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PRODUCTIVITY OF DIFFERENT FODDER CROPS SEQUENCES GROWN IN ASSOCIATION OF BER (*ZIZYPHUS MAURITIANA* LAMK.) PLANTATION UNDER AGRI-HORTICULTURE SYSTEM IN HOT ARID REGION OF WESTERN INDIA

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SUMMARY

The field experiment was conducted during 2008-11 to find out the most productive and remunerative fodder crops sequence in association of ber (*Zizyphus mauritiana* Lamk.) plantation in hot arid ecosystem of western India. Results indicated that among fodder cropping sequences, pearlmillet (*Pennisetum glaucum*)+clusterbean (*Cyamopsis tetragonoloba*)-lucerne (*Medicago sativa*) sequence recorded maximum values of green fodder (96.5 and 92.9 t/ha), dry matter (19.5 and 21.3 t/ha) and crude protein (2.87 and 3.05 t/ha) yields in both the years, and overall net returns of (Rs. 97.6 thousands/ha) and B : C ratio (2.43). These fodder yields were significantly higher over rest of the sequences in both the years except green fodder and dry matter yield of pearlmillet sole-lucerne in first year and dry matter yields alone of pearlmillet+clusterbean-oats (*Avena sativa*) in both the years. Growth data on ber plantation showed that none of the fodder cropping sequences had its significant effect on ber growth attributes viz., plant height, collar girth and canopy diameter except collar girth at 15 months stage, where differences in collar girth were significant and trees in the plots under pearlmillet+clusterbean-oats recoded maximum value of 21.7 cm, which was at par with pearlmillet+clusterbean-lucerne, sorghum (*Sorghum bicolor*)+cowpea-oats, sorghum+cowpea (*Vigna unguiculata*)-lucerne, sorghum sole-oats, clusterbean sole-lucerne and ber sole, and significantly higher over rest of the sequences. Differences due to fodder cropping sequence in ber tree productivity viz., fruits, dry leaves fodder and dry wood yields were also non-significant. Hence, it can be concluded that growing of pearlmillet+clusterbean-lucerne in association of ber plantation holds promise to provide higher and remunerative productivity in hot arid ecosystem of western India.

Key words : Agri-horticulture, ber, fodder crops sequences, fodder yield, economics

Like other parts of the country, animal husbandry being an integral part of agriculture plays an important role in livelihood security and economic sustenance in hot arid region of western India also. This region is not only gifted with best inherent quality breeds of different animal species along with a good animal strength but after improvement in irrigated conditions due to introduction of Indira Gandhi Canal Project and successful digging of tube wells, population of milch animals like crossbred cows and buffaloes is increasing day by day, but their productivity is very low due to poor quality and limited quantity of fodders. As per practical experience of the region, farmers have started growing of fodder crops in both the seasons by sparing some piece of their lands under fodder production, but it is insufficient in bridging the gap between demand and supply of fodder for ever increased animal population of the region. Farmers are not ready to put their lands solely under fodder crops due to poor economic returns. Therefore, there is a need to develop some fodder based alternate land use systems which can provide employment, food and sustainable family income. Aonla,

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