, consequently, to increase the family income of the farmer in Cambodia.

Keyword: Cassava; sweet potatoes; sugar cane; poultry, pig; ruminant

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I- Introduction:

The main crop, cultivated by Cambodia farmers, along the Mekong river either for their own food supply or for sale in the country are maize, soy bean, green bean, red bean, sweet potato and cassava.

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Cassava- and sweet potato leaves as well as sugar cane leaves and their by-products can be utilized as feed supply for ruminants during the dry season. The utilization of natural feed resources can be reduced the production cost. On the other hand crossing of local race with exotic breeds to produce animals with high genetic potential, simultaneously adapted to high temperatures (prevailing in the tropics), and with resistance local diseases will improve performance if suitable feed available. Both option, therefore, should be exploited simultaneously to synergistically contribute to be increased the production and respond to the demand of the free market and, consequently, to increase the family income of the farmer in Cambodia.

II -Material and Method:

The researches were carried out at the Royal University of Agriculture , Chamcar Daung, Phnom Penh.

225 commercial chicken at day old would be tested for growth rate by providing cassava leave 0% ,15 % and 20 % as feed supply in diet until 6 week.

The design is a random block with 3 replication (pens) and 25 chickens per pen.

Preparation of cassava leaves

Cassava leaves will be chopped in small pieces by hand, dried under sun for few days and then ground in a hammer mill. The soy beans are roasted through an extruder.

Feed ingredients:

Table 1 : Composition (dry matter basis) of experimental diet

	(0-4 weeks old)			(4-6 weeks old)		
Categories	control	CLM 15%	CLM 20%	control	CLM 15%	CLM 20%
Maize	39,8	33,8	31,7	39,2	28,4	26,8
Rice bran	19,7	17,4	16,3	30,3	30,8	29,3
Cassava	-	15	20	-	15	20
Soy bean	13,3	-	-	9,3	-	-
Dry fish	26,7	33,3	31,5	19,9	25,3	23,4
Premix	0,5	0,5	0,5	0,5	0,5	0,5
Crude Protein in DM %	23%	23%	23%	18%	18%	18%

Measurement

Chickens are weighed at weekly intervals. Feed intake and refusals are recorded daily. Sample of feed ingredients are analyzed for dry matter, nitrogen and ash by standard methods (AOAC, 1990).

The data are analyzed by ANOVA using Minitab software (Version 12.1)

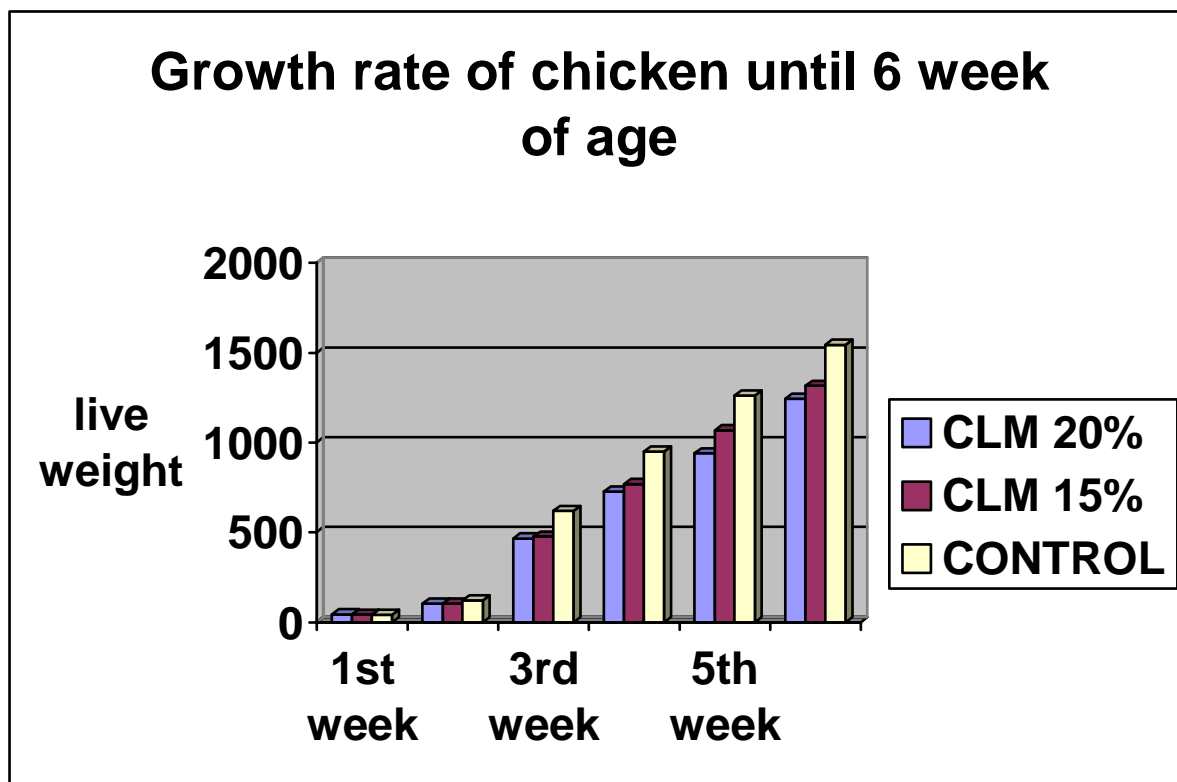
III Results and discussion:

Table 1: Growth rate of chicken until 6 week by different treatments

Weeks	Control	CLM 15%	CLM20%
1.week \bar{x} (g) $s \pm$	40,76a 2,50	41,72a 3,38	42,53a 3,47
2. week \bar{x} (g) $s \pm$	120,53a 16,29	102b 14,12	102,55b 16,60
3. week \bar{x} (g) $s \pm$	618,08a 99,32	476,06b 85,62	464,49b 59,54
4.week \bar{x} (g) $s \pm$	948,53a 126,35	768,76b 107,07	726,73b 83,78
5.week \bar{x} (g) $s \pm$	1261,32a 160,20	1069,22b 120,71	939,09b 114,67
6.week \bar{x} (g) $s \pm$	1544,86a 170,70	1316,61b 147,07	1243,78b 136,75

Table 1 showed that the control line has significance higher live weight than the treatment line by $p < 0.05$, while between the treatment line there aren't significance difference. The treatments of 20 % cassava leaves meal (CLM) and 15 % CLM have a tendency reduce the live weight at the 6. week of age , respectively 20% and 15% from the control line. For the feed consumption there are not quite difference between the groups.

Picture 1



Whereas The mortality, the control line is relative low than both treatment lines (Table 2).

**Table 2 : Mortality of chicken
in %**

Until 6 weeks	control	CLM 15%	CLM 20%
Total	3%	7%	5%

IV Conclusion :

The using of cassava leave (chip) for feed ratio of chicken is economic aspect to reduce the production cost one side and on the other hand play a important rule for sustainable animal production by the farmer.

The treatment of cassava leave for chicken is limited due to consisting of cyanic acid and high of crude fiber, therefore it should be lest than 20 % in diet.

The components of cassava leave, sweet potato and by-product of feed resource are using by different treatments in diet of pig and poultry. The results will be presented in next time.

C. Loan: Utilisation of natural feed resources for sustainable animal production in Cambodia

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