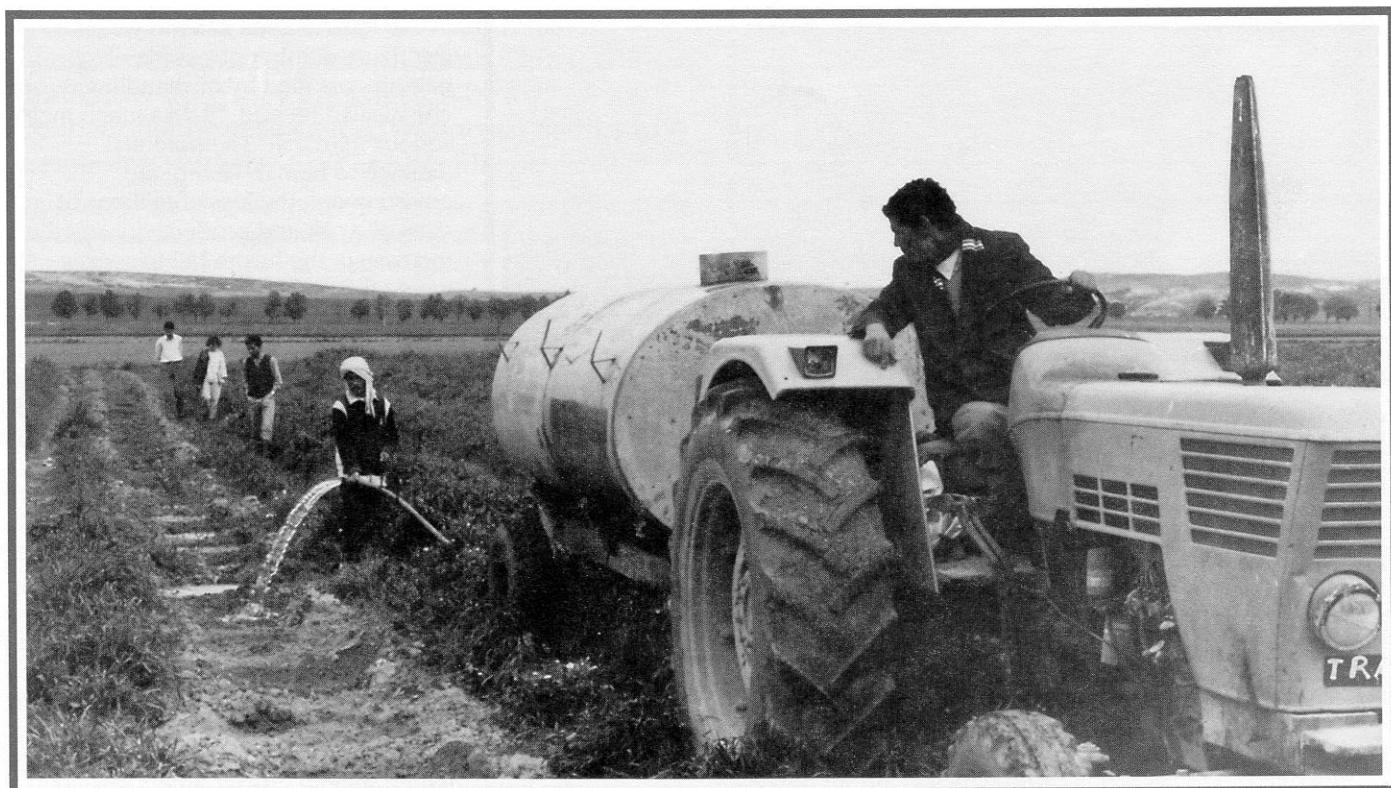




WINDS OF CHANGE IMPROVE TUNISIAN AGRICULTURE



At El Fabs cooperative farm in Tunisia, farmers prepare the ground for windbreak planting.

People often think that development research means using high technology and sophisticated machinery to improve farming in the developing world.

But a project in Tunisia has demonstrated the value of using and improving time-honoured farming practices, in this case, the use of windbreaks along fields. One could say it is an ill wind that blows no good.

The windbreak project is headed by Jélila Benzarti, a climatology specialist with Tunisia's Institut National de la Recherche Agronomique, although a large team of agronomists, foresters and other scientists have also been collaborating on the study. Through numerous surveys across the country's main agricultural regions, the researchers found that the majority of windbreaks were poorly installed and badly managed. Some farmers have not bothered to use windbreaks at all in the false belief that they take up too

much land. Even those who lined trees along their fields often put them too close together, planted all the same kind, or used types inappropriate for local conditions.

Said Mme Benzarti, "People only have a limited knowledge of the subject. For many farmers a windbreak is a bunch of trees that you plant in a row that should grow and take care of themselves. We found it to be much more than that."

Because of its position on the Mediterranean, with coastline exposed to the sea on two sides, Tunisia gets more than its share of winds. Whether whipping down from polar regions or up from the Sahara, winds are present at least 8 days out of 10 in this northern African country.

For that reason, many farmers had been using windbreaks long before this study came along. But no one had ever bothered to prove why windbreaks are beneficial and, beyond that, to look at different types and see which is best.

The cost of the windbreak project was shared by the Tunisian Agriculture Ministry and Canada's IDRC. Work has been coordinated by Mme Benzarti with the additional involvement of Tunisia's Institut National de la Recherche Forestière and Institut des Régions Arides.

By comparing wind-protected test sites with unsheltered ones, researchers proved conclusively that windbreaks enhance production. Tomato crops, for example, were 37% higher when sheltered, beans went up 17%, and some forages doubled.

But the more difficult task was finding out what type of tree — or combination of trees — worked best and under what conditions.

With the best of intentions, some farmers have for years planted rows of cactus along their fields, keeping the wind out, but nearly suffocating crops as a result. Many farmers do not realize that windbreaks are meant to do what their name says — break the wind, not keep it out completely.

REPORTS

Building a better windbreak means incorporating such factors as temperature, prevailing wind direction, type of crop grown, the lay of the land, and economic needs of the farmer.

"The best conclusion is that there is no one type of windbreak, no magic recipe," said Ali Albouchi from the forestry institute. "There are a number of things that must be assimilated and understood." Although the best windbreak has to be tailor made, the researchers have found there are some common factors to keep in mind. Windbreaks should be made of a variety of trees to protect against the whole system being wiped out by pests.

It is better to use a mix of species like cypress, eucalyptus, and acacia. Some grow more quickly than others, providing almost immediate protection. Others, although taking longer to grow, have longer life spans making them more useful in the long term. A better windbreak also incorporates low, medium, and high trees. When planted as future windbreaks, tree seedlings should be protected by plastic to limit loss of water and eliminate weeds and pests. Farmers realize the importance of watering their crops, but should not forget the importance of watering the windbreak, researchers with the project point out.

Farmers also have to learn to maintain the windbreak as they would any other crop. Trees cannot simply be left to grow wildly. Often the lower branches must be trimmed to encourage higher growth and the whole row will need cutting back from time to time.

During the second phase of the project, three demonstration centres were created to examine different types of windbreaks at Chbika, El Fahs, and Gabes. Tests were conducted on mixing species, the best distance between trees and rows, and on the impact of air temperature and evaporation. The results of all that research can now be applied to specific cases.

Because many farmers are concerned about the loss of farmland to windbreaks, another research goal was to find out if the benefits of wind protection exceeded the cost of buying trees and the loss of productive land.

"Before, it used to be considered a lost space because it didn't produce anything," said Mr Albouchi. "It improved production, but wasn't considered a useful element in itself."

To enhance their viability, small forage plants can fill out the bottom of the windbreak and later be used for animal feed. Medical plants or spices can also be used. Trees planted as windbreaks should be seen as a resource for use as firewood or for the production of charcoal.

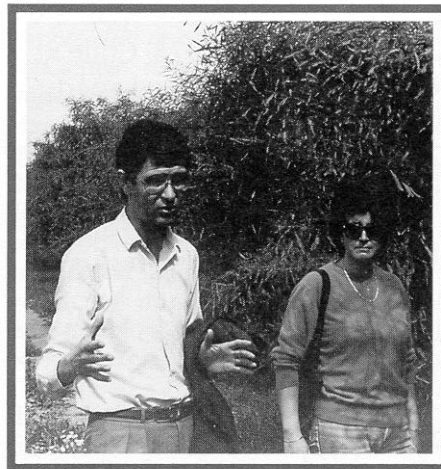
With these findings under their belts, the goal of the researchers in the project's third phase is to get the message out not only to farmers but also to government technicians (those doing the "popularization") working in the field.

Three advertisements were broadcasted regularly on Tunisian television and a 20-minute video explaining windbreaks was shown on television and then made available for use by fieldworkers conducting seminars with farmers.

Teams of fieldworkers, specially trained in the techniques of windbreaks, are now charged with helping farmers to help themselves.

One idea is to use the farmers themselves in the television and radio spots. "We want to have a farmer talk about these things because sometimes a technician talking about them is not so well received," Mme Benzarti said.

Flyers sent out to farmers were written in clear, simple Arabic and were illustrated with drawings. Radio programs were produced and aired at 6:30 a.m. to catch farmers who wake up early. There have also been a series of farm visits, workshops, and seminars that will continue over the next year with follow-up sessions later to check on progress.



Jélila Benzarti and Ali Albouchi on the site of El Fahs cooperative farm.

"We're putting all our bets on this because the basis of getting the message across is having fieldworkers who know the subject well and can talk to farmers about it," said Mme Benzarti.

With the end of the project in view, she is pleased with the results so far. "Research on windbreaks could continue forever but our findings have helped us achieve a much better understanding of the subject and brought a lot of improvements in windbreak techniques — especially compared to what was there before."

She also commended IDRC for its role, "one of the great advantages of cooperating with IDRC is that they do not impose anything. In fact, on the contrary, they are in favour of maximizing the utilization of local talent and this is precisely what we are striving to do. So, every time we need expertise, we look for it in Tunisia. We need to have faith in ourselves and rely on ourselves."

Allan Thompson in Tunisia



Mme Jélila Benzarti
Institut National de la
Recherche Agronomique
(INRA)
BP 2, Ariana-Tunis, Tunisia