

Research  
Paper

## Effect of fly ash and FYM on yield of groundnut and nutrient concentration and uptake by groundnut in vertisol

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### ABSTRACT

A field experiment was conducted to study the effect of Fly ash and FYM on yield of groundnut and nutrient concentration and uptake by groundnut in Vertisol at Marathwada Agriculture University, Parbhani in 1997-98. The study revealed that, the pod yield and haulm yield of groundnut increased favorably with increasing leads of fly ash and FYM *i.e.* addition of 30 t ha<sup>-1</sup> of fly ash gave maximum yields as compared to yields obtained due to lower levels of fly ash and it was highest with the application of 30 t ha<sup>-1</sup> of FYM. The nitrogen content in pod and haulm was decreased with the application of 30 t ha<sup>-1</sup> fly ash while it resulted in increase in phosphorus and potassium content and FYM application @ 30 t ha<sup>-1</sup> showed maximum concentration and uptake of nitrogen, phosphorus and potassium in pod and haulm of groundnut. The pod and haulm yield showed favourable increase with the application of increasing levels of fly ash and FYM whereas the test wt. (100grain yield) of groundnut was non-significantly affected by fly ash and FYM.

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**Key words :** Fly ash, FYM, NPK, Groundnut, Vertisol

### INTRODUCTION

Fly ash is obtained as a waste or byproduct of thermal power station when pulverized coal is burnt for generation of electricity. India continued to be XI<sup>th</sup> largest producer of coal in the world. Coal is a back bone of energy production in India. Its non utilization for production of only value based industrial product leads to its accumulation over the years on the cultivable land near the TPP. A modern 200 megawatt capacity generation unit produces 2 tons of fly ash per minute. It has been estimated that for disposing 5.5 million tones of fly ash per annum, the total disposal cost would be over rupees fifty million. This will create disposal and ecological problems in addition to use of land for dumping it. In Maharashtra there are ten TPS, out of this plant Parli-vaijanath is situated in Marathwada region (M.S.) where the 56.98 per cent land is occupied by ash bunds. At this tpp, it is observed that the more land has to be left for storage of fly ash. This may pose problem of acquiring more and more arable land in future. For this problem need to be addernal on priority of finding cost a solution for disposal or rather utilization of fly ash.

As the fly ash is a amorphous ferroaluminosilicate

mineral after the major matrix elements being Si, Al and Ti, ( Sharma *et al.*, 1986) fly ash consists approximately 95 to 99 per cent of oxides of Na, P, K and S. It was observed that fly ash application correlate boron deficiency of alfalfa. A similar finding was reported for correlation potassium deficiency of corn. The fly ash have been reported to be strongly alkaline in reaction and also found to be good liming materials for acid soil (Hedgson *et al.*, 1982). The fire texture of fly ash and the presence of several natural elements in it have reflected on number of important physico-chemical properties of soil from the point of view of crop production (Adrine *et al.*, 1980).

Groundnut is an oilseed crop. From several year it is cultivated by the farmer of Marathwada region. It is a traditional crop of Marathwada region. The increasing price fertilizer limits fertilizer use among the poor farming community. This situation leads to decrease in soil fertility and productivity. Besides natural supply, improvement of physical properties and infiltration rates need to be addressed the use of fly ash. With this facts in view, the present investigation was undertaken to find out suitability of fly ash for improving natural status of vertisol and consequently in boosting the yield of groundnut.