Spatial big-data analytics for agricultural intensification and crop diversification in rice fallows

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Supply-demand gap of agricultural commodities continues to rise while total arable land area is not expected to increase significantly in India. Future increases in agricultural production will be contingent upon agricultural intensification. One such intensification opportunity lies in the potential use of rice-fallows. Along with other constraints in the use of fallows, lack of updated and timely information is one of the major constraints in understanding the spatio-temporal dynamics of crop production- its spatial distribution, pattern, extent, intensity, duration, rotation and feasibility. Cropping systems dynamics varies across agro-ecosystems, mostly driven by climate, markets, and agronomic/cultural practices. Consequently, there is a need to establish a digital decision system which provides accurate and timely information that would facilitate the development of appropriate intervention packages that consist of improved- crop varieties, inputs use efficiency, nutrient balance, and agronomic practices. Near-real-time satellite remote sensing along with climate and in-situ observations will accelerate interventions and decision making by capitalizing upon input use efficiency; invests in sustainable land, water, crop and management practices; that will promote sustainable resource use and enhance livelihoods. The overarching focus is the development of an interactive digital-agriculture platform (e.g., http://geoagro.icarda.org/india/) that contributes to the emergence of sustainable intensification of pulses and allied crops.

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