



Effect of integrated nutrient management (INM) on yield and economics of sweet potato (*Ipomoea batatas* L.)

T.B. ALLOLI, S.I. ATHANI AND S.J. IMAMSAHEB

See end of the article for authors' affiliations

Correspondence to:

S.J. IMAMSAHEB

AICRP on Tuber Crops,
Regional Horticultural
Research and Extension
Centre, DHARWAD
(KARNATAKA) INDIA

ABSTRACT

A field experiment was conducted during 2009-10 and 2010-11 at Regional Horticulture Research and Extension Center (RHREC), Dharwad (Karnataka) to study the effect of organic manures in combination with inorganic fertilizers on the productivity and economic feasibility in sweet potato. Pooled data of 2 years revealed that, among organics, application of FYM @ 10 tones ha⁻¹ + 50:25:50 kg NPK ha⁻¹ recorded significantly higher tuber yield per plot and hectare (24.16 kg and 33.55 tones ha⁻¹, respectively), and was at par with FYM @ 20 tones ha⁻¹. While significantly the lowest yield per hectare (21.34 t ha⁻¹) was noticed in sweet potato due to T₄- (PM @ 5 t ha⁻¹). Higher gross returns (Rs. 18658.7/ha), net returns (Rs.67100/ha) and B:C ratio (3.6) were realized with application of FYM @ 10 tones ha⁻¹ + 50:25:50 kg NPK ha⁻¹.

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Roots and tubers are most important food crops after cereals and legumes. More than 30 edible and non-edible root tubers are grown in the world. Tuber crops have the potential to produce significantly high amount of food per unit area. The calorific yield per unit area of these crops is also high because they are efficient converters of atmospheric carbon dioxide into carbohydrates. Among the tuber crops sweet potato (*Ipomoea batatas* L.) is the seventh most important food crop in the world. It is grown in many tropical and subtropical regions. Among the world's major food crops, sweet potato produces the highest amount of edible energy per hectare per day (Horton and Fano, 1985).

Until 1980s, it was widely perceived that inorganic fertilizers were a viable means of increasing land productivity in the low fertility soils. Organic manures includes farmyard manure, poultry manure, neem cake, vermicompost were regarded as important, but it was obvious that they were not available in sufficient quantity to drastically increase food production. In the early 1980s, various report showed that the use of inorganic fertilizers in the tropics had stagnated, and this was explained by poor marketing and inadequate profitability. From that time onwards the concept of integrated nutrient management has been advocated. Essentially, this involves the combination of both inorganic and organic fertilizers to

increase crop production (Janssen, 1993).

Keeping pace with population growth and increasing land scarcity will be more difficult than in the overall strategy for increasing crop yields and sustaining them at high level must include an integrated approach to the management of soil nutrients, along with other complementary measures. An integrated approach recognized that soils are the storehouse of most the plant nutrients essential for plant growth and that's the way in which nutrients are managed will have a major impact on plant growth, soil fertility and horticultural sustainability. Keeping facts in view, the present study on integrated nutrient management (INM) on yield and economics of sweet potato has undertaken at Regional Research and Extension Center Dharwad.

MATERIALS AND METHODS

A field experiment was conducted at Regional Horticulture Research and Extension Center (RHREC), Dharwad (Karnataka) during 2009-10 and 2010-11. The soil was shallow red embedded with small sand and gravels with pH 5.9-6.3. The experiment was laid out with randomized blocked design with three replications and 11 treatments. Details of the treatments are given in Table. The crops were sown at a spacing of 60×20 cm in a gross plot size of 3m×2.4m. All organic manures were