

Israel

MODERNIZING THE AGRICULTURAL SABBATH

Science is called in to cope with the requirements
of *shmita* By Joanna Paraszczuk

א. קצ' d'après J F Millet

When Rosh Hashana began at sunset on September 24, observant Jewish farmers in Israel's biblical borders laid down their tools for a year. They are not on an extended strike, but are religiously mandated not to work the land during the new Jewish year, when Eretz Israel (Land of Israel) observes a *shmita* year, the "agricultural Sabbath."

As commanded in the Torah (Exodus 23:10-11, Leviticus 25:1-7 and Leviticus 25:18-24), *shmita* (meaning "release") occurs every seventh year, during which all agricultural land in the Land of Israel must be left fallow so it can rest. In practice, the Torah mandates a ban on all agricultural work, including sowing, plowing, pruning, and harvesting. Though Jewish farmers are not allowed to work the land, anything that grows is available for livestock, wild animals and people to gather.

For Israel's observant Jews – not just farmers, but also ordinary consumers, owners of supermarket chains, market stalls, and grocers who sell Israeli-grown agricultural produce – keeping the laws of *shmita* is an extremely serious matter. Not only are the laws of *Shmita* widely considered some of the most difficult in the Torah (the Midrash goes so far as to say that anyone who meets the challenge of *shmita* is an "angel mighty in strength"), but its observance goes far beyond the religious, impacting on the economy and taxpayers. This year, for example, the Religious Services Ministry has allocated 100 million shekels (\$28.8 million) for *shmita* activities, of which just under half will go to farmers who leave their fields fallow.

Dr. Joshua D. Klein of the Volcani Center's Unit for Agriculture According to the Torah at Beit Dagan tells *The Jerusalem Report* that agricultural *mitzvot* (commandments) are an extremely important and integral part of Judaism. "Of the six portions of the Mishnah, the first deals with agriculture. That's not surprising because agriculture is about how to make a living," says Klein, whose research at Volcani involves developing agricultural methods relating to the *mitzvot*, such as growing the *etrog* (citron), the large, lemon-like citrus fruit used during the Sukkot holiday.

Beyond the economic implications of *shmita*, there also are very practical issues, the most pressing of which is where Israel's food will come from during the *shmita* year.

So important is that question that it was raised and answered in the Torah: "If you will say, 'What will we eat in the seventh year' – behold we will not sow and not gather in our crops?' Be assured that I will send my blessing for you in the sixth year, so the land will produce a crop

large enough for three years." (Leviticus 25:20-21)

However, it has not always been the case that Israel's farmers have harvested bumper crops in the year before *shmita*.

As a result, says Klein, Jews in the Land of Israel developed Halakhic [Jewish law] mechanisms to allow them to cope with the requirements of *shmita*.

Klein explains that according to the laws of *shmita*, agricultural produce during the Sabbatical year may be obtained from several different sources. These include food grown during the sixth year (the year before *shmita*) and food grown on land owned by non-Jewish farmers in Israel.

KLEIN POINTS out that the laws of *shmita* only apply to the biblical Land of Israel. In other words, the laws do not affect Jewish farmers in the Diaspora, or in those parts of the State of Israel (such as Eilat) that are considered outside of Eretz Israel. Therefore, during *shmita* it is permitted to eat produce that is grown and imported from outside Israel.

And because the laws of *shmita* only apply to Eretz Israel, after the Roman Empire expelled the Jews from the Land of Israel in 136 CE, in the wake of the Bar Kokhba revolt, the issue of *shmita* was considered no longer relevant.

However, by the late 19th century when Jews began to return to Eretz Israel inspired by the early days of Zionism, they had to find ways to ensure that agriculture could continue during a *shmita* year, so that they could feed themselves.

These new Jewish communities made use of an ancient practice whereby Jewish-owned agricultural land was sold temporarily to a non-Jew during a *shmita* year. That practice was first seen in Safed around 500 years ago when Jews sold their land to local Arabs during *shmita*, according to Klein.

It was this method, dubbed the *heter mekhira*, or sales permit, that the first chief rabbi under the British Mandate, Rabbi Avraham Yitzchak Kook adopted as an emergency measure during the 1909-1910 *shmita* year. Kook permitted the *heter mekhira* in response to fears that widespread starvation would result if lands were left fallow. "The kibbutzniks complained that they would not make it through the *shmita* year," Klein says.

This practice is still in place in Israel today, and is the chief method by which local farmers are able to continue to grow and sell

their produce, and is the reason why consumers will be able to find local produce in their markets and supermarkets during *shmita*. According to Avshalom Vilan, a former Member of Knesset for Meretz and Israeli Farmer Federation (IFF) President, all Israeli farmers obtain a *heter mekhira* from the Chief Rabbinate.

THE TORAH MANDATES A BAN ON ALL AGRICULTURAL WORK, INCLUDING SOWING, PLOWING, PRUNING, AND HARVESTING

The *heter mekhira* system, Vilan says, helps to ensure that the prices for produce in supermarkets and markets will remain largely unchanged during *shmita*, because it allows farmers to sell to supermarkets as they usually do. If supermarkets were to start importing all produce from abroad, costs would rise considerably.

However, the *heter mekhira* caused (and still causes) controversy among some Torah scholars, particularly from the ultra-Orthodox (Haredi) sector who argue, among other things, that selling land in Eretz Israel to a non-Jew is prohibited by the Torah.

A row broke out in September, after the Defense Ministry made the unprecedented announcement that it would partially adhere to Haredi practices for *shmita* by importing fruits and vegetables for the IDF from abroad rather than purchasing them from local farmers under the *heter mekhira*. In response, the IFF said the Defense Ministry has "declared war on Israeli agriculture" and that it is influenced by "Haredi extremists."

Vilan tells *The Report* that the Defense Ministry's decision will harm farmers, and could set a dangerous precedent whereby other bodies, such as municipalities, also stop accepting the *heter mekhira*. "The real issue here is money. If the rabbis insist on importing produce from abroad, then the importers benefit, even though it is far more expensive for the buyers," Vilan says.

The High Court of Justice has already ruled it is illegal for municipal rabbis to refuse to accept the *heter mekhira* during *shmita*. In a 2007 judgement, the High Court said that if a local rabbi refused to accept the

heter mekhira, the Rabbinate had to appoint a replacement, a move that then agriculture minister Shalom Simhon called a "victory for sanity."

Vilan says that the move by the Defense Ministry reflects the growing influence of the Haredi sector on public institutions. Its decision to observe Haredi *shmita* rules makes no practical sense, given that the IDF has very few ultra-Orthodox soldiers, he believes.

"I spoke to [Defense Minister Moshe] Ya'alon twice and asked him why he's playing this game. It's a big mistake. I have religious, observant farmers telling me that they are very worried about this decision," he says.

According to Vilan, the IFF's position is that the "historical arrangement" of the *heter mekhira* should remain in place, and the IDF should purchase produce from Israeli farmers. "We have passed all the information we have to the State Comptroller and we think that the Ministry will come to a compromise," he says.

While the row over the *heter mekhira* looks set to continue, the Volcani Institute's Klein notes that other modern methods for dealing with *shmita* are also being developed.

One of the most creative, and one that has implications for agriculture beyond *shmita* observance, is hydroponics, an agricultural technique whereby vegetables and fruits are grown in a mineral nutrient-rich solution in water, without soil.

SOILLESS AGRICULTURE has been the subject of a great deal of scientific research. NASA, for example, has undertaken research into hydroponics for use on space stations. However, the use of these techniques during a *shmita* year was first postulated in early 1930s Bnei Brak by a Belarusian-born rabbi, Avrohom Yeshaya Karelitz, better known as the Chazon Ish.

"The Chazon Ish devoted himself to the study of Jewish law and among other things, he became a *shmita* expert," Klein relates. "He encouraged kibbutzim and moshavim to grow in water rather than on land during *shmita*." According to Klein, hydroponic farming complies with the laws of *shmita*, which refer to working the land, in other words the soil connected to the land. With hydroponics, vegetables are grown in water enriched with various nutrients, in a concrete basin that is not connected to the Land of Israel. Part of the 10 million shekels allocated

to *shmita* projects has gone to help Jewish farmers build hydroponic farms.

However, hydroponics does not solve all of the difficulties of the laws of *shmita*. “This method allows vegetables like tomatoes, cucumbers, and zucchinis to be grown, but it’s not good for food such as wheat, carrots or potatoes,” Klein says.

To overcome this problem, the Volcani Center has undertaken research into methods of storing produce like carrots and potatoes for longer periods of time. This means that carrot and potato crops harvested just before a *shmita* year begins can be stored for use throughout the “agricultural Sabbath.”

As a result of the research project, Klein says the Volcani Center developed technologically advanced methods to store potatoes for around a year, while carrots can be stored for six to eight months. These methods include spraying potatoes with a light misting of mint oil, which the Volcani Center found helps protect against spoiling. “The potatoes don’t end up tasting like mint, though,” Klein reassures. Other potato storage techniques include regulating humidity and temperature inside storage facilities, and selecting particular varieties of potato that cope better with long-term storage.

Other modern, scientific methods for dealing with *shmita* include growing produce in greenhouses, where fruits are grown in soil that is detached from the ground. This method can be tricky, since rabbinic authorities say that if these greenhouses are too big, they are too much like a regular field, and therefore do not comply with the laws of *shmita*.

The Volcani Center has developed methods to maintain the ordinary life of plants so that crops planted before the *shmita* year begins can continue to be fruitful for as long as possible during the fallow year. While Klein admits that these techniques for dealing with



Growing lettuce plants in a hydroponic bed in a greenhouse

TOM MIHALEK / REUTERS

shmita are “probably not economically viable,” he says economics is not the way to judge *mitzvat*.

There are ecological benefits to *shmita*, however, Klein contends. The practice of resting the land every seven years allows the soil to replenish itself in terms of its chemical and physical composition. While the Torah mandated this practice thousands of years ago, it was later recognized in Europe during the Middle Ages, when crop rotation methods were developed.

As well as replenishing soil, letting the land lie fallow for a year helps reduce some agricultural parasites, Klein notes, such as particular types of parasitic nematode, or roundworm that live in the top 15 centimeters of soil. While parasitic nematodes are

hard to control, their population crashes by as much as 90 percent during a *shmita* year. “The nematode population then replenishes itself over the next six years, until it’s time for the next *shmita* year,” Klein explains.

Techniques like hydroponics and others related to *shmita* or other agriculture-related *mitzvot* have applications all over the world, Klein says. One such technique involves treating seeds to ensure they are resistant to drought – research that was motivated by the need to plant seeds before Rosh Hashana, though there may not be rain before the winter.

“We developed drought resistance techniques to delay the seeds’ germination and make them resistant to the lack of rain,” Klein says. ■

Internet *shmita*

Modern technology – this time, the Internet – is also being used to allow observant Jews who are outside Israel but who wish to fulfill the *shmita* commandment.

The Shmita Association Project has purchased a large field of agricultural land near Ra'anana and is offering small tracts for sale to Jews from anywhere in the world. The Shmita Association says that those

who purchase the land will have the opportunity to observe the *mitzva* of *shmita* by leaving their tract fallow during the upcoming Jewish year.

According to the Shmita Association, the tracts of land available for purchase are 1.35 square meters in size and cost \$180 each. Those purchasing a plot are listed in the Land Registry as the legal owners. However, they won't get to keep their tiny tract of Israeli land forever – when the *shmita* year is over, the Shmita Association will sell the

land on behalf of its owners.

“We are happy to assist Jews in Israel and across the world fulfill the *mitzva* of *shmita*,” the project’s director, Simcha Margalio, said in a statement. “Ever since the people of Israel went into exile, *shmita* has been perceived by the majority of the public as a theoretical *mitzva*, which they cannot fulfill, while the truth is that this *mitzva* can be easily fulfilled by any Jew who is interested in doing so.”

J. P.