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Fallow land conversion into Grazing land for sustainable livelihood in Western part of Tamil Nadu- A Success Story

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Introduction

Abandonment of crop production on agricultural lands for more years is a widespread practice not only in India but also around the world. Poor rainfall distribution and low economic returns considerations lead to the abandonment of crop production in even soil is highly fertile. Fallow land is a piece of land that is normally used for farming but that is left with no crops on it for a season in order to let it recover its fertility. Fallow land is of two types, *viz.* current fallow and other fallow (permanent fallow). Fallow of land one year or two seasons is called 'current fallow', and lands that are left out of cultivation on a continuing for more than one years are called permanent fallow. A major concern in India is an increasing trend towards moreland being classified as permanent fallow. The available statistics show that permanent fallow land in India decreased from 17.5 million ha (6.1%) in 1950-1951 to 8.8 Mha (2.9%) in 1970-1971, mainly due to the green revolution, but thereafter, it has increased steadily to reach 10.3 Mha (3.4%) in 2010-2011 (DES, 2013). Similarly, the permanent fallow lands of Tamil Nadu decreased from 0.61 Mha (5.1%) in 1960s to 0.46 Mha (3.5%) in the 1980s due to the introduction of irrigation projects. After that, a drastic increase in growth of permanent fallow land was recorded from 0.46 Mha (3.5%) to 1.54 Mha in (11.8%) within a span of two decades. The untapped potential of the fallow land, if harnessed, would enhance food production and provide greater benefits to the farming community.

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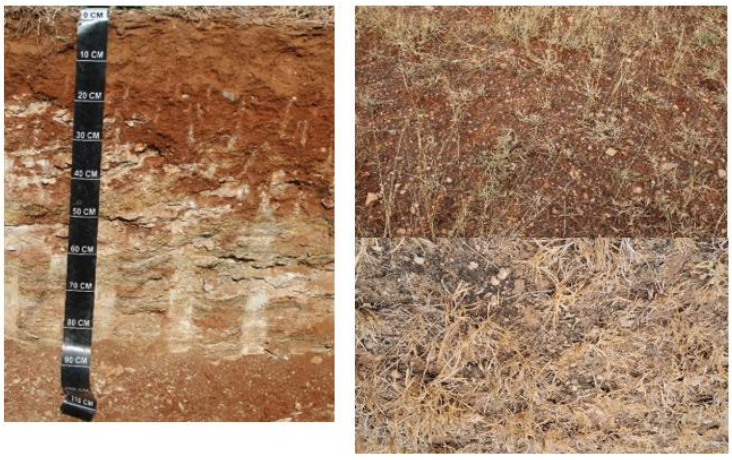
The major reasons for increases in fallow land are climate change, uneconomical returns from agriculture, inadequate water supply, severe soil constraints, silting of canals and rivers, soil and water pollution and growing poverty. Increase in farm size, non-agricultural income and labour shortage had a strong impact on the growing extent of permanent fallow land, whereas enhanced road facilities, credit availability and facilitation of irrigation were found to reduce the extent of fallow land at the farm level in Tamil Nadu (Dharumarajan et al., 2017).

Strategies on fallow land

- An assessment of nature and extent of Fallow land needs to be carriedout.
- Reclamation of degraded and fallow lands as well as problem soils needs to be taken up.
- Waste lands has to be developed and put to use for suitable agricultural crop cultivation.
- Cropping pattern could be checked by economic profit ability at local level and overall compatibility at micro-level.
- A balanced use of organic nutrients, chemical fertilizers, bio-fertilizers and other agrochemicals will ensure sustainability.
- A Land Use Plan has to be implemented to control the conversion of agricultural land for non-agricultural purposes.

Soils of fallow land in Western part of Tamil Nadu

Soils are shallow depth (< 50 cm), well drained, soil colour ranged from 2.5 YR to 5YR, value from 3 to 4 and chroma from 3 to 6. The red colour of the soil is due to leaching of bases and rich of sesquioxides. Soil textures varied from loamy sand to sandy clay from surface to subsurface. Soil reaction was slightly acidic to strongly alkaine (6.21 to 8.91), with subsoils are rich of calcium carbonate. Poor soil organic carbon and plant available nutrients (Lalitha et al., 2020). Typical soil type and their surface characterisitcs and crust formation are given in the Figure 1.



Soil profiles in fallow land Surface soils

Fig. 1 Soil types and surface characteristics of fallow land

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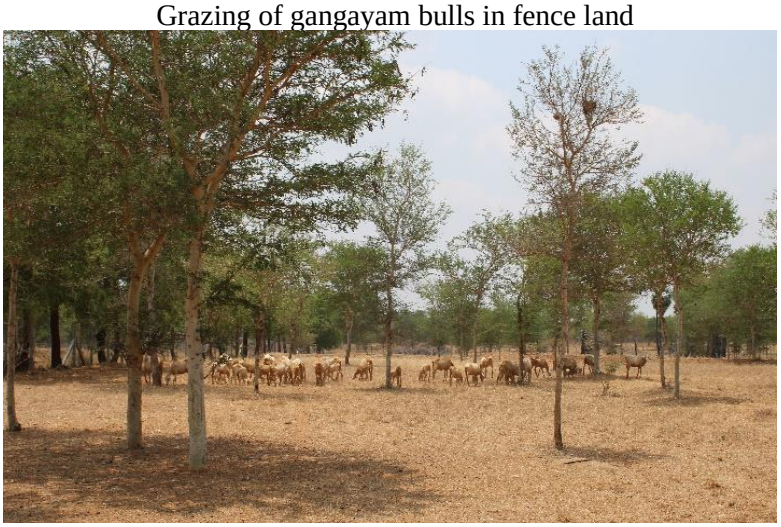
Land and crop suitability evaluation

Land evaluation is concerned with the assessment of land performance when used for specified purposes (FAO, 1976) and can be defined as "all methods to explain or predict the potential use of land". Land evaluation analysis is considered as an interface between land resources surveys and land use planning and management. With less rainfall distribution and poor soil characterisitics and nutrients status, soil may not suitable for intensive farming and several crops. As per the soil characteristics, this region suitable for short duration crops like small millets, pulses, oil seeds, fibre crops and agroforestry. Due to irregular rainfall distribution and industrial grownup, agriculture become unprofit, therefore conversion of fallow land to grazing land become more profit and sustainable livelihood.

Suitable to Grazing land

Fallow land can also be used as grazing lands for animals for a while to improve the soil conditions. Pasture lands support grazing of livestock by both landed and landless livestock keepers. The amount of permanent fallow land in the western zone is around 1,50,000 ha. Among all the western zone districts, Tiruppur district has contributed maximum. Western part of Tamil Nadu having more than 500 villages in a compact or contiguous area and the total grassland area is about 50,000 ha. Conversion of fallow land to grazing land is highly profitable. This grassland area is known for its Kangayam breed of cattle, the Mayilambadi and Mecheri breeds of sheep, and for the indigenous cattle that supply good quality plough and draught bullocks. Grazing land consists of a mixture of grass, legumes and tree species including annual and perennials. Some part of area well-structured system with sound management practices, a code to select species, and maintenance adopted to suit soil, climate and rainfall conditions of the area. The system provides

Grazing of gangayam bulls in fence land



Grazing of sheeps in fence land

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income security to the local livestock keepers, and conserves domestic animal biodiversity and ecology of the region (Kumar et al., 2011).

Conclusions

Fallow lands are potential agricultural land in different climatic regions of the state, based on severity and distribution, government should adopt different implementation policies to rejuvenate for increase the cropping area and improve the crop productivity. Adopting grazing land is less risk and more economic return in western part of Tamil Nadu.

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