



## Jan Borda

is a professor at the Faculty of Materials, Civil and Environment Engineering of the University of Bielsko-Biala (Poland). He completed his master's degree in Textile Engineering (1982) and then obtained a PhD in Textile Engineering from the Technical University of Lodz (1991). From the beginning of his professional career until now, he has combined scientific and educational activities. His research interests include the functionalisation of textiles and the valorisation of low-quality wool. In his scientific career, the professor published over 70 scientific papers. He has led several national and international research projects,

including a few projects on applying wool from local sheep breeds.

## Lecture: Utilisation of wool from Polish mountain sheep

Jan Broda, Monika Rom, Katarzyna Kobiela-Mendrek

*University of Bielsko-Biala, Poland*

### Abstract

The fleece of Polish mountain sheep is a mixed type, containing coarse medullated fibres and a significant amount of kemp. Due to its characteristics, wool is hard to process using traditional textile techniques, possesses low economic value and is often treated as a troublesome by-product of sheep farming. The Polish-Norwegian research project was performed to find solutions for utilising this wool reasonably. Based on the experience of the Norwegian partner, rug yarns were obtained from selected wool of better quality. Then, the yarns were used to produce cut and loop pile fabrics with the tufting technique. The fabrics exhibited good acoustic absorption capacity comparable to commercial products manufactured from fine wool. The remnants rejected by sorting were used as mulch and for producing fertilisers. During a mulching test on the strawberry plantation, the positive impact of wool on the soil microclimate was observed. During field tests, the high effectiveness of wool fertilisers in winter wheat, tomatoes and some other crops was revealed. The fertilising efficiency was connected with wool biodegradation and releasing nitrogen-rich compounds into the soil. The project showed that the wool of mountain sheep doesn't have to be wasted. As a sustainable and precious raw material, it can be used rationally to produce rug yarns designed to produce tufted fabrics with good acoustic properties, mulch and ecological organic fertilisers.