

Effect of organic and inorganic fertilizers on growth, yield and quality of palak (*Beta vulgaris* L.) var. PUSA JYOTI

M.B. DANGE, A.M. BHOSALE AND S.R. BARKULE

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SUMMARY

An experiment was conducted on palak (*Beta vulgaris* L.) var. PUSA JYOTI to study the effect of organic and inorganic fertilizers on growth, yield and quality of palak. Results revealed that treatment of 50% RDF + 50 % N through poultry manure gave best results of growth in terms of height of plant, number of leaves, leaf area per plant, length of petiole at all stages of growth, yield in terms of yield per plant, per plot and yield per hectare and quality parameters in terms of dry matter, iron content and fibre content.

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Key words : Organic and inorganic fertilizers, Yield, Palak, Vermicompost, FYM

Indian spinach (*Beta vulgaris* L.) is one of the most important leafy vegetable consumed all over the country. It is commonly known as “palak”. The edible portion of palak consists of compact rosette of leaves prior to the stock formation. To increase the yield and quality of vegetables, it is not possible to completely eliminate the use of chemicals especially fertilizers. Therefore, use of FYM, compost, vermicompost, poultry manure and other organic manure coupled with chemical fertilizers in 21st century, for sustainable production is necessary by way of integrated use of nutrients. There is little work has been reported on effect of organic fertilizers or in combination with inorganic fertilizers, therefore, an experiment entitled Effect of organic and inorganic fertilizers on growth, yield and quality of palak (*Beta vulgaris* L.) var. PUSA JYOTI was undertaken to find out level of substitution of inorganic fertilizers with different organic manure for palak and to study the effect of the level of substitution of inorganic fertilizers with different organic manure on growth, yield and quality of palak.

MATERIALS AND METHODS

The present study was conducted during *Rabi* season

Correspondence to:

A.M. BHOSALE, Custard Apple Research Station, Ambajogai, BEED (M.S.) INDIA

Authors' affiliations:

M.B. DANGE, Department of Horticulture, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

S.R. BARKULE, Department of Horticulture, College of Agriculture, Ambajogai, BEED (M.S.) INDIA

of 2005-06 at Department of Horticulture, Marathwada Agricultural University, Parbhani (M.S.). The experimental site was having well leveled and uniform with medium black soil having uniform texture and good drainage. The experiment was laid out in Randomized Block Design and consisted of eight treatments and three replications. The treatment details are as below.

Tr.No. Treatments

T₁ 100 % RDF

T₂ 75 % RDF + 25 % N through vermicompost

T₃ 50 % RDF + 50 % N through vermicompost

T₄ 75 % RDF + 25 % N through poultry manure

T₅ 50 % RDF + 50 % N through poultry manure

T₆ 75 % RDF + 25 % N through FYM

T₇ 50 % RDF + 50 % N through FYM

T₈ Control

The 100:50:50 Kg NPK/ha was considered as RDF and 1.6 t/ha poultry manure, 5.00 t/ha vermicompost and 10 t/ha FYM was considered as standard dose. The inorganic fertilizers were added in the form of urea, single super phosphate and murate of potash. The seed was sown at the spacing of 15 x 10 cm. The green leaves were harvested after 30, 45, 60, 75 and 90 days after sowing (DAS) as per treatment at 5 cm above from soil surface. The observations were recorded at 15 days interval from 30 days till 90 days after sowing. The growth observations were recorded on plant height, number of leaves, leaf area and length of petiole. Yield observations were recorded on yield per plant, per plot and per hectare. The quality observations were recorded after third cutting at 60 days after sowing.