



NAPIER BAJRA HYBRID: AN IDEAL CROP FOR YEAR ROUND FODDER PRODUCTION

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ABSTRACT

*Commonly grown fodder crops such as sorghum, maize, pearl millet, berseem, oat etc. are seasonal and could not provide green fodder round the year sufficiently. In this way, Napier bajra hybrid is an interspecific hybrid between pearl millet (*Pennisetum americanum* L.) and Napier grass (*Pennisetum purpureum* L.). Because of its perennial nature, Napier Bajra Hybrid is the best alternative to supply adequate fodder for the animals round the year. Napier Bajra Hybrid are important forage grass of the tropics with good biomass potential, palatability, persistence and quality fodder.*

INTRODUCTION

The livestock sector is the backbone of India's economy in terms of income, employment, equity, and sustainability and foreign exchange earnings. Livestock provides livelihood to two-third of the rural community. Livestock production is an integral and indispensable component of the farming system in India. Currently, India has only 5.4% of the total cropping area under fodder cultivation which is quite low compared to livestock population in the country leading to fodder scarcity (green/dry) which is resulting in poor maintenance and production requirement of the animal. The quality and quantity of herbage available in the lean, dry months from May to mid-July and November to December are very poor and insufficient.

Commonly grown fodder crops such as sorghum, maize, pearl millet, berseem, oat etc. are seasonal and cannot provide green fodder for the round the year sufficiently. Therefore, it is required to cultivate perennial fodder crops and has high green biomass production potential. In this way, Napier Bajra Hybrid Grass, the hybridization product between bajra (*Pennisetum glaucum*) and Napier grass (*Pennisetum purpurium*), has the characteristics of bajra that is good palatability and taste along with perennial nature and deep root characteristics of Napier. Combined high productivity and good palatability make Napier Bajra hybrid an ideal fodder crop for round-the-year fodder production. It contains 7-10 % crude protein, 28-30 % crude fibre and 10-11.5 % ash on a dry matter basis. Once planted, it can give about 8-10 cuts in a year, and if managed properly, it can provide fodder for 5-6 years.



CHIEF ADVANTAGES OF THE NAPIER BAJRA HYBRID ARE MENTIONED BELOW

- Perennial nature.
- Quick growth.
- Very productive and convenient for hay and silage making.
- It is easily propagated.
- It can be intercropped with various fodder legumes.
- They are used as mulch to prevent soil erosion.
- Suitable as a trap crop to fight against stem borer.
- They are used as windbreaks and production of biofuel.
- Simple in cutting because of the soft stem.
- Crop restores and improves the fertility of the soil.
- Resistant to drought due to deep root system.
- Protects the other field crops from heat stress if planted in bund areas.

CLIMATE AND SOIL

It can be grown under a wide range of climatic conditions, but it grows best under a moist and warm environment with an optimum temperature of 31°C. It is susceptible to frost and becomes dormant below temperature 15 °C. Hence it is not recommended for the hilly areas. However, Napier grass survives in moisture deficit conditions for a short duration, and with the commencement of rain, it regenerates again. It can grow in all types of soil. However, deep fertile soil with excellent moisture-holding capacity and adequate drainage is most favourable for its optimum growth and development, while very acidic and saline soil should be avoided.

IMPROVED CULTIVARS

1. **PUSA GIANT NAPIER:** It is twice as productive as ordinary Napier and has better nutritional quality and palatability. It constitutes around 25% higher protein and about 12% more sugar content than usual Napier grass. Its stem contains fewer fibres and is juicier at all the growth stages.
2. **PBN-346:** It is also a leafy hybrid and contains smooth leaves which are long and broad. It flourishes primarily in the spring seasons and continues in vegetative growth till the inception of winter. It makes better quality silage and generates around 71.5 tons of green fodder in an acre.
3. **PBN-342:** It is a leafy hybrid having smooth, non-hairy long leaves which are very broad. It generates around 80 - 85 tons of green fodder in an acre.
4. **NB-21:** It has a high tillering capacity and has a thin stem without hairs. It grows very fast and produces long thin leaves which are very smooth. It yields its first cutting in 50 days after planting and can be cut consequently after 35-40 days.
5. **NB-37:** It can fast regrowth. The highest yield potential capacity is about 250-300 tons per hectare. It's ready to harvest after 50 days of transplanting for the first cutting.
6. **PBN-233:** It is a leafy hybrid having long, smooth and broad leaves which are non-hairy. It thrives well in spring and continues its vegetable growth up to winters. It generates 110 tons green fodder in an acre. Besides, the other promising varieties of Napier Bajra hybrid are Pusa Napier-1, Pusa Napier-2, IGFRI-3, IGFRI-6, IGFRI-7 and APBN-1, PBN83, CO-1, 2, 3 and 6.

SOWING TIME AND METHOD

The grass is propagated mainly by vegetative propagation as it does not produce viable seeds. The land should be prepared by 2-3 harrow or cultivator, and it must be free from weeds. The stem cutting having two to three nodes and buds needs to be planted with a spacing of 60x60 cm, and about 27 800 root slips or stem cutting are needed for planting one hectare of land. In irrigated conditions, planting should be done in February-May, whereas in rain-fed conditions, July-August is the proper time of planting.

NUTRIENT MANAGEMENT

Incorporate 15- 20 tonnes of well rotten FYM and 60: 50: 40 kg N: P: K/ha at the time of planting and apply 30 kg nitrogen/ha after each cut.

WEED MANAGEMENT

Regular hand weeding/hoeing makes the crop field free from weeds. Additionally, it aerates the soil by surface pulverisation, making the soil microclimate conducive to optimum plant growth.

WATER MANAGEMENT

Plant the napier in well moist soil conditions. During monsoon season, irrigation is rarely needed except in the event of prolonged monsoon failure. The crop needs to be irrigated at an interval of 15-18 days during March- April and during peak summer season irrigate the crop at an interval of 10-12 days.

HARVESTING MANAGEMENT AND PRODUCTION

The first cutting should be done 50 days after planting and subsequent cuts with an interval of 30 days at about 1 meter height since the crop's nutritional value diminishes if the crop grows beyond this. The crop should be cut 15 cm above the ground level. In this way, a properly managed Bajra Napier hybrid crop could provide 150-200 tons of green fodder/year/ha.

CONCLUSION

Napier bajra hybrid is the best nutritive fodder, which can fulfil the quality fodder requirement of the livestock. It can be considered one of the best options as it is planted once and harvested for four to six years. It has high productivity than other fodder crops and is favourable for animal consumption due to its palatable stem and leaves. As the farmers are spending 70 per cent of their daily expenditure on feed and fodder of the animals, Napier bajra hybrid makes the most economical fodder.

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