Short Communication

Survey of some plants utilized as feed by the Grasscutter (*Thryonomys swinderianus* Temminck) at Akpaka Forest Reserve, Onitsha, Nigeria.

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Abstract

Field studies were conducted for 10 months (September 2001 to June 2002) to identify plants consumed by grasscutters in the wild at the Akpaka Forest reserve located at Latitude 6° 09'N and longitude 6° 47' E North eastern of Onitsha, in Onitsha North Local Government Area of Anambra State. Twenty-two plant species were observed to be utilized as feed by the grasscutter at Akpaka forest reserve. Of these Twenty-two plants, fourteen were grasses of the family gramineae, Three were tuber crops, four were fruits and only one – *Chromoleana odorata* was a shrub (weed). Nine of these plants were not document by earlier authors. Ten of these plants were chosen and analyzed fro both proximate and mineral composition based on their food value, high level of utilization by grasscutters and their abundance. The results showed that these plant materials were low in crude protein, high in fibre, moisture and nitrogen free extract and also low in all the minerals and therefore may not satisfy the nutritional requirements of the animals for improved productivity. This paper therefore recommend inclusion of concentrate, vitamins and minerals in the diet of grasscutters.

Keywords: Survey, Grasscutter, Feeds, Forest.

Introduction

FAO (1980) call on African countries to integrate wildlife farming into their conventional livestock farming as a strategy to boost animal protein supply in the continent has awakened research interest in grasscutter farming. Ajayi (1983) called for farming of grasscutter (*Thryonomys swinderrinus* T.) and giant rat (*Cricetomys gambianus* W.), but based on the criteria outlined by Hemmer (1992) for the choice of wild animal to be farmed, the grasscutter (*Thryonomys swinderianus* T.) stands at a greater advantage.

The success of raising and breeding of grasscutter in captivity requires adequate knowledge of its feeds habits, breeding pattern in the wild and collation of such information from all the various vegetation zones. The documentation of forage/feed sources for grasscutters by earlier workers including: Ewer (1969), Mensah (1987), Yewadan (1992), Adu (1995), Awah (2000), and Ndi (2004) have not been exhaustive. This is with the subsequent identification of more feed sources along the years by Fitzinger (1997), Osungwu (2005) and

Ebenebe (2005 a&b). Adu (1995) and Awah (2000) reported that the grasscutter preferred grasses with succulent stems like sugar cane (*Saccharum officinarum*) and elephant grass (*Pennisetum purpureum*); but this study investigated plant materials utilized as feed by the grasscutter at the Akpaka Forest Reserve Onitsha, parts of the plants mostly consumed, proximate and mineral composition of ten of the most utilized and most abundant crops of different status; to ascertain their potentials in meeting the nutritional needs of this animals.

Materials and Methods

The field study was undertaken at Akpaka Forest reserve latitude 6° 90'N and longitude 6° 47'E in the North east region of Onitsha North Local Government Area, behind the Onitsha prison. The reserve consist mainly of forest trees (*Gmelina arborea*) which are interspersed with grasses such as guinea grass (*Panicum maximum*), elephant grass (*Pennisetum purpureum*, *pennisetum pedicellatum*), gamba grass (*Andropogon spp*) and *Paspalum vaginatum* and patches of para-rubber trees (*Hevea brasiliensis*), palm tree (*Elaeis guineensis*), Iroko (*Milicia excelsa*) and Bamboo (*Bambusa tulda*). At the fringes of the bank of the water bodies surrounding the reserve are tall grasses giant reed (*Arundo donax*) and sugar cane (*Saccharum officinarum*) plantation. The study was conducted for 10 months (September 2001 to June 2002) at the Akpaka Forest reserve. Ten sample plots of 20m x 20m were marked out using line transect. For each of the sample plot, the characteristics 450 cut on grasses, scattering of left over feed and faecal pellets on the feeding site and footprints (Happold, 1987) were used to identify grasscutter feeding site and its presence in an area. Plant materials fed upon were identified and recorded along side with the season when they were consumed. Parts of plants consumed were also noted and recorded. Plants utilized by

grasscutters in the field were also fed to the animals reared in captivity at Trans-Nkisi grasscutter research station, Onitsha. Quick reception of food, eagerness to commence feeding as well as size of the left over were used to denote the grasscutter preference of each feed. Feed received with delight, voraciously consumed with little left over were rated "highly utilized (XXX)". Those moderately consumed and received without much enthusiasm, were rated "moderately utilized (XX)" while those consumed reluctantly without any enthusiasm and with much left over were rated, "Least utilized (X)". Proximate and mineral composition analyses of ten of these plants species were determined at the Biochemistry Laboratory of University of Nigeria, Nsukka, according to the Official Methods of the Association of Official Analytical Chemists (A.O.A.C 1994). All analytical results were reported on dry matter basis.

Results and Discussion

The characteristics of the ten sample plots at Akpaka Forest Reserve, Onitsha are reflected in Table1.

Table 2 shows the twenty-two plant species observed to be consumed by the grasscutter at the Akpaka Forest Reserve Onitsha. The results showed a high preponderance of grass and grass-like plants of the family gramineae. The most cherished of the family gramineae. *Pennisetum species*, *Phragmites karka*, *Arundo donax*, *Saccharum officinarum* *Paspalum vaginatum*, *Oryza sativa*, *Sorghum vulgare* and *Zea mays*. were This result is in agreement with the findings of Ewer in 1969 and Mensah in 1987 but the two authors did not list *Bambusa tulda*, *Phragmites*, *karka*, *Arundo donax* *chromoleana odorata* *Eleias guineensis*, *Lodoicea maldivica* that were observed in this

Table 1: Some Characteristic of the ten sample plot at Akpaka Forest Reserve, Onitsha.

Plots Type	Vegetation Type	Soil Source	Water Distance of plot from water Source (m)		Frequency of observed grasscutter presence (No)			
					Wet	Dry	Total	
I	Rocky plain with scanty grass cover	clay	Nkisi	S.	12	-	-	-
II	Abandoned Farmland				Snady	Nkisi	S.	33
III	Thick forest (plain ground)	Sandy	Nkisi	S.	42	-	-	-
IV	Maize (in wet Season) vegetable (in dry season)	Loam	Nkisi	S.	10	18	-	18
V	Reed cover on Riverside	Clay	R. Niger		5	10	46	56
VI	Cassava farm	Loam	Anambra	S.	46	16	11	27
VII	Pennisetum Cover On riverside	Snady	R. Niger		22	18	38	56
VIII	Gmelina and Guinea Grass on Plain ground	Sandy Loam	Nkisi	S.	53	22	8	30
IX	Pennisetum on Plain ground	Sandy/Loam	Nkisi	S.	35	35	24	59
X.	Thick forest	Clay	Anambra	S.	23	-	-	-
<i>S = Stream R= River, Wet = Wet season, Dry = Dry season</i>								

Table 2: Some plants utilized by the grasscutter in the wild and level of utilization at Akpaka Forest Reserve.

Plant species	Part eaten	Utilization Level	Season	Plant status
<i>Ananas cosmosus</i> (Pineapple)	Crown and Fruit	XX	Dry	Cultivar
<i>Andropogon gayanus</i> (Gamba)	Stem & leaves	XXX	Dry & Wet	Grass
<i>Andropogon tectorum</i> (Gamba)	Stem & leaves	XXX	Dry & Wet	Grass
<i>Arundo donax</i> (giant reed)	Stem & leaves	XXX	Dry & Wet	Grass
<i>Bambusa tulda</i> (Bamboo)	Tender stem	X	Dry	Woody Grass
<i>Carica papaya</i> (Pawpaw)	Fruit	X	Dry	Cultivar
<i>Chromolaena odorata</i>	Root	X	Dry	Shrub
<i>Discorea dumetorum</i> (Butter yam)	Tuber	XXX	Dry	Cultivar
<i>Eleias guineensis</i> (Oil palm)	Fruit	X	Dry	Tree
<i>Imperata cylindrica</i> Spear Grass	Root	X	Dry	Grass
<i>Ipomea batatas</i> (Sweet potato)	Tuber	XX	Dry	Cultivar
<i>Lodoicea maldivica</i> (Coconut palm)	Large leaf Veins	XX	Dry	Tree
<i>Manihot esculenta</i> (Cassava)	Tuber & stem	XX	Dry & Wet	Cultivar
<i>Oryza sativa</i> (Rice)	Stem and Leaves	XX	Wet	Cultivar
<i>Panicum maximum</i> (Guineas grass)	Stem and leaves	XX	Dry & Wet	Cultivar
<i>Paspalum vaginatum</i>	Stem	XXX	Dry & Wet	Grass
<i>Pennisetum pedicelatum</i> (Elephant grass)	Stem & leaves	XXX	Dry & Wet	Grass
<i>Phragmites Karka</i> (Reed)	Stem & leaves	XXX	Dry & Wet	Grass
<i>Saccharum officinarum</i> (Sugar corn)	Stem	XXX	Dry & Wet	Grass
<i>Sorghum vulgare</i> (Guinea corn)	Straw and grain leaves	XXX	Dry & Wet	Grass
<i>Zea mays</i> (maize)	Stem. Leaves & Grain.	XXX	Wet	Cultivar

xxx = Most preferred species. xx = Moderately utilized, x = Slightly preferred species

study, while Ndi in 2004 included guatemala among grasscutter preferred plants.

The food crops – *Ipomea batatas*, *Oryza sativa* and *Sorghum vulgare* observed in the study also corroborated the 1992 findings of Yewadan in Benin republic. Proximate compositions of the ten plant materials are presented in Table 3. The

ten plants were high in fibre, moisture, nitrogen free extract (except oil palm fruit) and low in crude protein (CP). The low mineral composition of the ten samples analyzed (Table 4) agreed with Yewadan (1992) findings that called for

Table 3: Proximate composition of ten plants utilized by the Grasscutter at Akpaka forest reserve Onitsha.

Plant species	Plant Part	Moisture Content (%)	DM (%)	CP (%)	CF (%)	EE (%)	Ash (%)	NFE (%)
<i>Ananas cosmosus</i>	Crown	36.30	63.70	6.20	29.90	1.10	7.00	57.20
<i>Andropogon gayanus</i>	Leaf & Stem	29.80	61.20	14.60	21.40	5.10	12.30	49.60
<i>Discorea dumentorium</i>	Tuber	75.75	24.00	8.16	2.36	8.26	4.55	76.70
<i>Eleias guineenism</i>	Fruit	53.72	34.13	2.80	38.6	34.94	4.40	15.40
<i>Imperta cylindrical</i>	Root	38.30	35.82	2.45	9.92	10.60	3.20	76.70
<i>Manihot esculenta</i>	Tuber	64.18	35.82	2.45	9.92	10.60	3.20	74.70
<i>Panicum maximum</i>	Leaf & Stem	79.9	21.10	5.65	30.00	0.50	7.0	51.85
<i>Paspalum vaginatum</i>	Leaf & Stem	70.80	29.20	14.00	27.40	1.00	6.50	51.50
<i>Pennisetum purpureum</i>	Leaf & Stem	89.25	10.75	7.35	25.00	1.00	7.50	59.15
<i>Zea mays</i>	Grain	12.00	88.00	10.90	2.90	5.00	3.40	76.80

DM = Dry Matter; CP = Crude protein; CF = Crude Fibre; EE = Ether Extract; NFE Nitrogen Free extract.

Table 4: Mineral composition of ten plants utilized by the Grasscutter at Akpaka forest reserve Onitsha (Ppm)

Plant species	Plant Part	Mg	Ca	P	K	Na	Mn	Cu
<i>Ananas cosmosus</i>	Crown	0.033	0.088	0.40	0.022	-	0.0012	0.001
<i>Andropogon gayanus</i>	Leaf & Stem	0.034	0.169	0.066	0.082	0.172	-	-
<i>Discorea dumentorium</i>	Tuber	0.009	0.024	0.008	0.037	0.047	-	-
<i>Eleias guineenism</i>	Fruit	0.037	0.157	0.017	0.025	0.047	0.001	0.001
<i>Imperta cylindrical</i>	Root	0.001	0.0015	0.016	0.019	0.051	-	-
<i>Paspalum vaginatum</i>	Leaf & Stem	0.333	0.041	0.063	-	0.042	-	-
<i>Pennisetum purpureum</i>	Leaf & Stem	0.050	0.182	0.010	0.83	0.166	0.002	-
<i>Zea mays</i>	Grain	-	0.001	0.009	-	-	-	-

supplementation of grasscutter feed with mineral premix.

Conclusion

Grasscutter farming as a strategy to boost animal protein supply is a laudable venture because it requires modest capital investment thus can be raised by land-less households as a backyard business. Their ability to convert grass to flesh cannot be over emphasized. There is therefore, need for further research to find out all grasses and other feed sources, that favours the animals in all the vegetational zones in Nigeria, determine its nutrition needs, formulate feeds that all will complement grasses/forages in meeting their nutritional requirement for better productivity.

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