RESEARCH ARTICLE

EFFECT OF BUND PLANTED EUCALYPTUS ON THE YIELD OF AGRICULTURAL CROPS AND SOIL PROPERTIES IN SEMI ARID REGION OF HARYANA

P. Kumar*, Chhavi Sirohi, R.S. Dhillon, Sushil Kumari, K.K. Bhardwaj, Mukesh Kumar, Kautilya Chaudhary and Krishma Nanda

Department of Forestry, CCS Haryana Agricultural University, Hisar-125004, Haryana, India
Email: balyanpk@yahoo.com

Received-01.03.2021, Revised-12.03.2021, Accepted-23.03.2021

Abstract: The study was conducted in 2 year old east-west and north-south directions bund plantation at CCS HAU, Hisar during 2016-2017 to evaluate the effect of Eucalyptus tereticornis bund planting on the yield of agricultural crops and soil properties in Haryana. Total biomass yield of dhaincha was recorded non significant at different distance from tree line of both east-west and north-south planted rows of eucalypts. Different aspects also had no significant effect on total biomass yield of dhaincha . Same pattern of grain yield of barley was recorded in both east-west and north-south planted eucalypts. Eucalyptus planted in east-west direction has attained 7.3 cm girth and 6.9 m height whereas in north-south direction it has attained girth of 4.5 cm and height of 5.1 m. The soil organic carbon and available N, P and K content were recorded maximum in bund planted Eucalyptus compared to control in different aspects.

Keywords: Agricultural crops, Effect, Eucalyptus, Soil

REFERENCES

Alebachew, M., Amare, T. and Wendie, M. (2015). Investigation of the effects of Eucalyptus camaldulensis on performance of neighboring crop productivity in Western Amhara, Ethiopia. Open Access Library Journal 2: 1-10

Bargali, S.S. and Singh, S. P. (1995). Dry matter dynamics, storage and flux of nutrients in an aged eucalypt plantation. Oecologia Montana. 4: 9-14

Chauhan, S.K., Sharma, R., Sharma, S.C., Gupta, Naveen and Ritu (2012). Evaluation of poplar (Populus deltoides Bartr. Ex Marsh.) Boundary plantation based agri-silvicultural system for wheat-paddy yield and carbon storage. International Journal of Agriculture and Forestry 2: 239-246

Chavan, S.B., Keerthika, A., Handa, A.K., Ram, Newaj and Rajarajan, K. (2015). National Agroforestry Policy in India: a low hanging fruit. Current Science 108: 1826–1834.

Chavan, S.B., Uthappa, A. R., Sridhar, K. B., Keerthika, A., Handa, A. K., Ram, Newaj, Kumar, Naresh, Kumar, Dhiraj and Chaturvedi, O. P. (2016). Trees for life: creating sustainable livelihood in Bundelkhand region of central India. Current Science 111: 994-1003

Gupta, M.K. and Sharma, S.D. (2009). Effect of tree plantation on soil properties, profile morphology and productivity index: poplar in Yamunanagar district of Haryana. Annals of Forestry 17: 43-70.

Jackson, M.L. (1973). Soil chemical analysis. Prentice Hall of India, Pvt. Ltd., New Delhi, 498 p.

Jan, M.N., Dimri, B.M. and Gupta, M.K. (1996). Soil nutrient changes under different ages of Eucalyptus monocultures. Indian Forester 122: 55-60.

Kidanu, S., Mamo, T. and Stroosnijder, L. (2005). Biomass production of Eucalyptus boundary plantations and their effect on crop productivity on Ethiopian highland Vertisols. Agroforestry Systems 63: 281–290.

Nasim, M., Qureshi, R. H., Saqib, M., Aziz, T., Nawaz, S., Akhtar, J. and Anwar-ul-Haq, M. (2007). Properties of salt affected soil under eucalyptus camaldulensis plantation in field conditions. Pakistan Journal of Agriculture Science 44: 401- 414.

Olsen, S.R., Cole, C.V., Watanabe, F.S. and Dean, L.A. (1954). Estimation of available phosphorus in soils by extraction with sodium bi-carbonate. United States Department of Agriculture Circular, 939.

Panse, V.C. and Sukhatme, P.V. (1989). Statistical Methods for Agricultural Workers. 4 th Edition, ICAR Publication, New Delhi, India.

Raj, A., Jhariya, M. K. and Bargali, S.S. (2016). Bund Based Agroforestry Using Eucalyptus Species: A Review. Current Agriculture Research Journal 4: 148- 158

Singh, B. and Sharma, K. N. (2007). Tree growth and nutrient status of soil in a poplar (Populus deltoides Bartr) based agroforestry system in Punjab, India. Agroforestry Systems 70: 125-134.

Singh, B., Singh, V., Singh, R. P. and Srivastava, B. K. (1998). Economic prospects of vegetable intercropping in young Eucalypts plantation. Annals of Agricultural Research 19: 470-474

Singh, H.P., Kohli, R. K. and Batish, D. R. (1998). Effect of poplar (Populus deltoides) sheltered on the growth and yield of wheat in Punjab, India. Agroforestry systems 40:207-213.

Subbiah, B.V. and Asija, G.L. (1956). A rapid procedure for the estimation of the available nitrogen in soils. Current Science 25:259-260.

*Corresponding Author

Uthappa, A.R., Chavan, S. B., Dhyani, S. K., Handa, A. K. and Ram, Newaj (2015). Trees for soil helth and sustainable agriculture. Indian Farming 65: 2-5.

Walkley, A. and Black, I.A. (1934). An examination degtareff method for determining soil organic matter and a proposed modification of the chromic acid titration method. Soil Science 37: 29-37.