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Effect of organic manures and number of cuttings on growth, yield and quality of Indian spinach

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ABSTRACT : The present study was aimed to study on influence of organic manures and number of cuttings on growth and yield of Indian spinach. The field experiment was conducted during 2009–10 with 15 different treatment combinations at Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (M.S.). The experiment was laid in Factorial Randomized Block Design with 15 treatment combinations replicated four times. The treatments comprised of the five levels *i.e.* four different organic sources of plant nutrients and RDF (50 kg N ha^{-1} through urea) and three cuttings. The green leaf yield of Indian spinach from different treatment combinations was studied for yield and different quality attributes. The result revealed that growth in term of number of leaves, plant height, leaf area, leaf yield and leaf quality were significantly influenced by the application of different sources of nutrients and number of cuttings. The growth performance in respect of plant height, numbers of leaves and leaf area were found to be maximum in 50 kg N ha^{-1} through urea but which was found to be at par with sheep and goat manure. While in respect of cutting the plant height and leaf area showed a decreasing trend with increase in cutting frequencies at all the stages of observation. Yield parameters like number of leaves, leaf yield q/ha were recorded highest 50 kg N ha^{-1} applied in the form of urea with three levels of cutting. The quality parameters leaf chlorophyll content, leaf moisture and leaf ascorbic acid content were also recorded highest in one cutting an 50 kg N ha^{-1} applied through urea.

KEY WORDS : Indian spinach, Organic manures, Cuttings

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Indian spinach (*Beta vulgaris*. L) is one of the major leafy vegetable grown and consumed in India. It is native of Indo-Chinese region. It was known in China as early as 647AD (Nath, 1976). In India this leafy vegetable commonly known as palak and it is popular due to its high nutritive value belongs to genus *Beta*, species *vulgaris* and family chenopodiaceae with Chromosome number 2n=18 (Purohit, 1968).

Indian spinach leaves are valued for their medicinal properties and are used in inflammation, paralysis, headache and remedy for diseases of spleen and liver, It also act as mild lacerative besides other medicinal value, it supply most of the nutrients in which other foods are deficient. Indian spinach is used as fresh vegetable for cooking and also in salad form. Indian spinach is cultivated for its fresh and green leaves ready to harvest in about 40-45 days after sowing (Mishra *et al*., 1973).

The yield of Indian spinach depends on vegetative growth it may expressed in terms of number of leaves per plant, size of leaf and plant height etc. For obtaining more vegetative growth cutting of crop is important due to cutting of crop side shoots are arises which increases the number of leaves per plant and ultimately increased the yield which demands higher amount of nutrients from the soils and nutrients applied through the organic sources *viz.*, FYM, poultry manure, vermicompost, sheep and goat manure contains nutrients in form that are readily taken up by the plants such as nitrates, exchangeable phosphorus, and soluble potassium, calcium, and magnesium. The water soluble components of vermicompost such as humic acid, growth