INTRODUCTION
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Turmeric (Curcuma longa L.) native Indo-Malayan is one of the most important spice crops of India and belongs to family Zingiberaceae. India is the largest producer and exporter of turmeric, contributing about 82% of production and 45% of export. It is cultivated over 172.0 lakh ha area (2005-06) with an annual production of 851.7 lakh tonnes and productivity of 4952 kg per ha (The Hindu Survey of Indian Agriculture 2007).

Desikachar (1959) studied the processing of turmeric. The major items of exports are raw and dry rhizomes, turmeric powder, curcumin and oleoresin. In our country, the leading states of turmeric production are Andhra Pradesh, Orissa, Tamil Nadu, West Bengal, Assam, Bihar and Uttar Pradesh. Other than India, it is cultivated extensively in Bangladesh, Jamaica, Sri Lanka, Taiwan, China, Burma, Indonesia, Fiji, El-Salvador, Peru, Pakistan and Thailand.

Turmeric plant is erect herbaceous and perennial but it is grown as an annual crop. It possesses an underground stem or rhizome which is thick and rounded with short blunt fingers. The leaves are tall, thin, light green in colour, lanceolate with a long stalk. Flowers are also borne in cone, shaped spikes in the tuft of leaves. The spikes consist of a great number of thin, greenish-white, ovate bracts. Under the genus Curcuma, nearly 40 species have been recognized. Some of the economically important species are Curcuma longa L. (Indian turmeric), C. aromatica, Salib (Kasturi or wild turmeric), C. angustifolia, Roxb. (Indian arrow root), C. amada, Roxb. (Ama-Haldi or Mango ginger), C. zadoaria, Rosc. (Kachura), C. xanthorrhiza (Arrow root).
Krishnamurthy et al. (1976) studied oil and oleoresin of turmeric. Turmeric is valued globally as a condiment, food colourant, dye, drugs and medicine. The rhizome contains yellow colouring component curcumin (3-9%), essential oil (5-6%) and oleoresin (6-13%). Manjunath et al. (1991) estimated curcumin in turmeric rhizomes. Atanu et al. (2005) estimated curcumin for drug delivery system. Curcumin is gaining more importance in food industries, pharmaceuticals, preservatives and cosmetics. The ban on artificial colour has prompted the use of curcumin as a food colourant. In pharmaceuticals it is valued for anti-cancerous, anti-inflammatory, antiseptic, antimicrobial and anti-proliferative activities.

Turmeric extract i.e. turmerone and particularly arturmerone showed marked insect repellent activity in laboratory test (Su et al., 1982). It is also reported that essential oils of Curcuma longa has the fungitoxic properties (Kishore et al., 1988). In addition to these, it has other uses too, they are prominent in the liking of people and has acquired religious importance in connection with birth, marriage and death.

India earns good amount of foreign exchange through export of spices. Turmeric plays a vital role in this regard and hence, there is dire need to push up the productivity of turmeric by using desired genotypes and adopting modern techniques, so that the pre-prominent position can be regained in the world market.

Singh et al. (1993) studied the effect of NPK combination and spacing on yield and quality traits of ginger. During the period of growth and development of a plant, nutrients have a vital role for operating the normal physiological functions. For higher economic yield, balanced nutrient supply is one of the key factors, Nitrogen and phosphorus along with potassium are the primary and major nutrients which are required in large quantities for the healthy growth of the plant.
Mishra et al. (1997) studied the effect of planting dates and varieties on yield of turmeric. The optimum time of planting of turmeric varies with the varieties. The time of planting plays an important role on growth and yield since turmeric is a season bound crop. Date of planting determines the quantum of growth, yield and depends on local climatology and edaphology. Generally May-June period is recommended for its planting.

Nitrogen is an integral constituent of amino acid, protein, chlorophyll, alkaloids, amides and other component in plant and it is generally deficient in the soil because of its leaching tendency and higher use. The excess of nitrogen in the soil on the other hand accelerates vegetative growth and delays flowering and rhizome development. It also controls up to some extent the efficient utilization of phosphorus and potassium.

Phosphorus influences the growth of plants and improves the quality of the produce. It encourages the formation of new cells, promotes root growth and hastens leaf development. If phosphorus is deficient in the soil, plant fails to make a quick start, root system remains stunted and purplish discolouration of the stem and leaves is observed.

Potassium is another most important and major nutrient, which promotes growth, and increase yield. Potassium is a mobile element and essential for cell organization, hydration and cell permeability. It plays role in the carbohydrates metabolism, enzyme activation, nitrogen uptake and protein synthesis, translocation of assimilates and help in decreasing certain plant disease and improve quality of produce.

The major roles of NPK in turmeric production have been studied by Sheshagiri et al. (1994). The yield of turmeric is governed by several factors such as environmental and edaphic factors including availability of nutrients. Among these factors, major nutrients such as NPK play vital role for getting higher and economic yield.
In view of above, the present investigation entitled “Effect of dates of planting and fertility levels on growth and yield of turmeric (Curcuma longa L.) was conducted during zaid/kharif season of 2006-07 and 2007-08 with the following objectives:

1. To find out suitable dates of planting for better growth, rhizome yield and quality of turmeric.
2. To work out the optimum fertility levels for growth, rhizome yield and quality of turmeric.
3. To work out suitable cultivars for growth, yield and quality.
4. To standardize interactive effect of dates of planting, fertility levels and cultivars on growth, rhizome yield and quality.
5. To assess the economic feasibility of different treatment.