

## Hybrid bajra napier - as intercrop in coconut garden

P. Subramanian, R. Surekha and Ravi Bhat

Division of Crop Production, ICAR-Central Plantation Crop Research Institute, Kasaragod, 671 124

In India which is basically an agricultural country, nearly 58% of the population depends on agriculture and 70% of the total agricultural holdings are owned by small and marginal farmers. Since ancient times livestock is an integral part of agriculture as it accounts for a sizeable share of agricultural income as well as employment opportunity and poverty alleviation of small and marginal farmers. It also acts as a shield against crop failure due to natural calamities. Hence, livestock is instrumental for future growth and development of the agriculture sector. There is an increasing demand for live stock products like milk (3.95% of growth rate per annum) and meat (2.99% per annum) (IGFRI, 2015). Thus livestock population is increasing and accordingly its feed requirements are also increasing. Considering the increase in the price of feed concentrates, green fodder is a comparatively an economical source of nutrients for livestock. In India the green fodder requirement is

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622 million tonnes in comparison to the availability of 224 million tons indicating approximately 63% shortage of green fodder (Velayudham, et al., 2011). This is a major constraint in achieving the desired





level of livestock production. This deficit of fodder has to be met either from increasing productivity within the available area or by increasing the area under grass cultivation. The later option may not be possible due to the reduced land availability for agriculture and due to diversion of available land for infrastructure projects. Other option for increasing the production of green fodder is to utilize area under widely spaced plantation crops.

### Coconut is highly amenable for intercropping

Among the plantation crops, coconut with wider spacing of 7.5 m x 7.5 m can accommodate many crops in the interspaces. Studies conducted at CPCRI have showed that growing of crops in the coconut garden has benefitted farmers in terms of increased economy apart from improving the soil health. Growing grass in the interspace of coconut can increase production of green fodder which can boost the livestock production. The availability of more green fodder will also increase the profit from livestock by reducing the expenditure on costly feed concentrates. This will encourage coconut based mixed farming system for doubling the income of farmers apart from ecologically sustainable farming model.

### Performance of Hybrid bajra Napier (var. CO4) at ICAR-CPCRI Kasaragod

The selected fodder grass should have certain desirable qualities viz., minimal competition with coconut for resources such as plant nutrients and soil moisture, ability to withstand shade, good response to fertilizer application and relished by cattle. Bajra hybrid napier grass is one such potential perennial source of green fodder with high yield, palatability and adaptability to varying soil and climatic conditions. Among the many, CO4 is found to tiller profusely and yield more than other varieties. In this context, an experiment was conducted for three years to study the performance of CO4 variety of Hybrid Bajra

Napier in the interspaces of coconut under sandy loam soil. The fodder grass was grown with different nutrient management practices viz., 100% organic, integrated nutrient management and 100% chemical. The average yield of three years revealed that the grass responded well to the integrated nutrient management (120 t/ha/year) and organic application (107 t/ha/year) compared to chemical fertilizer alone (104t/ha/year). The green fodder requirement of one milch animal is 10t/year @ 30kg/day. So it clearly shows that fodder grass intercropped in 1 ha of coconut garden could meet the requirement of 12 milch animals. The detailed package of practices for cultivation of hybrid bajra napier var. CO4 is described here under.

### Field preparation, Planting and Manuring

The best time of planting is the onset of SW monsoon (June) or NE monsoon (October). It can also be planted through out the year with irrigation. Planting during heavy rains should be avoided. The field should be provided with good drainage during the rainy season, as the crop cannot withstand water stagnation. The land need to be ploughed 2-3 times to obtain a good fine tilth. Farm yard manure @ 15t/ha need to be applied before planting. Fertilizers NPK @ 45:30:24 kg/ha should be applied as basal dose and covered with soil. Potassium should be applied @ 24kg/ha at yearly interval. Three budded stem cuttings should be planted in a slanting position with a spacing of 60 cm x 60 cm. The cuttings should be planted in such a way that two nodes are in the soil and one node is above the soil surface. It is observed that, in many places farmers fail to get the expected yield mainly because of the poor plant population. Thus for successful production, plant population need to be maintained at optimum level. For this, approximately 10% of the planting materials need to be maintained in separate nursery for gap filling. Generally it is advised to go for staggered planting depending on the number of cattle to be fed to avoid wastage of grass with continuous supply of fodder. The entire area is divided into 5 equal parts (20% of area) to follow staggered planting. Planting has to be done at an interval of 10 days. For example, if a farmer is having 1 ha of garden, he has to plant 50 cents of area initially (1st day) and there after planting has to be taken up at 10 days interval. Farmer can complete the planting in 50 days. Earthing up should be done after planting.

### Water management and inter cultivation

During summer season it is necessary to irrigate the crop with sprinkler irrigation system for efficient

utilization of water. Frequency of irrigation depends upon the rainfall and weather condition. During the rainy season if there is more than a week gap in the receipt of rain, irrigation need to be given. During the post monsoon season or summer season irrigation should be given once every three days or when ever the moisture falls below 50% of available soil moisture. Earthing up can be done after 2 cuttings and weeding has to be done as and when necessary. It is desirable to take up replanting after every 3 years since the yield starts declining after three years. It is always advisable to grow one leguminous crop before replanting.

### Harvesting

The crop will be ready for first cutting in 70-80 days after planting (DAP). Cutting should be done at 5-10 cm from the ground. After every cutting 45kg nitrogen in the form of cow dung slurry or in the form of chemical fertilizer urea should be applied as top dressing. Subsequent cutting can be taken up at an interval of 45-60 days depending on the management of the crop. In a year, six to seven cuttings can be taken up (even 8 cuts can be obtained per year with better management) per year with an average yield of 120 t/ha/year.

### Conclusion

Growing of fodder grass with scientific management in coconut garden helps in alleviating the problem of fodder scarcity. It helps in developing an ecologically sustainable integrated farming system which enables the farmer to realize more income, employment throughout the year and good soil health. Based on the study it can be grown with integrated nutrient management practices or organically through recycling of organic material generated from mixed farming system. In the present scenario where organic cultivation is gaining importance, this system will help the most as the maintenance of dairy generates FYM, an important input in organic farming.

### Reference

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**Shri. R. Jnanadevan, Deputy Director, Coconut Development Board hoisting the National Flag at the head quarters of Coconut Development Board, Kochi as part of Independence Day celebration 2017. Officials of CDB are seen.**