Commercialised Small Ruminant Feed from Cassava waste in Southwest Nigeria.

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Innovation in brief

Nigeria is the largest producer of cassava in the world. Cassava products are used in various forms for human consumption, livestock feed, and manufacturing of industrial products. Cassava products are also an important feed stuff for livestock feed formulation.

Out of a whole cassava root, 15-20% is considered as waste (peels). In many processing enterprises, handling of cassava wastes can be a major challenge involving significant costs. A common practice for cassava processors is to dump wastes (comprising peel and pulp) less than 100 metres from the processing centres and set fire to them, thus emitting carbon dioxide and producing a strong offensive smell.

Utilizing cassava waste for a marketable product would provide a means of generating additional income for cassava processors (through sales of cassava peels; turning waste to wealth) and also an environmental benefit by preventing the burning of cassava waste and the subsequent release of harmful toxins into the air. These factors brought about the emergence of this innovation that encouraged the use of cassava peels as feed for small ruminants .

Innovation Demonstration Among Farmers

The feed developed was presented to small ruminant farmer in order to assess thier opinion about acceptability of the new product. This was done to examine the relevancy of the products to small rumianats production systems practises by farmers. Most of the farmers expressed thier satisfaction about the innovation and are willing to adopt the feed for small ruminants production.

Results

Description of socio-economic characteristics

The study revealed that respondents were less economically active following the age category that falls between 51-60 years (33.04%), the female gender constitutes the majority (54.96%) and most of the respondents (88.07%) are married. Educational status showed that 45.9% of the respondents had no formal education and most of the respondents had below 10 animals (50.46%). Farming system practices of goat keeping in the study areas constitute mainly extensive systems (90.8%).

Table 1: Socio-economic characteristics of the goat farmers N= 109

Variables	Mode (Frequency)	Percentage (%)
Age (years)	51-56years (36)	33.04
Sex	Female (61)	54.96
Religion	Islam (56)	51.4
Marital Status	Married (96)	88.07
Farm size (years)	Below 10 (55)	50.46
Educational Status	No Formal education (50)	45.9
Income (Naira)	Below 25,000 (57)	52.29
Farming System	Extensive (87)	90.8
Farming Experience	10-20years (48)	42.2

Source: Computed From Field survey, 2013.

Table 2: Results of Double-Bounded Dichotomous Choice Response To Willingness To Pay For Fortified and Non Fortified Peels.

Variable	Fortified cassava peels Coefficient and t-ratio	Non Fortified Peels Coefficient and t-ratio
Constant	-5.1113***	-4.5867***
	(-2.8095)	(-2.3754)
Age	0.275E-02	0.5554***
	(0.1364)	(2.2802)
Education	0.375E-01	0.5699***
	(0.1483)	(2.2228)
Farm size	0.572E-02	-0.9752
	(0.1951)	(-0.3098)
Farming system	1.5362***	0.8064
	(2.851)	(1.5536)
Income	0.98E-05*	0.367E-01
	(1.6300)	(0.1980)
Experience	0.82E-03	0.2160
	(0.35E-01)	(0.6902)
Gender (dummy)	0.7893	-01863
	(1.4101)	(-0.3441)
Marital	0.2397	-1.2600**
status(dummy)	(0.3436)	(-1.6008)
Religion (dummy)	-0.1825	0.3833
	(-0.3767)	(0.8055)
Mean WTP	₦1019	₦144.49
Pseudo R^2	0.15	0.17
LLF	-74.99	-75.55
Respondents	109	109
Weight per bag	25kg	12.5kg

LLF - Log-likelihood function. *** significant at 1% level, ** significant at 5% level, *significant at 10% level. Source; Computed From Field Survey, 2013.

Table 3: Market Potential for Fortified and Non fortified Peels.

Commodity	Non-fortified Cassava Peels	Fortified Cassava Peel
Frequency of purchase	51.45	52.97
Average WTP	144.19	1,019
Potential Buyers	109	109
Total	₦810307.14 $5,128.52	₦5883430.87 $3,7236.90

Fortified cassava peel has a huge market potential.

Table 4: Results of Gross Margin Analysis. (All figures are stated in Naira)

Variable	Fortified Cassava Peels	Non Fortified Peels
Cost of production	1,237.5	200
Price per Bag	1,500	250
Gross Margin	262.5	50

Source: Computed From Field survey, 2013.

Conclusions and Recommendations

Overall results from study areas generally revealed that goat farmers are willing to pay ₦141 and ₦1,019 for non-fortified cassava peel and fortified cassava peel respectively. This implies that there exists a considerable market potential for cassava peel based products, while fortified cassava peel had a higher market potential than dried cassava peel.

Moreover, the sales of the two products were profitable, generating a profit of ₦262.5 and ₦50 from fortified cassava peel and dried cassava peels respectively. The study therefore recommends commercial production of fortified cassava peels as a substitute for non fortified cassava peels (dried cassava peels). This will provide a balanced diet for goat production and a source of business enterprise for cassava processors.

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