Pest management is an ecological matter. For over 300 million years plants have provided insects with food, shelter and sites for reproduction. The actual number of animal species varies today, but it usually enumerates 1 million kinds with approximately 75 per cent of these classified as insects. The insects represent the largest class not only among the animal kingdom but also whole biological world. They also represent the culmination of evolutionary development in terrestrial arthropods.

Though structurally insects are very small, but they acquired themselves much structural and behavioral modification through which they can survive easily as aquatic, terrestrial and aerial life. Such behavioural perfection is not found in any other group of plants or animals. This is the fact by which entomologists are appreciated by them.

Insect bears a complex relation with plant communities. Every plant communicates uniquely with its own small group of specialist insects. The plant manipulates its specialists to ensure its survival. Some insects will pollinate it and allow it to reproduce, while others will protect the plant from attack by other animals. A third group of specialists feed on the plant and control their populations which are known as pests. Plants protect themselves from insect attack by producing a multitude of repellent chemicals. The repellent substances are costly for the plant to produce, and may only be manufactured when an attack is under way.
But due to the way of agricultural development people noticed that the agricultural crops severely damaged by insects. So farmers were always trying to find out the way how to control the pests. The oldest known pest control method is human sacrifice, but since it is not effective, or may be because of the lack of volunteers, dusts began being used and also plant extracts which are mentioned even in the Bible. Massive use of these insecticides has had a long and difficult road because the earliest data gathering by researchers. Among farmers and natives revealed a lot of practices based on superstition, which, when tested by scientific methods were not shown to be effective. Thereafter, the chemical control became popular due to immediate and spectacular effects. Insect pests have mainly been controlled with synthetic insecticides when they became widely available, shortly after World War II. Today, the use of chemical pesticides remains one of the best known and most widely used pest control tactics. Presently the farmers are totally depended on the use of insecticides to control this pest.

But indiscriminate use of pesticides has not only complicated the management, but has also created several adverse effects such as pest resistance, outbreak of secondary pests, health hazards, and environmental pollution. So scientists are always looking alternative and environment-friendly methods of pest control. There is no doubt about botanical insecticides, which are an interesting alternative to insect pest control. When synthetic insecticides appeared in the 1940’s some people thought that
botanical insecticides would disappear forever. Around the same time, entomologists were developed the concept of "supervised insect control" from different parts of the world. Insect control was "supervised" by qualified entomologists based on a sound knowledge of the ecology and analysis of projected trends in pest and natural-enemy populations.

In the last twenty years or so, IPM programs have been developed for important pests. IPM extended the concept of integrated control to all classes of pests and was expanded to include tactics other than just chemical and biological controls. Artificial controls such as pesticides were to be applied as in integrated control, but these now had to be compatible with control tactics for all classes of pests. Other tactics, such as host-plant resistance and cultural manipulations, traditional knowledge etc. became part of the IPM. IPM added the multidisciplinary element, involving entomologists, plant pathologists, nematologists and weed scientists.

Hence, the different groups of bio-pesticides, plant extracts and farmers' traditional belief based knowledge of pest control could be used as alternative way for sustainable pest management. The pests are also trying to develop them against different control measures used by us. Leaf beetles of the family Chrysomelidae are one of the largest insect families. They use a wide variety of plant allelochemicals for chemical protection. Red pumpkin beetle, *Raphidopalpa foveicollis* (*Aulacophora foveicollis*) under this family causes severe damage to cucurbit crops which is known to Indo-Pakistan sub-continent since 1887. If we consider Indian Agricultural scenario, there is
an estimated loss of Rs. 5000 crore every year. Keeping the above statement in view, an attempt has been made in the present thesis for the critical discussion on the Ecological Studies on Red Pumpkin Beetle, *Raphidopalpa foveicollis* (Lucas) a serious - pest of Cucurbitaceous crops of Cachar district, Assam, North-East India.

**Chapter I** provides a brief introduction of the occurrence and distribution of *R. foveicollis* on cucurbit crops throughout the world and, objectives of the study, study sites which we selected for the present investigation is also included in this chapter. **Chapter II** deals with the review of literature. **Chapter III** is incorporated with the study of population dynamics of *R. foveicollis* during three crop seasons on four major cucurbitaceous crops cultivated in this region. Host preference, where the nature of damage by the beetles, feeding preference, preference of major and alternative hosts, comparative study of the extent of damage and their diurnal activity are discussed. In **Chapter IV**, morphometry of grubs, pupae and adults including the study of the biology is incorporated. **Chapter V** deals with the pest management used by chemical, biological, plant extract, indigenous materials which are locally available and farmers' traditional management practices. **Chapter VI** is discussed about the Farmers' Traditional Belief in management of *R. foveicollis* in Cachar District. **Chapter VII** is incorporated with the conclusion and recommendation of the present investigation. **Chapter VIII**, the last chapter of the thesis provides the references which were incorporated in the thesis.