INTRODUCTION
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Onion (Allium cepa L.) is one of the most important food crops of Amaryllidaceae family and underground vegetable bulb crops of tropical as well as sub-tropical part of the world.

Onions are dehydrated and powdered for general use and for flavouring purpose. It is used as salad and cooked in various ways in all types of curries, fried and used in soup making, pickles and for other purposes. It is increasingly used as staple food for seasoning different vegetables and as a vegetable at all the stages of the growth year round. It contains moisture 86.8 g, carbohydrates 11.0 g, protein 1.2 g, fibre 0.6 g, mineral 0.04 g, thiamine 0.08 mg, phosphorus 50 mg, iron 0.7 mg, nicotinic acid 0.4 mg and riboflavin 0.01 mg per 100 g of edible portion.

Onion ranks the second to tomato in terms of annual world production. It is grown from pre-historic days in India. India’s share in the world production is about 8 per cent and it occupies the second place (Shukla, 1983). It is grown in an area of about 43.13 lakh hectares and the total production was about 45.5 lakh tonnes during 1998-99 (Anon., 2000).

In India, Maharashtra has predominant position in respect of onion production, accounting for more than 20 per cent of the area and 30 per cent of the production. The other major onion growing states are Gujarat, Karnataka, Tamilnadu, Orissa, Madhya Pradesh, Andhra Pradesh and Uttar Pradesh. In Gujarat, onion occupies an area of about 52,200 hectares with a total production of about 14,62,100 tonnes. The major onion growing districts in Gujarat state are Amreli, Junagadh.
Rajkot, Mehasana, Jamnagar, Surat and Kheda; whereas Bhavnagar, Amreli and Mehsana are known for onion seed production. In Navsari district, the area of onion cultivation is increasing every year.

The growth and yield of this crop are mainly influenced by genetical and cultural or management factors. The first deals with various plant breeding techniques for the improvement in crop varieties, whereas the second factor deals with the supply of adequate nutrition, irrigation, cultivation (including spacing), plant protection, etc. Both these factors have been fully exploited by various research workers working in respective fields with varied success. Efforts are still continued in these directions to gain higher yields.

Soil conditioners are also one of the important factors for significant increase in crop yield by influencing plant growth as they supply plant nutrients including micronutrients and by increasing nutrient availability by altering soil reaction or by changing non available to available form by improving the physical condition of the soil or both. The improvement in soil physical condition through manipulation of organic materials in heavy textured soil can further boost up the productivity of onion. Farm yard manure is the principal source of organic matter in our country. Pressmud, a sugar factory waste is also easily available and a cheap source of organic matter in South Gujarat. Soil conditioner acts in several ways on crop and soil. It improves the soil structure, reduces soil crusting and also a source of energy for soil with positive influence on growth and yield of onion. Under the climatic and edaphic conditions of South Gujarat, the information on effect of soil conditioners on growth and yield of onion is not available.
Among the three major plant nutrients, response of onion to nitrogen is assumed to be of great importance, which directly reflects on growth and development of plant and ultimately on yield. In India, most of the soils are deficient in mineral nutrients, largely in nitrogen and to some extent in phosphorus. Potash is said to be fairly adequate and judicious application of nitrogen is the surest way of increasing the yield and quality of onion. In the present context of higher prices of fertilizers, it is necessary to work out the optimum and economic requirement of nitrogen for the onion crop.

The present research work entitled “Effect of soil conditioners with the different levels of nitrogen on the growth and yield of onion (Allium cepa L.) under South Gujarat conditions” was carried out with the following objectives:

1. To study the effect of soil conditioners on growth and yield of onion.
2. To know the effect of nitrogen on growth and yield of onion.
3. To find out the best combination of soil conditioner and nitrogen level for the maximum yield under South Gujarat conditions.
4. To work out the economics of various treatments.