



# Yield, nutrient uptake and quality of wheat (*Triticum aestivum* L.) as affected by fertility levels and biofertilizers and their residual effect on fodder maize (*Zea mays* L.) under Southern Rajasthan condition

M.K. KAUSHIK\*, N.R. BISHNOI, H.K. SUMERIYA AND P. SINGH

Department of Agronomy, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, UDAIPUR (RAJASTHAN) INDIA (Email : mnjkshk@yahoo.com)

**Abstract :** A field experiment was conducted during the *Rabi* seasons of 2003-04 and 2004-05 at Udaipur, Rajasthan, to find out a suitable combination of chemical and organic nutritional sources for wheat (*Triticum aestivum* L.) grown with 9 fertility levels (100 % RDF, vermicompost 1.50 and 3.00 t ha<sup>-1</sup>, vermicompost 1.50 and 3.00 t alongwith 50, 75 and 100 % RDF ) in main plots and three biofertilizers (Control, *Azospirillum*, *Azospirillum* + PSB) in sub plots. Wheat crop under vermicompost 3.00 t ha<sup>-1</sup> + 100 % RDF recorded significantly higher grain (4.96 t ha<sup>-1</sup>), straw ( 6.46 t ha<sup>-1</sup>) and biological (11.42 t ha<sup>-1</sup>) yields, N, P, and K uptake and protein content over vermicompost 1.50 and 3.00 t ha<sup>-1</sup>, respectively. This treatment also recorded the maximum green (25.43 t ha<sup>-1</sup>) and dry fodder (8.40 t ha<sup>-1</sup>) yield of residual fodder maize. Seed inoculation of *Azospirillum* + PSB recorded significantly higher grain (4.92 t ha<sup>-1</sup>), straw ( 6.38 t ha<sup>-1</sup>) and biological yield ( 11.30 t ha<sup>-1</sup>) over *Azospirillum* and control. *Azospirillum* + PSB also recorded significantly higher residual fodder maize (26.25 and 8.12 t ha<sup>-1</sup> green as well as dry fodder yield) over control.

**Key Words :** Wheat, Fertility levels, Vermicompost, Nutrient uptake, Protein content, Fodder maize, Yield

**View Point Article :** Kaushik, M.K., Bishnoi, N.R., Sumeriya, H.K. and Singh, P. (2013). Yield, nutrient uptake and quality of wheat (*Triticum aestivum* L.) as affected by fertility levels and biofertilizers and their residual effect on fodder maize (*Zea mays* L.) under Southern Rajasthan condition. *Internat. J. agric. Sci.*, **9**(1): 32-38.

**Article History :** Received : 27.03.2012; Revised : 09.08.2012; Accepted : 08.10.2012

## INTRODUCTION

Wheat (*Triticum aestivum* L.) being the second largest food crop of India, is grown over an area of around 27 mha with the total production of 76.80 mt in 2007-08 (Yojna. 2008). Wheat is responsible for the success story of 'green revolution' as its productivity increased many folds due to availability of inputs responsive high yielding varieties of the crop. Though there are several inputs which made it possible to raise the productivity of wheat but fertilizer is the main contributor and responsible for about 40 per cent of increased productivity of wheat. Plant nutrient management is one of the key component of intensive agriculture. The chemical fertilizers, no doubt, are the

important source, which can meet the nutrient requirements but their unbalanced and continuous use lead to environmental pollution and deterioration of soil physico-chemical properties, furthermore, the availability of fertilizer at economic price is another problem for the country, under these circumstances one should not depend on single source of plant nutrients like chemical fertilizers. The need of the hour is to evolve an integrated plant nutrient supply system comprising balanced use of chemical fertilizer, organic manures and bio-fertilizers. An experiment was, therefore, planned to find out the effect of fertilizer levels, vermicompost and biofertilizer on productivity and quality of wheat and their residual effect on fodder maize.

\* Author for correspondence