The next logical step, following our environmental principles, was production...

The Company
Since 1978, the ALKENA GmbH has been producing and selling natural textiles with a main focus on natural silk. The company philosophy has always been centred on sustainability and environmentally friendly production methods. In 1995 a joint venture was established in Chengdu, the provincial capital of Sichuan in China. The main aim of this was to guarantee our high quality standards. The company is called Sichuan ALKENA Textiles Co. (SATC). Since this time, all the ALKENA products have been produced here.

The Raw Material
The quality of the raw material plays a decisive role in the quality of the final product. In this respect, silk is no different to all natural fibres. The raw material for silk is the silk cocoon. Different kinds of silkworms produce different qualities of silk. The best kind of silk is mulberry silk. It is made from the so-called mulberry silkworm (Bombyx Mori), which produces the best quality of silk. The name comes from the plant, which it feeds on, the mulberry (morus). The leaves of the mulberry represent the sole food source for the silkworms.

Consumption
In excess of 6 kg of cocoons are required for 1 kg of silk filament. Filament is silk that is unreeled from the cocoon. 5 to 6 T-shirts can be made from 1 kg of this quality.

Or in other terms: 475 silk worms produce 1 kg of fresh cocoons and need 30 kg of mulberry leaves to do this.

500 cocoons or 32 kg of mulberry leaves are required for one T-shirt.
The Location
The project area is located in the Sichuan Province, near to the district town of Jiangyou in the hill country to the east of the Himalayas, around 500 m above sea level. The highest mountains are more than 4,000 m tall and panda bears live in the bamboo forests.

The Object
The objective targets are to supply silk again in good quality and to show the farmers and authorities concerned this new way.

The Size
The project encompasses an area of around 200 hectares with an annual production of approximately 30,000 kg of cocoons. This means that about 900,000 kg of mulberry leaves are required.

The Feed
The mulberry bushes also flourish on less productive land. They are grown as bushes, similar to pollarded willow without trunk growth. The shoots, up to 15 in total, grow to over 2 m in height and the leaves can be harvested four times a year. These are then used to feed the silkworms from May until September. Approx. 600,000 mulberry bushes have been planted since the SABA project began. In addition to these, hundreds of fruit trees and approx. 5,000 other trees have been planted to provide nesting places for birds as well as shade and protection from the wind. From the onset, we were aware of the fact that a monoculture like this could only maintain a healthy balance by applying a biologically dynamic cropping system.
The Silkworm

It eats and eats, almost relentlessly over a period of about 30 days. It stops for a one day break four times to shed its skin. The silkworm take about 5 days to spin its cocoon and in doing so uses up a large proportion of its body mass. Then the pupae incubation period begins and after between approximately 10 to 15 days the butterfly emerges, finds itself a partner and lays between 300 and 500 eggs. After that the cycle starts again from the beginning.

There is a clear relationship between what the silkworms eat and the quality of the filament. One could say that the silkworms are made of mulberry leaves. If they are fed with the best quality of leaves this has a direct relationship on the final product.

The Cycle

From egg to hatching = approx. 45 – 50 days
The Difference

The most common question we are asked is as follows: “What is the difference between organic and conventional silk?”

1. The better the quality of the feed the better the quality of the silk.
The main difference is in the feed for the silkworms. The worms convert mulberry leaves into body mass, which is then used to spin the cocoon. Our silkworms are fed high-quality feed from our biologically dynamic cultivation and this feed is completely free from harmful substances. If the feed contains harmful substances the highly sensitive animals react directly. Either they die or they do not develop properly and are liable to many different kinds of diseases. This leads to quantitative and qualitative losses. Lower standard cocoons which are smaller, spotted, thin-walled and yellowish in colour instead of pearl white

2. Longer endless filaments can be spun from larger cocoons.
A good cocoon contains approx. 2500 m of silk filament. From these cocoons up to 1500 m can be unreeled endlessly (filament silk). The filament, which is left over, is used for spun silk (staple fibre silk, coarse silk) or for padding quilts and jackets.
Logically, the silk crop from lower standard, smaller cocoons is less. Additionally, silk, which is unreeled from this kind of cocoon, has a lower elasticity, the filament diameter is irregular and the silk is dull in colour. This has a negative knock-on effect for all of the production stages below.
The cloth and the knitted fabric come out uneven and more chemicals have to be used in the preliminary colouring stages as well as the overall material loss being greater.

3. Biologically dynamic cultivation improves the living conditions in a sustainable manner.
The biologically dynamic method of cultivation improves the environmental conditions and hence helps to improve the overall living conditions. More manual labour is needed and this also has a positive effect on the high level of unemployment among the Chinese countryside population.
The organic silk produced in our projects meets the highest quality standards. As soon as it is recognised that there are economic advantages it will be emulated. Then it will be just a small step until the advantages are also recognised in the field of the cultivation of food.

4. The economic circumstances can be improved thanks to biologically dynamic cultivation.
Due to the fact that the cocoon quality is better it is not only possible to achieve higher revenues, the biological cultivation goes hand in hand with fair-trading. The careful interrelaion with the environment focuses on people and leads to a more caring relationship with the business partners. Fixed prices and supply contracts help to prevent that the country folk are taken advantage of by artificially manipulated prices. It is also substantially simpler for the subsequent production processes when the price of the raw material over a fixed period of time is already known.

Project leadership: SATC
Consultation: Prof. Julius Obermaier and Dipl. Agrar-Ing. Stephan Andrae
Certification: IMO, Nanjing

© Alkena GmbH, Dornach, Switzerland, www.alkena.com
Editing: Dr. Matias Langer, Leipzig, Germany, www.bio-seide.de