

# HEMP IS HIP

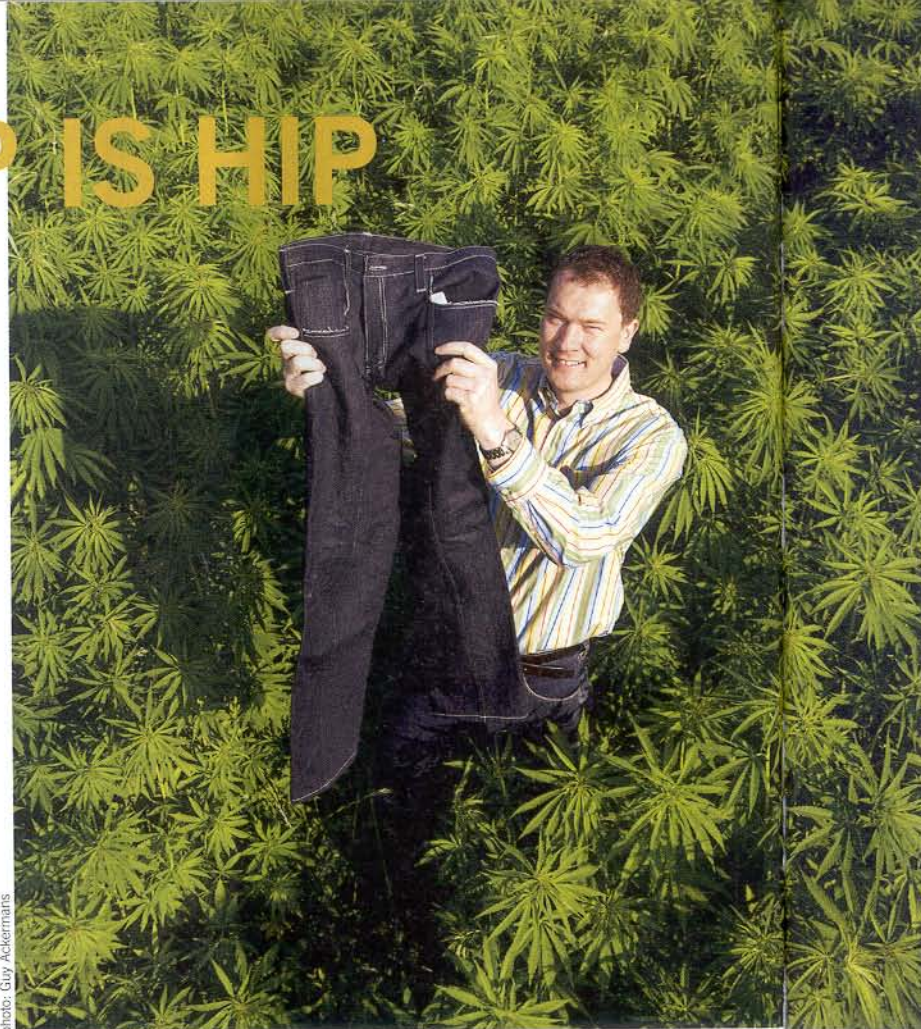


photo: Guy Ackermans

Although most people think of hemp as a source of hallucinogens (*Cannabis sativa*, or marijuana), few realise it is also a source of valuable textile fibre. Thanks to new processing techniques, this traditional crop is making a comeback in the clothing industry.

A European collaboration project is putting hemp back on the map as an innovative crop. "Jeans made from hemp are hip. The crop is much more environmentally friendly than cotton," says researcher Marcel Toonen of Plant Research International in Wageningen. "Due to the growing world population and the increasing prosperity, the demand for clothing is increasing. Cotton consumes a large amount of precious water. Hemp fibre, alone or mixed with cotton, offers an alternative." Clothing made with hemp wicks away moisture better than cotton and is therefore very comfortable to wear.

For the moment hemp is mainly seen as having specialty applications, such as ecological clothing, luxury clothing ("hemp is cool"), furniture fabrics and domestic textiles. "Hemp cloth is very durable and therefore perfect for furniture and work clothing,"

says Thomas Bahners of the textile research centre Deutsches Textilforschungszentrum Nord-West in Krefeld, Germany. "It's not surprising that the original work trousers used by American farmers were made from hemp. I've spoken with many textile manufacturers who have been interested in hemp-cotton blends for a long time. The biggest obstacle is an ample, reliable supply of raw materials for production on an industrial scale. Our collaboration with the agricultural sector is a strong point in our project – we are looking at the entire textile production chain. Our collabora-

tion with Wageningen researchers is particularly interesting and productive because of their broad knowledge."

## Innovative

Last year organic farmers in Rheden (The Netherlands) and Bedburg-Hau (Germany) planted six hectares of hemp. The crop fits in well with organic cultivation practices as it requires little fertilisation and needs no pesticides. Hemp is a fast growing plant, which gives weeds little chance, and in addition improves the soil structure. Hemp also fits in well with the cropping plan in traditional agriculture. "Farmers are very positive about the crop," according to Bahners. "Except they do not have the right machinery for the initial processing of the harvest. If a new company begins making such machinery, it means new jobs."

German and Dutch project partners are now setting up a regional chain for integrated production and processing. "We are bringing together all the necessary partners to make a profitable product together," says Toonen. "The chain approach, from the farm to the consumer, is precisely our strength. Farmers are interested in cultivating new crops and performing the first processing step. And the textile industry would like to try out new things. You have to make sure these groups know how to find each other."

Researcher Marcel Toonen with his jeans made of hemp (top). The hemp fibre (bottom) makes the jeans very durable.



Photo: Marcel Toonen

The hemp project has a budget of a half million euros and is being financed by the European programme Interreg IIIA Project for the Euregio Rhine-Waal. Co-financing is provided by the Netherlands Ministry of Economic Affairs and the German Province of Nordrhein-Westfalen, companies and research institutes. The German project partners are very interested in renewable raw materials for the region. The project is under the obligation to safeguard four hundred existing jobs in the border region and create twenty-five new jobs.

## Steam explosion

In an earlier European project completed in 2004, researchers compared new fibre separation techniques. According to Toonen, steam explosion offers the best solution to refine hemp fibres in preparation for conventional cotton spinning machines. "If you can recycle all the production machines and labour-saving devices from the cotton industry, you don't need to develop a separate infrastructure for the hemp crop." Results show the best new type of textile is a 50/50 hemp-cotton blend.

In addition to the long fibres, which are made into textile, the wood fibre fraction is separated out and used as stable litter for horses and small animals. The material is also pressed into briquettes, which, together with the waste from the textile factory, are used as biofuels for combined heat and power plants. The leaves from the hemp plant are left in the field. The crop is harvested with an adapted maize harvester. The farmer can harvest hemp in August, and then with the same machine harvest green maize in October.

## Denim jeans

The Chamaeleon variety, which was developed ten years ago by Plant Research International in Wageningen, is perfect for textile applications due to its soft, flexible fibres. Toonen: "We have now developed some very nice materials, both normal cloth and special denim used in jeans. The question now is how much it will cost to scale up to commercial production. We are also approaching ready-made clothing manufacturers to inventise their wishes. We will then optimise the end product."

Bahners also has great confidence in the end product. "Hemp clothing is very comfortable to wear. Think, for example, about luxury jeans that cost 100 rather than 30 euros." The first models looked exactly like ordinary blue jeans. "From a marketing perspective, that was a mistake," says Bahners in hindsight. "The fashionable and environmentally conscious consumer wants to stand out when wearing an expensive pair of hemp jeans." ♦

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