

Response of different levels of nitrogen, phosphorus and potassium on flowering and yield attributes of gaillardia (*Gaillardia pulchella* var. *Lorenziana*) cv. LOCAL DOUBLE

K.M. KARETHA, N.N. GAJIPARA, V. SINGH, SEEMA J. SHARMA, N.A. DESHMUKH AND D.K. KAKADE

Accepted : November, 2009

See end of the article for authors' affiliations

Correspondence to:

D.K. KAKADE

National Research Centre
for Groundnut
JUNAGADH (GUJARAT)
INDIA

ABSTRACT

The results revealed that application of 200 kg nitrogen, 75 kg phosphorus and 75 kg potash per hectare (half dose of nitrogen and full dose of phosphorus and potash at the time of planting, and remaining half dose of nitrogen at 30 days after planting) significantly improved flowering and yield attributes viz., number of days taken for flower bud initiation, number of days taken for first flower to open, flowering, total weight of flower per plant (g), total dry weight of flowers per plant (g), weight of 10 flowers(g) and diameter of flower (cm).

Key words : Gaillardia, Nitrogen, Phosphorus, Potassium, Flowering and yield attributes

Gaillardia (*Gaillardia pulchella* var. *Lorenziana*) is popularly known as blanket flower, belongs to the family Asteraceae (Compositae), is a flowering annual cultivated for its attractive yellow colour flowers for varied uses like for cut flowers, for making garlands, veni, floral decorations and required on weddings, religious and other ceremonial and social occasions. It is a native of the Central and Western United States. The plants are bushy and bloom continuously for a long time. There are about twelve species, out of which *Gaillardia pulchella* and *Gaillardia aristata* are of horticultural importance. The most important cultivated variety is *Lorenziana*, which belongs to annuals with double flowers of very attractive colours comprise of bright yellow, purple, cream yellow or orange, scarlet, copper or bronze. The successful production of gaillardia depends upon many factors like soil fertility, irrigation, plant density, plant protection measures, etc., but manurial schedule plays major role in crop production. Soil fertility map of Gujarat state indicates that, the soil is medium to low in nitrogen, medium in phosphorus and rich in potash (Anon., 1978). The crop grown in such soils without fertilization usually suffers from nutrient deficiency and the application of fertilizers, becomes an essential tool to boost up the yield. In the absence of scientific information with regard to appropriate nutrient schedule for a particular soil type, it becomes difficult to reckon and realize the objective of higher flower production in gaillardia. Hence, manipulation of agronomic factors to achieve optimum source-sink ratio, that would augment higher flower production with optimum plant nutrition is very important. It is evident from the literature

that, very little research work has been carried out, to study the response of gaillardia to different levels of nitrogen, phosphorus and potash on growth, flowering and yield of flowers in the Gujarat state and particularly in vallies of mountain Girnar in Junagadh district of South Saurashtra region. Thus, arriving at an optimum dose of nitrogen, phosphorus and potash, is expected to result in increasing the gaillardia flower production. Keeping the above factors in view, an attempt was made, to study the response of gaillardia to different levels of nitrogen, phosphorus and potassium.

MATERIALS AND METHODS

The experiment was carried out at Instructional Farm, Department of Horticulture, College of Agriculture, on the western side of the foothills of mountain Girnar, Junagadh Agricultural University, Junagadh during winter seasons of the years 2003-04 and 2004-05. The soil of experimental plot was clayey in texture and slightly alkaline in reaction. The soil was medium in available nitrogen and potash and low in available phosphorus. The experiment was laid out in a randomized block design with factorial concept in three replications consisting of twenty four treatment combinations of four levels of nitrogen (0, 100, 200 and 300 kg N/ha), three levels of phosphorus (0, 75 and 100 kg P₂O₅/ha) and two levels of potash (0 and 75 kg K₂O/ha). Nitrogen, phosphorus and potash were applied to the respective plots according to treatments; in which half dose of nitrogen in the form of urea and full dose of phosphorus and potash in the form