

## SEABUCKTHORN ENGINEERING - YES WE CAN!

### Summary

The basis for successful engineering is specific knowledge of raw materials, products and technologies. We can look back on a unique wealth of experience from 45 years of working on and with seabuckthorn from field to bottle. The founding members of NIG GmbH brought in extensive knowledge of the sea buckthorn berries based on long-time research cooperation with famous German breeder Hans Joachim Albrecht (Berlin).

Important questions include the challenges of berry harvesting, quality-assurance tasks during harvesting and processing of berries. Our first work on technical and technological issues began in 1990. On behalf of the Kohlensaurewerk Deutschland, the suitability of carbon dioxide snow for freezing of cut branches and subsequently shaking the berries was tested. In addition, carbon dioxide was used under high pressure for berry mash treatment in order to achieve higher juice yield. In 1993, we received the order from Chema Rudisleben Company for the engineering, project consulting and control, installation support and commissioning of the new processing plant of Lienig Wildfrucht GmbH in Dabendorf, Germany. In this time the biggest seabuckthorn processing factory in the world. The main focus of the company is the processing of wild fruits like seabuckthorn or Aronia into fruit juice and concentrates as well as the production of Jerusalem artichoke products.

In the meantime, our know-how is demand internationally for small and large seabuckthorn processing lines. We have designed more the 50 processing lines in Western Europe, Russia, Eastern Europe, the Baltic States, Russia, the Himalayan region, China, Pakistan, Uzbekistan, Kyrgyzstan, Kazakhstan or Azerbaijan. Our approved technology for effective, almost waste-free processing of seabuckthorn berries and the extraction of pulp oil can be found also in Western Siberia at the Company SAVA in Tomsk. Sava process up to 3,000 t/year of seabuckthorn berries.

Another outstanding example of our offered performance is installed in Mongolia. The company KHAAN JIMS SBT LLC in Ulaan Baatar has ordered for the new factory the complete engineering, installation and commissioning as far as our technological know how. This seabuckthorn processing plant has a capacity of 4.000t/year and was put into operation in 2016. The processing of the berries is practically residue-free.

## FULL TEXT

The founding members of NIG GmbH brought in extensive knowledge of the sea buckthorn berries based on long-time research cooperation with famous German breeder Hans Joachim Albrecht (Berlin) and practical work on fruit and vegetable processing like the development of beverages.

While in other international regions with seabuckthorn processing the focus was mainly on pulp oil extraction, our goal is to use the complete berries including berries processing residues. Through our international consultations on seabuckthorn, we were able to promote the acceptance and ultimately the further spread and use of the seabuckthorn.

The seabuckthorn is known as a pioneering plant used also for protection against erosion. Its potential for health-promoting ingredients is increasingly being considered. This knowledge now helps to increase the interest in this plant and the expansion of the cultivated areas. Due our long-term experiences and as a result of our own research and development work, the processing of seabuckthorn became the main focus of our technological and technical work. During our work we always are paying attention to economic profitability for our customers. We have successfully developed and approved a novel separation technology for the extraction of seabuckthorn pulp oil with minimised residual water content. The scale up of our lab tests was done in cooperation with company Lienig Wildfrucht using three machines with a capacity of 400, 3.000 and 5.000 kg/h seabuckthorn puree. In addition, possibilities of the application of suitable commercial enzyme preparations were tested in practice, also to influence the yield and quality of the seabuckthorn puree.

Especially in the Russian and Asian regions in addition to the oil extraction, the extraction and use of juice and puree was intensified as one result of our work there.

In Western Siberia, our approved technology for effective, almost waste-free processing of seabuckthorn berries and the extraction of pulp oil was installed at SAVA Company in Tomsk. After the oil has been separated, the puree is aseptically hot-filled into bag-in-drums. According to actual informations, SAVA is processing now a volume of seabuckthorn berries up to 3.000 t/a!

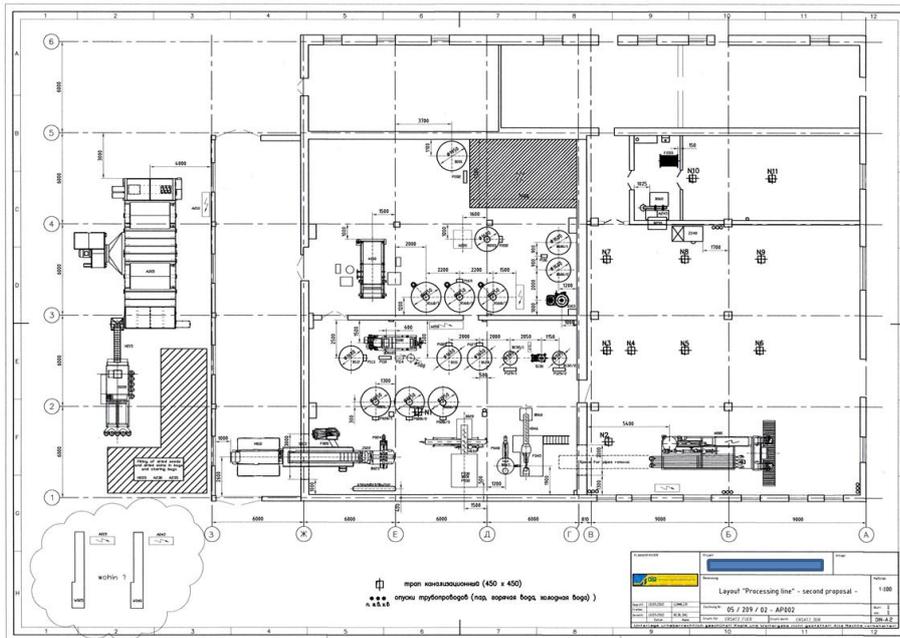


The successful work on this object led to direct contacts with the company Khaan Jims in Ulaan Bataar (Mongolia). We have had very extensive discussions with the company since 2011 to coordinate technical and technological details for the establishment of a new processing factory in Ulaan Baatar.

As a result, NIG GmbH received the order for complete engineering, the assembly and commissioning as far as the supply of the technological know how. We have successfully managed the project with equipment suppliers from Germany, Austria, South Korea and China. This very flexible seabuckthorn processing plant was put into operation in 2016 and has a yearly capacity of 4.000 t/year. The berry processing is practically residue-free. Khaan Jims is able to produce different products like seabuckthorn puree or juice, as semi-finished products filled in bag-in-box or bag-in-drums and also as final product filled in small bottles (shots). Seabuckthorn juice concentrate, pulp oil, sea buckthorn berry seeds and seed oil, dried sea buckthorn pomace are further products.



In the meantime, our knowledge of seabuckthorn meats increasingly internationally demands for small and for large processing lines. We have designed more than 50 processing lines in Western Europe, Russia, Eastern Europe, the Baltic States, Russia, the Himalayan region, China, Pakistan, Uzbekistan, Kyrgyzstan, Kazakhstan or Azerbaijan.



As diverse as the countries are the requested projects. We designed a wide variety of processing lines like for oil extraction, dried berry production, powder production for food and feed production.

After 35 years of experience with the seabuckthorn, we also have detailed knowledge of varieties, cultivation, harvest and storage as well as the market for processing products.

Another outstanding project was the cooperation with the company Altaivitaminy in Biisk, one of the most experienced companies in the world in seabuckthorn business. Altaivitaminy ordered us for the planning of their new processing plant.

Various inquiries for small and large processing capacities for sea buckthorn are currently being in work. We always provide consulting services as a first step for investments.

Even after 35 years, we do not stop developing new ideas about seabuckthorn processing or products.

Actually we are working on processes for the extraction of secondary ingredients from seabuckthorn berries and other parts of the plant, and we regularly taste our own product creations.

Let us meet and discuss your ideas and requirements.