Proceedings

5th World Congress on Agroforestry

"Transitioning to a viable world"

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Transitioning to a Viable World

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M1. Which Agroforestry for Integrating Livestock to Trees and Crops?

What forage tree-shrub species are recommended in alley cropping systems under west Asia conditions?

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Alley cropping is an agroforestry practice of planting arable crops between trees or shrubs. The integration of forage tree-shrub species in an alley-cropping system was examined as an approach to mitigate the effects of climate-induced drought, to improve soil quality and to secure better livelihoods for smallholder famers in West Asia. Forage tree-shrub performance was evaluated in an alley-cropped system using seven leguminous forage species (Medicago arborea, Colutea istria and Coronilla glauca), three Atriplex species (A. canescens, A. nummularia, A. undulata) and spineless cactus pear (Opuntia ficus-indica) intercropped between annual crops of wheat, vetch and barley at the Mushaqqar Research Station in Jordan. Growth characteristics were measured by monitoring tree-shrub stem diameter, stomatal conductance, plant height and estimating tree-shrub biomass production. The suitability index was based on growth characteristics for each tree-shrub. Results showed that the Atriplex species showed a higher suitability index compared to leguminous shrubs and cactus pear. Among the Atriplex species, Atriplex canescens recorded the highest plant height, stem diameter and estimated biomass production across all three field crops. Leguminous species recorded low biomass productivity at the beginning of summer but with a low suitability index. Despite their vital role in soil nutrient improvement, there were found to be unreliable in providing supplement forage for livestock. The cactus pear recorded a low suitability index and is not recommended. When implementing alley cropping systems, a balance should be considered between high forage biomass shrub species accessible to livestock after harvesting crops and shrubs that enhance soil nutrient status for improving field crop growing conditions.

The incorporation, management, and opportunity of Fodder Trees in a Forest Garden System

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Perceptions, practice, and barriers of woodland silvopasture adoption among Missouri livestock producers and forest landowners

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Within the Midwest, the state of Missouri ranks among the highest nationally in cattle herd inventory, with 35% of its land area forested. Missouri livestock producers, especially with smaller acreage graze such wooded areas out of necessity, although, unmanaged woodland grazing is discouraged by agriculture and forestry agencies because of potential adverse ecological effects and decreased animal productivity. However, woodland silvopasture has demonstrated the capacity for ecological, economic, and social benefits with integrated and intentional management of tree, forage, and livestock components. Therefore, the project aims to assess the current woodland grazing and silvopasture practices, perceptions, and potential barriers to woodland silvopasture adoption among livestock producers and forested landowners through the dissemination of a Missouri statewide survey. The targeted multi-use survey will be distributed via mail and electronically