Report of a beet germplasm collecting mission in the Peloponnesus (Greece)

by Th.S. de Bock

Foundation for Agricultural Plant Breeding, Wageningen, The Netherlands

Introduction:

The mission was carried out within the scope of a joint programme of IBPGR and IIRB. The participants were Miss Helen Cortessi from Greece, R. Denton from the U.K. and Th.S. de Bock from the Netherlands. The mission has taken place between 10 June and 30 June 1981. Our instructions were to investigate the Peloponnesus on the occurrence of wild and primitive Beta-forms. There was not much information available about beets in that area. Several botanists published about the Greek flora, but as far as we could find, only Levrentiades mentioned Beta maritima as a characteristic species of the coastal flora between Patras and Korinth. (G.J. Lavrentiades: On the vegetation of Patras Area; 1976; aus Veröff. Globot. Inst. ETH, Stiftung Rübel 56). To obtain further information we visited the Botanical Museum at Goulandris (near Athens) and consulted several local agronomists, gardeners and seed-merchants.

The total number of collected samples is:

a. 28 samples of Beta maritima populations.
b. 15 samples of primitive forms of red- and leafbeets collected in the field.
c. 18 samples of locally multiplied varieties and mixtures of primitive forms bought in seed-shops.

Nowhere in the Peloponnesus we found seed or cultivation of sugar- or fodderbeets.

This report is not a presentation of all details concerning information obtained and collected samples. Therefore is referred to the extensive report of Miss H. Cortessi and the descriptorforms of the individual accessions. } Where?

General information

The Peloponnesus is for the greater part a very mountainous area, with only a poor vegetation on the higher parts of the mountains. The most important

crop, cultivated on the lower parts of the slopes is olive. In some parts of the area cereals are grown on terraced hillsides. The plain areas are mostly located near the coast. Only near Tripolis there is an upland plain with intensive horticulture. Three large coastal lowland areas are situated in the south of the Peloponnesus, north of the big bays (Argolis Bay, Lakonis Bay and Mesiniakis Bay). The most important fruit crops cultivated in these areas are: apricots, olives, peaches, oranges, lemons, cherries and figs. In smaller gardens also vegetable crops as beans, tomatoes, cucumber, carrots, potatoes, artichokes, courgettes and sweet peppers are grown. Sometimes gardeners grow some red- and leafbeet, but mostly only for personal use. As a commercial crop beets are very unimportant in the Peloponnesus. Along the western coast there is a strip of lowland; narrow in the south and very broad in the northern part.
The latter is the most important area for the cultivation of horticultural crops of the Peloponnesus. The main-crops are here:watermelon,grape, cucumber and tomato. Further,farmers in that area grow all the above mentioned fruit and horticultural crops.
Also along the northern coast there is a strip of lowland. However, this strip is too narrow and the average quality of the soil is too bad for having any importance for agricultural or horticultural production.
Our trip started at Athens ; a rented car was the means of conveyance. From Corinth going southwards we drove around the whole Poleponnesus, exploring the seashores for the presence of Beta maritima. The coastline by road has a total length of about 1100 km. Following the coast as close as possible we tried to get an impression about topography, vegetation and kind of soiltype of the shores. After some experience it was possible to recognize a good habitat for Beta maritima by these characteristics. Due to the bad roads it was sometimes difficult to reach the seashore. In those cases the recognizability of a good habitat from a greater distance and the use of a detailed soilmap rendered good services.

Several times we moved inland to visit areas where, according to information obtained, local varieties or primitive forms of Beta are still grown.

Information obtained from the Botanical Museum at Goulandris

On the basis of herbarium material we made a study concerning the occurrence of wild beets:

-Beta nana has been found on the Vardoussia mountains near the village Athanasios and on Mount Olympos east of King's Paul Hut.

-Beta macrocarpa has been found on the island Psara.

-Beta maritima has been found in Morocco, in the district Pieria (Greece) and on the islands Ikaria, Mitilini, Crete, Chios and Simi.

Important for us was the mention of two finding-places of Beta maritima in the Peloponnesus: Monemvassia and Ermioni. In both places we actually were able to collect samples of Beta maritima.

Wild beets in the Peloponnesus

All collected samples of wild beets belong to the species Beta maritima. Clay- or loamsoils of a medium salinity are the best habitat for this species. The topography and soiltexture of the Peloponnesus coast are very variable. The eastside and the most southern parts of the three large peninsula's are for the greater part very rocky with high cliffs at the seaside. Scattered between those rocky coastparts occur, mostly small, areas of lowland. The Beta maritima populations, collected in these areas are very well isolated from other wild or cultivated beets. The northern parts of the coast of the large bays in the east and the south have long flat shores. However, in these regions most coastal soils are very salty with a salt-marsh vegetation. Populations of Beta maritima were often found on places with exotic soils, for instance descended from road-making. Also waste ground on rubbish-dumps are sometimes suitable habitats.
The westcoast of the Peloponnesus is characterized by sandy beaches. Only some places in the southern part between Methoni and Kiparissia are rocky with sometimes clay-deposits between the rocks or small clay-banks. There we collected four samples. From Kiparissia to about 20 km south of Patras we did not find any wild beets. The shores are too sandy there for being a suitable habitat. From Tsoukaleika to the north the texture of the coastal soils becomes more variable. Besides sandy beaches narrow shores with clay-banks occur. Several populations of Beta maritima were collected from these clay-banks.
The northern coast of the Peloponnesus along the bay of Corinth is covered with a layer of pebbles of variable thickness. The suitability as habitat for wild beets depends on the soiltexture under this layer of pebbles. This soil is mainly sandy in the very narrow beaches between Patras and Egira. In so far as clay-soil was found, it was very high above sea-level and therefore not a suitable habitat for Beta maritima. Only a very small population could be collected here on hard clay-soil behind a low sea-wall.
From 5 km east of Egira to Corinth (a distance of about 60 km) grows a very

large population of Beta maritima on waste land, on clay soil covered by a layer of pebbles and generally everywhere where suitable soil exists. The populations which had been found earlier grew close to the sea, but in this area beets were found on both sides of the coast-road. For collecting this population, it was divided in three parts, which were not really isolated from each other, but separated by town's buildings and beaches.
The plantmorphology of this population was different from the earlier collected Beta maritima samples, which generally grew procumbent, had few and small leaves and a green-blue colour. What we found here was a very variable population in which the complete range of growing-types was represented. Also vegetative plants were found here. Occasionally the plants were infected with diseases as rust and powdery-mildew. Introgression with leaf- and red beet types of some plants is not excluded. Sampling here was done frequently along the whole distribution of the population.

We got the impression that the genetic erosion of wild beets is very high in the Peloponnesus. The tourism along the coast is increasing and for the benefit of this many hotels, restaurants and roads have been built or are built. Due to these activities big parts of the natural coast-vegetation have been damaged. In addition to this, many plants in the beaches have to endure a lot of trampling by seaside-visitors.

Primitive forms in the Peloponnesus

On the Central Vegetable Distribution Market in Athens and during our trip around the Peloponnesus we tried to obtain information from merchants, local gardeners, agronomists and seedshop-owners concerning the occurence of primitive forms, names and addresses of beetseed-growers or areas, where beetseed was still multiplied.
Soon it became clear that most gardeners buy their seed from shops or seed-merchants. Seed distribution is also done by Central retail outlets of the national seed production. Seed cultivation by gardeners is decreasing and only in exceptional cases, mostly older gardeners still grow seed year after year by themselves. It was remarkable that these gardeners did not know the necessity to isolate leaf and red beets from each other. What we found was therefore often a mixture of those both forms. In some cases we found beets in no longer used gardens or parts of gardens. These populations originate from a multiplication of some years ago and were left there, sometimes still used as feed for goats and sheep.
According to obtained information there are four areas in the Peloponnesus where still local beetvarieties exist: the areas around the cities of Argos,

Kalamata, Pirgos and Patras. Therefore we explored these areas more intensively on the occurrence of primitive forms as the rest of the Peloponnesus. We actually found 13 of the 15 collected populations in or around these cities. We did not find any forms of sugar- or fodderbeets. These types of beet are not grown at all in this part of Greece. Even big seed-shops did not have seed available.

Samples bought in shops

Beetseed for sale in shops or markets is only occasionally descended from primitive local forms. Mostly the material was a commercial variety from abroad, multiplied or only packed in Greece.
We started visiting several seedshops in Athens and bought here 11 samples of red- or leafbeetseed. Much information about the origin of the seed could not be given; only that it was packed in Greece. Two other samples from an Athens shop were multiplied in the shop-owners garden.
In Argos we bought two samples but did not get any information about their origin. The three samples, bought in Kalamata and Patras are the most interesting ones. The seed of these samples is grown by local gardeners, mixed all together and sold out of one bag.

Condition of the collected seed

The stage of maturity of both collected wild and primitive populations and within some populations of individual plants was very variable.
Due to this variation some plants or populations had already dropped most of their seed, while others were still very green.
The collecting period chosen was a right compromise; we were able to collect from all the populations which have been found. In many of the collected samples a reasonable seed-quality and germinative power can be expected, but some samples have been harvested from immature plants and therefore the seed will have a low quality. It is recommendable to examine the germinative power of the samples and if necessary to multiply them as soon as possible.

● Colleetingsite B maritima

→ Route

● Colleetingsite primitive form