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PLANTING OF COMMON FODDER TREES AND SHRUBS FED TO LIVESTOCK AS PANACEA TO PASTORALIST -FARMER CONFLICTS IN JIGAWA STATE

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Abstract

A multiple –stage sampling was used to elicit information on the common fodder, trees, shrubs and grasses species fed to livestock by agro- pastoralists, in Jigawa state. A total size of two hundred farmers was used, where five local governments were purposely selected bases on high concentration of agro- pastoralists. The first stage involved selection of local government areas (LGAs). (Auyo, Gwaram, Guri, Kafin Hausa and Kirikasamma); in the second stage eight villages were selected based on the number of the agro- pastoralists and in the final stage, five households were finally selected randomly selected within each of the selected villages. The results revealed a total of fourty six (46) forages were recorded in the study area. Twenty-eight (28) trees species, twelve (12) grass species and six (6) shrub species. The most commonly browse trees were *Azadirachta indica, Spondias mombin, Daniella oliveri, Sclerocarya birrea, Albizia labbeck and Ficus spp*. The common shrubs include *Commiphora africana, Ziziphus –spina Christi* and *Moringa oleifera.* The grass species widely use and common during rainy season includes *Panicum maximum, Pennisetum pedicillatum, Axonopus compressus, Digitaria debilis and Commelina benghalensis*. Other attributes on the plants such as medicinal, economic and environmental were also reported. Cultivation of these crops were necessary in such a way that these feeds may reduce farmer and pastoralists conflicts in many areas, as this is one of the major security challenges in Nigeria.

Keywords: Agro-pastoral, Environmental, Forages, Medicinal and Trees

Introduction

Livestock production occupies approximately 30% of global arable land (FAO, 2008). With fast depletion of natural resources, ever-increasing population pressure and rising living standards, it has become extremely important to diversify the present-day animal production to meet increasing demand for animal products, the global meat and milk consumption is expected to rise from 233 to 300 million tonnes and from 568 to 700 million tonnes, respectively.Trees and shrubs plays an important role in livestock production in Jigawa State and Nigeria in general. Livestock in the state depend largely on open grazing which they feed on less available feeds with low nutritional value than the animals confined in one area (Walker, 1980). This system of open grazing is causing a lot of problems to environment such as erosion, conflicts with farmers, transfer of pest and diseases from one area to another. The bulk of animal feeds in the region is the grass forage and this is available during the dry season and fadama areas during dry season. The potentials of trees and shrubs as alternative to fodder resources in livestock nutrition have attracted many researchers worldwide (Fadiyumi et al,2011). Fodder trees and shrubs constitute a vital component in livestock productivity in Jigawa state, these livestock serve useful purposes such as the provision of food, drugs, manure, hide and skin. Fodder trees and shrubs have been used for generations as multipurpose resources (food, fibre, fodder, timber, wood and live fences) across all of the agro-ecological zones of the world.

Materials and methods

The study was conducted in Jigawa State, the state lies between latitudes 11.00°N to 13.00°N and longitudes 8.00°E to 10. 15°E.The state has two seasons, dry season (April to October) and Wet season (May to September). The mean annual rainfall and temperature are 715mm and 32^0c respectively (NIFOR, 2019). The area was characterized by different climate due to its geographical location, which includes guinea savannah at extreme southern part of the state, Sudan savannah at middle of the state and Sahel at extreme northern part of the state. The vegetation type follows the pattern of different ecological zones of the state with dense trees and shrubs in the south as the vegetation is approaching to the northern part it is scanty.

Sampling Technique

A sampling technique multistage sampling technique was employed to select two hundred farmers (200) agro-pastoralists. The first stage involved in selection of five Local Government Areas (LGA) (Auyo, Gwaram, Guri, Kafin Hausa and Kirikasamma) purposely selected based on the number of the agro- pastoralists in the 27 LGAs in the state. in the second stage eight villages were selected based on the number of the agro- pastoralists and in the final stage, five households were finally selected randomly selected within each of the selected villages. Giving the total sample size of two hundred (200).

Data Collection and Analysis

Primary date was collected by the administration of semi- structured questionnaires to the agro-pastoralists in the study area. The data collected was analyzed using descriptive statistic of frequencies and percentages using the statistical package of social sciences. (SPSS) 16.0.

Results

The results revealed a total of fourty six (46) forages were recorded in the study area. Table 1 represents Twenty-eight (28) trees species found in the study area. Table 2 represents twelve (12) grass species found in the study area and table 3 represents six (6) shrub species. Figure 1 represents the percentages of trees, shrubs and grasses in the area. The most commonly browse trees were *Azadirachta indica, Spondias mombin, Daniella oliveri, Sclerocarya birrea, Albizia labbeck and Ficus spp.* The common shrubs include *Commiphora africana, Ziziphus –spina Christi* and *Moringa oleifera.* The grass species widely use and common during rainy season includes *Panicum maximum, Pennisetum pedicillatum, Axonopus compressus, Digitaria debilis and Commelina benghalensis.*

Discussion

The results of the study indicated various categories of crop species in the study area. This could be attributed to the different climatic condition of the state. The highest number of the species were recorded in trees followed by shrubs and grasses. The trees thrive well everywhere according to species and once established they have a long commercial live followed by other species of shrubs and grasses (Lamprey,1980).

Table 1. Present a list of trees fed to livestock in Jigawa State.

S/N	Common Name	Scientific Name	Family Name	Fodder value	Preferred Plants
1	Baobab	*Adansonia digitata*	Bombaceae	Medium	Leaves, fruits & seeds

2	Ficus	*Ficus platyphylla*	Moraceae	High	Leaves
3	Ficus	*Ficus glumosa*	Moraceae	High	Leaves
4	Ficus	*Ficus thonningii*	Moraceae	High	Leaves
5	Ficus	*Ficus religiosa*	Moraceae	High	Leaves
6	Neem	*Azadirachta indica*	Meliaceae	Low	Leaves
7	Mango	*Mangifera indica*	Anacardiaceae	Low	Leaves
8	Ber	*Ziziphus mauritania*	Rhamnaceae	High	Leaves
9	False ebony	*Diospyrous mespiliformis*	Ebenaceae	Medium	Leaves, fruits & seeds
10	Ficus	*Ficus sycomorus*	Moraceae	High	Leaves
11	Locust bean	*Parkia biglobosa*	Mimosaceae	Medium	Leaves
12	Date of India	*Tamarindus indica*	Ceasalpinaceae	Low	Leaves
13	Plum tree	*Vitex doniana*	Verbenaceae	Low	Leaves
14	Christ-thorn	*Ziziphus spina Christi*	Rhamnaceae	High	Leaves
15	Haemorrhage plant	*Afzelia Africana*	Ceasalpinaceae	High	Leaves
16	White thorn	*Acacia sieberiana*	Mimosaceae	High	Leaves
17	Woman's tongue	*Albezzia lebbeck*	Mimosaceae	Medium	Leaves
18	Cashew	*Anacardium occidentale*	Anacardiaceae	Low	Leaves
19	Shea butter tree	*Vitalleria paradoxa*	Sapotaceae	Medium	Leaves
20	Cotton tree	*Ceiba pentendra*	Bombaceae	Medium	Leaves
21	Niger copal	*Daniella oliveri*	Ceasalpinaceae	High	Leaves
22	Mesquite	*Prosopis Africana*	Mimosaceae	Medium	Leaves
23	Sesban	*Sesbania sesban*	Papilionaceae	High	Leaves
24	Hog plum	*Spondias mombin*	Anacardiaceae	High	Leaves
25	Delile	*Strychonos spinosa*	Loganiaceae	High	Leaves
26	Winter thorn	*Acacia tortilis*	Mimosaceae	High	Leaves
27	Indian date	*Balanites egyptiaca*	Simaroubaceae	High	Leaves
28	Marula	*Sclerocarya birrea*	Anacardiaceae	High	Leaves

Source: Field survey 2020

Table 2. Present a list of Grasses and Forage fed to livestock in Jigawa State.

S/N	**Common name**	**Scientific name**	**Family name**	**Fodder Value**
1	Digitaria	*Digitaria debilis*	Poaceae	Medium
2	Tanganyika grass	*Panicum maximum*	Poaceae	High protein
3	Napier grass	*Pennisetum purpureum*	Poaceae	High protein
4	Brachiaria grass	*Brachiaria brizantha*	Poaceae	High protein
5	Cyperus	*Cyperus rotundus*	Cyperaceae	Medium protein
6	Bamuda grass	*Cynodon dactylon*	Poaceae	Low protein
7	Chloris gayana	*Rhodes grass*	Poaceae	Medium protein
8	Agrostis spp	*Agrostis emimensis*	Poaceae	Medium protein
9	Gamba grass	*Andropogon gayanus*	Poaceae	Medium protein
10	Savannah grass	*Axonopus compressus*	Poaceae	Medium protein
11	Love grass	*Eragrostis curvula*	Poaceae	High protein
12	Commelina	*Commelina bengalensis*	Commelinaceae	Medium protein

Source: Field survey 2020

Table 3. Present a list of shrubs fed to livestock in Jigawa State.

S/N	**Common name**	**Scientific name**	**Family name**	**Fodder Value**
1	Pigeon pea	*Cajanus cajan*	Papilionaceae	High
2	Leucaena	*Leucaena leucocephala*	Mimosaceae	High
3	Cassava leaves	*Manihot utilissima*	Euphorbiaceae	High
4	Christ thorn	*Ziziphus spina christi*	Rhamnaceae	High
5	African myrrh	*Chommiphora africana*	Burseraceae	Medium

6	Drum stick	*Moringa olifera*	Moringaceae	High

Source: Field survey 2020

Conclusion

It is evident that the Jigawa state is rich endowed with diversity of shrubs and tree species that can serve as useful feed resources. At present, most of trees and shrubs used in farming systems comprise that grow naturally in the forest and uncropped marginal lands. While substantial work has been conducted on yield and nutritive value of fodder trees, very little work has been reported using a "systems approach" to study the interacting factors that impinge on a farming system which incorporate fodder shrubs and trees

Recommendations

It is thus recommended that Due to the potential of fodder trees and shrubs from other regions of the world, it is recommended that deliberate efforts be made to expand the adapted species, while continue to test new ones. However, this expansion should consider farmers' needs and circumstances; Encourage research that examine the relative contribution of fodder crops in solving many crises in many communities.

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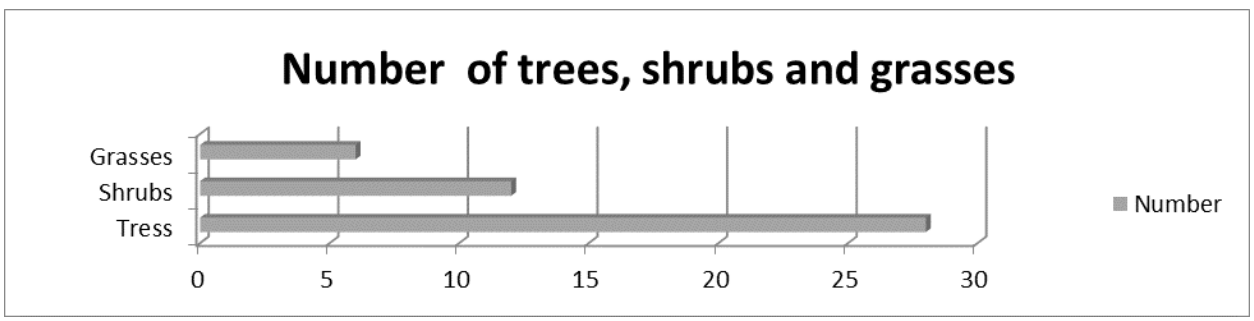

Figure 1. Percentages of Common trees, shrubs and grasses fed to livestock