

NON-CONVENTIONAL FEEDSTUFF, THEIR INFORMATION CHANNELS AND UTILIZATION PRACTICE, IN NIGERIA

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ABSTRACT

A study on the information management on the availability, adoption and utilization of Non-conventional Feedstuffs was conducted. The study involved a survey of 253 poultry and 259 pig farmers from six States in Nigeria. Friends and neighbours (40.4% of poultry and 53.3% of pig farmers) were found to be the most important source of information on NCF followed by Extension Agents (36.5 % of poultry and 36.8% of pig farmers). Extension guides and bulletins were found to be more important sources of information on NCF than Radio or TV. The percentage of farmers who reported using guides and bulletins were 22.6% for poultry and 13.6% for pigs in contrast to only 3.2% for radio and 11.1% for TV amongst poultry farmers; 2.3% for radio and 1.1% for TV amongst pig farmers. The main source of NCF for farmers is the open market. This was reported by 44.7% of poultry and 68.8% of pig farmers. However, while only 26.1% of poultry farmers reported sourcing NCF from household wastes up to 57.1% of pig farmers did so. Similarly, only 14.1% of poultry farmers compared to 42.9% of pig farmers reported sourcing NCF from the industry. On farm sourcing was done by 10.7% of poultry in contrast to 36.7% of pig farmers. The difference between farmers who said they were satisfied with NCF use (39.2%) and those dissatisfied (34.5%) was marginal in the case of poultry farmers. Similarly, pig farmers that were satisfied with* NCF were 46.6% compared to 41.5% that were dissatisfied. Very few farmers said they were highly satisfied with NCF use: 2.6 % of poultry and 8.3% of pig farmers. Most of the farmers acknowledge that they share information on NCF with other farmers (56.9% of poultry and 82% of pig farmers). Some 28.3% of poultry farmers and 51.5% of pig farmers said they employ additional labour as a result of using NCF. For poultry farmers the number employed were 1-2 by 12.3%, 3-5 by 11.9% and >6 by 2.6%. For pig farmers, the number employed were 1-2 by 61.3%, 3-5 by 29.4% and >6 by 9.3%. This result shows the high potential that exists for employment generation through promoting the use of NCF. Given an average of 2 workers per farmer, the 259 pig farmers interviewed created additional 518 jobs. It is concluded that given the complex nature of most NCF, the use of well-trained Extension agents and contact farmers complemented with good Extension publications will greatly enhance the use of NCF by poultry and pig farmers.

INTRODUCTION

Nigeria is basically an agricultural country with a greater per cent of its people living in villages. Their livelihood is dependent mainly on agriculture and animal husbandry. Though we have a huge livestock population, the National Agricultural Sample Survey in 2011, indicated that Nigeria was endowed with an estimated 19.5 million cattle, 72.5 million goats, 41.3 million sheep, 7.1 million pigs and 28,000 camels, 145 million chickens, 11.6 million ducks, 1.2 million turkeys and 974, 499 donkeys, yet the production of livestock products is relatively low. It is evident that we are highly deficient in various livestock products. One of the main reasons for the low productivity of our livestock is malnutrition, under-nutrition or both, besides the low genetic potential of the animals. (Umeshet *et al.*, 2014). Likewise availability, vis-a-vis the requirement of green-fodder crops and concentrates, there is a huge gap between demand and supply of all kinds of feeds and fodders. The formation of a Presidential Task Force on Alternative Formulation of Livestock Feeds by the Federal Government of Nigeria in 1989 was the climax of that recognition in this Country (Babatunde, 1999). The purpose of this study was to identify the channels by which farmers get information on NCF and the factors associated with their use.

Non-conventional feed resources (NCF):

The non-conventional feed (NCF) refer to all those feeds that have not been traditionally used in animal feeding and or are not normally used in commercially produced rations for livestock. NCF include commonly, a variety of feeds from perennial crops and feeds of animal and industrial origin. The term NCF has been frequently used to describe such new sources of feedstuffs as pallet oil mill effluent and palm press fiber (oil palm by-products), single cell proteins, and feed material derived from agro industrial by-products of plant and animal origin like mango fruit pulp, mango fruit peel and mango seed kernel (Rao *et al.* 2000; Soomro *et al.* 2013; Diara and Uaman 2008; Berardiniet *al.* 2005; Palma *et al.* 2009). Poor-quality cellulosic roughages from farm residues such as stubbles, haulms, vines and from other agro-industrial by-products such as slaughter-house by-products and those from the processing of sugar, cereal grains (maize bran, rice bran, rice husk, the mustard seed

hulls), citrus fruits and vegetables from the processing of food for human consumption also comes under category of non-conventional feedstuffs. Many of these feed resources are yet to be incorporated into the feed bank for low cost of livestock production despite the fact that they could be gotten free or at a very low cost (Orayaga and Anugwa 2014).

Need of Non-conventional feed:

There are serious shortages in animal feeds of the conventional type, which alarms the livestock nutritionists to discover a new arena for endowing nutritional security on animals for optimum production. (Amandeep, 2016). The grains are required almost exclusively for human consumption. These feedstuffs can be put to use for animal feeding as they provide no competition from their human counterparts. Mostly these are the byproducts which are obtained after the removal of main product for human use. With increasing demand for livestock products as a result of rapid growth in the world economies and shrinking land area, future hopes of feeding the animals and safeguarding their food security will depend on the better utilization of unconventional feed resources which do not compete with human food. The availability of feed resources and their rational utilization for livestock represents possibly the most compelling task facing planners and animal scientists in the world. The situation is acute in numerous developing countries where chronic annual feed deficits and increasing animal populations are common, thus making the problem a continuing saga. (Umeshet *et al.*, 2014)

Thus non-conventional feeds could partly fill the gap in the feed supply, decrease competition for food between humans and animals, reduce feed cost which is said to account for up to 70% of the cost of production. Dried mango waste included in finishing pig diets at 10% as reported, had no deleterious effect on feed conversion ratio, animal performance and was cost effective and contribute to self-sufficiency in nutrients from locally available feed sources (Rao *et al.* 2000). It is therefore imperative to examine for cheaper non-conventional feed resources that can improve intake and digestibility of low quality forages. Feedstuffs such as fish offal and kitchen leftovers (i.e., potato peel, carrot peel, onion peel, and cabbage leftover), poultry litter, local brewery and distillery by-products are commonly used (Amandeep, 2016) and could be invaluable feed resources for small and medium size holders of livestock. More information is required on chemical composition, nutritive value and their utilization. Farmers are mostly not aware of the nutritive value of some feed sources and the way for their efficient integration in livestock feeding, a viable proposition could be the inclusion of non-conventional feed resources in livestock rations with suitable and complete feed technology that can utilize the feed sources with maximum efficiency. Over a period of time a wide range of new feed resources have been successfully evaluated and results of on-farm trials evaluating the use of several non conventional feed resources in broiler diets under small holder conditions Ravindran (1993) highlighted that the intention of those trials were to demonstrate the possible use of relatively cheaper, locally available by products by proportionately reducing the expensive concentrate feeds. The new technology helped to cut production cost drastically by improving the feed efficiency from 3.5 in 1980 to 2.2 in 1990 and reducing the growth span from 90 to 42 days. The involvement of local extension agencies and other means of communication in technology development for efficient use of NCF, assessment and transfer of the information is equally important and would provide first-hand knowledge of these feedstuffs from various livestock extension agencies, thus providing nutritional security to animals.

METHODOLOGY

A survey was conducted by NAERLS using a structured questionnaire through well trained enumerators which was complemented with the results of interview schedules and Rapid Rural Appraisal Techniques. A total of 253 poultry and 259 pig farmers were involved in the study from Abia, Adamawa, Akwalbom, Borno, Enugu and Lagos States about sources of information on Non-conventional Feedstuffs. A simple random sampling was used (Ikani *et al.* 2001).

RESULTS AND DISCUSSION

The sources from which farmers get information are given in Table 1. Some 40.4% of poultry farmers and 53.3% of pig farmers said they got information about NCF from neighbours and friends. Extension agents were the source of information for 36.5% of poultry and 36.8% of pig farmers. The results obtained on the importance of neighbours/friends and Extension agents are in agreement with the results obtained by several other investigators. (Ikani, *et al.*, 2001). Chikwendue *et al.*, 1996, in an extensive study, on the effectiveness of communication channels for disseminating information on improved

farm practices to farmers involving about 950 farmers nationwide obtained similar results. However, in contrast to the results of that study, extension guides and bulletins were found to be more important sources of information on NCF than Radio. The percentage of farmers who reported using guides and bulletins were 22.6% for poultry and 13.6% for pigs in contrast to only 3.2% for radio and 11.1% for TV amongst poultry farmers; 2.3% for radio and 1.1% for TV amongst pig farmers. The market was a source of information to 5.2% of poultry and 10.7% of pig farmers. The main source of NCF for farmers is the open market. This was reported by 44.7% of poultry and 68.8% of pig farmers. However while only 26.1% of poultry farmers reported sourcing NCF from household wastes up to 57.1% of pig farmers did so. Similarly, only 14.1% of poultry farmers compared to 42.9% of pig farmers reported sourcing NCF from the industry. On-farm sourcing was done by 10.7% of poultry in contrast to 36.7% of pig farmers. These results indicate that pig farmers use more locally available NCF than poultry farmers. This is not surprising considering the fact that poultry depend more on refined feeds. Pigs have the capacity to effectively utilize many raw or semi-processed NCF directly whether wet or dry. From Table 2 it can be observed that a sizeable proportion of the farmers had used NCF for only 3 years or less. This was cited by 54.9% of poultry and 39.3% of pig farmers. About one third (31.4%) of poultry and a quarter of pig farmers had used NCF for more than six years. In spite of the seemingly massive use of NCF, the difference between farmers who said they were satisfied (39.2%) with NCF use and those dissatisfied (34.5%) were marginal in the case of poultry farmers. Similarly, pig farmers that were satisfied with NCF were 46.6% compared to 41.5% that were dissatisfied. Very few farmers said they were highly satisfied with NCF use: 2.6 % of poultry and 8.3% of pig farmers. Most of the farmers acknowledged that they shared information on NCF with other farmers (56.9% of poultry and 82% of pig farmers). Some 28.3% of poultry farmers and 51.5% of pig farmers said they employ additional labour as a result of using NCF. For poultry farmers, the number employed were 1-2 by 12.3%, 3-5 by 11.9% and >6 by 2.6%. For pig farmers, the number employed were 1-2 by 61.3%, 3-5 by 29.4% and >6 by 9.3%. These results show the high potential that exists for employment generation through promoting the use of NCF. Given an average of 2 workers per farmer, the 259 pig farmers interviewed created an additional 518 jobs. The farmers were very conversant with the advantages associated with NCF use (Tables 3). Cheapness and availability were cited as the major advantages by 26.8% of poultry and 36.9% of pig farmers. Only 14.6% of poultry and 14.6% of pig farmers cited cost effectiveness / economical considerations as one of the benefits of NCF use.

CONCLUSION

The main reason for the poor animal production is the inadequate supply and low level of feeding due to serious shortage of feedstuffs. A major gap exists between the requirements and supplies of nutrients for feeding of animal, the non-conventional feeds could partly fill this gap. More information is required on chemical composition, nutritive value and their utilization. Farmers are not aware of the nutritive value of some feed sources and the way for their efficient integration in livestock feeding. The involvement of local extension agencies in technology development for efficient use of NCFR, assessment and transfer is equally important. Several factors may account for their limited use, among which is their low nutritive value, Seasonal availability, high cost of handling and transportation from the production site to the farm, presence of anti-nutritional factors. It is essential to increase feeds by growing more fodders, propagating agro and social forestry, improving the nutritive value of crop residues and utilising other NCFRs. Crop residues, Agro-industrial By-Products and browse foliage are certainly an increasingly important role as feeds in the future, as human and livestock populations expand and an intervention through training on feed treatment and supplementation is essential to improve the feeding value of crop residues and clear cut duration of time for how long a feed has been used as a feed for livestock should be put to distinguish it as conventional or non-conventional feed resource. The best information sources are those that involve visual aids and practical demonstrations. The use of well-trained Extension agents and contact farmers complimented with good extension publications are strongly recommended as ways of disseminating information and acquisition of the necessary skills required by farmers to adopt the use of NCF effectively.

Table 1: Sources of information about NCF to Farmers

Variables	Poultry Farmers		Pig Farmers	
	F	%	F	%
Radio				
Yes	6	3.2	6	2.3
No	176	96.8	255	97.7
Total	185	100.0	261	100.0
Television				
Yes	23	11.1	3	1.1
No	184	88.9	258	98.9
Total	207	100.0	261	100.0
Guide/bulletin				
Yes	49	22.6	36	13.8
No	168	77.4	225	86.2
Total	217	100.0	261	100.0
Extension Agent				
Yes	77	36.5	96	36.8
No	134	63.5	165	63.2
Total	211	100.00	261	100.0
Market				
Yes	12	5.2	28	10.7
No	218	94.8	233	89.3
Total	230	100.0	261	100.0
Friends/neighbour				
Yes	88	40.4	139	53.3
No	130	59.6	122	46.7
Total	218	100.0	261	100.0
Others				
Yes	28	12.2	48	18.4
No	202	87.2	213	81.6
Total	230	100.0	261	100

Table 2: Duration of using NCF

	Poultry Farmers		Pig Farmers	
	F	%	F	%
Duration of NCF use				
1-3years	28	54.9	35	39.3
3-6years	7	13.7	31	34.8
>6years	16	31.4	23	25.8
Total	51	100.0	88	100.0
Extended information on NCF to others				
Yes	55	60.4	52	57.1
No	36	39.6	39	42.9
Total	91	100.0	91	100.0
Addition labour employed				
Yes	26	28.6	31	29.2
No	65	71.4	75	70.8
Total	91	100	106	100

Table 3: Availability and reliability of using NCF

Criteria	Poultry Farmers		Pig Farmers	
	Farmer	%	Farmers	%
Cheap	36	24.2	26	16.6
Cheap & available	40	26.8	58	36.9
Cheap & economical				
Cost effective/Economic	14	9.4	23	14.6
Available	11	7.4	21	13.4
Better/satisfactory animal performance	23	15.4	8	5.1
Less fat in the pork	-	-	-	-
Profitable	5	3.4	5	3.2
Reliable in terms of quality	13	8.7	-	-

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