Research **P**aper

Influence of organic manures and inorganic fertilizers on vegetative development, yield, shelf-life traits and sensory evaluation score of acid lime (*Citrus aurantifolia* Christm.) cv. KAGZI

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ABSTRACT : The field experiment was conducted at New Orchard of Main Agriculture Research Station, Raichur, Karnataka, during the year 2009-10, to study the efficacy of organic manures and inorganic fertilizers on growth and yield of acid lime. The treatments consisted of FYM (4.16 t ha^{-1} and 8.31 t ha^{-1}), vermicompost (2.08 t ha^{-1} and 4.16 t ha^{-1}) and inorganic fertilizers (50, 75 and 100 per cent recommended NPK). The application of FYM @ 8.31 t ha^{-1} + vermicompost @ 4.16 t ha^{-1} + 75% recommended NPK (T_8) recorded higher tertiary shoot length (0.69 m), tertiary shoot girth (1.22 cm), fruit length (4.69 cm), fruit girth (4.37 cm), peel thickness (1.170 mm), number of fruits per plant (1284.33), yield per plant (55.63 kg), yield per hectare (15.41 t). A sample of 30 representative fruits were collected from the each treatment and kept for shelf life studies. The application of FYM @ 8.31 t ha^{-1} + vermicompost @ 4.16 t ha^{-1} + 75% recommended NPK (T_8) recorded significantly highest firmness during first day (88.67 kg/cm^2) and fifteenth day (83.93 kg/cm^2) and other shelf life such as physiological loss in weight, colour of fruits were responded well in T_8 during storage. Numerically higher values of sensory evaluation and mean shelf life of acid lime were observed in T_8 and higher net returns (189583 Rs. ha^{-1}).

KEY WORDS : Acid lime, Farm Yard manure, Vermicompost, Inorganic fertilizers, Shelf life, Sensory evaluation

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HOW TO CITE THIS ARTICLE : Rajendra, B.N., Kurubar, A.R., Anasubai, G.H. and Swamy, K.M. (2013). Influence of organic manures and inorganic fertilizers on vegetative development, yield, shelf-life traits and sensory evaluation score of acid lime (*Citrus aurantifolia* Christm.) cv. KAGZI, *Asian J. Hort.*, **8**(1) : 183-187.

Acid lime (*Citrus aurantifolia* Christm.) is an important fruit crop which belongs to family Rutaceae and it is native to East Indian Archipellogo. In India citrus is grown on an area of over 9.23 lakh hectares with the production of 86.08 lakh tonnes, while in Karnataka citrus is grown on an area of 0.14 lakh hectares with the production of 3.10 lakh tonnes (Anonymous, 2009). There are several factors responsible for low yield in acid lime and among these the inadequate supplies of organic manures and inorganic fertilizers are the major ones. Being a high yielding perennial crop, the nutritional requirements of lime is quite high (Bankar *et al*., 2009) but the prices of inorganic nitrogenous and phosphatic fertilizers are ever increasing which forced the mankind to look for the alternative low cost input technology.

It was observed that nutrients applied at higher doses without organic manures were less effective in improving the fruit production but more effective when applied with organic manures (Ghosh and Besra, 1997). The acid lime plants grow well in tropical and subtropical climates. It has been observed that fruits grown in moist climate tend to have thinner peel and more juice than those grown in drier climates. Best quality fruits are produced in semiarid and subtropical regions. Fruits are used for pickling, cordial, refreshing drinks, manufacture of commercial citric acid, appetizers and cosmetics. Fresh lime fruit is an essential ingredient of limeade, condiment for meats, poultry and fish. In current days, organically produced fruits having lot of demand because of high shelf life quality traits which necessitates to increase the use of organic manures in