FAO in Zambia

Conservation agriculture mechanization

Conventional methods of land preparation and cropping practices can contribute to the degradation of soils and have limited efforts to raise agricultural production beyond subsistence levels in Zambia.

Zambia is at high risk of being affected by soaring agricultural commodity and inputs prices. From January to May 2008, fertilizer prices rose by a staggering 40 to 50 percent, while the price of maize increased by just over 25 percent. As a result, farmers struggled to buy the inputs they needed to continue producing during the next season.

In response, the Ministry of Agriculture and Cooperatives, with technical support from the Food and Agriculture Organization of the United Nations (FAO), implemented two projects to strengthen farmers' productive capacity and enable them to continue producing food into the future. These were funded by the European Union (the farmer input support response initiative [FISRI]) and the Government of Norway.

There is a unique opportunity in Zambia to build on a supportive policy framework, strong commitment from the Government and the existence of several complementary programmes to restore and increase agricultural productivity and production among the country's smallholder farmers. These farmers will be able to make better use of expensive inputs and produce more of their own food, which is

Why conservation agriculture?

- Conservation agriculture is widely recognized as playing an important role in increasing the productivity and profitability of farming.
- Conservation agriculture technologies enable the integration of timely farm operations, greater use of organic matter, the appropriate use of mineral fertilizers, improved seeds, irrigation and mechanization (particularly reduced or no-tillage systems), and general principles of land and water management.

Building on the success of previous interventions

Following the success achieved under the European Union Food Facility project in Zambia, FAO's Disaster Risk Reduction and Management Unit is expanding its conservation agriculture-related activities in the country. The focus will be on mechanization to enable increased food production and more sustainable use of natural resources, contributing to greater long-term food security.

The FISRI will increase the capacity of 172 extension workers from the Ministry of Agriculture and Cooperatives and of 3 920 "lead farmers", enabling them to provide future extension support for conservation agriculture to smallholder farmers. Essential inputs and equipment will be made available to the lead farmers, including through the use of electronic vouchers and subsidies, that will be in line with the training provided.

Through the project, farmers will be able to access produce markets and provide support to conservation agriculture mechanization in order to expand adoption of the technology, increase the number of farmers using the technology and increase the area cultivated with conservation agriculture techniques. Tractors (60 HP), tractor-drawn conservation agriculture implements and similar equipment will be provided.

A "lead farmer" is a farmer within the local community who is responsible for training his or her fellow farmers on conservation agriculture methods and technologies.

The longer-term conservation agriculture intervention will help to increase the adoption of environmentally sound farming systems. This will lead to improved production using the given inputs, increased food supply, reduced hunger and better responses to food emergencies by expanding the amount of land that is farmed using conservation agriculture techniques.

Soil cover

The main problems that will be addressed under this FISRI project are:

- increased cost of farming inputs and the need to ensure maximum returns from these inputs;
- scarcity of conservation agriculture equipment;
- smallholder farmers' lack of access to conservation agriculture tools;
- inconsistent application of best practices in land and crop husbandry;
- declining soil fertility and erosion due to unsustainable practices; and
- increased vulnerability to natural disasters, such as drought, and the effects of climate change.

What will the project involve?

DAP ripper-tined seeder and fertilizer distributor

Conservation agriculture equipment will be procured, including tools and implements that are operated manually, by draught animal power (DAP) or mounted on tractors.

Tractor-mounted equipment will include zero-tillage planters of various capacities.

The hand-operated tools will be: jab planters (able to plant and apply fertilizer in one pass) and hand-pulled sprayers that are mounted on wheels.

The DAP equipment will predominantly be zero-tillage planters and fertilizer applicators, but will also include boom-sprayers, lime spreaders and knife rollers.

Rippers and subsoilers, both powered by DAP and tractors, are already on the market and readily available in Zambia.

Training in the use of the equipment is vital to ensure that the tools are properly and effectively used in farmers' fields. Extension workers will be the front-line support for conservation agriculture farmers' groups and therefore must be competent sources of knowledge and contacts. They will eventually be trained as trainers, and will pass their knowledge on to the farmers. The technical training will focus on:

- seed selection and grading;
- calibration of planters and sprayers;
- field use of planters, sprayers and lime applicators; and
- the selection and safe use of sprayers and spray chemicals.

AFGRI 2-tined ripper with clod-crushing cage wheels designed for contract ripping

Who will benefit?

Business skills training will be provided as this is extremely useful for conservation agriculture service providers.

There will be three main types of beneficiaries:

1. The recipients of the jab planters – generally individual farmers with an interest in conservation agriculture.
2. Lead farmers that wish to expand their businesses, either through contract work or increasing the area under cultivation or both – they will use, and offer for hire, a range of equipment including hand-pulled and DAP sprayers, DAP no-till planters, knife rollers and lime spreaders. They will also be provided with DAP rippers and subsoilers (to burst plough pans). The reason for this is that the use of the planting and spraying equipment is seasonal and should be intensively carried out within the short time windows available for planting and spraying.
3. Users of tractor-mounted no-till planters – it is proposed that these will receive an equipment package that is similar to the Commercial Farmers' Union's Credit Guarantee Scheme.

Mr Jim Belemu, Manager
Disaster Risk Reduction and Management Unit
FAO Representation in Zambia
P.O. Box 30563, Lusaka, Zambia
Tel: + 260 211 252277
E-mail: jim.belemu@fao.org

Mr Andrea Lo Bianco, Operations Officer
Emergency Operations Service
Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla, 00153 Rome, Italy
Tel: +39 06 5705 5052
E-mail: andrea.lobianco@fao.org
Web site: www.fao.org/emergencies