

Research Paper :

## Effect of site specific nutrient management (SSNM) through targeted yield approach on quality parameters of chilli (*Capsicum annuum* L.)

ABHILASH K. DESHMUKH, G.B. SHASHIDHARA AND B.I. BIDARI

Accepted : September, 2009

See end of the article for authors' affiliations

Correspondence to :

**B.I. BIDARI**

Department of Soil Sciences, College of Agriculture, University of Agricultural Sciences, DHARWAD (KARNATAKA) INDIA

### ABSTRACT

A field experiment was conducted during the *kharif* 2007-08 on farmers' fields at Rottigawada village in Kundagol taluka of Dharwad district (Karnataka) to study the "Effect of site specific nutrient management through targeted yield approach on quality parameters of chilli (*Capsicum annuum* L.). Ascorbic acid (190.7 mg/100 g fruits) and colour value (319.0 ASTA units) were higher at the targeted yield level of 30 q and 25 q per ha, respectively but higher oleoresin content (18.33%) was recorded in the targeted yield level treatment of 20 q per ha.

**Key words :** SSNM, Targeted yield, Colour value, Oleoresin, Ascorbic acid

Chilli is an indispensable spice used in every Indian cuisine due to its pungency, colour and aroma. Chilli fruits are rich sources of vit. C, A and E. Pungency in chilli is due to volatile alkaloid called capsaicin present in the placenta of fruit, which has diverse prophylactic and therapeutic uses in allopathic and ayurvedic medicine. It is also a good source of oleoresin which is the total active ingredient extract of dried and ground chillies, a homogeneous free flowing gel product, which has varied uses in processed food and beverage industries. The natural colour extracts of chilli are also finding their increased value in place of artificial colours. Thus, chilli has diverse uses as spice, condiment, culinary supplement, medicine vegetable and ornamental plant.

In view of the above, an experiment was conducted on farmers' fields under rainfed condition to assess the effect of site specific nutrient management through targeted yield approach on quality parameters of chilli.

### MATERIALS AND METHODS

A field experiment was conducted during the *kharif* season 2007-08 on farmers' fields at Rottigawada village in Kundagol taluka of Dharwad district in a Vertisol. The soil was alkaline with low, medium and high in available NPK status 210 to 243 kg ha<sup>-1</sup>, 28.3 to 33.2 kg ha<sup>-1</sup> and 401 to 458 kg ha<sup>-1</sup>. The treatments consist of five targeted yield levels of dry chilli (10, 15, 20, 25 and 30 q/ha) which were replicated four times in randomized block design. Chilli (cv. BYADGI DABBI) seeds were sown on July 2<sup>nd</sup>, 2007 through seed drill in a row spacing of 60 cm. The

fertilizer dose was calculated by using the basic data *viz.*, nutrient requirement (NR) in kg per quintal of economic produce, the per cent contribution of nutrients from soil (CS) and the per cent contribution of nutrients from applied fertilizers (CF).

The above mentioned parameters were calculated as follows :

**Nutrient requirement (NR) of N, P and K for dry chilli production :**

$$\text{kg of nutrient/q of dry chilli} = \frac{\text{Total uptake of nutrients (kg)}}{\text{Fruit yield (q)}}$$

**Contribution of nutrient from soil (% CS) :**

$$\% \text{ CS} = \frac{\text{Total uptake in control plots (kg/ha)} \times 100}{\text{Available soil test values of nutrient in control plots (kg/ha)}}$$

**Contribution of nutrients from fertilizer (% CF) :**

$$\% \text{ CF} = \frac{\text{Total uptake of nutrients in treated plot} - \text{Nutrient supplied through soil (kg/ha)}}{\text{Fertilizer dose applied}} \times 100$$

**Calculation of fertilizer dose :**

The basic data are transformed into workable adjustment equation as follows :