



Forage crops and their management

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Fodder crops are the plant species that are cultivated and harvested for feeding the animals in the form of forage (cut green and fed fresh), silage (preserved under anaerobic condition) and hay (dehydrated green fodder). The total area under cultivated fodders is 8.9 million ha on individual crop basis. Sorghum amongst the *Kharif* crops (3.2 million ha) and berseem (Egyptian clover) amongst the *Rabi* crops (2.1 million ha) occupy about 58% of the total cultivated fodder cropped area. The area

under permanent pastures has been declining over the years and the trend could well continue in the future. Due to overgrazing, the productivity of the pastures has been declining too. While the term forage has a broad definition, the term forage crop is used to define crops, annual or biennial, which are grown to be utilized by grazing or harvesting as a whole crop. Some of the forage crops are Lucern, Sorghum, Maize, Bajra, Oat, Cowpea and Sunflower. Fodder production and its utilization depend

Table 1: Detail information of different forage crops are as follows

Crops	Botanical name	Origin	Family	Time of sowing	Method of sowing
Lucern	<i>Medicago sativa</i> L.	South west Asia	Leguminaseae	15 th October to 15 th November	Broadcasting or drilling method
Sorghum	<i>Sorghum bicolor</i> L.	East central Africa	Gramineae	June-July after first monsoon	Drilling
Maize	<i>Zea mays</i> L.	Mexico or central America	Gramineae	1 st or 2 nd week of March	Drilling
Bajra	<i>Pennisetum americanum</i> L.	Africa	Gramineae	June-July and Feb-March in summer	Broadcasting or drilling method
Oats	<i>Avena sativa</i> L.	Asia Minor	Gramineae	15 th November	Drill method
Berseem	<i>Trifolium alexandrinum</i> L.	Asia Minor	Leguminoseae	15 September to end of November	Broadcasting method or by line sowing
Cowpea	<i>Vigna sinensis</i> L.	Central Africa	Leguminoseae	June-July with onset of monsoon	Dibbling or drilling method
Sunflower	<i>Helianthus annus</i> L.	USSR	Compositae	It can be sown at any time in a year	Dibbling

Table 1 contd...

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Seed rate	Spacing	Manure and fertilizer	Yield	Varieties
For annual crop: 10 kg seeds/ha For perennial crop : 15kg seeds/ha	25cm row spacing	20-50-50 NPK as basal application	Green forage yields about 700-800 q/ha for seasonal crop and 1000-1100 q/ha for perennial crop	Sirsa, GAUL-1 (AL-2), GAUL-2 (SS 627), Anand-3
60 kg/ha for improved varieties 30 kg/ha for hybrids	25 to 30 cm	For single cut systems: 40-40-00 NPK For two cutting systems: 40-40-00 NPK	In single cut, forage yield 350-400 q/ha. In two cut, forage yield 650 q/ha	S-1049, C-10-2, Gundari, IS-5026, M.P. Chari, F.S.-3, GSFH-4, GSFH-5
60 kg/ha	25 x 10 cm 30 x 10 cm or 45 x 15 cm	80-40-00 NPK as basal dose 20-25 tones FYM/ha	Green forage yield 400-500 q/ha Yield of rainfed crop is 150-200 q/ha, and for irrigated crop is 300-350 q/ha	Ganga-5, Ganga safed-2, Farm sameri, Vikram Giant bajra, Rajka bajra
100 kg/ha	25 to 30 cm between row to row	For single cut systems: 40-30-00 NPK For two cutting systems: 40-30-00 NPK	In single cut, forage yield 400-500 q/ha. In two cut, forage yield 500-600 q/ha	Kent-24, Kent-37, Palampur-1, Green mountain
50 kg/ha for bold seeded variety and 30 kg/ha for small seeded variety	20 to 30 cm spacing	40-50 CL FYM/ha, 20-80-40 NPK as basal application	The average yield 800-1100 q/ha	Meskawi, IGFRIS-29-1, Chhindwara, BL-1, Pusa giant
40 kg/ha	20 to 30 cm spacing	10 t/ha FYM, 20-40-00 NPK as basal application	Green forage yield is 275 to 300 q/ha	GFC-1, GFC-2, GFC-3, GFC-4, EC-4216
30 to 40 kg/ha	40 x 15 cm	Apply 15 t/ha FYM, 60-30-00 NPK as basal application	Green forage yield is 200 to 250 q/ha	EC-68414, EC-68415, Modern, Surya



on the cropping pattern, climate, socioeconomic conditions and type of livestock. The grass primarily refers to the natural botanical family known as gramineae or poaceae. The common and most vital role of grasses is its use as fodder and pasture for the domestic animals more particularly ruminants.



In animal feed supply, coarse cereals have a major role and four major cereals, viz., maize, barley, sorghum and pearl millet, account for about 44% of the total cereals. Production of these cereals is stagnating at around 30 million

tonnes. Of the total coarse cereals, maize accounts for almost three-fourths and barley accounts for 15%. Sorghum and millets account for 11%. India's production of these cereals is stagnating around 30 million tonnes, which is less than 3% of the world's production. Most of the coarse cereals in the developed countries are mainly used for cattle feed and some of the cereals like barley are used in breweries. The role of food grains and especially of the coarse cereals in providing the balanced nutrition to the livestock for ensuring higher productivity needs no emphasis.



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