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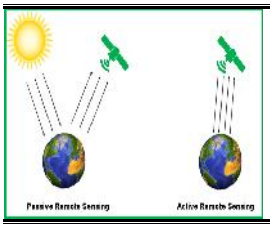

Remote sensing concepts and application in agriculture

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Remote sensing: The science of acquiring information about and object without entering in contact with it, by sensing and recording reflected or emitted energy and processing analysing and applying that information.

It is the art and science of making measurement of the earth using sensor on airplane and satellite. This sensor collect data in the form of image.

Remote sensing gives following information:

– Image of irrigated field and catchment areas.

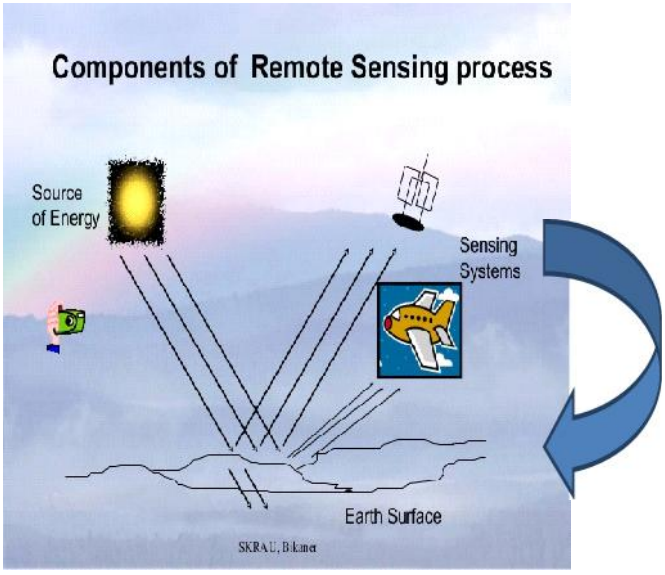
– Primary information of land topography soil type and land use information.

Essential component of remote sensing:

– Signals from a source/ light.

– Sensor on a plate form.

– Sensing (signal reception, storage, processing, information extraction and decision making).



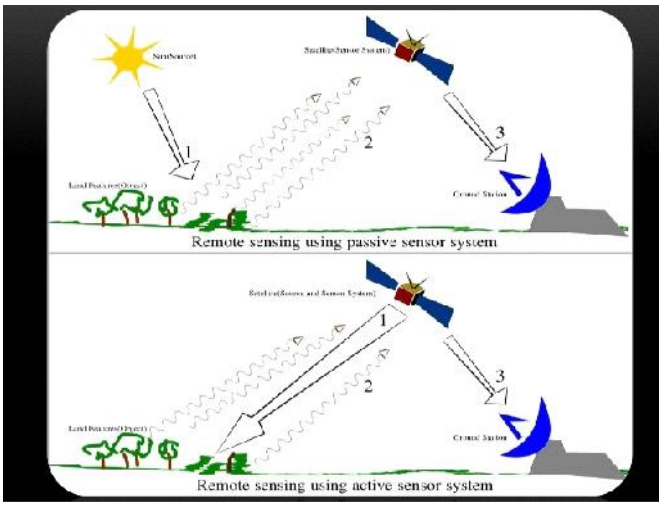
The remote sensing process:

Data products interpretation ➡ Information products ➡ Target audience

Two type of remote sensing:

– Passive remote sensing

– Active remote sensing.



Application of remote sensing in agriculture:

Identification, area estimation and monitoring: The specific requirement of climate and soil conditions coupled with the specialized management practices make the distribution of plantation crops rather more localized in comparison to other agricultural crops.

The identification, estimation of growing stock, analysis of distribution and monitoring at regular intervals are major aspects in plantation crops.

Crop nutrient deficiency detection: The nutrient deficiency in plants affects the colour, moisture content and internal structures of the leaves and as a result their reflecting power changes.

Crop production forecasting: RS is used to forecast the expected crop production and yield over a given area and determine how much of the crop will be harvested under specific condition.

Assessment of crop damage and crop progress: In the event of crop damage or crop progress, RS technology can be used to penetrate the farmland and determine exactly how much of a given crop has been damaged and the progress of the remaining crop in the farm.

Horticulture, cropping systems analysis: RS technology has also been instrumental in the analysis of various crop planting systems this technology has mainly been in used

in the horticulture industry where flower growth patterns can be analyzed and a prediction made out of the analysis.

Crop identification: RS has also played an important role in crop identification especially in cases where the crop under observation is mysterious or show same mysterious characteristics.

Crop acreage estimation: RS has also played a very important role in the estimation of the farmland on which a crop has been planted.

Crop condition assessment and stress detection: RS technology plays an important role in the assessment of the health condition of each crop an the extent to which the crop has withstood stress.

Identification of planting and harvesting data: Because of the predictive nature of the RS technology, farmers can now use RS to observe a variety of factors including the weather patterns and the soil type to predict the planting and harvesting seasons of each crop.

Soil mapping: Through soil mapping farmers, are able to tell what soils are ideal for which crops and what soil require, irrigation and which ones do not, this information helps in precision agriculture.

– Crop yield modelling and estimation.
– Identification of pests and disease infestation.
– Soil moisture estimation.
– Irrigation monitoring and management.
– Monitoring of droughts.
– Land cover and degradation mapping.
– Identification of problematic soils.
– Crop yield forecasting.
– Flood mapping and monitoring.
– Climate change monitoring.
– Crop health analysis.
– Land mapping.

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