INTRODUCTION

The rapid overhauling of the available food and other resources by the earth's exploding population has been causing grave concern to all of us. Man's efforts to grapple with this problem have been along two major fronts - to reduce the rate at which the numbers increase by such measures as birth control, on the one hand and on the other, to increase the production of food. Recent successes in the latter front seem to have given us, especially those in the developing countries, a breathing spell.

However, the quantity of food, though important, is not the sole consideration. The nutritional quality of the food is an equally important aspect; optimal health is ensured only by adequate nutrition, both in terms of quantity and of quality. One of the important determinants of the quality of human diet is the intake of proteins and especially of adequate amounts of essential amino acids which the human system is unable to synthesize.

In the developed countries of the world, an adequate intake, in qualitative terms, is ensured by the predominantly animal-based diet, since proteins from animal sources are rich in the essential amino acids needed by man. In most developing countries, particularly those in Asia with their immense population pressures, such a diet may not be practicable. For, it is well known that the number of people who can be directly fed from the production of unit area of land are greater than the number who can be fed indirectly through animals. Indeed, with increasing world population this situation may
be reached for the whole world and man may, in the distant future, have to rely on a vegetarian or lacto-vegetarian diet for his nourishment.

In most of the developing countries and especially in India, cereals constitute the basic staple. Cereals are known to be not only low in protein content but their proteins are also of relatively lower biological value as they lack in some of the essential amino-acids such as lysine. Recent indications that not only can the quantity of protein in cereals be increased but that their biological quality can be improved by genetic methods (Hertz, Bateson and Nelson, 1964) is indeed of great significance in this context.

Pulses, which are the dried seeds of leguminous plants, constitute an important source of proteins for vegetarians. They not only contain fairly high contents of protein (around 25-40%), but their amino-acid composition is such that they nicely compensate the deficiencies in cereal based diets. Studies conducted in nutrition laboratories in India have shown that a diet containing a proper mixture of cereals and pulses can satisfy the protein and essential amino-acid requirement of man and indeed be equivalent to skim milk, the standard reference protein.

In India, a number of pulses are grown and consumed. Among them Bengal gram or chick pea (Cicer arietinum L.) occupies the pride of place both in respect of area and production. In consonance with its important role in the Indian dietary, work aimed at producing higher yielding varieties has been undertaken in the past in the major
Bengal gram growing areas and a few improved varieties released. However, such efforts appear to have reached a plateau and further advance would appear to need a more rational and scientific approach. Varieties with considerably greater yield potential are essential if the phenomenally high yielding varieties of cereals are not to sweep the pulses out of cultivation, an event which would have adverse effects on the nutritive quality of the food consumed by the population. But, in such an attempt to breed higher yielding varieties of Bengal gram, the protein content and quality should not be lost sight of.

In this investigation, an attempt has been made to obtain some of the basic information in respect of Cicer arietinum and the results are presented and discussed in the following pages.