Recommendation Domain

Bhilwara, Chittorgarh, Udaipur, Banswara, Dungarpur, Rajsamand and Ajmer districts of Rajasthan.

Existing Practice

Farmers in Southern Rajasthan own scattered land holdings which are cultivated with maize, blackgram, sorghum, groundnut during kharif under rainfed condition and mustard, chickpea, wheat are in rabi season with protective/presowing irrigation or sometimes under residual moisture. However, proper planning is not done for agricultural/alternate land use on rainfed uplands resulting in inefficient utilization of land, water and other resources leading to either poor yield or total failure of crop.

Improved Technology

The technology comprises of land management techniques i.e. bifurcation of land into different section areas through bunds of size 1 m width at base, 0.06 m at top and 0.05 m height. A land capability based selection of fields is done for crops, horticultural plants, trees and grasses depending upon the harvesting of rainwater. In one hectare lands, 50 % area is used for growing of grasses, aloe vera, karonda and custard apple fruits. A Jalkund (small pucca water harvesting structure) of about 20,000 liter capacity is constructed to harvest rainwater is used to provide life saving irrigation protect fruit plants during summer. The other practices include deep ploughing in summer with MB plough is done for in-situ moisture conservation, seedbed preparation through rotavator, bunding and interculture through Arjia wheel hoe ridging after sowing in maize and earthing-up in groundnut. Under crop management, intercropping of groundnut with sesame in 6:2 rows in lower field area and maize with blackgram in 2:2 rows in upper field area is practiced. In case of delayed on set of monsoon, dry seedling of maize is done. With poor germination of maize and groundnut, transplanting of maize or seedling of sesame to maintained optimum plant population. On the upland and poor fertile soils, contour bunding cum trenching is done at 8 meters interval. On the bunds, improved variety of aloe vera is planted at 2 ft interval. In trenches near bunds, karonda is planted at 1.5 m distance. Along the boundary and most upper side of field, custard apple is planted at 5 m interval. In patchy and sand stone shallow depth low fertile soil, plants of aloe vera are planted at 60 cm row to row and plant to plant spacing. In 0.2 hectare area, variety CAZRI-76 of cenchrus setigerus is grown with all package and practices.
**Performance**

With strategic use of rainwater, land and crop resources, productivity of maize, groundnut, sesame and blackgram improved by 5 to 30 per cent, grasses by 60 to 100 per cent over farmers' practice (fallow land). This model gave an additional advantage of survival and establishment of 2000 plants of karonda, *aloevera* and custard apple and generated an additional employment of 75 man days over farmers practice. In overall, this system reduced the risk of total crop failure during drought year 2009 and helped in recovering of variable cost of production of Rs. 8100/ha besides net profit of Rs. 1361/ha.

**Impact and Upscaling**

This technology is to be amply demonstrated in farmer's field, village common lands through extension agencies, etc. in convergence with RKVYs, watershed programmes, comprehensive land development programmes and MGNREGA.
Social fencing to develop community pastures in Southern Rajasthan

Recommendation Domain

Bhilwara, Chittorgarh, Udaipur, Banswara, Dungarpur, Rajsamand and parts of Ajmer

Existing Practice

Improvement of village commons through suitable technical interventions like seeding with improved grass species like *Cenchrus* and *Stylo* with soil conservation measures are taken up under various Govt. schemes. However, in the absence of community participation and controlled grazing, these initiatives have failed.

Improved Technology

To resolve this problem, farmers' participatory approach was taken up to develop community grassland in a village 'Bhagga Ka Khera' in Rajasthan. PRA ensured the effective participation of the villagers. Farmers came forward to form a steering committee to undertake the development of grassland through shramadan and agreed for social fencing. Surprisingly social fencing supercedes physical fencing and succeeded in protection of Common Property Resources (CPRs) due to community involvement. The grassland has now become a source of regular income to the village.

Contour trenching and grass seeding on community land to develop community pasture

Performance

The intervention enhanced the green fodder production in 2 ha barren land, which is auctioned by the Grama Sabha. Feeding this green fodder to the local cows resulted in enhanced milk production. From year 2001 to 2006, the production of *Cenchrus setigerus* and *Stylo hamata* grasses increased from mere 2 quintals to 30 quintals dry grass which was auctioned @Rs. 200 in 2001 to Rs. 2000 in year 2006.

Impact and Upscaling

The success of participatory approach in improving and protection of CPRs motivated many neighbouring villagers. By popularizing this success and showing economic benefits through media etc., large CPR lands can be improved in Southern Rajasthan. Upscaling of this community based silvi-pasture model in a participatory needs mission mode approach by the watershed and district agricultural authorities.

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