

## Response of gypsum application with agro-chemical on onion (*Allium cepa* L.) in alluvial tract of Uttar Pradesh

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### ABSTRACT

The experiment was laidout for two consecutive years during 2005-06 and 2006-07 under Krishi Gyan Kendra at village, Bhaktigarhi, in district Firozabad, C.S. Azad University of Agriculture & Technology, Kanpur. Results display that the application of 100 kg N+ 60 kg P<sub>2</sub>O<sub>5</sub> + 60 kg K<sub>2</sub>O in association of 400 kg gypsum/ha gave significantly superior bulbs yield of onion over lower doses of gypsum. The installment beyond 400 kg gypsum/ha confined to the bulbs yields of onion. The all the graded doses of gypsum gave higher yield over the RDF and control. The yield difference between RDF+350 kg gypsum/ha and RDF+400 kg/ha was 19.00 q/ha which was higher from the different of RDF+ 300 kg gypsum/ha and RDF + 350 kg gypsum/ha. The size and shape of onion bulbs was also found superior with the use of gypsum over the control and RDF.

**Key words :** Gypsum, RDF, Alluvial, Conjunction and Linear

The onion (*Allium cepa* L.) is an important spice and vegetable crop in India. It is considered the main spice in vegetable preparation. It is also used in many homes almost daily throughout the year in the forms of salad, condiment or for cooking with other vegetables. It is also used for making pickles, brine, sauces, soups, vinegar, dry onion powder flakes. Onion has medicinal properties. Onion as medicinal herb is known to ancient world, as it is mentioned in the medicinal treaties like “*Charak Samhita*” of third or fourth century A.D. Sanskrit language equivalent signifying Vedic period ad Aryan usage is available for onion as “Palandu”. The important principles like allicin, alin, ajoene, allusin thioisulfates and sulphites etc. Present in onion, make it potential medicinal herb. These components help fighting cancer, high blood cholesterol and sugar, liver problems and intestinal problems. It has diuretic and stimulant property. The swelling and inflammation can be reduced by mixing equal parts of onion juice and mustard oil and rubbing it, over the affected area.

Onion is basically a long day, plant for bulbs production, grown during ‘*Rabi*’ season, but due to improvement of new cultivars, now it can also be grown in *Kharif* season. *Kharif* onion is more popular in Maharashtra and other central and northern states. India is second largest producer of onion next to China. Country produces more than 55.00 lakh tonnes of onion from about 5.30 lakh hectares area. The National productivity is only 10.6 tonnes/ha, which is lower than world productivity (17.46 tonnes/ha) and for below to that of China (20.27

tonnes /ha) and USA (47.12 tonnes/ha). The main cause of lower productivity of onion is unbalance use of fertilizer and non follow of integrated plantnutrients management practice. The application of gypsum for supply of sulphur to increase the bulbs productivity and its quality is the subject matter of this manuscript.

### MATERIALS AND METHODS

A field experiment was carried out for two consecutive years during 2005-06 and 2006-07 at Regional Research Station, Hazratpur, Firozabad, C.S. Azad University of Agriculture and Technology, Kanpur. The soil of the experimental site was sandy loam in texture having pH 8.5, organic carbon 0.35% total nitrogen 0.03%, available phosphorus 9 kg/ha and available potash 271 kg/ha therefore, the fertility status of experimental soil was low. The treatment comprised of Control, RDF, RDF+100kg gypsum, RDF+150 kg gypsum, RDF+200 kg gypsum, RDF+ 250 kg gypsum, RDF+300 kg gypsum, RDF+350 kg gypsum, RDF + 400 kg gypsum and RDF+450 kg gypsum/ha. The experiment was laidout in RDF with three replications. It recommended dose of 100 kg N + 60 kg P<sub>2</sub>O<sub>5</sub>+ 60 kg K<sub>2</sub>O/ha applied to onion. The 50 kg gypsum was applied with recommend dose of fertilizers and remaining 50% gypsum applied at initiation of bulbs formation. Half dose of N and full doses of P<sub>2</sub>O<sub>5</sub> K<sub>2</sub>O were applied at transplanting of seedling and remaining half dose of N was top dressed at bulbs formation stage. The seedling of onion cv Kalyanpur Red round was transplanted in rows 15 cm apart in finish week