

## Symposium 1: Agroforestry tree-crop value chains

As session organizer, Dagmar Mithoefer from the World Agroforestry Centre explained, it was decided to take a commodity approach to this Symposium and look at relevant research on tree-crop value chains in a development context. The three presentations therefore focused on: biofuels, medicinal products and fruit trees.

The first presentation, **Biofuel value chains: drawing lessons from the US for newcomers** was delivered by Simla Tokgoz based on work by herself and her colleague Siwa Msangi from the International Food Policy Research Centre (IFPRI).

While ethanol production has been going on for decades in the US, increases in energy bills and expansion of the market by EISA has seen a marked increase in production from 2000 to 2008 with most of the biofuels being produced from corn. There are now 214 ethanol plants in the country and expansion is continuing. The effect is greater competition between feed and fuel, and competition for land suitable for other crops.

Tokgoz discussed the established markets for the by-products of biofuel production, such as livestock feed. The location of ethanol plants is dependant on where feedstock is produced, where by-product demand is and where ethanol demand from the refiners is. Because of these by-products, corn producers, biofuel and livestock sectors are linked.

Jatropha on the other hand does not result in competition between food and feed use as it has no edible by-product. It is mostly grown in Asia and Africa and adaptable to semi-arid land. As such, there is less competition on the land for other uses. While more productive and better irrigated lands may be used for Jatropha - and this may occur when the biodiesel market expands - there will less competition.

The value chain for Jatropha is quite different from ethanol as it is not produced in conjunction with feedlots.

Jatropha is risky for farmers on a large scale, so one option is long-term contracting between biodiesel plants and farmers. In India, many companies are venturing into biodiesels using government land or sub-contracting with small and medium farmers.

Comparisons between the value chains of corn-based ethanol, seed-based biodiesel and Jatropha-based biodiesel were discussed.

A study by Arndt et al (2008) was cited as showing positive impacts of biofuels on economic growth and poverty reduction in Mozambique, however it was recognised that considerable additional analysis was needed in this area.

Several participants mentioned existing by-products for Jatropha such as the seed coat which is high in Nitrogen and used for fertilizer and as well as fuel for furnaces, and other by-products such as iodine and soap. Other questions related to the profitability of Jatropha, experience with small-scale processing, whether there was any evaluation of all Jatropha projects underway and how competition will increase in the future if demand for biofuels causes Jatropha to be grown on more productive land. Transportation costs and their implications were also discussed.

The second presentation in the symposium, **Trade chains in Ethiopian and South African traditional medicinal plants** by Miles Manders from EcoFutures in South Africa was based on detailed national surveys into informal markets with no existing data.

The trade chain in traditional medicines in Africa starts with the harvesting of plants from wild areas, they are then brought into urban areas where basic processing occurs before they are traded via informal markets. Products include fruits, bulbs, roots, bark products and grasses.

The value of these markets is considerable; \$28 million in Ethiopia and \$60 million in South Africa for the raw product. Substantial value-adding occurs, especially through the prescription of these products by herbalists.

The demand for traditional medicines is high. In Ethiopia, 68% of the population uses them (48 million people) and 72% in South Africans (26 million people).

Despite very similar consumption patterns in both countries, the income earned from traditional medicines varies greatly; \$800 million in Ethiopia and \$5,055 million in South Africa.

The plants used in traditional medicines are primarily coming from wild populations. With widespread land clearing and both countries supporting only around 3% land cover, the availability of these products has greatly reduced. Contributing to this is the fact that around 80% of the plants used are likely to die following harvesting.

A detailed explanation of the pattern of trade in traditional medicines – which is quite similar in both countries - was presented. This covered how the products get from the source (forests or imported) to harvesting, transportation to wholesale, processing, retail and consumption, and the different actors in each. Traditional medicines are primarily sold through healers or sold directly through the markets. In Ethiopia there is some direct consumption (i.e. without prescription) and in South Africa there is some commercial cultivation.

The trade constraints and opportunities at each stage – production, harvesting, processing and retail - were outlined.

In concluding, Manders emphasized the critical role traditional medicines play in households and the economy, and how it is not feasible for this to be replaced by pharmaceuticals. It was noted that traditional medicines is the one industry that has not been colonized in Africa and African governments are not investing in it. The industry and associated household welfare are vulnerable. The need to further investigate supply and opportunities for value adding was highlighted.

Questions from the floor sparked lively debate about whether an industry that is not supported by clinical trials or proof should be supported and if the presenter's calculations considered the negative economic effects of increased morbidity from people using un-tested products. In responding, it was pointed out that 70-80% of Africans use traditional medicines, people believe in them and they work for them.

One participant suggested that you could incorporate relative values from USA studies on medicinal plants and the situation to that discussed in the presentation would be quite similar. The difference in the USA is that the products are exported.

Discussion continued on the lack of formalized markets in Africa and support systems to ensure the sustainability of traditional medicines.

The final presentation **Agroforestry through fruit trees** was delivered by Steven Mbithi, CEO of the Horticulture Council of Africa.

In Kenya, fruit trees are well established and integrated into farming systems; they cover 220,000 acres in the country. Fruit, vegetables, flowers and nuts account for 435,000 metric tonnes of exports and 3,915,000 metric tonnes domestically. About 4.5 million people in Kenya depend on horticulture for their livelihoods. The main fruit tree crops for export are avocados and mangoes.

In speaking about the Horticulture Council of Africa, which is the umbrella organization for horticulture trade organizations in 12 countries, Mbithi explained that the focus is on regional issues, including: training, market access issues, standards, promotion and logistics.

In the past three years, the Council has been working towards making the countryside green through promoting fruit trees as alternatives to seasonal crops as they are often more suitable to semi arid areas. The contribution of fruit trees to nutrition is considerable and they are already widespread on farming systems, in particular as hedge crops.

The Council is aiming to double the acreage of fruit trees in the next five years. The lowlands from Mombasa to central Kenya are being targeted with mangoes and citrus. In the highlands, such as Eldoret, the Rift valley and Western Kenya, passion fruit and bananas are being promoted.

Discussion occurred on the need to recognize lesser-known and underutilized fruits. It was suggested that participants attend other Congress sessions that will deal with these in more detail. Many participants also swapped contact details to ensure ongoing liaison and sharing of information.