

Welcome to As It Is, from VOA Learning English. I'm Karen Leggett in Washington. Thanks for joining us.

Today we have two stories dealing with agriculture. We tell about some researchers and their efforts to make life easier for farmers in developing countries.

But first, we report on efforts to protect crops and the soil around them. Soil conservation methods help farmers protect their land from the damage caused by farming and the forces of nature. One method of soil conservation is the use of windbreaks. Bob Doughty has our report.

Building a Windbreak to Protect Crops

Windbreaks are barriers formed by trees and other plants. Farmers plant these barriers around their fields.

Windbreaks help prevent the loss of soil.

They stop the wind from blowing soil away. They also keep the wind from damaging or destroying crops.

Windbreaks can be highly valuable for protecting grain crops. For example, studies have been done on windbreaks in parts of West Africa. These studies found that grain harvests were as much as twenty percent higher in fields protected by windbreaks compared to fields without them.

But here is something interesting about windbreaks. They seem to work best when they allow some wind to pass through the barrier of trees or plants around a field. If not, then the movement of air close to the ground will lift the soil. Then the soil will be blown away.

For this reason, a windbreak works best if it contains only 60 to 80 percent of the trees and plants that would be needed to make a solid line. An easy rule to remember is that windbreaks can protect areas up to 10 times the height of the tallest trees in the windbreak.

There should be at least two lines in each windbreak. One line should be large trees. The second line, right next to it, can be shorter trees or other plants with leaves. Locally grown trees and plants are considered the best choices for windbreaks.

Studies have shown that some kinds of trees can grow well even if the quality of the land is not very good. One kind of tree is the white pine. Another is the loblolly pine.

Windbreaks not only protect land and crops from the wind. Surplus trees can be cut down and used or sold for wood.

Trees reduce the damaging effects of wind and rain. Their roots help protect soil from being washed away. And trees can provide another valuable service for agriculture. They can provide grazing animals with shade from the sun.

I'm Bob Doughty.

You are listening to As It Is, VOA's daily program for people learning English. I'm Karen Leggett in Washington.

Farming without big machines is hard work. Planting and fertilizing alone can take days in the hot sun. Researchers are working to develop simple machines to make life easier for farmers in the developing world. They also would like to help the farmers save money. Christopher Cruise has more.

Simple Machines for Small Farmers

The sound you hear is Jelle Van Loon swinging a long metal hoe with just two flat teeth. He is testing a model of a hand-held planting tool designed for small-scale farmers. With each stroke, one tooth plants a seed: the other, a little fertilizer.

Jelle Van Loon is not a farmer. He is an engineer at the International Maize and Wheat Improvement Center in Mexico. The center is known by its Spanish name, CIMMYT.

Mr. Van Loon is working to develop low-cost tools for small scale farmers around the world. He hopes the tools will save them work, time and money. Usually he starts with a piece of equipment built somewhere else.

“Some are Chinese-made, some are Brazilian-made, where already a lot of effort has been done for small-scale farmers. But the idea is to get these implements here, test them on the fields, and extract what works for us.”

An example is a hand-planter from Brazil. The long, wooden v-shaped tool has a piece of metal on the bottom for breaking up the soil. Opening the arms of a part shaped like the letter V loads seed and fertilizer into the metal tip.

This tool is faster and costs less than planting by hand. It uses less seed and fertilizer. It can also reduce the time required for planting and fertilizing a two-hectare farm in half.

The planter still costs about \$200 to make. But Jelle Van Loon thinks the final product will cost less. But he says more work is needed. He broke the chain holding the two sides of the V part together. And the wood expanded as a result of the tropical rain in Mexico. So the researchers changed the wood and used a stronger chain. They are now testing their fourth version of the planter.

Mr. Van Loon says CIMMYT will publish plans for the tool on the Internet after the group has found what works.

“So every part is drawn and analyzed, what kind of material you have to use. And this goes to the blacksmiths locally, and to the farmers, so that both can argue what should be done.”

However, a tool may work great in one area, but not in another. This may be a result of weather conditions, soil or other issues. So local manufacturers will have to make minor changes to the tool based on where they plan to sell it.

From VOA Learning English, I’m Christopher Cruise.

That is As It Is, from VOA Learning English. Thanks for listening to our program. I’m Karen Leggett in Washington. Do you have a question or comment about this show? We would love to hear from you. Email us at learningenglish@voanews.com. Or visit our website, learningenglish.voanews.com and click on “Contact Us.”