

Fallow land is Potential land for crop productivity in Tamil Nadu

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doi.org/10.5281/TrendsInAgriculture.22932828

Introduction

Fallow land in India is legally divided into two groups under the Nine-fold classification of Land Use system, which is overseen by the Ministry of Statistics and Programme Implementation (MoSPI) and the Department of Agriculture and Farmers Welfare. Fallow land categorisation splits temporarily uncultivated agricultural land into specific groups based on the time of resting to restore soil fertility.

Categories of Fallow Land

Current Fallows: Land left uncultivated for one agricultural year or less. It was cropped in the recent past and is meant to be replanted in the next season. This covers roughly 13 to 14 million hectares.



Fallow Lands other than Current Fallows (Permonent fallow): Land left uncultivated for a period of more than one year and up to five years. This accounts for about 9 to 10 million hectares. If left uncultivated for more than five consecutive years, it is reclassified into a separate category known as culturable wasteland. Significant portions of fallow land are concentrated in the states of Rajasthan, Madhya Pradesh, Maharashtra, Telangana, Tamil Nadu and Andhra Pradesh. Leaving a short time of agricultural land fallow typically boosts following crop productivity by restoring soil fertility, increasing soil moisture, and breaking pest and

disease cycles. However, leaving it for more than three years causes severe soil erosion, loss of soil carbon and nutrients, and modification of soil texture and structure, making it unsuitable for cultivation and resulting in a loss of agricultural yield (Patra *et al.*, 2025).

Fallow land in Tamil Nadu totals around 2.76 million hectares, driven by water constraint, irregular rainfall, labour shortages, and unprofitable farming yields. Fallow lands must be quantified and assessed to ensure the state's long-term development.

Identification and delineation of fallow land using high-resolution satellite imagery of Landsat & Sentinel-2 followed by detailed soil characterization help to find out the factors keeping the productive lands under fallow. Landsat remote sensing data to map crop land and determine the spatial-temporal distribution of fallow land in Tamil Nadu. Tamil Nadu has seen a fluctuation in the spread of current fallow land from 13.88 to 18.05% over the years from 2005 to 2020. The permanent fallow land (PFL) has been comparatively stable with a decreasing tendency over time despite fluctuations in the current fallow land (CFL). The amount of PFL in the western zone declined from 1,89,904 ha in 2005-2010 to 1,47,011 ha in 2010-2015, and it has slightly increasing trends in 2015-2020. Among all the western zone districts, Tiruppur district has contributed maximum. The southern zone has more source of PFL to state, contributing 5,75,459 ha (4.33%) between 2005 and 2010, 5,79,239 ha (4.36%) between 2010 and 2015, and 6,02,993 ha (4.54%) between 2015 and 2020, respectively. Despite the area appearing to be stable, it is rising slowly and persistently. Southern districts of Madurai and Pudukkottai in this region have significantly reduced the amount of PFL. While, Ramanathapuram, Thoothukudi, and Virudhunagar districts have all experienced steady growth (Srinivasan and Ramamurthy, 2025).

Potential and Management of Fallow land in Tamil Nadu

Fallow land in Tamil Nadu represents a huge opportunity for increasing agricultural production, improving rural livelihoods, and boosting food security.

Major Potential Areas

Expansion of Cultivated Area – Suitable fallow lands can be brought back into crop production, increasing the effective agricultural area without converting forests or other ecologically sensitive lands.

Increase in Crop Productivity – Scientifically assessing soil, water availability, land capability, and climatic conditions can help identify fallow lands suitable for productive agriculture.

Crop Diversification – Reclaimed fallow lands can support drought-tolerant millets, pulses, oilseeds, fodder crops, horticultural crops, and agroforestry depending on local agro-ecological conditions.

Rainfed Agriculture Development – A large proportion of fallow land can potentially be utilized through rainwater harvesting, farm ponds, watershed development, soil-moisture conservation, and climate-resilient farming practices.

Soil and Land Resource-Based Reclamation – Soil fertility assessment, land capability classification, salinity/sodicity assessment, and soil-water management can guide the selection of appropriate crops and land improvement measures.

Regional Priority – The southern zone has been identified as a major contributor to permanent fallow land, while districts such as Ramanathapuram, Thoothukudi, and Virudhunagar have shown increasing trends in permanent fallow areas in the study period. These regions could be prioritized for targeted interventions based on land and water suitability.

Rural Livelihood Improvement – Reutilization of suitable fallow land can generate employment, improve farm income, and strengthen agricultural value chains.

Policy and Planning Support – Fallow-land inventories can support district-level crop planning, land restoration programmes, watershed development, and targeted agricultural investments.

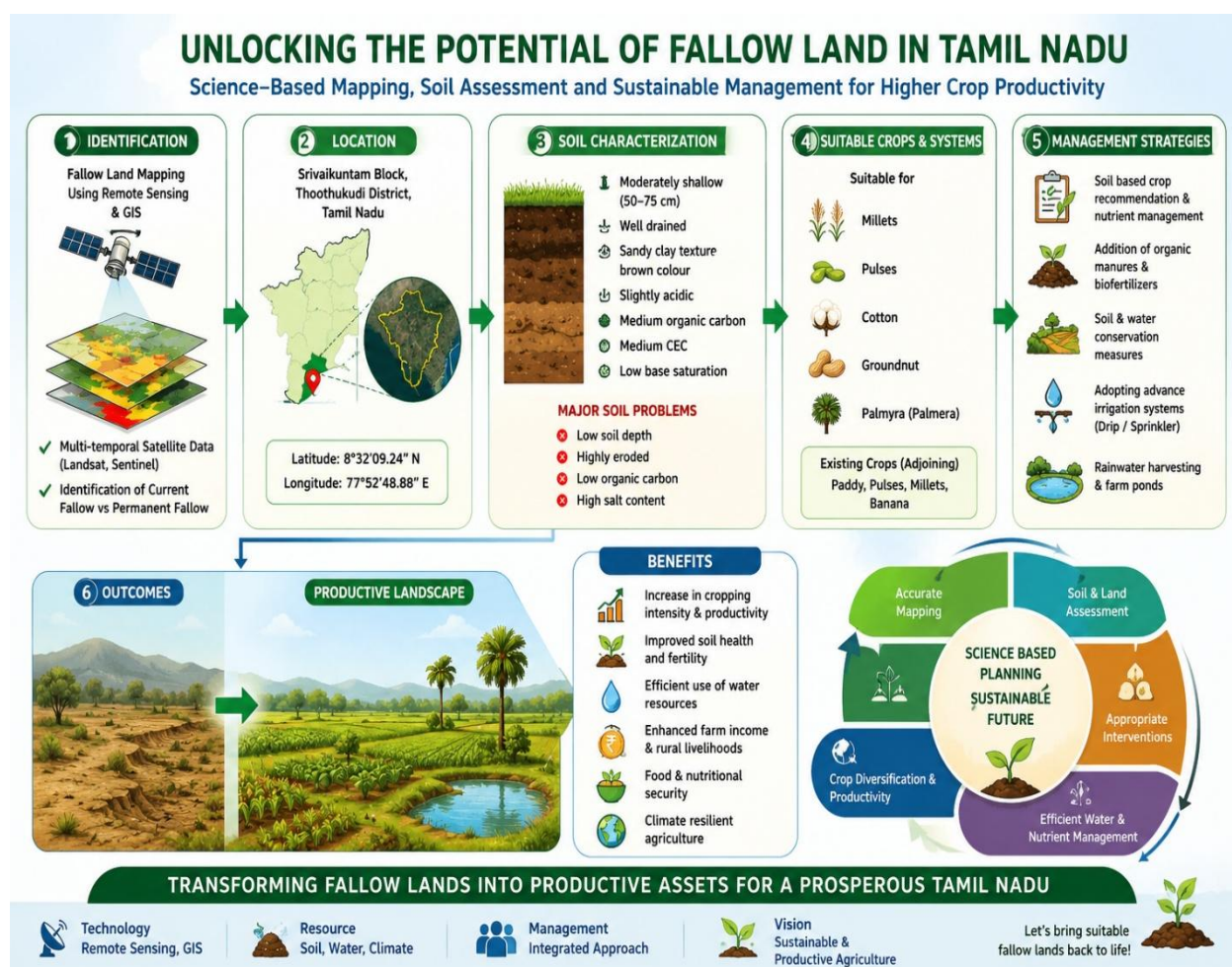


Fig. 1. Model of Fallowland conversion to productive land based on soil characteristics in the Srivaikundam block in Thoothukudi district.

Conclusions

Remote sensing techniques were used to examine Tamil Nadu's permanent and current fallow land during various time periods. Current fallow land accounts for around 15% of the state's geographical area, with the majority located in the southern, western, and northwestern zones. Similarly, the percentage of permanent fallow land fluctuated between 8.17% and 8.76%. Fallow fields are prospective agricultural land in the state's different climate zones. Depending on the severity and distribution, the government should apply various strategies to revitalise fallow land in order to boost cropping area and agricultural productivity.

References

- Patra, D., Jana, A., Bharti, N., Dutta, M. (2025). Revitalizing fallow lands: Towards food security and agricultural sustainability. *Science of The Total Environment*, 989, 179841, <https://doi.org/10.1016/j.scitotenv.2025.179841>
- Srinivasan, R., and Ramamurthy, V. (2025). Mapping of the fallow land using Landsat imageries for utilization of cropping area in Tamil Nadu, India. *Journal of Soil and Water Conservation* 24(1): 27-36. DOI: 10.5958/2455-7145.2025.00003.0.