

Acoustics features of ten kinds of small ethnic wood musical instruments

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Wood musical instruments are good educational components in elementary schools not only for kids to enjoy wood characteristics in auditory but also to understand easily the reason why there are so many wood musical instruments relating to their cultural and religious background. This study conducted the experiments for measuring the acoustic features from ten kinds of small ethnic wood musical instruments. They were divided in four groups of idiophones, membranophones, chordophones and aerophones, including Bolivian matraka, Brazilian caxixi, Tanzanian kalimba, West African talking drum, Egyptian barrel drum, Angolian cuica, Indian manduka and gopichand, Ethiopian lyre, as well as Nigerian shawm. Their acoustic data were collected within a recording studio fully surrounded by the walls in three-dimensional wedge structures to insure the sound energy traveling away from the source with almost none reflected back, which is called as anechoic chamber. An integral sound level meter (NL-05) made by Rion Ltd. was used. All musical signal was detected by an AUDIO Capture(UA-30) made by EDIROL Ltd. Their acoustic features such as sound pressure and frequency were analyzed respectively in real time by using DSSF (Ver.5.1.X.X) software installed in a computer. Such ethnic wood musical instruments made from different wood species, with various interesting shapes and diverse acoustics features played a great role in stimulating the strong curiosity of elementary school kids and opening their mind to the diversity of wood culture worldwide.

THEME A: FORESTS FOR PEOPLE

A1a: AGROFORESTRY AND PRODUCTION OF NONWOOD FOREST PRODUCTS

Systemic vision in planning and managing agroforestry systems / Visão sistêmica utilizada no planejamento e gestão dos sistemas agroflorestais

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A fim de contribuir com o desenvolvimento dos Sistemas Agroflorestais (SAFs), a pesquisa tomou como base um estudo de caso realizado no Assentamento Contestado, localizado no município da Lapa, Paraná. O objetivo foi apontar fatores que podem melhorar o desempenho dos SAFs por meio de uma visão sistêmica de gestão das unidades produtivas. A matriz metodológica ocorreu em diversas reuniões e envolveu diferentes atores sociais na avaliação do processo de implantação e ajustes do sistema. Nesse período foi acompanhado o cotidiano de 5 famílias de agricultores agroecológicos associados a Cooperativa Terra Livre que desenvolvem SAFs desde 2011. Os resultados apontam que o enfoque sistêmico aliado a gestão e planejamento estratégico pode contribuir para criar projetos eficientes, produtivos e rentáveis. Para tanto, é preciso realizar análise financeira do projeto com visão de curto, médio e longo prazos; planejamento estratégico com objetivos e metas bem definidos; planejamento da demanda da mão de obra, insumos e possibilidade de mecanização; diversidade, interação, espaçamento e escolha das espécies de acordo com suas funções e conexões; logística, mercado e comercialização; meio físico e condições edafoclimáticas; experiência, habilidade e vocação do agricultor; fatores sociais e culturais; capacitação periódica e criar relação de confiança com o agricultor. Conclui-se que a visão sistêmica é fundamental pois considera múltiplas perspectivas, relações, variáveis sendo possível conhecer todo o sistema, cada parte ou interação. Além disso, integra de forma interdisciplinar os diferentes conhecimentos tradicionais, técnicos e científicos ao valorizar práticas e falas de cada indivíduo no processo da construção de soluções satisfatórias.

Assessing the economic feasibility of Noni (*Morinda citrifolia*) production model to increase income for Forest Villages in Laos

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This study developed and applied an agroforestry product model to a local forest village, Nongboua in Laos, and analyzed its economic feasibility to increase income for villagers who earned most of income from rice production. Possible strategies were considered to increase the village revenue, and Noni was chosen as the short-term agroforestry product due to its high price and demands from tourists. A total of 1,100 Noni seedlings were planted in one hectare at 3m by 3m spacing. Noni fruits from the village can be sold to Noni product companies at a price of \$0.29/kg. For an economic feasibility analysis, a project period of 20 years was assumed and three scenarios were simulated by seedling survival rate and purchase price of Noni fruits. This study used conservative seedling survival rates to consider potential risks such as inexperienced management and, tree disease; Scenario 1 used survival rates of 50%, 60%, and 70% with the current purchase price for the first, second, and third year and after; scenario 2 used, 10% less, (40%, 50%, and 60%); and scenario 3 used, 10% less with purchase price of \$0.26/kg, 10% less than the current price. All three scenarios resulted in economically-feasible IRRs: 24.81%, 19.02%, and 16.30% with a discounting rate of 10%. The B/C ratios of three scenarios were 1.71, 1.47, and 1.31. The study found that the plantation and management of an alternative agroforestry product, such as Noni, could improve current low-income structures of local forest villages in Laos.

Underutilized species of the walnut-fruit forests of Southern Kyrgyzstan: use by local households, contribution to livelihoods, and influencing factors

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Much of the literature surrounding the use of the walnut-fruit forests of Southern Kyrgyzstan, a global biodiversity hotspot, has centered on the economically important *Juglans regia*, however the usage of the forests' various other fruit, nut, and medicinal species has received little attention. This article assesses current usage of these underutilized species. To do so, a household survey was conducted (n=307) across 7 villages representing a gradient of forest proximity, climate, and wealth. Furthermore, 78 qualitative in-depth interviews were conducted with selected households and key informants on decision-making criteria driving the collection, processing, and consumption vs. commercialization decision for the 8 most important species. Species use was determined by market pressures and household perception of the health benefits of the species. The economic contribution of underutilized species to annual income (1.8%) while small