CHAPTER-29

INTEGRATION OF GEOINFORMATICS IN AGRICULTURAL POLICY: THE COMMON AGRICULTURAL POLICY PERSPECTIVE

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Cite this chapter as: Nair, S. Integration of Geoinformatics in Agricultural Policy: The Common Agricultural Policy Perspective. In: Bhat, A., A. Sultan, D. Kolhe & P. Banerjee. 2026 Digital Agriculture and Economic Transformation. The AgEcon Frontiers, Faisalabad, Pakistan, pp: 390-402. https://doi.org/10.66529/book.9786277945022.2026.ch29
A Publication of The AgEcon Frontiers Received: 26-May-2026 Revised: 05-June-2026 Accepted: 07-June-2026

Abstract

With the rapid increase in population, the demand for food is expected to rise, however the supply of food is limited due to depletion of resources, degradation of environment and inadequate agricultural capacity. To address this challenges, agricultural production has to be increased in sustainable manner, but at the same time, environmental degradation, climate change and resource shortages are the major concerns in agricultural sector. Use of advanced technology can play critical role in improving agricultural productivity, efficiency and sustainability. Geoinformatics can be significant at this juncture, due to its ability to support spatial analysis, resource monitoring and evidence-based decision making. Therefore, this study examines the geoinformatics tools, their applications in agriculture and further analyses how the integration of geoinformatics can influence the formulation and integration of agricultural policy. With special emphasis on the Common Agricultural Policy of European Union, the study evaluates the use of geoinformatics within agricultural governance systems and examine its effectiveness in promoting the geoinformatics to achieve sustainability, environmental protection and climate resilience. This research investigates the challenges, a country face to integrate geoinformatics in agricultural policy, including issues like technological infrastructure, cost, expertise, digital inequality and data governance. Based on these findings, the recommendation and strategies are proposed to strengthen the effective adoption of geoinformatics in agricultural planning and governance. This finding is based on secondary data from existing literatures, institutional reports and policy documents; hence it leaves scope for further empirical and field-based research.

Keywords: Geoinformatics, agriculture, the Common Agricultural Policy, remote sensing, sustainability

1. Introduction

The world's population will reach around 9.2 billion by the year 2050; the developing countries will have around 8 billion humans residing there, whereas the developed nations will have a steady population of around 1.2 billion. This will put pressure on agricultural production to produce more than the current levels. (Silva, 2018). The increase in population puts pressure on the agricultural sector, as it provides food, employment, and economic growth. The importance of agriculture comes with various challenges even. The factors that affect the productivity of agriculture are changing patterns of climatic conditions, resource shortages, economic requirements, adapting with advanced technology, and pressure on the environment to pursue agriculture (Chen et al., 2025). Use of data in the agricultural sector will increase productivity as the agricultural sector will become efficient and sustainable; also, food security can be achieved. It will help in decision-making; farmers will be economically benefited, social empowerment, and policy support (Raji & Njoku, 2024), (Joshi & Varshney, 2022)

Coherent activity between the supply and demand sides is also necessary for the implementation of technology in agriculture. To have a strong demand for the technology's adoption, the user must be informed about the technology, comprehend how to apply it in agricultural operations, have access to capital and bring in the required inputs, and be aware of the risks and marginal returns. On the other hand, the supply side should include infrastructure for implementing and developing technology, institutional frameworks, research and development funding, and policy support (Joshi & Varshney, 2022)

Across various technologies used in agriculture to enhance productivity and sustainability, digital technology is one among the other technologies, that have been considered, (Joshi & Varshney, 2022). Among the emerging technologies used worldwide, precision agriculture is holding strong ground and widely used among industrialised nations. It helps the farmer to utilise the resources like water, soil etc efficiently and effectively (Rakholia et al., 2024)

Geospatial technologies like remote sensing, geographic information system, global positioning system are being put to use to analyse agricultural data for decision making and enabling better management by monitoring agricultural land. Geo-informatics tools help agricultural sector to monitor crops and predict yields, cultivated areas are being mapped using this tool, this further provide valuable information to the policymakers and farmers (Di, 2021) (Lin, 2026). While Remote sensing technology revisits earth surface frequently, satellite imagery provides the information about crops, vegetation, soil etc. The open access satellite data from different programs helps to study agriculture and supports its applications on different fronts relevant to agricultural decision making (Lin, 2026)

The data provided by GIS and RS form the basis for precision agriculture, site specific farming, detection of disease which helps to improve food production and security. Not only lack of spatial data, but also lack of skills to handle spatial data hinders decision and policy making, and its implementation. For an effective integration of these data from the geospatial tool in agriculture policies, it requires national and local government to acquire comprehensive, current databases and with better spatial analysing tools. The effectiveness and efficiency of agricultural policy can also be determined by effective integration of geoinformatics. (Mathenge et al., 2022)

European Union’s Common Agricultural Policy (CAP) uses geoinformatics in its policy implementation across Europe. It uses technologies like Geographic Information System (GIS), remote sensing, satellite imagery and spatial database for land monitoring, crop assessment, subsidy administration and compliance verification through systems like IACS, LPIS and the Copernicus Programme (European Union, 2026).

Major studies emphasis either on agricultural policy or integration of geoinformatics tool in agriculture, but this study highlights how the geoinformatics tools are being integrated in European agricultural policy CAP to achieve its laid objectives. The research questions are:

1. What geoinformatics tools and technologies are used in agricultural sector to enhance its productivity and sustainability?
2. How can geoinformatics technologies be integrated into agricultural policy implementation and governance?

3. How does the Common Agricultural Policy framework integrate geoinformatics in agricultural policy implementation?
4. How does geoinformatics support environmental sustainability and climate resilience objectives under the CAP framework?

Thus, the research questions prompt towards strong objectives of understanding geoinformatics tools used in agriculture, its integration in policy level, understanding the relation between geoinformatics and its use in agriculture policy through CAP lens. Finally, assessing the depth of support that a geoinformatics tool can give to the policy framework in environmental sustainability and climate resilience. Through this analysis, the study seeks to contribute to the broader discourse on digital agricultural governance and sustainable policy transformation.

2. Literature Review

The existing literature explicitly explain about the tools of geoinformatics that are Geographical Information System (GIS), Remote Sensing, Global Positioning Systems (GPS), sensors and other spatial technology (Raihan, 2024). GIS process the data received from satellites, drones and sensor-based systems., and interpret geographically referenced data for supporting spatial decision making and efficient resource management (Raihan, 2024). The literature indicates that geoinformatics has become an important technological framework for modern agriculture at it can provide accurate, real time and location-based information (Escandón-Panchana et al., 2025).

It can be seen from the relevant documents and publications that geoinformatics are mainly used in agriculture for identifying cropping patterns, soil fertility assessment, crop yield prediction, drought assessment, irrigation management, pesticide and fertilizer management, pest and disease detection (Raihan, 2024). These technologies contribute toward improving agricultural productivity, optimizing resource utilisation, conserving environment and promoting sustainable agricultural practices. Geospatial technologies are being increasingly integrated into precision agriculture and climate resilient farming systems recently (Syed et al., 2024).

The integration of geoinformatics can be observed at the policy level in countries like Brazil, India, the United States, China and the European Union. However, the extent and objectives of implementation differ across countries on institutional capacity, technological infrastructure, and policy priorities. Some countries primarily utilise the geoinformatics for protection and monitoring natural resources such as soil, water, forests and agricultural land (OECD, 2025)while others focus more on land mapping, land parcel identification, subsidy management and agricultural planning (USDA, 2024), (OECD, 2025).

The literature further highlights both policy level and farm level integration of geoinformatics in agriculture systems. Geoinformatics supports precision farming and efficient resource management at the farm level, whereas at the policy level it contributes to agricultural monitoring, environmental governance, subsidy distribution, and evidence-based decision making (Mathenge et al., 2022). Nevertheless, existing studies provided limited discussion regarding the detailed integration of geoinformatics within agricultural policy frameworks, particularly with reference to the European Union Common Agricultural Policy (CAP).

Therefore, this research focuses on examining the integration of geoinformatics into agricultural policy with special emphasis on CAP. The study further evaluates how geoinformatics under CAP contribute to sustainability, environmental governance and climate resilience, also the challenges associated with implementing geoinformatics within agricultural policy frameworks.

3. Methodology

The study adopts qualitative research approach and existing literatures, reports and policy documents constitute the source of data. The research is based on secondary data collected from publications, government reports, international organisation documents and policy documents related to geoinformatics, agriculture and agricultural policies. The major tools of geoinformatics including Geographic Information System (GIS), Remote Sensing, Global Positioning Systems (GPS) and other spatial tools are being examined by reviewing existing literatures. Their application in agriculture are also studied from the existing literature to understand the contribution of geoinformatics in crop monitoring, soil assessment, precision agriculture, pest and disease detection, yield forecasting and weed and fertilizer management. Agricultural policies for countries like United States, India, China, Brazil and European Union were analysed to understand agricultural policies and how the geoinformatics has been integrated in these policies for a sustainable outcome and increased agricultural production. To have a better understanding about the policy and geoinformatics integration at policy level, European Unions' the Common Agricultural Policy formed the basis for further analysis. The study evaluates the integration of CAP and geoinformatics contributes to agricultural sustainability, transparency, climate resilience and environmental protection. The study further identifies challenges associated with implementation of geoinformatics in agricultural policy. On the basis of this findings, suitable policy recommendations and strategic suggestions are being proposed.

4. Results and discussions

Geoinformatics and its application in agriculture

Food insecurity, climate change and degradation of resources are the challenges currently the world is facing, geoinformatics plays critical role in addressing these issues by focusing on integration of geoinformatics with agriculture (Lin, 2026).

Geoinformatics and its components

Geoinformatics are also termed as Geomatics or Agro-geoinformatics, term related to farming, is a multidisciplinary field that manages and processes georeferenced spatial and land surface data (Di, 2021) (Gagnon & Coleman, 1990). According to the sources, it is defined as the "integration of geospatial technologies into agricultural research and management" to improve monitoring, management, and decision-making. (Di, 2021) (Lin, 2026).

The primary components and tools that constitute geoinformatics include:

- Geographic Information Systems (GIS): This technology provides the tools for collecting, storing, integrating, querying, and analysing geospatial data. GIS can stack different types of location-based information together and analyse how they interact across space (Raihan, 2024).
- Remote Sensing (RS): RS enables large-scale and frequent revisits of the Earth's surface using sensors mounted on satellites, aircraft, or ground-based equipment. It holds information required for decision making in agriculture like vegetation status, crop development, soil moisture, and land use. (Lin, 2026) (Raihan, 2024)
- Global Positioning Systems (GPS): Farmers map the field boundaries precisely using GPS, it also helps to navigate between locations, mostly used for soil sampling or crop monitoring. GPS technology provides highly accurate 3D location data which involves

information about latitude, longitude and elevation. It helps to address the variations occurring across geographic locations (Syed et al., 2024)

- Unmanned Aerial Vehicles (UAVs): UAV also known as drones, are identified as a tool used for agricultural mapping, photogrammetry, and multispectral analysis to optimize production (Escandón-Panchana et al., 2025)
- Miniaturized Computing and Information Processing: Modern geoinformatics also use miniaturized computer components, advanced information processing, and automatic control systems to facilitate data-driven decision-making (Syed et al., 2024).
- Earth Observation Analysis Ready Data (EO-ARD): Another emerging element that provides pre-processed and standardized satellite imagery, making it ready for immediate use in machine learning and big data analytics without extensive manual manipulation (Lin, 2026).

These components are integrated together to form a spatially explicit framework that supports the development of agricultural databases and interactive systems for precision agriculture and sustainable resource management (Raihan, 2024)

Application of Geoinformatics in Agriculture

The existing literatures portray that GIS, RS and GPS/GNSS are core technology which contribute to spatial data. Using GIS, farmers can make decision regarding selection of crops, its planting and allocate resources accordingly. The farmers can take decision based on the data received from geospatial technology which help to identify the suitable place where crops can be cultivated, fertilisers can be applied. It also helps to identify diseases in crops, thereby predict pest outbreaks. Precision agriculture find its way using geospatial technology, as it helps to decide the application of inputs and site-specific management based on the variability of the locations (Reddy, 2018). Its applications in agriculture has been further classified under following seven core areas (Raihan, 2024). Apart from other areas where geoinformatics can be applied, the following are the seven core areas: 1) Crop yield prediction 2) Assessment of soil fertility 3) Analysis of cropping pattern and agricultural monitoring 4) Evaluation of drought conditions 5) Detection and control of pests and crop diseases 6) Precision Agriculture 7) Weed and fertilizer management. Accurate predictions about the crop yield can be made by integrating remote sensing, data mining, machine learning (Kumar et al., 2023). By utilising vegetation indices using moderate resolution imaging spectroradiometer satellite imagery, crop data and GIS models, advance prediction of crop yield is possible (Hassan & Goheer, 2021). A soil model has been developed by integrating the physical, chemical and biological description soil with digital model and satellite images to make soil maps (Shokr, et al., 2021). With the geoinformatics tool, descriptive, geospatial and quantitative soil database are being created in a simple interface (Abdelfattah & Kumar, 2015). Combination of geospatial information ,cropping system model, web GIS geoportal interface, algorithms can help farmers in deciding the relevant crops, understanding crop pattern and thereby increase the productivity of farm 42, 41,39 (Shelestov et al., 2013; Thorp et al., 2015; Kumar & Babu, 2016). Modelling and assessing of patterns of drought risk, conditions and vulnerability due to drought can be done using spatial datasets by using RS and GIS technologies (Alshaikh, 2015). The Geoinformatics tools identifies through spectral imaging and spatial analysis infected areas, thus timely intervention of identification of disease in crop helps to apply pesticide at targeted locations, thereby minimise crop loss. This supports precision pest management by improving surveillance, forecasting outbreaks and enhancing sustainable agricultural practices (Mulla, 2013). GIS, RS, GPS, drones and sensors are widely used in precision agriculture that monitors crop health, soil conditions, moisture levels and field variability in real time. These technologies enable site specific management practices such as variable-rate irrigation, fertilisation and pesticide application, thereby improving productivity, reducing input costs and promoting sustainable farming (Trivedi, et al., 2022). Along with other tools, Variable rate technology (VRT) are extensively used in weed and fertiliser management to identify spatial variability in fields and apply inputs precisely where needed (Gorai et al., 2021; Radočaj et al., 2022). Variability map based on variable rate machinery and sensor technologies can be used for fertilisation management (Gorai et al., 2021). Thus, a glimpse of the application of geoinformatics in agriculture shows that it is very crucial to implement the technology in farming as we are living in a digital age where its applications in agriculture helps to enhance productivity and sustainability.

Geoinformatics and their policy integration

GIS, RS, GPS, drones, precision farming tools, satellite imagery and sensors are being used for crop monitoring, soil fertility assessment, drought analysis, irrigation planning, pest and weed detection, yield forecasting and land use mapping, thus use of geoinformatics in agricultural activity can be seen clearly at micro and macro level. Evidence based decision making, subsidy distribution, climate adaptation strategies and sustainable resource management are being done by government and institutions with the effective integration of geoinformatics into agricultural policies (Mathenge et al., 2022)

The significance of geoinformatics in agriculture is its ability to improve productivity, efficiency, sustainability and effective implementation in policies (Mathenge et al., 2022). The data about soil, irrigation, crop, use of fertilisers and pesticides, climatic conditions which are being made available through tools and technologies of geoinformatics to farmers, support them to improve their agricultural productivity and retain the nature at its best form by adopting sustainable practices. Geoinformatics can have a significant role in food security planning, climate-resilient agriculture and environmental conservation with real time monitoring and predictive analysis.

Countries like United States, India, China, Brazil, and also European Union along with other countries have integrated geoinformatics into agricultural policy and governance. United States Department of Agriculture (USDA) in collaboration with NASA, use satellite imagery and geospatial databases in agriculture related activities. As per the Geospatial Strategic Plan for the fiscal year 2025-2030 by USDA, the Enterprise Geospatial Management Office (EGMO) vision as quoted in the document, stands like this “A unified geospatial enterprise that strengthens USDA’s mission delivery through integrated data, streamlined tools and services, and aligned governance and coordination across the Department”. The USDA aims for leadership in food agriculture, rural development and nutrition along with other related objectives (USDA, 2024)

In India, programmes like FASAL (Forecasting Agricultural Output using Space, Agro-Meteorology and Land-based Observations) for crop yield forecasting, NADAMS (National Agricultural Drought Assessment and Monitoring System) for drought assessment and CHAMAN (Coordinated Horticulture Assessment and Monitoring System) for horticulture monitoring supported by ISRO’s Bhuvan geoportal and operationalised by Mahalanobis National Crop Forecast Centre (MNCFC), these satellite based estimates and indices are used in decision making, planning, drought assessment and various application under Pradhan Mantri Fasal Bima Yojna (PMFBY), Crop intensification in Rice fallow areas and North Easter states horticulture Expansion. (Ministry of Agriculture & Farmers welfare, 2021)

The Chinese government uses systems such as the China Agriculture Remote Sensing Monitoring System (CHARMS) by the Ministry of Agriculture of China. With the help of remote sensing and other technologies, CHARMS provide information to government for decision-making and management of agricultural production (Huang et al., 2011). The Smart Agriculture Action Plan (2024-2-28) supports the adoption of big data and artificial intelligence across the argo-food value chain (OECD, 2025)

In Brazil, geoinformatics is basically used for mandatory registration system and risk-based zoning systems so that agricultural, environmental and climate objectives align. The Rural Environmental Registry (CAR) is mandatory registration of properties by farmers to collect geo-referenced information on every rural property in the country, Agricultural Risk Zoning (ZARC) is a critical policy tool that uses geographical data to manage climatic risks. Broader sustainability frameworks are effectively linked with geospatial tools in Brazil (OECD, 2025).

These are some of the policies of the countries that have integrated their agricultural policies with geoinformatics. Though geoinformatics can be applied in agriculture for different purpose like crop identification, soil management, irrigation etc. The use of geoinformatics at policy level ranged differently from subsidy payment to climate-resilience, they are generally driven by the need to improve productivity, food security, conserving natural resources and climate change responses. The Common Agricultural Policy (CAP) of European Union provides broader framework of integration of geoinformatics in agricultural policy, as it encompasses of different countries under European Union and the policy implementation and formulation goes beyond a country border and applies on a union of countries. Hence the study of CAP can provide a wider understanding about the incidence of geoinformatics on agriculture and its related policies.

The Common Agricultural Policy and Geoinformatics

The Common Agricultural Policy (CAP) of European Union is one of the oldest policy frameworks of European Union, established in 1962 to ensure food security, agricultural market stabilisation, support farmers' livelihoods and promote rural development. This is a policy intersection between agriculture, society, farmers and Europe. It aims for farmers wellbeing, resource protection and protecting and promoting rural economy. The CAP provides income support to farmers through direct payments, deal with difficult market situations and promote rural development with national level and regional level programmes. The measures are taken to achieve 10 specific objectives that are being linked to common EU goals to achieve social, economic and environmental sustainability in agriculture and rural areas. CAP 2023-27 is policy emphasising more on results and performance while ensuring a sustainable future, targeted support and greater flexibility to farmers of EU countries by adapting measures conducive to local conditions (European Commission(b), 2026). CAP 2023-27 also aims to modernise rural areas and agriculture by promoting innovation, sharing knowledge and digitalisation. (European Commission (b), 2026)

A defining feature of modern CAP is its extensive integration of geoinformatics and Earth Observation technologies. One of the most important geospatial initiatives is the Copernicus Programme, that gives free and open Earth Observation data through Sentinel satellites. Sentinel-1 provides radar imagery under all weather and it is useful for crop and soil monitoring whereas Sentinel-2 provides optical imagery which are useful for vegetation analysis, classification of crop and land use monitoring (Berger, et al., 2025). Earth Observation for Agricultural and Rural Development (EO-ARD) has enabled effective utilisation of data in agro-geoinformatics by pre-processing satellite imagery by improving the qualities and consistency of inputs needed for agricultural research. EO-ARD is extensively applied in classification of crops, assessment of damaged crops and predicting the yield (Lin, 2026)

The Sen4CAP (Sentinels for Common Agricultural Policy) projects acquire satellite data for agricultural purpose from Sentinel-1 and Sentinel-2 satellites, provides validated algorithms, best practices and products for management of the CAP. It supports simplification and modernisation of CAP after 2020. It mainly supports the direct payment to farmers by collaborating with payment agencies and addressing monitoring aspects in IACS to ensure greening measures of the CAP (ESA, 2018).

Digital technologies can be able to achieve CAP objectives mainly related to economic, climate, environment and rural objectives. The Integrated Administration and Control System (IACS) monitors the CAP and manages finance regarding payment of subsidies, as it serves as the central technical component. While it helps farmers through simplified application process that integrates satellite imagery and geotagged photos, it reduces administrative complexities and enables collection of more precise and reliable data (European (a), 2026)

A common European agricultural data space is the forthcoming project of European Commission, this space will facilitate pooling and sharing of agricultural data between public authorities and private entities (European Commission (a), 2026)

The Land Parcel Identification System (LPIS) is a tool for monitoring land use and ensuring compliance with the CAP in EU member states. Those farmers who are eligible for subsidy schemes, this system verify their compliance by providing verification and mapping of agricultural lands. It facilitates efficiency, transparency and consistency in land-based payments to the farmers. (Dupeux & Carretero, 2024). Area Monitoring System (AMS) uses satellite data, it continuously observes agricultural activities and provide detailed information thereby ensuring transparency and precision in its application in policies related to agriculture (Schingo, 2024)

CAP Strategic Plans by member states are designed in such a manner that it integrates geospatial technologies based on national agricultural and environmental priorities which are also in alignment with EU sustainability and climate objectives. EU countries have incorporated digitalisation strategies in their CAP Strategic Plans facilitating a digital advancement in agriculture and rural development. The perfect balance of CAP specific objectives and unique situation of the country, CAP Strategic Plans can be formulated with helps of sustainable use of technologies (European Commission (a), 2026)

Thus, the integration of geoinformatics in CAP, shows how spatial technologies like Copernicus Programme, Sentinel satellites, Sen4CAP, IACS, LPIS, AMS and EO-ARD can be utilized to achieve CAP objectives using 3 measures and CAP strategic plans by EU member state. CAP can emerge as a global example to use technology in policy making in agriculture, as it encompasses of European countries, the CAP can help to formulate standardise policies for the world.

Role of Geoinformatics in Sustainability and climate resilience under the CAP Framework

Green Architecture is a major component of CAP, it integrates set of environmental and climate related policy instruments to improve ecological performance of agriculture and promote sustainable land management. It combines of mandatory environmental standards, voluntary schemes supporting sustainability and knowledge-based support systems, which leads to conservation of biodiversity, climate mitigation and management of natural resources (Farm Advisors, 2026)

The Green Architecture primarily consists of conditionality measures, Good Agricultural and Environmental Conditions (GAEC), Eco-schemes, Agri-Environment-Climate commitments (AECC) and Agricultural Knowledge and Innovation Systems (AKIS). GAEC provides baseline standards that farmers must follow, Eco-schemes provide additional incentives to those farmers who voluntarily adopt sustainable agricultural practices whereas AECC supports long-term environmental and climate-related commitments and AKIS strengthens sustainability by promoting innovation, digital agriculture, advisory services and knowledge shared among farmers, researchers and policymakers (Farm Advisors, 2026)

Thus, through these instruments, CAP green Architecture gives a comprehensive environmental governance to balance agricultural productivity with sustainability and climate resilience.

Policy Implications and suggestions

As EO data and Copernicus played very important role in framing legislation, implementation, tracking of progress and verification of compliance of the CAP, it became an important component of the policy cycle. (Berger, et al., 2025)

Despite of open access and systematic provision of data from Copernicus, though policies are operational, but it partly falls short of all observational demands (Berger, et al., 2025)

Likewise, though geoinformatics looks great in integrating in agricultural policies, its formulation and implementation face many challenges. One of the major challenges is high cost associated with geospatial infrastructure, satellite systems, digital monitoring platforms which limits its adoption in developing countries. Lack of experts and inadequate expertise forms another reason which restricts the efficient utilisation of geoinformatics tools within the agricultural systems. Handling large sets of data, its storage and processing, is another hurdle in the effective integration of geoinformatics with the agricultural system, But the greater problem reside in digital divide or gaps among nations, especially African countries, lack access and affordability of satellite data.

Policy Implications

The data of space agency programme of the country can play important role in the formulation of policies, its implementation to its compliance verification. Hence, those country need to finance and invest in receiving information related to agriculture from the shared or owned space agencies.

High spatiotemporal resolution, more detailed thematic products, and expanded data sourcing need to be collaborated with policy users that the product from satellite data can align with compliance needs. (Berger, et al., 2025)

Though CAP provide benchmark, but it must depend on local socio-economic conditions, technological readiness, landholding patterns, institutional capacities

The study also recommends greater international collaboration in geospatial research, Earth Observation programmes, and agricultural innovation to reduce technological disparities between developed and developing countries.

5. Conclusions

The study highlights that geoinformatics tools like Geographic Information System (GIS), Remote Sensing (RS), Global Positional Systems (GPS), Satellite Imagery, sensors, drones can play a significant role in improving agricultural productivity and efficiency, managing natural resources, climate adaptation by enabling spatially informed and data driven decision making. These changes can be incorporated at farm level. Also, the data collected through geospatial tools can become an effective part in policy making by countries. Countries portrayed different strategies of using geoinformatics relevant to their requirement and strength. But basically, the underlying principle of these countries were enhancing agricultural productivity by following environmental sustainability and climate resilience. Some countries focused on sustainable agriculture while other focussed on environmental conservation.

European Unions' the Common Agricultural Policy (CAP) show cased the advanced version of integration of geoinformatics in agricultural policy. The system like LPIS, IACS, Copernicus Programme, AMS are the important tools which knitted the information from satellite and other geospatial tools into datasets and utilised it at ground level. It illustrated the potential of integrating geoinformatics with agricultural policy to ensure transparency, efficiency and accountability in distribution of subsidy without degrading environment by using real-time policy surveillance, compliance monitoring, digital governance across the countries of the European Union.

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Declaration: AI-assisted tools (LLMs) were used to improve the language and grammar of this chapter. The authors reviewed and approved all content and assume full responsibility for its accuracy.