

NOTES ON SOME IMPORTANT FORAGE AND PASTURE GRASSES

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The value of pastures has long been recognized and studied by investigators in many parts of the world. There has recently been a renewed interest on the subject in India. Such development in nutrition as the necessity for vitamins, the importance of mineral salts and the effects of deficiencies of these food factors furnish a broader basis of study than previously existed. Pasture grasses are particularly good sources of vitamins, minerals and in many cases a high grade of protein.

Inquiry has now been extended into the nutritive value of pastures, the deficiencies that may occur in them, and means of increasing their value by the use of well-selected food supplements on the one hand, and the enrichment of the soil and pasture management on the other.

The nutritive value of many varieties of grasses and legumes, both native and exotic, have been tried in the various stock farms and breeding stations of Japan, Philippines and Java of which some of the most important forage and pasture crops that may show promise in India are the following:—

Pasture Grasses: Kikuyu grass (*Pennisetum clandestinum*). It is a first class tropical pasture grass for dairy animals that they like and will eat readily. All kinds of poultry also like this when it is young and tender. This grass is light green in colour and is used extensively for lawns, parks and playgrounds in many towns of Japan, Java and Malaya. It thrives best at altitudes of 1,600 feet or more, where there is sufficient moisture throughout the year, where it will form a thick mat-like growth when planted in rich soil. The grass does not seed and must be propagated from roots or cuttings.

Rhodes Grass. (*Chloris gayana*). This grass is considered as a dual purpose grass in Japan and is extensively used there for grazing purposes and also for curing into hay. It should not be grazed during the first year after planting as it roots very shallowly during this time and the cattle may pull it up by the roots. But after the first year the root system is sufficiently developed and it will stand grazing.

Bermuda Grass. (*Cynodon dactylon*). In Philippines this grass stands the dry season better than any other kind of grazing grass. It was imported there from Australia and is found throughout the lowlands in that country. It is very useful for lawns and poultry runs.

Dallis Grass. (*Paspalum dialatatum*). This grass is extensively used as a pasture grass for dairy cattle in Queensland. It grows well

in moist soils and produces dense masses of palatable stems and leaves of dark green colour. Where weeds are eliminated it grows very well and reseeds itself. It may be considered as a valuable pasture grass in localities where the rainfall is more or less frequent throughout the year.

Carpet Grass. (*Paspalum compressum*). This grass is well liked by all kinds of herbivorous animals as well as poultry. The growth is short and eventually forms a mat-like covering of the ground which gives the sensation, when walking on it, of a thick carpet. It is a very promising pasture grass in localities where there is sufficient moisture throughout the year.

Buffaloe Grass. (*Paspalum conjugatum*). It is a common tropical pasture grass. Cattle, buffaloes and sheep eat it readily but horses are not fond of it. It will grow abundantly and often forms pure growths in shady places, especially in low ground.

Para Grass. (*Panicum Barbinode* Trin) It is also a tropical grass and is liked by cattle and buffaloes and, when tender, by horses and other stock. It is a very nutritious one but coarse and growing horizontally, producing roots readily and growing best in moist soils.

Natal Grass (*Tricholaena rosea*) It is a variety of Red top ox-herd's grass, of which there are a number of varieties belonging to the same family. It was imported into the Philippines from Australia planted in various stock farms in that country and it is considered as a dual purpose grass there. All classes of herbivorous animals eat it readily. It is also used for making a low grade hay and fed to cattle mixed with other kind of hay in the Philippines.

Molasses Grass ; Varagua, Gordura and Braziliam Stink grass. (*Melinis minutiflora*) This grass is a native of Brazil, where it is propagated in large areas for fattening beef cattle for the market. It was imported into Japan and seen growing well in some stock farms at Tokyo. Cattle are very fond of this grass when it is young, but after it flowers which is usually in November, in Japan stock will not eat it readily, particularly so if the animals are not accustomed to eating it when it is young. The grass emits an odour, especially before it flowers, which resembles somewhat the odour of molasses.

Bungalon. (*Homalocenchnus hexandra*) It is seen growing around Manila city. Cattle, sheep and goats readily eat it.

Barit. (*Leersia hexandra*) This is cultivated abundantly in many towns in Java and Philippines and sold in small bundles to 'Tonga Wallas' there as a cut feed for horses. It is reproduced by cuttings. It roots readily at the nodes if there is plenty of moisture in the soil. Cattle are fond of this grass and will readily eat it.

Silage Crops. **Milo maize** (*Holcus sp.*). All classes of farm animals, including swine and poultry, will eat the seeds readily and they are considered to have 50% of the feeding value of corn. Generally it is raised as a silage crop. It thrives under the same condition as for corn and is cut and fed when the grain is in the dough stage. It is best fed when put through a feed cutter, stalks, grain and all.

Sudan grass (*Holcus sudanensis*). Sudan grass is a member of the grain sorghum family, as is milo maize. It is best not to plant both of them on the same farm or, if this is done, they should be planted far about in order to prevent them from hybridizing; as the hybrid plant, particularly the seeds, are somewhat dangerous to stock that eat them. This grass may be fed as a silage or, if conditions are favourable, cut when the seeds are in the dough stage and sun-dried into hay. It is a valuable dairy-animal feed and it may also be fed to horses either as a silage or as hay. It is a heavy yielder and may be cut three or four times during one cropping season.

Japanese Cane ; Uba Cane (*Saccharum Japonicum*). It is cultivated in many stock farms in Japan as a succulent hog feed during the dry season; the leaves and tops fed to cattle, sheep and goats and the stalks cut into short pieces and fed to hogs. They will chew them for the juice and spit-out the fibrous portion. Hogs are very fond of the juice and it is believed to be the best green feed that can be raised for them, without irrigation, as a dry-season feed.

Napier Grass. (*Pennisetum purpureum*). This grass resembles Uba Cane in appearance and is a heavy yielder and may be cut repeatedly without being transplanted for a number of years. It is believed that it is more palatable and a better feed for horses than guinea grass, and they will do fairly well on it if they are fed with supplements of suitable concentrates with it.

Guinea Grass. (*Panicum maximum*). Guinea grass requires more care than Napier grass and should be transplanted, from the roots, at least every three or four years to prevent the bunches from becoming root-bound. All animals are very fond of the grass and also can be fed as a silage feed for riding ponies.

Japanese Millet. (*Panicum frumentaceum*). It is the best dairy cow's feed in Japan. The animals are very fond of it and would eat it in preference to any other kind of green feed offered to them. It is believed that it increases the milk production of dairy cows and goats when fed with it. It may be fed as a silage and if properly cured makes also a very good hay for dairy animals.

Teosinte. (*Euchlaena Mexicana*). Teosinte has about the same feeding value as has a good quality of green corn fodder for dairy cows. It is extensively cultivated in many stock farms in Japan and Philippines and fed as a silage for cattle there.

Legumes: Cowpea. (*Vigna unguiculata*). Cowpea is a very good feed for dairy cattle, fed as silage or as a hay mixed with some other kinds of hay in order to prevent cattle bowel disturbances. Poultry are very fond of the peas, as well as milo maize and adlay seeds. These three make a very good combination and variety of poultry feed when planted in their runs or yards.

Soy Beans (*Glycine hispida*). Soy beans are planted and used as a silage for riding ponies and dairy cattle in many stock farms. It is very rich in vegetable protein and also can be used as a hay.

Velvet beans (*Stizolobium deeringianum*). The dried beans have about the same nutritional value as wheat bran and the beans may be ground and mixed with other concentrates and fed to swine and cattle. They can be planted in rice stubbles immediately after the plants have headed and can be grazed by cattle when they are in the flowering stage. After the rice is headed and the long stubble retained they will serve as support for the climbing plants to keep them off the ground. In this way, they serve a dual purpose; as a good feed for the animal and as a fertilizer.

Tapilan Beans. (*Phaseolus calcaratus*). They have been also planted in many stock farms and used for the same purposes as for soy beans. Dried leaves of Tapilan beans may be ground fine and used also as a poultry feed.

Dry Roughage: Rice Hay :— It is believed to be reasonably satisfactory as a feed for horses and cattle when cut at the proper stage and cured without being wet.

The most important problem is its storage, should be prevented from getting wet, otherwise its mineral content may be lost. It is advisable to bale it when dry so it would occupy less space. When feeding, if possible chop hay into pieces, 2 or 3 inches long to decrease wastage.

Corn Fodder and Corn Stover. Like rice straw, corn fodder and corn stover are merely a maintenance roughage and should be cut in the proper stage and stocked until the ears harden. These should then be husked and the fodder put through a corn chopper, and the cut pieces (stover) may be fed to cattle. The chief difficulty in feeding corn fodder is similar to that in curing hay, i. e., moulding when it is a little on the green side, or when it gets wet.

Conclusion. Forage production is regarded as a very important phase of Agriculture in any country, and the need for better forage and pasture grasses for different classes of animals has been an important problem in the development of the livestock industry, and in tropical countries it may be considered doubly so and a real problem. Certainly if we could grow more nutritious feed we could raise much better livestock.