The importance of plant nutrition and plant protection in respect of commercial crop production needs no emphasis and use of chemical fertilizers as well as chemical pesticides are some of the means to exploit the maximum possible yield. But this approach does not go without any compromise with human and animal health. Under these circumstances management of plant nutrition and plant protection, through methods other than use of chemicals is gaining momentum throughout the world. Since time immemorial Indian farmers are following the concept of managing soil and plant nutrition along with pests and diseases through local technology/indigenous knowledge. But these are not fully documented and searched for further scientific improvement.

In Assam, the indigenous farm methods too have been practised generation after generation. Rice is a staple food of Assam. Sporadic information available in respect of indigenous farm practices in general and rice in particular can be useful. It is worth mentioning in this context that most of the indigenous technologies tried are found useful in almost all crops and some of them if subjected to scientific refinement may even replace or supplement the modern methods.

In present communication an attempt has been made to identify some of the traditional methods of plant protection and boosting up of soil fertility, with special reference to rice crop in Assam.

A few indigenous practices of plant protection in rice crop

A type of citrus fruit, locally known as 'rabab tenga' \([Citrus grandis\) (Linn.) Osbeck syn. \(C. decumana\) Linn.\)] is made into pieces and applied in paddy fields against insect pests, viz. stem borer, case worm, rice hispa, etc. The solution resulting from contact of these fruits with water in the fields is physiologically harmful to the pests.

Before transplanting of rice, both sides of the bunds are cleared with hoe and pasted with mud to check the inbreeding of insect pests.

When rice plants are infected by insect pests, viz. rice hispa, case worm, stem
borer, etc., farmers occasionally use the branches of a highly pungent herb, locally known as ‘baghdhoka’, crush them and throw uniformly in fields when there is water.

Sprinkling of fresh cowdung solution in rice fields (particularly in nursery bed) against yellowing is a common practice.

Putting upper portion of bamboo, locally known as ‘jeng’, in paddy fields is a common practice to facilitate the migratory birds to stay on this support so that they can pick up insects and larva eating the growing plants.

At the time of first transplanting of rice, farmers usually put a banana sucker, turmeric plant, and titaphul (*Phlogacanthus thyrsiflorus* Nees), a plant having flower with bitter taste, as trap crops.

In the Sancranti Day of the month of Ashina (last day of month Ashina) fire bunches, locally known as ‘Jor’, are placed in paddy fields sporadically so that insect pests are attracted by the light of the fire and get killed. This practice is also followed on the Diwali Day (during October-November).

**Soil fertility management: A few indigenous practices in Assam**

Compost/FYM is the most important soil organic manure applied by almost all the farmers of Assam. This ‘compost mix’ as it may be called, is a mixture of cattle dung, urine, dried leaves, household waste, ash from cooking fires, etc.

Green manure crop Dhaincha (Local name—*khori goch*) is mainly grown as fencing crop which serves as a soil additive.

*In situ* manuring of rice fields, such as the practice of allowing the animals to graze directly on fields is very common. Animals after grazing leave behind their dung and urine.

In uplands (*bari*) there is a usual practice of growing leguminous shrubs that provide high protein fodder for cattle. Lentil is quite often planted in association with grain crops.

Growing of different kinds of crops on the same land in the same year or in different years is also common. This indigenous crop rotating system is one of the most important crop management practices to maintain soil fertility.

Fallowing is not a common practice. However, many farmers keep fallow a portion of their upland fields.

It is, therefore, necessary to make chemical analysis of the materials used to know the components of the same. Then only it can be ascertained whether such materials can be used for specific purposes. Hence, the scope of further scientific study remains open to arrive at a final conclusion.