

FODDER PLANTS OF MACHLAD GAD WATERSHED, DISTRICT PAURI GARHWAL, UTTARAKHAND

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ABSTRACT

Fodder is an important component of agricultural production systems in hills as it supports the livestock. In Garhwal a part of Indian Central Himalayan Region, fodder is collected by the shrubs, herbs, and grasses and also by the lopping biomass of trees. The present study was done to know about the fodder plants utilization pattern in Muchald Gad watershed in Pauri Garhwal district, Uttarakhand. The present examination depicts 46 species with 22 families, which are the source of fodder. The plants beside their native names and other details, pertinent comments are also enumerated such as results of plant investigation, Consequences of fodder plant examination conducted during October 2016 to June 2017.

Keywords: Fodder, Garhwal Himalaya, Livestock, Watershed.

INTRODUCTION

Fodder is an important component of agricultural production systems in hills as it supports the livestock. Biomass extraction in the form of fodder assortment is also the foremost prevailing compress on forests in countries, where rural populations mainly depend on these activities (Hegde *et al.*, 2000). However, rural populations rely considerably on these activities for household and livelihood needs (Hegde *et al.*, 2000; Misra 2010) In India the forests altogether approximately 40% of the energy needs of the country; of that about 80% is use in the rural regions and about 30% for fodder consumption of the cattle population (Verma 2009; Awasti *et al.*, 2003). An accumulation of fodder is the first step that turns the wheel of the agricultural economy of the rural community (Makino 2009; Chettri *et al.*, 2002). Cultivation along with animal husbandry is the most important occupation and source of livelihood for over 70% of the population of Uttarakhand state. Uttarakhand is well thriving variety of livestock (Dhanai *et al.*, 2014; Dhyani *et al.*, 2011; Kumar 2005)

Livestock converts fodder shrubs and grasses from forests, crop residues and many fodder plats into compost through digestion. Large population and low productiveness are the pattern of livestock within the state, across all species.

Cattle like Cow and buffaloes are the dominant spirit animal and also the main keep of the dairy industry, while sheep and goat are the popular kindred among marginal farmers, sub-marginal and landless farmers. In the part of Central himalaya especially Garhwal region, about 77.4% of the total human population is rural, because of geographical abstruse and very low connectivity with other areas (Heltberg *et al.*, 2000; Chandra *et al.*, 2008). This discommodity in the area and disallowed socio-economic status of locals are responsible for the total ependence of nearby the forest areas for their fuelwood and fodder demands (Dhanai *et al.*, 2015; Bhatt *et al.*, 2004; Dewees 1989; Singh *et al.*, 1988).

Moreover, in Uttarakhand hills, it is accepted that women are mainly responsible for the collection of fodder. Villagers rear these animals for the milk that adds to their income. (Chandra *et al.*, 2008; Sati 2012). The key constraint within the central and north– western Himalaya in improving livestock and enhancing milk production is that the livestock feeds are inadequate and unbalanced. The most major issue is the unavailability of green forage, particularly in winter, causing a lack of protein and vitamins, resulting in low milk production, shortened breeding span and decreased working capacity of bullocks (Palni *et al.*, 1998; Shaheen *et al.*, 2011; Singh *et al.*, 2010). Aims of the study

were to list out the fodder/forage species in Muchald Gad watershed in Pauri Garhwal district, Uttarakhand.

STUDY AREA AND METHODOLOGY

STUDY AREA

Muchlad gad geographically the catchment is laying between 78°48'12" to 78°59'E longitudes and 30°1'12" to 29°51'24"N in latitudes the survey of India toposheet no 53K/13 and 53J/16 is the sub- tributary of the eastern Nayaar River. It comes under the jurisdiction of Pauri Garhwal district, Uttarakhand. The Muchlad gad originates from the Damdewal and Gadri peak (2513m) and joins the Purvi Nayar River at Talla Gawana (750m) approaches the area. Dhundi Gad and Saintoli Gad are the two main sub streams/ tributaries of the watershed.

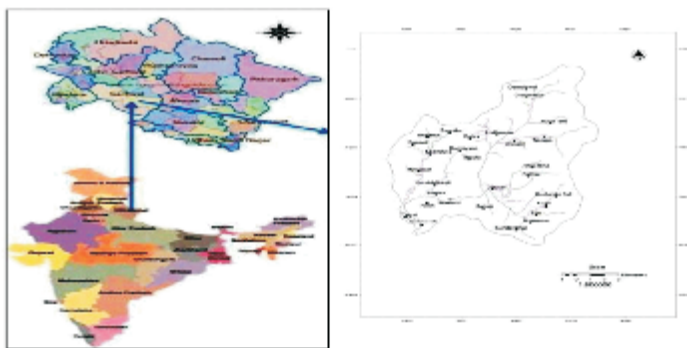


Fig. 1. Study map of Muchlad Gad Watershed

METHODOLOGY

The present investigation was a result of extensive and intensive field survey, conducted during October 2016 to June 2017; areas of Muchlad Gad watershed, District Pauri Garhwal, Uttarakhand. Data on the fodder plants were also collected along with information from the local peoples with field notes viz. local name, general availability, local use etc through semi-structured interview/questionnaires (Bargali *et al.*, 2007; Parihaar *et al.*, 2014; Padalia *et al.*, 2017). The collected specimens of fodder plant were identified with the help of recent and relevant floras (Gaur 1999; Naithani 1985).

RESULT

After the reconnaissance survey in areas of Muchlad gad watershed, 46 plants species of fodder were recorded as economic important in the watershed. Plants were further categorized into different groups viz. plant name, local

Table 1. Fodder plants of Muchlad Gad watershed,

S.No	Scientific Name	Local Name	Family	Comments
1	<i>Azadirachta indica</i>	Neem	Meliaceae	Goats, Sheep
2	<i>Bauhinia purpurea</i>	Kachnar/ Guriyal	Fabaceae	Cows, Goats, Sheep
3	<i>Bauhinia tomentosa</i>	Kandla	Fabaceae	Cows, Goats, Sheep
4	<i>Bauhinia Vahlia</i>	Malu/Tanti	Fabaceae	Cows, Goats, Sheep
5	<i>Berberis aristata</i>	Kilmore	Berberidaceae	Goats, Sheep
6	<i>Boehmeria regulasa</i>	Genthi/Geenthi	Urticaceae	Cows, Goats, Sheep
7	<i>Butea menosperma</i>	Dhak/Manduru	Fabaceae	Goats, Sheep
8	<i>Callocarpa Macrophylla</i>	Daya	Lamiaceae	Goats, Sheep
9	<i>Carissa spinarum</i>	Karaunda	Apocynaceae	Goats, Sheep
10	<i>Celtis australis</i>	Kharik	Cannabaceae	Cows, Goats, Sheep
11	<i>Cordia nucledi</i>	Dhai	Boraginaceae	Goats, Sheep
12	<i>Crabnegus crenulata</i>	Ghingharoo	Rosaceae	Goats, Sheep
13	<i>Dendrocalamus strictvs</i>	Bans	Poaceae	Cows, Goats, Sheep
14	<i>Ficus racemosa</i>	Guular	Moraceae	Goats, Sheep
15	<i>Ficus religiosa</i>	Peepal	Moraceae	Cows, Goats, Sheep
16	<i>Ficus roxburghii</i>	Timla	Moraceae	Cows, Goats, Sheep
17	<i>Ficus palmate</i>	Baidu	Moraceae	Cows, Goats, Sheep
18	<i>Grewia aoptiva</i>	Bhimal	Malvaceae	Cows, Goats, Sheep
19	<i>Holoptelia integrifolia</i>	Papdi	Ulmaceae	Cows, Goats, Sheep
20	<i>Lagerstroemia parviflora</i>	Dhaura	Lythraceae	Cows, Goats, Sheep
21	<i>Lyonia ovalifolia</i>	Anyar	Eriaceae	Cows, Goats
22	<i>Morus alba</i>	Shatoot	Moraceae	Cows, Goats, Sheep
23	<i>Morus serrata</i>	Kimu	Moraceae	Cows, Goats, Sheep
24	<i>Prunus commianis</i>	Nashpatti	Rosaceae	Goats, Sheep
25	<i>Prunus cornuta</i>	Jamma	Rosaceae	Goats, Sheep
26	<i>Pyrus pashia</i>	Mellu	Rosaceae	Goats, Sheep
27	<i>Quercus leucotrichophora</i>	Banj	Fagaceae	Cows, Goats, Sheep, Animal bedding
28	<i>Quercus semicarpifolia</i>	Khirsu	Fagaceae	Cows, Goats, Sheep,
29	<i>Rhus purviflora</i>	Tungla	Anacardiaceae	Goats, Sheep, Animal bedding
30	<i>Phanera purpurea</i>	Butterfly tree	Leguminosae	Goats, Sheep
31	<i>Pyracantha crenulata</i>	Ghingaru	Rosaceae	Goats, Sheep
32	<i>Ficus semicordata</i>	Khiriya	Moraceae	Goats, Sheep
33	<i>Indegofera dosua</i>	Sakina	Leguminosae	Cows, Goats, Sheep,
34	<i>Melia azedarach</i>	Dainkan	Meliaceae	Goats, Sheep
35	<i>Ougeinia oojennesis</i>	Sandan	fabaceae	Cows, Goats, Sheep,
36	<i>Bombax ceiba</i>	Semal	Malvaceae	Cows, Goats, Sheep,
37	<i>Rubus ellipticus</i>	Hisalu	Rosaceae	Goats, Sheep,
38	<i>Rosa macrophylla</i>	Khikiri	Rosaceae	Goats, Sheep,
39	<i>Strobilanthes alatus</i>	Jana	Acanthaceae	Goats, Sheep,
40	<i>Schleichera oleosa</i>	Kudum	Sapindaceae	Cows, Goats, Sheep,
41	<i>Shorea robusta</i>	Kandar/Saal	dipterocapaceae	Cows, Goats, Sheep,
42	<i>Toona serrata</i>	Tooun	Meliaceae	Goats
43	<i>Prunus cerasoides</i>	Panya	Rosaceae	Cows, Goats, Sheep,
44	<i>Ulmus wallichiana</i>	Charmrmoa	styraceae	Cows, Goats, Sheep,
45	<i>Viburnum mullaha</i>	Malyu	Caprifoliaceae	Cows, Goats, Sheep,
46	<i>Woodforbia furticosa</i>	Dhoula	Lythraceae	Cows, Goats, Sheep,

name, family, the period of availability etc. as described in the Table-1.

District Pauri Garhwal

The community of watershed takes the fodder for their chews from two types, forest and farmland. The natural fodder includes vegetation growing in terrace bunds, agro-forest, pastureland, roadside, and riverside forest. There are

many fodder plant and trees are found in around the cultivated land. Beside fodder grass, the community also collects fodder leaves from the agroforestry tree species. Therefore, the amount of fodder required change with the number and size of livestock, normal collection of fodder at least once a day is requisite.

CONCLUSION

The present studies were investigated in Muchald Gad watershed in Pauri Garhwal district, Uttarakhand for plants utilization pattern. The Community of the watershed generally used as fodder 46 species with 22 families, which are the source of fodder. Some of the fodder plant essential like *Grewia optiva* (Bhimal), *Celtis australis* (Kharik), *Quercus leucotrichophora* (Banj), *Ougeinia oojeinensis* (Saandan) etc. Some peoples of the watershed take grass on regular basis to accomplish the needs of animals they keep.

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