GENERAL SURVEY OF FODDER TREES AND SHRUBS OF BIRATNAGAR AND SURROUNDING LOCALITY

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INTRODUCTION

Growing urbanization in Biratnagar has greatly increased the demand for livestock products (chiefly, milk and meat) but has an opposite effect on livestock population. Livestock population is decreasing even in the surrounding villages largely due to the lack of good pasture. Still there are a few households inside the town and some farmers on the surrounding locality who kept a small number of cows and buffaloes. But the supply of green fodders to these animals is poor and the animals are living in a measurable condition (Aziz; 1981).

Fodder trees and shrubs from the different forest of the hills surrounding Kathmandu valley has been studied (Shrestha, 1978; Dhakal, 1979) and analysed for their chemical contents. But no such work is ever done in Biratnagar. The fodder from the terai region still await a detailed exploration. In the present work an attempt is made to catalogue the fodder trees and shrubs of Biratnagar and nearby villages and to collect farmers' information about the fodder plants.

MATERIALS AND METHODS

Fodder plants were selected on the basis of local farmers information. Information was collected by preparing a questionnaire. Following standard technique (Lawrence; 1974) herbarium sheets were prepared and the plants were identified for their botanical names by Botany Instruction committee, Mahendra Morang Campus, Biratnagar and the herbarium section of the Department of Botany, in the Botanical Garden, Godavari. The Herbaria are deposited in the Department of Botany, Mahendra Morang Campus, Biratnagar.

RESULTS

Table no. 1 gives a list of 33 plants from BiratNagar and nearby villages which are usually used to feed the cattle and the goats. About 50% of the plants collected belong the two families. *Moraceae* (8 Species) and *Leguminosae* (8 Species). Rest are distributed among other different families. Local farmers' information on different aspects of the fodder are summarized on table 2. Among the collected species majority

of the plants are those which are preferred by goats. Results show that in this area only a few species of fodder trees are available for the cattle in their preference. Leaves and some times the young twigs are the parts taken by the animals, although goats sometimes browse on the barks. On farmers' judgment again the majority of the tree plants which are considered as good fodder are from the families *Leguminosae* and *Moracae*.

Table 1: List of the fodder plants from Biratnagar

S.No.	Name of the Plants	Family	Local Name
1.	*Acacia nilotica* (L) wild ex delile ssp. indica Slow growing and spreading, medium sized tree	*Leguminoasae*	Babul
2.	*Aegle marmelos* (Benth) Brenam Tall Tree	*Rutaceae*	Bel
3.	*Albizia julibrissin* Durranzz Much spreading, fast growing tree	*Leguminosae*	Rato Siris
4.	A. *Procera Benth*	*Leguminosae*	Seto Siris
5.	*Anacardium occidentale* L Medium sized, slow growing tree	*Anacardiaceae*	Dante Okhar
6.	*Anthocephalus chinensis* (Lamk) A. Rich ex Walp. Slow growing, Tall tree	*Rubiaceae*	Kadam
7.	*Annona squmosa* (L) Small, much spreading shrub	*Anonaceae*	Sarifa
8.	*Artocarpus heterophyllus* Lamk Much spreading, tall tree	*Moraceae*	Kathar
9.	*A lacucha* Buch. Ham Slow growing, non spreading tree	*Moraceae*	Badahar
10.	*Bambusa tulda* Roxb Fast growing, tall tree	*Gramineae*	Bans
11.	*Bauhinia purpurea* L Medium sized tree or shrub	*Leguminosae*	Tanki
12.	*B. variegata* L Medium sized tree, spreading	*Leguminosae*	Koiralo
13.	*Bombax cieba* L. Fast growing, muchspreading, tall tree	*Bombacaceae*	Simal
14.	*Dalbergia Sissoo*Roxb Fast growing, tall tree	*Leguminosae*	Sisau
15.	*Sizygium cumini* (L) Skells Slow growing, spreading, tall tree	*Myrtaceae*	Jamun

S.No.	Name of the Plants	Family	Local Name
16.	*Erythrina arborescens* Roxb. Wide spreading, small tree	*Leguminosae*	Phaledo
17.	*Ficus benghalensis* (L) Much spreading tree	*Moraceae*	Bar
18.	*F. racemosa* L Medium sized, spreading tree	*Moraceae*	Dumri
19.	*F. religiosa* L. Tall tree, spreading	*Moraceae*	Pipal
20.	*F. hisipda* L.f., wide spreading, small tree shrub	*Moraceae*	Khasreto
21.	*F. infectaria* Roxb, much spreading, tall tree	*Moraceae*	Kabro
22.	*Listsea polyantha* Juss Medium sized tree	*Loranthaceae*	Kutmiro
23.	*Magnifera indica* L. Cultivated, wide spreading fruit tree	*Anacardiaceae*	Anp
24.	*Morus australis* Poir, wide spreading small tree or shrub	*Morceae*	Kimbu
25.	*Litchi chinensis* Sonn Small, sprading, cultivated fruit tree	*Sapindaceae*	Litchi
26.	*Psidtum guajva* L. Small, spreading, cultivated fruit tree	*Myrtaceae*	Ambak
27.	*Shorea robusta* gaertn. F. Tall, slowgrowing tree	*Dipterocarpeceae*	Sal
28.	*Zizipus mauritiana Bushy* Shrub	*Rhamnceae*	Bayar
29.	*Leucaena leucocephala* (Lamk) De Wit Bushy, shrub, fast growing tree	*Leguminosae*	Epil-epil
30.	*Syzygium jambos* (L) Aisto Small, spreading tree	*Myrtaceae*	Gulabjamun
31.	*PithecellobiuM dulice* (Roxb) Benth Small tree	*Leguminceae*	Jilebi
32.	*Vitex negundo* L. Wide spreading, Shrub	*Verbinaceae*	Simali
33.	*Manihot utilissima* Pohl.	*Eurphorbiaceae*	Simal tree

DISCUSSION

Providing Livestock with nutritious feed and fodder is necessary for maintaining them in a good condition for the economic production of milk, meat and other products. There is considerable lack of information about the fodder resources

started to keep improved hybrid cows, their feeding and husbandry is still too "sophisticate" and beyond approach for the large majority of the farmers. Farmers keep the so called "local stock". The large bulk of the feed of these animals is obtained from the crop residue such as hay, straw, dry stalks of crop plants and green or dry grasses. In the lack of adequate alternative source of animals feed, green fodder, consisting of herbage and tree leaves, plays an important role in the nutrition of animals.

Table 2: Local farmers information on fodder plants from Biratnagar

S. No.	Name of plant	Season of feeding	Quality of fodder	Preference by the livestock group
1.	*Acacia niltica*	all over the year	good	goat
2.	*Aegle marmelos*	all over the year	fair	goat
3.	*Abizia julibrissin*	spring	good	cows & buffalo
4.	*A. Procera*	all over the year	good	goats
5.	*Anacardium occidentale*	all over the year	fair	goat
6.	*Anthocephalus chinensis*	all over the year	not good	goat
7.	*Annona squmosa*	all over the year	not good	cows/buffaloes
8.	*Artocarpus heterophyllus*	all over the year	good	cows/buffaloes
9.	*A lacucha*	all over the year	good	cows/buffaloes
10.	*Bambusa tulda*	winter	good	cows/ buffaloes
11.	*Bauhinia purpurea*	winter	good	cows/ buffaloes
12.	*B. variegata*	winter	good	goat
13.	*Bombax cieba*	summer	not good	goats
14.	*Dalbergia sissoo*	summer	fair	goats
15.	*Sizygium cumini*	summer	not good	goats
16.	*Erythrina arborescens*	summer	good	cows/buffaloes
17.	*Ficus benghalensis*	all over the year	good	cows/buffaloes
18.	*F. racemosa*	all over the year	good	cows/buffaloes
19.	*F. religiosa*	all over the year	good	cows/buffaloes
20.	*F. hisipda*	all over the year	good	cows/buffaloes
21.	*F. infectaria*	all over the year	good	cows/buffaloes
22.	*Listsea polyantha*	winter	fair	goats
23.	*Magnifera indica*	all over the year	fair	cows/buffaloes
24.	*Morus australis*	all over the year	good	goats
25.	*Litchi chinensis*	all over the year	fair	goats

S. No.	Name of plant	Season of feeding	Quality of fodder	Preference by the livestock group
26.	*Psidtum guajva*	summer, autumn	not good	goats
27.	*Shorea robusta*	all over the year	fair	goats
28.	*Zizipus mauritiana*	all over the year	not good	cows/buffaloes
29.	*Leucaena leucocephala*	all over the year	good	goats
30.	*Syzygium jambos*	all over the year	fair	goats
31.	*Pithecellobium dulce*	all over the year	not good	goats
32.	*Vitex negundo*	all over the year	not good	goats
33.	*Manihot utilissima.*	summer, autumn	not good	goats

In Biratnagar and the nearby villages animals are fed with very low quantity of green fodder, local farmers never give their animals any concentrate and balanced diets. There is no question of supplying livestock with supplement for minerals and vitamins. Farmers lack any scientific knowledge about the fodder, livestock feeding and management. However, they have a good traditional knowledge about the fodder plants and livestock feeding, sufficient to keep animals alive and to draw minimum advantage from . theirthem, so that the farmers themselves be alive. Farmers usually prefer multipurpose trees or shrub to plant in their fields. They generally cultivate that plants around in their houses which are fast growing, of medium height and spreading habit. However they give more priority to the quantity of the fodder rather than their quantity. In the town area and tarai villages, with a pronounced lack of good pasture the hope lies on raising trees and shrubs. Households keeping one or a few animals may be benefited by plantation of fodder trees and shrubs on the periphery of the town. They can cultivate the plants even in the gardens in place of ornamental plants. Selection of good evergreen plant with suitable growth habit may serve many fold purposes viz. ornamental, fodder and as fuel wood.

The present work simply summarizes local farmers information on the quality of fodder plants. Chemical analysis of the plants will reveal necessary nutrient contents of the fodder and helps in determining their feed values in a scientific basis. Feed values for the fodder plants of Kathmandu Valley has been determined (Bajracharya, et.al., 1985). A few plants common in our study has shown that many of the fodders considered good by the farmers and cultivated particularly as fodder have also higher feed value analysed on scientific basis. On this ground different species of *Ficus* and *Artocarpes* and leguminous plants can be said as good fodders and suggested for further study and improvements.

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