REPUBLIC OF MARSHALL ISLANDS

Professional Consultancy Mission Report on Citrus Growing

by

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I EXECUTIVE SUMMARY

General Background

Representatives of the Republic of Marshall Islands (RMI) contacted the Israel Embassy in Australia and requested agricultural aid in the area of citrus growing. The application for aid mentioned the possibility of a long-term mission by a citrus specialist who would work in the RMI.

The Embassy transferred the application to MASHAV and together with CINADCO and in consultation with the Director of the Citrus Department at the Ministry of Agriculture and Rural Department, a decision was made to allow the application, and as a preliminary step an agreement was reached regarding a short-term mission to RMI, during which:

A) The possibility of growing citrus on the islands would be examined.

B) The details concerning a long-term mission would be considered.

MASHAV applied to Mr. Avner Amir (Citrus Expert, Msc. Agriculture, Hebrew University in Jerusalem, Retiree of the Ministry of Agriculture) and he also gave his agreement in principle to a long-term mission, according to particulars which would be clarified on site.

The professional consultancy mission took place between March 21 and March 29, 2003. The Honorary Consul to Israel in RMI, Mr. Charles T. Domnick, took an active part in the preparation and implementation of the mission. We had meetings with the ministers who had initiated the project, and tours of the islands. Following are the principal data and results.

Data In regards with Local Conditions

1. Geography, Climate, Soil

The Marshall Islands are located on the western side of the Pacific Ocean, north (and near) of the Equator, west of the International Dateline (between longitude 160º-175º).

The climate in the Marshall Islands is typically tropical (hot and humid), but they are not situated in the path of the severe tropical storms.

The population of the islands numbers some 56,000, of which about half live in the capital island of Majuro.

The Marshall Islands are coral islands, or atolls, they are flat, with no hills and they surround an inner lagoon.

The soil was formed from carbonated coral reef plants and animal remains, and contains a large quantity of limestone (Ca), with a high pH (between 7.8 and 8.2). The soil is not deep, going down to a depth of 1½ meters and contains almost no clay. The soil is generally poor and a deficiency of nutrients is common. Drainage is good, and there is normally low soil salinity.

2. Vegetation and Agriculture

The natural vegetation is mostly tropical with plants imported by inhabitants and visitors. Today, the planted fruit trees are mostly: coconut trees, bananas, bread fruit, edible pandanus trees, and a few papaya, guava and mango trees.

Agriculture: at present, the farmers grow staple tropical crops. On the capital island of Majuro there are two stations for agricultural experiments, a nursery for plants and trees and a laboratory for experiments in tissue culture. At present fresh food that is missing on the Islands is imported from abroad.

3. Citrus on the Islands

We visited only the Islands of Majuro and Wotje, and we were told that there are only a few citrus trees in the Marshall Islands. The trees we saw were mostly lime and a few lemon trees. Their development and the volume of their canopy were good, but most of them suffered from a deficiency of Zinc (Zn) and/or Manganese (Mn).

Note:

The leaves of one of the lime trees we detected, showed signs of a disease that looks like the citrus disease known by the name of: Citrus canker. However, in order to diagnose the disease, it is necessary to perform laboratory tests.

Conclusions and Recommendations

1) According to the background data collected as regards climate, soil and agricultural infrastructure, there is no reason not to attempt to operate a citrus project (as a commercial cultivation or for the islands own supply), where few varieties on some rootstocks would be cultivated.

2) It is recommended to consider the constraints that accompany the cultivation of citrus (or agricultural development in general) on a relatively large scale, such as:

- The problem of land allocation for citrus cultivation, or
- The risk of environmental pollution as a result of excessive use of spraying materials and fertilizers (a known phenomenon in modern intensive agriculture).

3) It is recommended to check the citrus trees on the Islands regarding the suspicion of a presence of Citrus canker on RMI, and to act in accordance with the findings.

4) It is recommended to begin implementation of the project according to the detailed recommendations found in the body of this report.