

STUDY OF THE ROOT WILT DISEASE OF COCONUT IN KERALA USING THE
REMOTE SENSING TECHNIQUE

I. Institutions involved in the study

(a) Design of the study and execution

The Indian Agricultural Research Institute, New Delhi.

(b) Collaborating Institutions

- i) The Indian Space Research Organisation, Ahmedabad
- ii) The Central Coconut Research Station, Kayangulam
- iii) School of Forestry, University of California, United States

II. Applications of Remote sensing in Agriculture

Depending upon their morphological and physiological properties, plants and soils exhibit specific spectral reflectance and spectral emittance characteristics in the Ultra-violet, visible and reflective infra-red regions. Because of such specificity, each type of plant or soil is said to possess a "spectral signature". Experiments in the United States have already established that most vegetation and soils can be identified on the basis of their spectral signature. Multispectral colour photographs can now be taken either from an aircraft or spacecraft and such a remote sensing of the environment provides a wealth of information to the agriculturist and ecologist. The information obtained in this way can be used for crop censusing, land use planning, detecting pests and diseases and several other aspects of agricultural management. The United States is planning to launch during 1972, an Earth Resources Technology Satellite (ERTS) which is expected to provide valuable data on the relationships between living organisms and the environment over vast areas.

III. Present uses of Remote Sensing

At present, remote sensing techniques can be used for the following purposes:

- a) Identifying and measuring the areas under different agricultural crops
- b) Mapping of soil and water temperature and of surface waters including snow cover
- c) Identification and mapping of disease and insect invasion of crops and forest trees
- d) Identification and mapping of forest species for inventory purposes
- e) Observation of land use change, farmland development and urban expansion

With the research on techniques now in progress, it would soon become possible to study the following aspects also:

- a) Determine and map soil moisture content and major soil boundaries
- b) Assess the vigour of crops
- c) Previsually detect and determine the extent and severity of incipient forest and crop insect and disease epidemics
- d) Measure forest and forage crop land productivity as a function of energy budget, and also predict areas of high potential fire hazards.