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Effect of organic manures, biofertilizers and inorganic fertilizers on growth and yield of seena (*Cassia angustifolia* Vahl.)

ARUW KAYINA, BAPI DAS[1] AND G.S. REDDY[2]

Members of the Research Forum

Associate Author :
[1]Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOKA (M.S.) INDIA

[2]Herbal Garden, College of Horticulture, Andhra Pradesh Horticultural University, Rajendranagar, HYDERABAD (A.P.) INDIA

Author for correspondence :
ARUW KAYINA
Department of Horticulture, College of Horticulture, Andhra Pradesh Horticultural University, Rajendranagar, HYDERABAD (A.P.) INDIA

Abstract : A field experiment was conducted during *Rabi*, 2011 at Herbal Garden, Andhra Pradesh Horticultural University,Hyderabad (Andhra Pradesh) to evaluate the effect of 12 treatments *i.e.* various sources nutrient on growth parameter, yield attributes and nutrient uptake of senna (*Cassia angustifolia* Vahl.) variety 'sona'. The growth parameters like plant height, leaf dry weight per plant, shoot dry weight per plant, leaf area, dry matter production were significantly increased to a greater extent by the treatment 75 per cent RDF (113:38:38 kg ha^{-1}) +*Azospirillum* at 200g kg^{-1} seed as compared to RDF alone. The yield parameters like number of pods per plant , pod length , fresh and dry weight of pods per $plant^{-1}$, dry leaf and pod yield were highest with 75 per cent RDF (113:38:38 kg ha^{-1}) +*Azospirillum* at 200g kg^{-1} seed at final harvest and was at par with vermicompost 10 t ha^{-1}. The highest uptake of nutrients such as nitrogen , phosphorus and potassium at harvest were recorded with 75 per cent RDF (113:38:38 kg ha^{-1}) +*Azospirillum* at 200g kg^{-1} seed and was at par with vermicompost 10 t ha^{-1}.

Key words : Senna, *Azospirillum*, Neem cake, Vermicompost

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Senna (*Cassia angustifolia* Vahl.) a non-nitrogen fixing member of Caesalpiniaceous, is a native of Yemen and the Hadramaunt province of Saudi Arabia belongs to the family Caesalpiniaceae, and is popularly called 'Sornamukhi'. It is a widely used medicinal herb in ayurveda, unani and also in the allopathic system of medicine. Nowadays, there is a growing demand for senna products in the national as well as in the international market. These are exported to around 55 countries especially to Venezuela, Japan and Europe and are a good foreign exchange earner. It has also been widely adopted by the farmers because of its low cost of cultivation with stable yield. India is the main producer and exporter of senna leaves and pods. In India, senna is widely grown in the states of Tamil Nadu, Andhra Pradesh, Rajasthan, Gujarat, Maharashtra, Karnataka, West Bengal and Tripura. Its leaves and fruits are also used as a cathartic, febrifuge, in splenetic enlargements, anaemia, typhoid, cholera, constipation, biliousness, jaundice, gout, rheumatism, tumors, foul breath, bronchitis and probably in leprosy.

Plant nutrient status or plant nutrition is one of the important factors which controls growth and development of the various characters and determines final yield potentiality. Roots of senna do not form nodules and hence cannot fix nitrogen, so the application of fertilizers improves the yield.

RESEARCH METHODS

A field experiment was carried out during *Rabi*, 2011 at the Herbal Garden, Andhra Pradesh Horticultural University, Hyderabad. The experiment was laid out in a Randomized Block Design with three replications. There were 12 treatments *viz.*, T_1- 100 per cent RDF (150:50:50 kg ha^{-1}) , T_2- 100 per cent RDF (150:50:50 kg ha^{-1}) + seed treatment with *Azospirillum* @ 200g kg^{-1} seed, T_3- 75 per cent RDF (113:38:38 kg ha^{-1}) + Seed treatment with *Azospirillum* @ 200g kg^{-1} seed, T_4- 50 per cent