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Range rehabilitation technologies in Uzbekistan

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The arid rangelands of Uzbekistan are extensive and cover an area of up to 17.5 million ha , about 70% of the total land area . This is one of the largest remaining rangeland ecosystems in the region of Central Asia .

Recently , rapid land degradation and desertification have been disturbing these rangelands areas (T .Mukimov et al . , 2003) . Overgrazing by small ruminant domestic animals , inadequate management of grazing area and unsustainable uprooting of shrubs for domestic use has mainly induced this land degradation and desertification .

Overgrazing due to higher pressure of animals per unit area and unsustainable , nonsystematic utilization is one of the primary causes of desertification in the region for the last decade .

The natural factors of desertification and land degradation such as aridisation , deflation , salinisation in addition to anthropogenic ones , have sharpened the problem and decreased socio-economic standards of the local population . Both overgrazing and under grazing have negative effects on vegetation cover and disappearance of palatable species and replacement with unpalatable ones . Only sustainable grazing strategies such as range rotation , and reasonable numbers of animals per area etc can help to rehabilitate severely degraded rangelands .

Creation of higher yielding artificial pasture ecosystems made from deep rooting (7-10 m) shrubby species , which use moisture and nutrition from lower soil horizons is a promising way of range rehabilitation . Species of *Haloxylon aphyllum* , *Kochia prostrata* , *Salsola orientalis* , *Artemisia diffusa* etc and others are valuable fodder resources . Plantations of this pastures consist of fodder plants in a different ratio mainly 25% shrubs , 50% semi-shrubs , 25% forbs , which creates an optimal canopy .

These types of pasture , after 3-4 years , contain about 40-45 species of ephemerals and ephemerals and provide 1.7 t of dry matter and 600-1200 fodder units . Different species allow the use of this pastures all year round .

The unique feature of this technology is the planting of fodder species with physiological germinated seeds to specially prepared seedbeds and partial soil cultivation . The preliminary investigations have shown a good potential for yield to increase up to 1.5-2 times .

These technologies offer ecologically safety , due to the partial range ploughing and economic efficiency due to application of germinated seeds , which guarantee an optimal plant population per hectare and are applicable for small farms .

Economic benefits occur after 3-4 years of work and farmers can then maintain it without extra investment during further use .