Potential for oilseed crops in northern Afghanistan

Afghanistan imports more than 90% (over 180,000 tons) of the vegetable oil it consumes each year. However, the country's farmers cannot take advantage of this huge potential market because they lack access to suitable oilseed crop varieties and good quality seed. Overcoming these obstacles could help farmers abandon poppy farming in favor of oilseed cash crops.

Researchers from the Joint Development Associates International (JDA), the Aga Khan Foundation, CIMMYT, and Cornell University are therefore testing oilseed crops in northern Afghanistan. This three-year research project is managed by ICARDA and funded by the UK Department for International Development.

Researchers have evaluated the performance of new oilseed crops as well as new varieties of the oilseed crops that some farmers are already growing. Crops tested include soybean, peanut, sunflower, maize, and sesame, both on-farm and at research stations.

Introducing soybean to Afghanistan

Soybean can be used to produce cooking oil and nutritious foods, as well as protein- and energy-rich feeds, which increase milk production in cows and speed up growth in poultry. Growing soybean also adds nitrogen to the soil, which is important as many Afghan farmers cannot afford to buy fertilizer.

Soybean is a new crop in Afghanistan. It does have considerable promise, however. In the short term, for example, Afghan producers could export soybean to Uzbekistan, where there is great demand from poultry farms. In the longer term, strong markets for cooking oil and livestock and poultry feed already exist within Afghanistan. Market research by the Aga Khan Foundation, for example, has shown that Afghan consumers prefer soybean oil but consider it expensive.

In Afghanistan, soybean is a new crop with considerable promise.

Trials in 2005 have helped researchers identify which soybean varieties are suited to northern Afghanistan, with some varieties yielding as much as 2.5 t/ha when planted following a wheat crop. The yield from soybean planted earlier in the season could be even higher. The next step is for researchers to select the best varieties from among those tested. Introduction of these varieties, coupled with suitable methods of cultivation, could encourage farmers to adopt soybean as a new cash crop. However, the yield potential under local farming practices is still unknown. Most importantly, planting needs to be mechanized in a simple, appropriate way, perhaps through the Chinese 2-wheel tractor, which JDA is testing. Planting soybeans by hand on a large enough area so that it is profitable involves too much labor, thus reducing or eliminating their profit potential. In sum, while soybeans have many uses and could be of great benefit to Afghan farmers, more work is needed to determine their profit potential.

Assessing canola, safflower, sesame, and flax

The project is also assessing different varieties of canola and safflower. Canola grows well in northern Afghanistan when sown in the fall, and could grow well even in dry areas if sown in the late winter and early spring. It is a relatively easy crop to grow and thresh, and has a high content of good quality oil—up to 40% in some varieties.

Safflower is another promising oilseed crop. Being extremely

drought-resistant it is well-adapted to dryland cropping. Where soil temperature and moisture conditions are favorable, the root system can penetrate as deep as 3 m. Safflower seed also has a high oil content—up to 41% in some varieties. Early results indicate that safflower can be grown successfully when planted as an early spring crop. However, even better results might be obtained through planting as a fall crop, thus maximizing the use of winter rains in dryland areas. Researchers will start testing safflower varieties for northern Afghanistan in 2006.

In dryland areas, sesame, another drought-resistant oilseed, is also sometimes planted after winter wheat. Sesame is the preferred oil for making *pulau*, the national rice and meat dish. Although sesame oil is the most expensive on the market, it tends to be in short supply. This means that sesame could be a profitable crop. In 2005, researchers evaluated the performance of 45 sesame accessions (from the United States Department of Agriculture) when grown after a wheat crop. In 2006, they will conduct further trials on those that performed well in 2005.

Researchers are also investigating the business opportunities and potential export markets for flax and sesame. Provided quality standards can be met, sesame and flax seed could be exported to North America. The simple mass selection will continue in 2006, with another round of selection on seed saved from 2005.

Canola has a high content of good quality oil and grows well in northern Afghanistan when sown in the fall.

Safflower is a drought-resistant crop with great potential in Afghanistan.

Capacity building

The project also aims to build the agricultural-research capacity of national institutions, such as the MAAHF, and the Balkh University Faculty of Agriculture. Staff from these institutions have rarely had the opportunity to gain hands-on research experience or to work directly with farmers. Lecturers and students from Balkh University therefore took part in the testing of soybean, maize, canola, and flax. In 2005, they evaluated 20 soybean varieties. JDA and other RALF partners are exploring the potential for organic production and certification of flax and sesame to meet demand in Europe. Sesame is already exported to Turkey, so the market chain is already partially established. MAAHF staff also attended field days and workshops about oilseed crops and conservation agriculture.