

THE FLAX AND HEMP INDUSTRIES AT THE HEART OF EMERGING BIO-SOURCED MATERIALS

Climate issues, and environmental issues in general, combined with the finite nature of both mineral and oil resources, are leading us to explore the opportunities presented by new plant-based materials, and those incorporating flax and hemp fibres in particular. Current development of such materials is affecting the design and leisure spheres just as it is affecting the transport and construction sectors.

The term 'biomaterial', which was once used, is not the most appropriate term for referring to such materials, its accepted definition in scientific fields relating specifically to its biocompatibility in the medical sphere. Products produced from biomass instead tend to be classed as agro-sourced or bio-sourced. In order to prevent any confusion, the expression 'bio-sourced materials' will be used instead.

Bio-sourced materials are the polymers obtained by chemically transforming the biomass and composite materials obtained from the combination of a polymer with a plant-based lining.

Flax and hemp have been chosen to illustrate the issue because they have given rise to two distinct industries, both already well-established at territorial level, both with a thousand-year history behind them. The history of the materials themselves, however, is very recent. A number of questions have been raised, all of which constitute barriers or obstacles to the development of new applications. These relate to the need to clarify the environmental, economic, and social issues associated with using the resource in its fibre form to produce materials, the balance between the quantities produced and manufacturers' needs, competition with other products and other uses, the development of relations between upstream industries and downstream industries, etc. The proposals outlined aim to eliminate some of these obstacles and to help develop the flax and hemp industries

For the purposes of achieving the following aims, the ESEC also recommends

and suggests the following measures:

ADAPTING TRAINING PROGRAMMES

- Recommends that greater consideration be given to the sector-specific needs of bio-sourced plant and material fibre industries, in terms of both basic and on-going training;
- Would like to see the training programmes available developed to more closely reflect the activity potential represented at territorial level;
- Would like to see those in 'hands-on' professions, from architects to craftsmen, be given basic and on-going training in using these materials;
- Would ask that the training needs of employees be effectively anticipated with a view to meeting demand on the part of companies producing or using bio-sourced materials.

20% of the fibres produced are used for materials, half of which are bio-sourced composites



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France is:

the world's largest flax producer, with some 75,000 ha of cultivated crops (80% of global production)
Europe's largest hemp producer, with some 10,000 ha of cultivated crops (Europe accounts for 10% of global production)

👉 DEVELOPING PRODUCT LIFE CYCLE ANALYSES (LCAs)

- Recommends that players in the materials industry (all materials combined) have a biodiversity impact assessment carried out in addition to their LCAs;
- Encourages players in the plant chemistry industry to continue their pro-active approach to standardising the LCA methodologies applied to bio-sourced products;
- Recommends that players in the bio-sourced materials industry, and companies in particular, conduct LCAs of their products and technologies and circulate the findings thereof whenever possible;
- Requests that an LCA be developed to identify the potential impact of products on employees' working and employment conditions.

👉 ENSURING THE CONSISTENCY OF THE ENVIRONMENTAL APPROACH

- Would like to see fibres produced within the country, primarily flax and hemp, take preference wherever possible, enhancing them partially by limiting the transportation of crops and by ensuring that the initial processing takes place close to the site of production;
- Asks that research into plant-based fibres in general, and into entirely bio-sourced composites in particular, be stepped up and attentions turned to the recyclability of the material, be it entirely or partially bio-sourced, with the general aim of producing materials that are easier to recycle;
- Asks that a study be performed with a view to establishing the conditions under which products produced from plant fibres should be dealt with by current sorting, recycling and up-cycling services.

👉 ADAPTING REGULATIONS AND DEVELOPING STANDARDISATION

- Calls for the professionals concerned to seek to standardise and produce technical documents for the purposes of guiding the necessary R&D efforts;
- Asks that greater consideration be given to the specific nature of bio-sourced concretes and insulants in the framework of new structural, thermal and acoustic regulations.

👉 DEVELOPING A STRATEGY

- Agrees with the ADEME's proposal to introduce a joint national roadmap to help better coordinate the initiatives undertaken by the various players concerned;
- Wishes to see intermediate and end consumption benefit from regulatory and fiscal tools, notably by enabling companies using bio-sourced products, such as hemp concrete, to respond to invitations to tender.

👉 PROMOTING FORMATIVE APPROACHES

- Suggests that a national coordination platform be created, uniting all players involved in the non-dietary plant fibre industry, from research to production and including the secondary and tertiary processing stages, with a view to creating synergies.

👉 STABILISING THE PRODUCTION OF PLANT FIBRES

- Recommends that farmers and manufacturers operating within the sector create an inter-professional equalisation fund with a view to stabilising production, prices and revenues.

👉 CONTINUING TO PERFORM QUALITATIVE STUDIES

- Recommends that both public and private players in the industry undertake appropriate studies on variations in the mechanical properties of the fibres in the case of plants used in materials and composites.

👉 DIVERSIFYING OPPORTUNITIES IN THE FLAX AND HEMP INDUSTRIES

- Recommends developing new materials incorporating long fibres;
- Deems it necessary to strongly promote sophisticated avant-garde products developed within the industry.

👉 CONSIDERING THE REDEPLOYMENT OF A TEXTILES INDUSTRY

- Calls for a feasibility study on the redeployment of secondary processing activities (spinning, weaving, creation of technical products, etc.) in Europe, and in France in particular, owing to the country's position with regard to primary production, to be performed.