

Tropical Sugar Beets

A stunning and tough new crop for arid and hot areas.

It has taken 200 years of selection and advanced plant breeding to develop the sugar beet we today are growing in the temperate climates of Europe and North America. The origin of the modern sugar beets is, however, to be found in the Middle East and around the coasts of the Mediterranean Sea. Therefore it is logical that it would be easier to adapt the beet to a more hot/dry climate than to the cool/wet conditions we normally have in Europe. Another important factor when we speak about plant adaptation is that the beet is biannual. As long as we only work with the vegetative phase of the plant's growing period it should be possible to make rather fast achievements. Developed from Italian and Spanish varieties we already have a Tropical Beet that grows very well in saline, alkaline, dry and hot conditions and with a water consumption which is less than 50 % of what sugar cane needs to produce the same amount of sugar.

The Tropical Sugar Beet varieties are tolerant to the leaf and root diseases we know from warm climates and we will soon incorporate traits like resistance to Root Knot nematodes. Other new selection criteria can be an even better heat and salt tolerance during germination and decreased transpiration.

But it is just not a question of advanced breeding. A most important base for successful beet growing is a locally adapted cultivation technique. How many West European beet agronomists would consider to grow beets in a soil with 60 % clay and temperature rising to +40 °C every day? Well, after having seen yields corresponding to 20 tonnes of white sugar per hectare, a wise person has to reconsider.

An economically interesting factor is the length of the vegetation period. A European beet sugar factory is limited to a campaign of about 100 days while a factory in Sudan or Pakistan will run during 270 days with stops only for maintenance and repairs. A further advantage of the warm and dry climate is that the beet pulp can be dried in the open air and that will save up 30 % of the total energy consumption. The high energy content in the beet pulp makes it a very very valuable fodder for ruminants and the income of sold pulp is normally covering all the costs for purchased energy to the sugar factory. There is also a theoretical possibility to use the beet pulp as fuel and make the sugar factory self sufficient with energy.

As we do not have to consider the botanical maturity of the beet and we are working in a stable climate with limited variations between seasons, the grower and the industry can together decide about when the beet shall be ready for delivery. The practical beet vegetation period will range between 5 to 8 months and the technical maturity and high juice purity will be achieved by a strict fertilization- and irrigation scheme.

The beet yield is very much depending on the intensity of growing. Low intensity farming will result in yields around 40 to 50 tons/Ha but the beet is a cash crop so experienced and motivated farmers will reach 100 tons/Ha with the help of soil analyses, good soil preparation, balanced fertilisation, limited irrigation and effective weed control.

The introduction of beet growing into new areas will also lead to a more productive agriculture thanks to the beet's deep root system which makes it possible for other following crops in the rotation to utilize more and more of the water and nutrients in the sub soil.