

GROWTH AND YIELD OF CITRONELLA (*CYMBOPOGON WINTERIANUS*) AS INFLUENCED BY DIFFERENT RESIDUAL FERTILITY LEVELS AND INTERCROPPING WITH LENTIL AND LINSEED

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Abstract: A field experiment was conducted at, student Instructional Farm (SIF) Chandra Shekhar Azad University of Agriculture and Technology, Kanpur (U.P.) India during rabi season 2013-14. with an object to find out the effect on growth parameters and yield attributes of linseed and lentil as intercrops, with citronella (*Cymbopogon winterianus*). The experiment was laid out in randomized block design with 9 cropping system with different combination [sole citronella, sole linseed, sole lentil, citronella + linseed (100%), citronella + linseed (75%), citronella + linseed (50%), citronella + lentil (100%), citronella + lentil (75%), citronella + lentil (50%) each replicated four times (once in each replication). The citronella sole cropping system gave significantly the highest citronella equivalent oil yield than other cropping systems. Citronella + Linseed (50%) treatment ranked next in order of merit, proving significant better than other cropping system. Citronella + Lentil (100%) ranked next in order of merit, proving significant superior over other cropping system. Citronella sole brought about 57.35 (30.30%), 61.63 (33.32%), 84.56 (52.04%), 85.35 (53.09%), 90.45 (57.93%), 92.69 (60-63%), 179.27 (266.37%) and 192.80 (258.56%) lit/ha higher citronella equivalent oil yield than citronella + linseed (100%), citronella + linseed (75%), citronella + linseed (50%), citronella + lentil (100%), citronella + lentil (75%), citronella + lentil (50%), linseed sole and lentil sole respectively. LER was more than sole crops which showed an advantage of intercropping over sole system in terms of the use of environment resources for plant growth and development. LER values in citronella + linseed (75%) and citronella + linseed (100%) intercropping system was 1.34.

Keywords: Residual fertility, LER, Citronella, Growth parameters, Yield attributes

REFERENCES

Aktar, M. S. Haque, M. F. and Rahman, A. R. M. S. (1993). Effect of mixed cropping lentil and linseed at various seeding ratios. *Lens*;20(1): 39-42.

Ansari, M.H. and Srivastawa, A.K. (2012). Intercropping of kharif (pigeonpea & maize) and rabi (lentil) crop with Citronella (*Cymbopogon winterianus*) M.Sc.Ag. Thesis (Agronomy), Department of Agronomy, C.S.Azad University of Agriculture & Technology.

Ram, Munni, Ram, Dasha, Prasad, Arun, and Kumar, Sushil (1998). Productivity of citronella java (*Cymbopogon winterianus*) with spring Legume intercrops under subtropical environment. *Journal of Essential oil research*, 10 (3) : 269-275.

Patra, D. D., Sukhmal, Chand, Lal, R. K., Bahl, J. R. and Khanuja, S. P. S. (2005). Agro-packages for cultivation of palmarosa (*Cymbopogon martinii* var. *motia*). *Journal of Medicinal and Aromatic Plant Sciences*.27(4): 727-735.

Ram, P., Kumar, Birendra, Kothari, S. K., Mohd, Yaseen and Rajput, D. K. (2000). Productivity of Java citronella based inter-cropping systems as affected by fertility levels under Tarai region of Uttar

Pradesh. *Journal of Medicinal and Aromatic Plant Sciences*.22, 1B: 494-498.

Renu, Dhar, Basu, T.K. and Bandyopadhyay, S.R. (2007). Nodulation of lentil as influenced by irrigation and its effect on yield of rapeseed grown in association with lentil. *Journal of Mycopathological Research*, 45:2, 257-260.

Subedar, Singh and Singh, N. P. (1991). Grain yield and water use by crops in linseed based intercropping systems as influenced by irrigation. *Annals of Agricultural Research*; 12(1): 32-37.

Singh, Sher, Narayan, Om, Yadav, R. K. Chauhan, N. K. and Lohani, H. (2008). Effect of different plant geometry on growth, yield and quality of citronella (*Cymbopogon winterianus* (Jowitt.)). *Journal of Medicinal and Aromatic Plant Sciences*.30(3): 267-269.

Singh, Jyoti, Hussain, Karam, Chandra, R. and Singh, K. (2005). Effect of intercropping on disease incidence and grain yield in linseed. *Farm Science Journal*; 14 (1):25-26.

Sinha, M. N. and Rai, R. K. (1993). Effect of linseed and lentil planting pattern on their productivity under rainfed condition. *Annals of Agricultural Research*; 14 (3): 355-356.

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