INTRODUCTION

From times immemorial, among spices, ginger (*Zingiber officinale*) is known as one of the most important spice crop which is very popular as a medicinal plant in India and abroad. It has helped greatly in maintaining the varied economy of country through various means. It is the under ground stem and belongs to the family *Zingiberaceae*.

Ginger is extensively grown all over India. Though it is believed that the native place is tropical Asia and from there it spread to Westindies and other parts of the world. It is now grown largely in India, Westindies, Africa, Brazil, China, Japan, Indonesia. The main cultivation area i.e. 50 per cent is in the states of Kerel, Karnataka and Maharastra and the other states are Tamil Nadu, West Bengal, Bihar, Himachal Pradesh, Bihar and Uttar Pradesh.

In India, about 22000 to 23000 ha. of the land of under the cultivation of ginger crop producing about 21000 to 22000 tonnes of dry ginger. People of the states of India call the ginger by different names in their own languages for example in Hindi languages speaking areas it is known as *Adrakh*, in Orissa Assania and Bengali as *Ada* and Gujarati language it is known as *Ada*. In Sanskrit language it is called *Adraka* (Maurya, 1993).

Ginger is cultivated in a large scale in several states and their commercial value has become immense utility for the economy of the country (Grossmann, 1985). It plays an important
role in earning foreign currency for the country. The one third of the total production is exported to foreign countries. While rest being by different means for various purposes. The main countries to which the ginger is exported from India are, U.S.A., U.S.S.R., Canada, U.K. and Australia.

Ginger (Zingiber officinale) can be grown in variety of soils. Sandy loam soil which is free with bacteria in more suitable. It needs well distributed rainfall or adequate irrigation facilities should be available in for ginger cultivation. It also needs other facilities. It can be grown both in plain and hilly regions. But it was found that hilly area is most suitable for cultivation of ginger. Shade and Cool climates are very essential for its cultivation. Temperature above 32.2°C generally affects badly the plant. Mid sun burn generally affects the leaves only but acute sun damage the whole plant. It is also largely grown as intercrop, as the initial growth in it is very slow. Farmers get handsome income for its intercropping method. Another crop also grown with ginger and found better yield (Dheobi and Randhawa, 1965; Reddy and Satyanaryana, 1975).

Many diseases are also appearing in the time of harvesting of ginger. Many insects effect the crop and decrease the yield. For the better yield, disease free rhizome should be caused and after planting some chemicals also applied in field for saving the crop from different fungal, viral and bacterial disease (Devia, 1995). Besides it, economic importance
is also largely limited up with the domestic life of human beings. It can be used in various forms like in the form of preserves and confectioneries such as candy, jelly, crystal, ginger toffee and ginger biscuit (Arya, 1954). It also provides good stimulating drink and its pickle in salt is largely used in Indian homes. In India, tender ginger is preserved in sugar and is generally used after meals. In addition to this it is also valued for its medicinal properties it is a good remedy for flatulence and is also very useful in cold diseases. It provides a very good taste flavour to our daily diet. It is also used in the preparation of animal medicin. It is also an important source of several medicinals like gengerol. Ginger indigestive tablets, Powder ginger and dry ginger are prepared (Rothnam, 1990).

Not only in India, it is also used in other country for its utility. In Japan its young shoots are used for picking. The dried ginger contains 1 to 3 per cent volatile oil, by the extraction of volatile solvents oleoresin is obtained which is in great demand in the international Market as it contains the aromatic pungent principles of ginger in a highly concentrated form.

Ginger is very useful for human being. By using simply 100 grams of raw ginger our body gets 92.51 of water, 12.36 g Charbohydrate, 1.59 g proteins, 1.19 g Fat, 1.09 g Fibre, 1.06 g Ash, 0.022 g Phosphorus, 0.021 g Iron 0.055 g sodium, 0.26 g Potassium 32.55 Vitamin 'A' 2.23 g Vitamin 'C' 70.63 Kal, Energy (Maurya, 1995).
Manure requirement is also useful to production of ginger crop. Its require heavy manuring. Among the various constituents found to play the important role in the composition of plant organs. The nitrogen and phosphorus are the important, which are taken up by the plants in more quantities the requirement of these manures are varied in plant at to plant different concentration of N-P-K influence the plant height, number of branches and total yield of rhizome (Sandhu and Mirdha, 1966; Nair, 1982, Rao and Reddy, 1977).

However, Helmi et al. (1975) reported that smoking ginger seed rhizome once or twice before storage by spreading on the floor resulted in a higher yield of subsequent crop than the storage of non-smoked seed in pits.

Improvement of yield is the ultimate aim of any workers. Breeding programme help the yield improvement. Some improvement is also possible based on genetic information leading to greater inherent yield potential through improved components of yield. Yield is a complex Polygenic character which is highly influenced by environmental factors.

Improvement of crop depends upon the magnitude of the genetic variability and heritability of the economic characters. Genetic variability can be measured with the help of suitable genetic parameters like genetic coefficient of variation, heritability estimates and genetic advance.
The correlation coefficients give a associationship between plant with parameter to parameter. The path analysis helps to explain the correlation and permits to identify various yield components which are of greater economic values as compared to others. These techniques help the research workers for early production and gives new information and new varieties.

It is clear for the above details, that not much satisfactory informations are available on this crop specially in this aspect. Recently its demand has increased tremendously and it has become necessary to study the genetical behaviour of this important spice crop so as to increase the yield and quality of crop. Therefore, the present project has been taken up to get some more valuable information on this important crop in the central area of Uttar Pradesh.