SAVING TIME AND LABOUR

Many activities in rural communities in the developing world are highly dependent on manual labour. Significant amounts of time and energy are required to clear and till the land, to harvest and process the produce, to fetch water and firewood for cooking, to build and repair homes, to create and maintain soil conservation structures, and to repair rural roads. In this setting, illnesses such as malaria and HIV/AIDS, which are prolonged, debilitating and deadly, can have devastating impacts on the sustainability of rural livelihoods for both individuals and communities. Households must sustain the loss of labour not only of the infected family member(s), but also of those who are caring for them.

HIV/AIDS also erodes a household's asset base in other ways. Households sell farm tools, implements, draught animals and machines to raise cash to cover medical and funeral expenses, or to compensate for the loss of income previously earned by the deceased. Draught animals are slaughtered to observe funeral rights. Relatives of the deceased may seize household property, including farm power assets. A lack of appropriate skills amongst survivors may render specialized tools and equipment unusable and in disrepair. Surviving households headed by women, the elderly and orphans find it particularly difficult to access conventional sources of assistance from extension services and credit agencies.

Inter-relationships between households, such as exchanging labour or pooling draught animal power, are also undermined. The ability of richer households and commercial estates to hire casual labour in order to cultivate large areas is frustrated by labour shortages. Traditional ways of providing support to households in times of need, such as temporary assistance at key times in the cropping calendar, are stretched beyond capacity.
Many households respond to power/labour shortages by scaling down their activities, reducing the area under cultivation and growing a limited range of less labour-intensive crops. They struggle to keep pace with the seasonal calendar, which results in delayed or incomplete operations in one season, and with adverse effects in the next. Food security declines, nutritional status declines and household members are increasingly susceptible to infection and become less productive. Households become extremely vulnerable to external shocks, such as poor weather. Their ability to recover and secure a living is compromised by the often irreversible strategies they have adopted in previous seasons to meet short-term needs.

The challenge, in part, is to identify and support opportunities that relieve the burden of labour shortages, and enable households to better withstand the shocks of AIDS-related illness and death. To minimize the impacts of HIV/AIDS on farm and household labour, FAO is committed to a number of goals and accompanying activities, which are described in the following pages.

CREATING AWARENESS: THE KEY ROLE OF LABOUR AND FARM POWER IN AGRICULTURAL-BASED LIVELIHOOD SYSTEMS

FAO's Agricultural and Food Engineering Technology Service (AGST) is recognized as an international focal point for all aspects of appropriate engineering technology, including policy issues. One of the main areas of work is the efficient use of labour and farm power. Understanding the significance of the different farm power options (hand labour, draught animal power and tractor power) is essential, regardless of the size or type of farm, and especially in view of the HIV/AIDS crisis.

In order to use the limited farm power and labour base available for land preparation most effectively, AGST is creating awareness of farming concepts that reduce the time required to carry out farm operations, mainly in the areas of land preparation, planting and weed control, in combination with improved crop residue management, cover crops and suitable rotations.

Reducing time and energy spent preparing the land, seeding, planting and weeding

By altering their method of land preparation and using appropriate tools and equipment, farmers are able to plant their crops directly into unprepared soils, which should be covered in crop residues or cover crops. FAO is creating awareness and supplying information on a number of systems and tools for these techniques. In hand power systems, these include the benefits of using high-quality hand hoes of different shapes and weights, planting basins and hand jab direct planters. In draught animal power farming systems, FAO is identifying the benefits to be gained from making efficient use of limited draught animal power as well as the 'Magoye ripper' (with and without planter attachment), the no-tillage direct planter and the knife-roller. In tractor systems, there is a whole range of technologies available, including deep rippers for improving soil compaction and which do not disturb the soil surface (the para plough), the vibroflex (for cultivating without burial of crop residues) and the direct planter for seeding through heavy crop residues and cover crops.

Weeding is one of the most labour-intensive tasks for rural small farmers and is usually performed by hand, even though animal-drawn weeders are available. In order to reduce this burden, which can be a major determinant of final yields, FAO can provide information on technologies and practices that help to suppress weeds. These include:

- Using reduced tillage production systems which bring less weed seedlings up to a depth and condition for germination.
- Leaving crop residues in the fields between the planting rows to cut off the sunlight and prevent weed seeds from germinating. This also increases water infiltration, reduces moisture loss and increases the organic matter content of the soil.
- Placing additional mulch cover on the field in order to suppress weed growth. This requires some additional labour initially, but the benefits are reaped when the volume of weeds is reduced.
- Planting intercrop leguminous crops (cover crops) between the rows of the main crop in order to enhance soil cover and suppress weeds.
- Applying a benevolent herbicide (e.g. glyphosphate) to eliminate emerging weeds before planting. This requires adequate training and knowledge as well as appropriate sprayers. In addition, farmers need to be able to afford the chemicals.

For maximum benefit, the use of these improved technologies should be complemented by appropriate agronomic measures, such as the introduction of cover crops and other means of covering the soil, and crop rotations. AGST works closely with other technical units in FAO and external agencies to develop and disseminate these concepts, which together are known as Conservation Agriculture.

Conservation Agriculture projects in Kenya and United Republic of Tanzania

FAO, under the lead of AGST, is implementing pilot conservation agriculture projects in Tanzania and Kenya. These projects are working with 'farmer-to-farmer exchange' approaches as well as 'field days'. Participatory farmer groups are organized and experiment with technologies and techniques that embrace reduce tillage practices. They also learn about the benefits of increased soil cover and the introduction of cover crops in the cropping cycle. All of the themes are introduced and discussed during the weekly farmer field school meetings at the farmers' field. Technical expertise from inside the countries and international expertise are provided by the projects. The technology options are discussed and adapted to local conditions. New planting tools and implements suitable for reduced tillage are introduced by the project. Over time, it is expected that small-scale artisans, medium-size manufacturers and the retail sector will start supplying tools and implements needed for conservation agriculture.

Saving time and labour in household activities

Much farm labour is provided by women, who also have daily household tasks to perform such as collecting water and firewood and cooking food. These are usually extremely time-consuming in themselves. Alternative domestic technologies include:

- energy (firewood) saving stoves
- roof-water harvesting for household consumption
- rural transport - introducing donkeys and carts, specifically for vulnerable groups, for transporting goods from and to the homesteads
- small village mills

Enabling vulnerable groups to access farm power and labour-saving technologies

The introduction of new technologies, implements and farm power options means that farmers need to understand and accept the benefits of using such technologies. This can be achieved through intensive group interactions, and with motivated farmers who are willing to try technologies in their fields, to share experiences with other farmers, and to spend time discussing issues and problems that arise.

AGST is actively collaborating with other units in FAO to strengthen the methodologies for introducing new technologies and practices. Many of these technologies may be relevant to interventions that are supporting families affected by debilitating diseases such as HIV/AIDS. Concepts that are currently being applied and advocated are:

- Direct farmer-to-farmer exchange: Individual innovator farmers receive direct support from local extension officers and research stations in adopting and adapting labour-saving farming practices.
- Farmer field days: At key times in the cropping season, a farmers' field day is organized at an innovative farmer's field. Farmers present their newly applied labour-saving concepts and demonstrate impacts on crops.
- Farmer Field Schools and Participatory Development Groups: These groups meet once a week to learn about a specific topic or problem. New labour-saving equipment and practices are demonstrated and made available to the groups, supported by technical assistance and training.

In addition to becoming aware of new technologies and practices, farmers also have to be able to acquire them. Project interventions have to consider appropriate ways and means of providing these technologies and implements. FAO is exploring the use of monetary vouchers to enable vulnerable and resource-poor households suffering from the most severe labour shortages to access labour-saving technologies. Farmers may organize themselves into farm power hire groups to access animal- or even tractor-powered mechanization. Such groups will require training, access to the power source and implements, and a mechanism for repayment. Support of small farm power hire entrepreneurs who are willing to become farm power entrepreneurs should be encouraged.

ADOPTING AND TRANSFERRING TECHNOLOGIES AND PRACTICES TO PRESERVE THE NUTRITIONAL VALUE OF FOODS

AGST develops and disseminates practical, small-scale and culturally acceptable food-processing technologies and practices aimed at producing high-quality and safe foods while preserving their nutritional value. This process goes hand in hand with education in basic nutrition issues and awareness campaigns. AGST has produced different materials on simple food preservation technologies that may be easily adopted for improving household diets. AGST is also participating in various field projects in which resource-poor and vulnerable women are trained in preparing local dishes with underutilized agricultural resources.

USEFUL REFERENCES

FAO HIV/AIDS programme
http://www.fao.org/hivaids

Agricultural and Food Engineering Technologies Service
http://www.fao.org/ag/AGS/home/en/agst.html

Conservation Agriculture
http://www.fao.org/ag/ags/aGSE/main.htm

African Conservation Tillage Network
http://www.fao.org/act-network