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Alley Cropping - A Way to Overcome the Green Fodder Constraints in Dry Land Tracts

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ABSTRACT

Alley cropping is the production of arable crops between rows of trees or shrubs. In this system trees are often pruned to reduce shading effect on the agricultural crops. Alley cropping system is generally recommended for humid tropics condition. Moreover, in semiarid regions of India alley cropping provides feed to the livestock especially during the off season. The primary objective of this cropping system is to provide green fodder for livestock, effective utilization of off season rainfall and to reduce soil and water erosion.

INTRODUCTION

Alley cropping is the cultivation of food crops between rows of trees or shrubs. Trees are frequently pruned to reduce shading effect on the agricultural crops. Alley cropping can help with nutrient cycling and erosion control as well. Alley cropping system is generally recommended for humid tropics condition. Moreover, in semiarid regions of India alley cropping provides feed to the livestock especially during the off season. The height of the trees or shrubs in hedge rows should be 0.5 to 1.0 m at the time of sowing of annul crops during onset

of monsoon. The minimum width of alley should be at least about 4-6 m. Example: Subabul/hedge lucerne as hedge row with sorghum, maize, red gram and sunflower as intercrop (Sathishkumar *et al.,* 2022).

OBJECTIVES

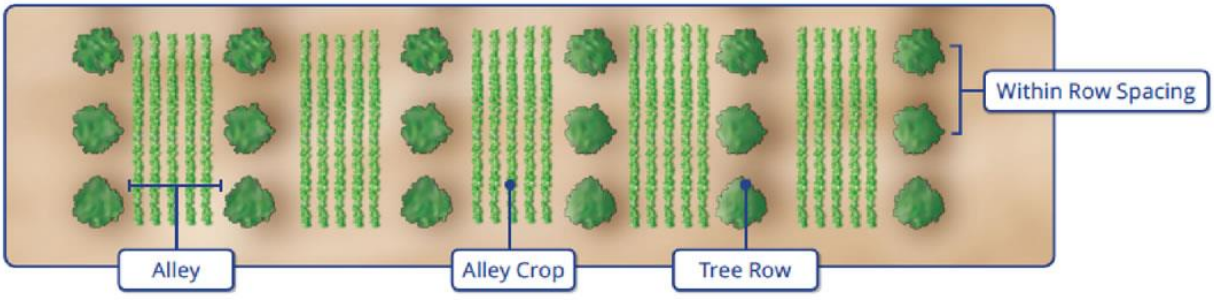
- Alley cropping's primary aim is to provide green fodder for livestock from hedgerows during the summer and to produce a rational yield of grain and fodder in the alleys during the monsoon or cropping period.
- To increase the biomass production in per unit land compared to cultivable crops
- Effective utilization of summer rainfall in the absence of agricultural crops
- To provide employment opportunities during dry season
- It acts as a barrier against surface runoff leading to soil and water erosion.
- It enhances soil fertility and is more economic under rain fed areas.
- To improves soil productivity through the addition of organic matter and the microclimate produced by the shadowing effect of the trees and crops. Plants are used to water more effectively because of the increased shade.
- To reduce nitrogen leaching; nitrogen which leached out of the crop root zone is frequently captured by the deeper tree root system of trees or shrubs.

CLASSIFICATION OF ALLEY CROPPING

Forage-alley cropping: Here, yield of both crops and forages are important. The tree species suitable for hedge rows are subabul, powder-puff and agathi. Redgram or castor crops are recommended for growing in the alleys of subabul.

Forage-cum-mulch system: In this alley cropping system, pruned hedgerows materials are used as fodder and mulching. Lopping is used as mulch material during the crop growing period and used as fodder during summer.

Forage-cum-pole system: In this system, subabul alleys are established with an interval of 5 m on the across the slope and along the contour. Hedgerows can be established through direct sowing and topped at once in two months with a height of 1 m height during the cropping period and once in 4 months during the summer. Subabul is allowed to grow into a pole at every 2 m interval along hedgerows.



CONCLUSION

Practice of alley cropping systems in the rain fed areas could be a viable technology for supply green fodder to the livestock, effective utilization of off season rainfall and conservation of soil and moisture.

REFERENCE

Sathishkumar, A., Subramanian, E., & Prasanth, R. (2022). Alternate Land Use System for Dry Land Based on its Capability Class. Advances in Agriculture Sciences. 38:107-116. Delhi: AkiNik Publications.