Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 02, Issue: 02 (MAR-APR, 2022)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Monitoring of Agriculture through Space Technology

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Promotion of agriculture should be seen as a priority that is why we are introducing modernity in the field of agriculture by using different types of technologies. In this sequence, agriculture plays a different important role in various applications of space technology and this is possible through remote sensing techniques.

In India, agriculture alone contributes about 20.2% of GDP. Indian agriculture occupies an important place in the agricultural sector of the world. India accounts for 140.13 million hectares of the total sown area of the world, 198.30 million hectares of gross sown area, 275 million tonnes of food production and more than 300 million tonnes of horticulture. In view of this, the Indian space program, especially the Indian Earth Observation Program, has been carefully observing the field of agriculture and focusing its attention on the essential needs since its time. The main three types of space technology include remote sensing (remote sensing), satellite communication and global navigation satellite systems that have a direct impact on agricultural applications.

In this process, we can see the surface of the Earth through the light emitted by different wavelengths (blue, green, red, infrared, microwave, etc.) at constant time intervals through the sensor mounted on satellites orbiting the Earth. Photographs are collected and through those also various types of requirements in agriculture are monitored.

The process of mapping of agricultural resources, land use / land cover, soil, faults, surface water bodies etc. is accomplished through remote sensing in the use of space technology. By remote sensing, special attention is paid to the list of crops, monitoring the operation of crops, progress of sowing, progress of crop, crop health.

Benefits of Space Agriculture

Agriculture forms the basis of the world's food supply. Soil conditions, water availability, weather extremes and climate change can represent costly challenges both to farmers and the overall food security of populations.

Important aspects of space technology are that through remote sensing we can see the earth for monitoring of agriculture. Through this we harvest the crop. Applications such as crop type, production estimation, cropping system analysis, agricultural water management, draft management and monitoring, prime agricultural development, precision construction, soil resource mapping, forecasting of catchment area, impact of climate on watershed development agriculture are included.

Remote sensing in particular plays an important role in weather-based agriculture, by which we use remote cessing images obtained in the early stages to estimate the progress of sowing. With this technology we also predict crop production. Various types of procedures like drought assessment, *kharif* identification, crop intensity, crop insurance etc. can be easily achieved through remote sensing. During the last three decades, India has successfully built and flown several remote sensing satellites that provide data at different levels and once in five days. India has also built a satellite with satellite ephemeral radar, a microwave sensor that can easily monitor crops even during cloudy conditions.

Space-based technology is of value to farmers, agronomists, food manufacturers and agricultural policymakers who wish to simultaneously enhance production and profitability. Remote sensing satellites provide key data for monitoring soil, snow cover, drought and crop development. Rainfall assessments from satellites, for example, help farmers plan the timing and amount of irrigation they will need for their crops. Accurate information and analysis can also help predict a region's agricultural output well in advance and can be critical in anticipating and mitigating the effects of food shortages and famines.