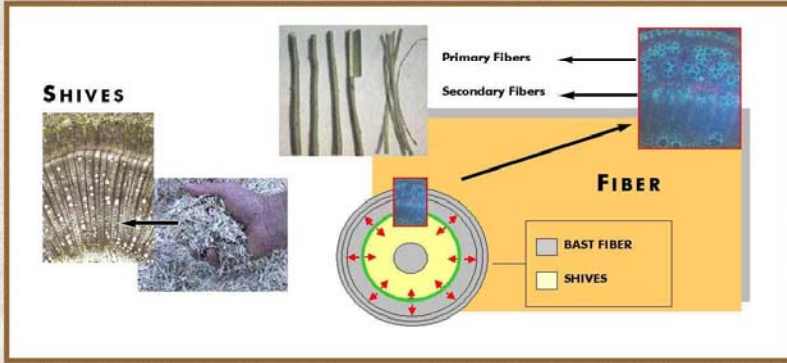


TOSCANAPA PROJECT

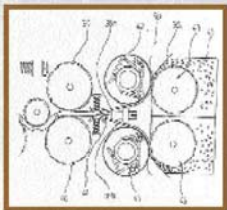
Harvest



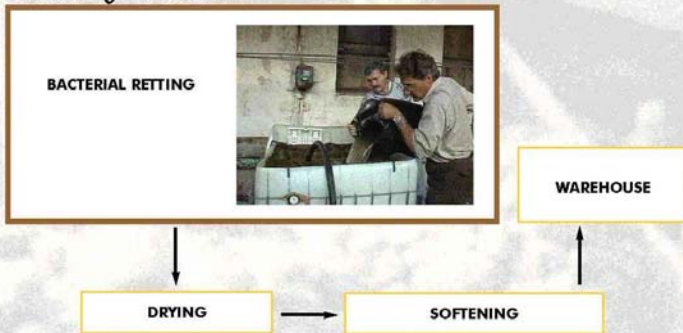
Stems



Fibers



Retting Process



TOSCANAPA project was born from *Fibranova Group srl* and is intended to organize systematically scientific information, technical and economical datas necessary to the establishment of a fully sustainable agro-industrial system focused on hemp processing and production in Tuscany. Traditionally hemp fibre was entirely produced and processed in farms, where the crop was harvested in bundles and retted in water. After retting hemp stems were dried and hand scutched. The fibre was finally sold to spinners through a national "consorzio". This productive system employed up to 1200 hours of intensive labour for each hectare of crop, a lot of which necessary for retting in water under unhealthy conditions. The strategy of Fibranova group deeply renovate the organization of this system, operating the delicate step of retting on decorticated fibres in a specific industrial facility. In this way the quality of the fiber will be controlled and checked with great efficiency to satisfy all spinners' demands. The research and development activity of *TOSCANAPA* is located in the intermediate step of hemp fibre production: the target of the project is building a pilot plant where scutched fibre is retted under controlled conditions.

The objectives of *TOSCANAPA* project can be condensed as follows:

- to plan and build a pre-industrial plant for bacterial/enzymatic retting of hemp fibre on the base of laboratory tests and results obtained by the University of Florence and ISCI.
- to ret hemp fibre in this plant and produce different samples, modulating the different factors of the system (i.e. different temperatures; bacterial or enzymatic maceration; different duration of the retting process) in order to identify the optimal combinations to obtain a specific hemp quality for different destinations
- to implement functional tests on a " steam explosion " system, that is operated by ENEA, with the purpose to evaluate costs and potentials to the produce cellulose pulp and other by-products from hemp;
- to evaluate the samples produced with such methodologies for textile and paper applications;
- to identify and evaluate the possibilities of integration of the retting system with other agro-industrial productions, such as energy from biomasses, with the purpose to build an industrial facility where hemp is processed to obtain products with extremely innovative characteristics.
- to show the economic viability of industrial retting technologies and of the whole production system through a business plan;
- to transfer to local farmers all necessary information to manage farming, build and operate a scutching facility.

Industrial Retting Process

