

A TREE GROWS IN GALILEE

If the Volcani Center's unprecedented project succeeds, we will be able to enjoy bread and olives like in ancient times

All the olive trees participating in this research project are endowed with old gray "eyes" encircled by time-engraved wrinkles, and powerful trunks sculpted in knots and gnarls. What have these eyes seen and how long have their "owners" existed? No one can say for sure.

People who live nearby and love them fiercely are convinced that these trees saw King Herod and Jesus wander these hills and watched as they dipped pita into the oil extracted from their fruit. Scientists, even the greatest romantics among them, are more reserved; the common wisdom is that olive trees cannot live more than 700 years. Their age is a tough riddle to crack: ancient roots develop new extensions and play havoc with chronological estimates, and the rings of the trunk cannot be counted without felling these sculptures wrought by nature.

In the end, though, this is all immaterial: People dwelling in northern countries are blessed with thick forests in whose hollow tree trunks dwell trolls, dwarfs and other fantastical creatures. And we have the olive tree – the eternal symbol of primal wisdom and the refuge of

demons and owls. Some think that in olden times the trees were objects of worship.

A "toddler" of 700 or an old-timer of 2,000, the ancient olive tree next to Moshav Hadid, a cooperative village near Lod, is a spectacular embodiment of the spell cast by its kind on tillers of the soil, writers and paint-

ers alike. The ancient tree in the courtyard of Beit Jamal, a monastery near Beit Shemesh, is its equal in beauty and majesty, and there are other trees like them – in the Carmel hills, in Jerusalem's Ein Karem, Beit Jala and Jenin.

In the past year, leaf samples have been taken from hundreds of ancient olive trees in Israel and the Palestinian territories for DNA testing, as well as samples of the fruit to examine the quantity and quality of the oil. The tests are being done as part of a new project dedicated to research and preservation of the ancient indigenous species of olive. These olives are not likely to be found in land tended by modern farmers, but still exist in older groves tended according to traditional methods.

This project is being conducted by the Agriculture Ministry's Volcani Center, at Beit Dagan, with the ►

◄ participation of researchers from the Israel Plant Gene Bank, the Hebrew University of Jerusalem, the Palestinian Authority and Mainz University in Germany. Since the 1990s, various studies have demonstrated the healthful qualities of olive oil, global consumption of it has doubled and the prestige of the Mediterranean kitchen has soared. However, authorization to publish in the Israeli media a joint project related to olive trees was not forthcoming on the Palestinian side. Olive trees, as everyone knows, apparently do not bring hearts and minds together in the Middle East.

In any event, American journal-

ist Mort Rosenblum declared olives have oiled the wheels of civilization, in his fascinating 1998 book "Olives: The Life and Lore of a Noble Fruit" (North Point Press), which tells the story of one of humanity's most important fruits. Rosenblum chose to begin his worldwide odyssey of the olive tree and its fruit on the Mount of Olives in Jerusalem: This immediate area and the eastern Mediterranean basin in general are thought to be the sites of the olive tree's domestication 6,000 years ago.

The ancient regal trees that can still be found in the hills of Galilee, Jerusalem and the northern West Bank, are a treasure trove not only of information about the past, but also of meaningful insight into the future. The gene pool of these trees – the product of natural selection of many

thousands of years – attests to the traits they developed to adapt to the local habitat. If scientists succeed in isolating the genes responsible for these traits, they will be able to utilize them via a process of natural hybridization and thereby create improved new-old cultivars.

A study conducted in Israel in the mid-20th century documented 27 names of local olive species. More modern research, though, divides them into four main groups. Some traditional strains have disappeared over the years, and with them genetic information and the ability to identify them. Globalization and advanced agricultural techniques created a preference for new strains that provide higher output for farmers, among them Barnea and Ma'alot, developed by the Volcani Center, and for imported cultivars such as Pical (Spain) and Picholine (France)

– sometimes at the expense of flavor and nutritional benefits. Traditional local species, embodying the long history of olive-tree cultivation in Palestine, have been neglected. Now the scientists are trying to turn back the wheel of history.

The olive tree is not the only indigenous flora that interests local researchers these days. Stored in dark rooms and at controlled temperatures of about minus-20 degrees Centigrade in the cellars of the Israel Plant Gene Bank (part of the Volcani Center's Institute of Plant Sciences), are thousands of seeds of indigenous wild plants. The Israel Plant Gene Bank was founded three years ago, inspired by a global trend toward intensified research of indigenous flo-

ra, particularly plants used for food, industry and medicine, because they are crucial natural resources, which individual states must preserve.

An international charter to which Israel is a signatory seeks to right historical wrongs in this realm, on several fronts. It stipulates preserving biodiversity and genetic diversity in areas where open spaces are disappearing under swaths of concrete, and gathering and preserving information regarding traditional agricultural techniques dating back thousands of years, from developing countries plundered by Western states in the colonial and postcolonial eras.

Locally, seeds are collected in the field during the relevant season by botanists working according to a carefully calculated annual schedule, which is adjusted if needed. Seeds of plants growing in habitats in danger of extinction, or of plants listed in the so-called red book of species in danger of extinction, are always given top priority. The seeds arrive at the gene bank in a plain-looking brown paper bag, accompanied by related information. The dried plants are sent to Hebrew University's archives; the seeds undergo cleaning, drying and packaging. Each species is divided into three categories: seeds that will be used by scientists in the coming 40-50 years; seeds intended for the use of future generations – within hundreds of years; and seeds (10 percent of the total) that are sent to other gene banks around the world, for safekeeping in case of future troubles, which in the Middle East are a sure thing.

In the meantime, lying in peaceful repose on their cold beds, are valuable seeds from basic edible plants and spices "born" in this region – among them wild wheat, oats, chickpeas, white mustard and black mustard. Dozing nearby in sealed jars are seeds of the *Asteraceae* family, rescued from damp habitats that face immediate danger of extinction, and also seeds of *Salvia eigii* from Mount Carmel, a rare plant which has almost disappeared. All of them await researchers and scientists who will decode their genetic information as part of projects like that involving olive trees and other studies currently under way in the gene bank – one on *Eruca sativa*, commonly known as arugula.



The ancient olive tree next to Moshav Hadid. A "toddler" of 700 or an old-timer of 2 000?