REVIEW OF LITERATURE
The agronomic measures such as fertilizer requirement, interval of planting and cultivars play an important role in improvement of growth, yield and quality of the vegetable crops. Reviews of the research work done in past by other scientists on turmeric and allied crops of spices are being referred briefly in the subsequent paragraphs, which are directly or indirectly related with the investigation.

2. Role of nitrogen, phosphorus and potash in plants:

Nitrogen, phosphorus and potash to the macro metabolic group of the nutrient elements are essential for plant growth. The vital role played by these nutrients in plant growth has been elucidated by Borner (1950). Nitrogen is an essential element for growth of the plant, as it is a constituent of all proteins and protoplasm. It is also a constituent of photosynthetic pigment and is a part of chlorophyll and adenosine triphosphate. From the standpoint of utilization of other nutrients, nitrogen is found to control to certain extent the efficiency of phosphorus and potassium uptake by plants. The nutrient element next in order, helping the plant growth is phosphorus (Black, 1957). In addition, phosphorus has been observed to regulate the maturity of crops.

Brady (1990) reported that potassium plays an essential role in plants. It is an activator of a dozen of enzymes which are responsible for many plant processes. Potassium is extremely mobile within the plant and helps in regulation of the opening and closing of stomata in the leaves and the uptake of water by the root cell. Potassium is essential for photosynthesis, starch formation, synthesis of protein and for the translocation of sugar. This element is essential for tuber development.
Potassium increases crop resistance to certain diseases and by encouraging strong root and stem systems. It helps to prevent the undesirable lodging of plants caused by excessive use of nitrogen. It is imperative to mix with multinutrient fertilizers.

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.

In the current status of our knowledge a very meagre amount of research work has been conducted so far. Hence, it becomes very important to workout suitable date of planting, fertilizer requirement and suitable cultivars on turmeric so that the wide gap of production of turmeric can be fulfilled under optimum conditions of the cultivation standards. In view of this statement whole review has been categorized broadly into two parts.

(i) Effect of NPK on growth and yield
(ii) Effect of cultivars and planting dates on growth and yield.

2.1 Effect of NPK on growth and yield attributes:

2.1.1 Growth:

Liu et al. (1974) concluded that N and P fertilizers significantly affected plant height and tiller number in turmeric. The best NPK combination was 60: 60: 120 kg/ha.

Murlidharan et al. (1974) investigated that the application of 70 kg N/ha increased significantly the number of tillers/plant and plant height in ginger.

Aclan and Quisumbing (1976) reported that plant height increased with the application of 30 and 90 kg N/ha, however, K and P did not show
significant effect on ginger. Plant height was recorded 64.8 cm when 90 kg/ha nitrogen was applied.

Rao and Swamy (1984) observed that plant height, number of leaves and leaf area significantly influenced by the joint application of NPK in turmeric. When quantity of NPK was increased, a significant and linear response in growth of the plant in cv. Gorakhpur was recorded while maximum growth was obtained with the fertility level of 187.5: 62.5: 125 kg/ha of NPK in case of Mydukur variety.

Mohanty and Sharma (1978) reported that plant height, number of tillers/m², length of leaf and breadth of leaf increased in ginger by the combined use of NPK @ 75:50:50 kg/ha.

Bala Shanmugam and Chezhiyan (1986) investigated that application of different levels of nitrogen significantly increased the plant height, number of leaves, number of tillers and leaf area in turmeric. Application of 120 kg N/ha resulted maximum plant height (110.2 cm), number of leaves (26.3), number of tillers (4.9) and leaf area (364.9 cm²) than other levels of nitrogen and control. The values for above parameters were found to be lowest where nitrogen was not applied.

Singh and Singh (1988) reported that application of different levels of nitrogen significantly increased the plant height, number of leaves and width of leaves in turmeric. Application of 100 kg N/ha recorded maximum value for plant height (88.15 cm), number of leaves/plant (8.5), length of leaves (39.57 cm) and width of leaves (15.5 cm) over other levels of nitrogen and control. All these parameters were found to decrease with decreasing doses of nitrogen application. The values for these parameters were lowest in control.

Singh et al. (1988) studied varying levels of nitrogen (0, 60 and 120 kg/ha) on turmeric and recorded that plant growth was vigorous at highest
level of nitrogen application. Increasing levels of nitrogen increased the plant height, number of leaves/plant and number of suckers/plant when highest level of N (120 kg/ha) was incorporated.

Muthuvel et al. (1989) applied six fertilizer treatments i.e. 3 levels of nitrogen (90, 120 and 150 kg/ha) in combination with 60 and 90 kg/ha phosphorus and recorded that 90 kg N/ha is the optimum dose for growth parameters of turmeric under Bhavanisagar conditions.

Govind et al. (1990) applied N and P each at 0, 20, 40 and 60 kg/ha alone and in combination with a basal dose of K at 60 kg/ha to Curcuma longa cv. Lakadong reported that 40 kg N + 20 kg P gave highest plant height, tillers/plant, number of rhizomes/plant, diameter and length of primary rhizome.

Gupta et al. (1990) conducted a field experiment for two years during the kharif season of 1984-85 and 1985-86 in order to work out the response of turmeric to different levels of phosphorus (0, 15, 30, 45, 60, 75 and 90 kg/ha). Application of phosphorus @ 75 kg/ha was found to be optimum by increasing fresh weight of rhizome/hill and raw turmeric yield. Each incremental dose of phosphorus showed significant increase in all the parameters studied upto 75 kg P$_2$O$_5$/ha. Further addition of 15 kg P$_2$O$_5$/ha did not improve the turmeric yield significantly over 75 kg P$_2$O$_5$/ha whereas, curing percentage was slightly decreased.

Balashanmugam and Subramanian (1991) observed the effect of K on Curcuma longa cv. BSRI, where K was applied @ 30, 60 and 90 kg/ha, N @ 120 kg/ha and P @ 60 kg/ha and reported that highest dose of K significantly increased the plant growth in terms of height, number of tillers and leaves per plant.

Menon et al. (1992) studied on the evaluation of 39 open pollinated progenies of turmeric variety Nandyal and results revealed significant
differences among progenies in respect of all plant characters, yield, curing percentage and curcumin content. The lines N-47 and N-10 recorded the yield of 8.7 and 7.26 kg per plot of 2 m² respectively through statistically at par with the parental type.

Mediti and Bora (1993) applied 4 levels of N (0, 20, 30 and 40 kg/ha) and 3 spacing (45 x 20, 45 x 30 and 45 x 40 cm) and found that N fertilizer significantly increased plant height, number of leaves, tillers/plant in turmeric with 40 kg N/ha. However, there were no significant effect of spacing and fertilizer.

Singh and Neopany (1993) reported that fertilizer combination of NPK (150:80:60 kg/ha with 20 x 20 cm spacing produced greater plant height (65.8 cm) and maximum number of leaves (65.0) in ginger.

Rana and Rattan (1994) observed that different fertilizer treatments had significant effect on all characters of growth of turmeric. The maximum plant height (95.9 cm), tiller/plant (2.9), leaf length (45.3 cm) and leaf breadth were obtained when N and P were supplied at 90 and 60 kg/ha, respectively.

PranjaL et al. (1994) conducted research work on turmeric Curcuma longa L. cv. Tall clone supplied with 0, 30, 60, 90 and 120 kg/ha. N plus the recommended rates of P and K 50 and 60 kg/ha results revealed that increasing levels of N significantly increased the plant height and number of tillers per plant which were recorded maximum under 90 kg N/ha. Although the number of leaves per plant was increased with the treatment of N but the treatment differences were at par with each other. However, the lowest number of leaves per plant was recorded under control.

Banafar and Tiwari (1995) studied the effect of potassium (0:75:100 and 125 kg/ha) on the growth of Curcuma longa L. cvs. CO-1, at Shilong and Bhavanisagar and reported that number of leaves, tillers and growth of
pseudo stem were significantly increased as the K levels were increased. Yet beyond 100 kg K/ha it was not found economical.

Govind et al. (1995) reported that 90 kg P$_2$O$_5$/ha showed the maximum plant height, tillers, leaves per plant. Secondary rhizomes per plant and maximum fresh and dry yield of rhizomes in ginger cv. Nadia in Meghalaya region 60 kg P$_2$O$_5$/ha showed maximum primary rhizomes per plant. Different P$_2$O$_5$ rates (104.6, 83.7 and 90.8 kg/ha) gave almost similar yield (147.3-149.0 q/ha).

Shashidharan et al. (1997) reported that highest N dose (200 kg/ha) was found better for all the vegetative characters in ginger. Narrow spacing (45 x 15 cm) produced the taller plants (23.20 cm) while medium spacing (45 x 22.5 cm) recorded higher number of leaves (10.79) and wider spacing (45 x 30 cm) produced higher number of tillers (2.03). The total dry matter production decreased with increase in spacing levels and increased with increase in N levels (0, 50, 100, 150 and 200 kg/ha). The highest dry matter production (6.48 t/ha) was recorded with 200 kg N/ha under closest spacing.

2.1.2 Yield:

Muralidharan and Balkrishnan (1972) observed that yield of turmeric was significantly affected by the application of fertilizers. Yield was significantly increased by application of NPK but result were erratic as both highest (100:100:200 kg NPK/ha) and lowest (40:40:80 kg NPK/ha) rate out yielded at intermediate treatments.

Muralidharan (1973) reported that application of N at higher than 50 kg/ha significantly reduced the yield of ginger. The treatment combination of 50 kg N + 75 kg P/ha significantly increased rhizome yield of ginger.
Muralidharan et al. (1973) reported that ginger was fertilized with 120 kg N, 120 kg P and 240 kg K/ha, however, yield responses were not found to be significant, yet optimum level appeared to be about 60 kg N, 60 kg P and 120 kg K/ha.

Randhawa et al. (1973) conducted an experiment at Kandaghat (Shimla hills) over three years and concluded that application of NPK @ (100:50:50 kg/ha) responded well in regard to increase of turmeric yield.

Liu et al. (1974) reported that yield of turmeric was affected significantly due to potassium application, however (60:60:120 kg NPK/ha) was proved to be the best combination towards growth and yield of rhizomes of turmeric.

Muralidharan et al. (1974) investigated that the application of 70 kg N/ha significantly increased the yield of rhizome of ginger. But the application of P had no effect while K @ 140 kg/ha reduced significantly the yield of ginger rhizome.

Krishnamurthy et al. (1976) reported that the bulbs are found richer in curcumin, volatile oil and oleoresin than the fingers.

Aclan and Quisumbing (1976) found that yield of ginger rhizomes (20.5 t/ha) was obtained by applying N @ 30 kg/ha which was increased further by 75 per cent (34.5 t/ha) by 90 kg N. Yield was increased significantly by K but effect of phosphorus was not observed significant.

Rao and Reddy (1977) applied 3 levels each of N (250, 312.5 and 375 kg/ha), P (125, 175 and 225 kg/ha) and observed that the differences in yield of fresh rhizomes were significant under the nutrients and at different levels. The mean yield of turmeric was highest at higher level of nitrogen and also of potash. Among N and K levels, yield increased significantly as the levels were increased correspondingly. Both the
treatments of P (175 kg and 225 kg) were at par and were significantly superior over lowest doses. The combined use of NPK (375 kg N + 175 kg P + 237.5 kg K) recorded significantly the highest yield as compared to other treatments.

Mohanty and Sharma (1978) reported that yield of ginger increased by applying 75:50:50 kg/ha of NPK. Yield in control was 56.4 q/ha and in NPK fertilizer treatment it was 74.9 q/ha.

Sadanandan and Sasidharan (1979) applied N @ 25, 50, 75, 100 and 120 kg/ha in split application, half at 60 days and half at 120 days after planting of ginger. The yield rose from 2995.37 kg/ha in control to 8597.22 kg/ha in plots receiving 50 kg/ha but then reduced to 4019.67 kg/ha in plot receiving the highest N rate.

Shah and Muthuswami (1981) compared the effect of N as urea, at 100-260 kg/ha, P and K each were applied at 60 kg/ha and concluded that nitrogen 140 kg/ha raised the yield of fresh rhizome from 14.6 to 22.9 tonnes/ha in turmeric. They also observed that number of mother rhizome, number of primary and secondary rhizome were highest at 140 kg N/ha.

Lee et al. (1981) applied nitrogen in plots of ginger at 56 to 89.6 kg/ha with 8% of N applied at planting time and remaining as side dressing following harvests at 82 to 251 days. Shoot and rhizome fresh weights were highest (over 55 and 95 tonnes/ha) after 251 days with N at 250-300 kg/ha.

Nair (1982) recorded the best response in ginger when 90:30:40 kg NPK/ha was applied, however, the best and economic yield was obtained in turmeric at 30:20:60 kg NPK/ha

Eyübov et al. (1984) conducted pot experiment on turmeric grown in 10 kg pots @ 2 plants per container. Various fertilizers were applied before
planting and at 2 to 3 leaf stage (10 with NPK at 0.2:0.2:0.1 g + 75g FYM + 0.2 g Komu (a complex organic mineral micro fertilizer) per kg soil.

Rao and Swamy (1984) reported that yield of fresh rhizome of turmeric was significantly influenced by the different levels of NPK. Highest yield of fresh rhizome (12317 kg/ha) was recorded by the fertilizer application comprising of highest level of major nutrient 312.5 + 112.5 + 203 kg/ha NPK followed by 187.5 + 62.5+125 kg/ha NPK (9438 kg/ha) yield in case of Mydukur cultivar of turmeric. A similar trend was noticed in Gorakhpur variety, however, differences were not obvious.

Umate et al. (1984) applied N at 60 + 80 kg/ha and obtained that mean fresh rhizome yield of turmeric rose from 14.56 t/ha at zero N to 30.81 t/ha at 120 kg N/ha and declined to 29.32 t/ha at 180 kg N/ha.

Balashanmugam and Chezhiyan (1986) observed the influence of nitrogen application on the yield of fresh rhizome of turmeric cv. CO-1. The turmeric responded favourably and significantly to increasing levels of N application. Application of nitrogen @ 120 kg/ha was found to enhance the yield of fresh rhizome and also increased the weight and number of primary and secondary rhizome.

Tayde and Deshmukh (1986) studied the effect of planting material (mother, primary and secondary rhizomes) and 5 levels of N (ranged from 0 to 200 kg/ha) on turmeric and reported that the highest yield (30.67 t/ha) was obtained with planting of mother rhizome at 100 kg N/ha and secondary rhizome gave yield (27.61 t/ha) at 150 kg N/ha.

Singh and Singh (1988) applied N as urea at 0, 50, 100 and 150 kg/ha with P-K basal dressing at 60 kg/ha and reported that highest yield of 116.25 q/ha was obtained with 100 kg N/ha in turmeric.
Singh et al. (1988) applied 3 levels of nitrogen (0, 60 and 120 kg/ha) and observed that N at 120 kg/ha gave the highest mean yield of turmeric (47.73 q/ha) compared with 13.39 q/ha in control.

Singh and Singh (1988) reported that increasing doses of nitrogen increased the yield of turmeric rhizomes, number and weight of rhizomes. The maximum yield was recorded under 100 kg N/ha. Other treatments were significantly superior to control but at application of 150 kg N/ha, a reduction in yield was observed.

Singh et al. (1988) reported that application of nitrogen had significantly increased the number of ginger rhizomes and yield per plant over control. Higher levels of nitrogen produced maximum yield (13.73 q/ha) and number of rhizomes (17.75 per plant). Further it was observed that the increasing levels of nitrogen either from 0-60 or 60-120 kg/ha progressively and significantly increased the number of finger limbs per plant and yield q/ha.

Maity et al. (1988) reported that NPK fertilizer significantly increased the yield of ginger. The best combination of NPK was 120:60:90 kg/ha.

Govind et al. (1990) observed the best effect of N and P on yield of turmeric. N and P @ 0, 20, 40 and 60 kg/ha were applied alone and in combination with a basal dose of K at 60 kg/ha to turmeric cv Lakadong. The highest yield in two years (228 and 248 q/ha) were obtained with N at 40 kg + P at 20 kg/ha. Yield in the control were 96 and 115.2 q/ha for the 2 years respectively.

Gupta et al. (1990) reported that yield of turmeric cv. Surguja selection-1 increased with increasing rate (0-90 kg/ha) of P. Phosphorus at 75 or 90 kg/ha recorded highest turmeric yield (172.79 and 178.09 q/ha), the highest fresh weight of rhizomes were 236.77 and 240.43 g/hill respectively.
Rao and Reddy (1990) found that one row of maize in every inter-
row space of turmeric with maintenance of 100% maize population and
application of additional fertilizer to maize resulted in the highest turmeric
and maize yield 28.47 and 2.88 t/ha respectively.

Deshmukh et al. (2005) studied the effect of planting materials
(mother, primary and secondary rhizomes) and 5 level of N (ranged from 0
to 200 kg/ha) on turmeric and reported that the highest yield (32-67 t/ha)
was obtained with planting of mother rhizome at 100 kg N/ha and
secondary rhizome gave yield (20.6 t/ha) at 160kg N/ha.

Hussain et al. (2006) applied N as urea at 0-50, 100 and 150 kg/ha
with P-K basal dressing at 60 kg/ha and reported that highest yield of
117.35 q/ha was obtained with 100 kg N/ha in turmeric.

Balashanmugam and Subramanian (1991) reported that highest
rhizome yield of turmeric (29.7 t/ha) was obtained with an incorporation of
90 kg K/ha.

Pandey (1999) studied the effect of nitrogen on turmeric cv.
Sugandham with 80, 120, 160 and 200 kg N/ha and observed that rhizome
growth and yield were increased with increasing N dose. The highest
rhizome yield (33 t/ha) was obtained at 160 kg N/ha.

Medhi and Bora (1993) observed highest yield of turmeric cv. Tall
clone by applying N @ 40 kg/ha. They also studied effect of spacing in
combination to fertilizer dose and indicated that the yield of turmeric was
highest (233.96 q/ha) under closer spacing and decreased with increased
spacing.

Mohanty et al. (1993) incorporated NPK @ 75:50:50, 100:60:100
and 125:70:150 kg/ha and revealed that the yield of ginger increased with
increasing the fertilizer dose. The maximum yield (10.16 t/ha) was recorded with the highest level of fertilizer dose (125:70:150 kg/ha NPK).

Pranjal et al. (1994) conducted research work on turmeric Curcuma longa L. cv. Tall clone planted on a lateritic soil. The plants were supplied with 0, 30, 60, 90 and 120 kg/ha N (as a split application of urea/ha) with the recommended rates of P and K 50 and 60 kg/ha, respectively. Increasing level of N significantly increased the yield. The highest yield was obtained with 90 kg N/ha (202.14 q/ha as compared with 115.16 q/ha in control).

Sheshagiri and Uthaiah (1994) investigated the yield of Curcuma longa cv. CO-1 in respect to different doses of NPK fertilizer application. They reported that rhizome yield was significantly influenced by the fertilizer application and best combination was 120:60:120 kg/ha.

Banafar and Tiwari (1995) studied the effect of potassium (0, 75, 100 and 125 kg/ha) on yield of Curcuma longa cv. CO-1 at Shilong and Bhavani Sagar and reported that rhizome yield increased with increasing the K rate above 100 kg/ha was not beneficial. The highest rhizome yield (225 q/ha) was observed at 100 kg K/ha.

Rashid et al. (1996) reported that in Bangladesh condition fresh rhizome yield was highest from mother rhizome (28.67 t/ha) and lowest from secondary rhizome (19.43 t/ha). Spacing had no significant effect on fresh rhizome yield. Turmeric cv. Dimal gave higher yield than cv. Sinduri.

Thakur and Sharma (1997) revealed that N and P upto 100 and 60 kg/ha, respectively increased the rhizome yield significantly. N, P and K uptake by ginger increased with increasing level of N and P rate upto 150 and 90 kg/ha.
Patra (1998) reported that the highest yield was recorded in turmeric cv. PTS-9 at Orissa with N:P:K @ 90:60:90, 120:60:90 and 90:30:60 kg/ha, however, the yield was obtained 25.5, 25.0 and 24.5 t/ha respectively.

Sadanandan et al. (1998) reported that NPK treatments @ 150:125:250 kg/ha and 200:175:300 kg/ha were almost similar in performance having 36.70% and 35.30 t/ha, 35.26% and 34.37 t/ha dry matter and yield respectively with highest cost benefit ratio of 1:2.58 NPK at 150:125:250 kg/ha was found optimum for turmeric cultivation in Bangalore condition.

Gill et al. (1999) conducted experiments during kharif 1995 and 1996 at Ludhiana, India to study the response of turmeric (Curcuma longa L.) to nitrogen in combination with application of FYM and wheat straw mulch. The treatments consisted were two rates of mulch (0 and 6 t/ha). Four rates of FYM (0, 20, 40 and 60 t/ha) and three rates of nitrogen (0, 60 and 120 kg/ha). The application of wheat straw mulch significantly improved growth and yield of turmeric as compared with no mulch (increase in rhizome yield of 46 and 44% in 1995 and 1996). Rhizome yield increased significantly with each increase in FYM application rates during 1996 with a maximum yield of 365.4 q/ha with 60 t/ha of FYM. Nitrogen level did not affect growth and yield of turmeric significantly.

Mridula and Jaya Chandran (1999) conducted a field trial from June to December 1995 at Velayani (Kerala India) with factorial combination of 3 rates each of nitrogen (15, 30 and 45 kg/ha), phosphorus (15, 30 and 45 kg/ha) and potassium (30, 60 and 90 kg K_2O/ha) and revealed that N, P_2O_5 and K_2O at 30:30:60 kg/ha gave the best rhizome yield (33.91 t/ha) and the highest net returns and benefit cost ratio was also obtained.

Gowda et al. (1999) revealed that yield of ginger cv. Rio-de-Janerio could be increased by application of 150:75:50 kg NPK/ha under Bangalore condition.
Pandey (1999) reported that among different spacing (40 x 20, 30 x 20, 40 x 30 and 50 x 20 cm) and nitrogen levels (0, 50, 100 and 150 kg/ha) in mango ginger, highest rhizome yield was obtained under highest N level under narrow spacing.

Meerabai et al. (2000) conducted a two years field experiment of turmeric intercropped under partial shade of coconut. Turmeric responded to high nitrogen (N) and potassium (K) fertilizer application rates recommended for open field condition. Application of 120 kg N and 120 kg K₂O/ha together with the trace of elements B (2 kg/ha) and Zn (10 kg/ha) gave the maximum economical yield.

Yamgar and Yamgar (2001) studied response of turmeric cv. Krishna to N:P:K at 0:0:0, 120:60:60, 160:80:80, 200:100:100 and 240:120:120 kg/ha and different level of N split application. 1 application at 6 weeks after planting (WAP); 2 split at 6 and 12 WAP; 3 at 6, 12 and 18 WAP; and 4 at 6, 12, 18 and 24 WAP; N:P:K at 200:100:100 kg/ha resulted in the maximum plant height (109 cm), number of leaves (9.8/plant), leaf length (62.8 cm), green rhizome yield (0.53 g/plant). This N:P:K rate also resulted in the highest benefit cost ratio (1.62).

2.2. Effect of cultivars and planting dates on growth and yield:

Mishra et al. (1997) studied response of field experiment in 1992-94 in Orissa. 8 turmeric (Curcuma longa) cultivars were planted during the 3rd week of May or 1st or 3rd week of June. Delaying planting decrease rhizome yield. The highest yielding cultivars were PTS 9 and PTS28.

Datta and Chatterjee (2001) studied on 11 turmeric germplasms under rainfed condition in the new alluvial zone of W.B. India and revealed that among the different germplasms, Kasturi produced the highest fresh yield (49.63t/ha) and dry yield (10.67 t/ha) but curcumin content was very low (2.1% i.e. lower than appreciable level as spice). Roma produced the
second highest dry yield (9.77 t/ha) and gave the highest level of dry recovery (29.89%) and curcumin content (9-12%). Investigation also revealed germplasm Roma, Armoor PTS-8 and PTS-62 can be made popular for their higher yield and curcumin content instead of local cultivars.

Cecilofilho et al. (2004) reported that the production of rhizomes per plant and per unit area was significantly affected by the interaction of planting dates and spacing. Higher production per plant (673.13 g) and per area (24678.82 kg/ha) were obtained planting on 20 Nov and spacing respectively of 0.36 and 0.30 meter.

A perusal of the literature concerning the role of major elements, interval of planting of rhizomes and cultivars on growth, rhizome yield and quality of turmeric and allied crops as presented in the preceding pages makes one to believe that these may be successfully utilized in improving the production of turmeric and allied crops too. Nevertheless, findings are very useful, however all the same observation made by different investigators in different region and climates can not be taken to have a universal significance more particularly when they are to be set with contradiction. It was therefore decided to conduct an independent investigation on the topic “Effect of dates of planting and fertility levels on growth and yield of turmeric (Curcuma longa L.)".