

Report on
TECHNOTEX- 2009
“Providing Better, Secure & Sustainable Life”
Workshop-cum-Exhibition on
“Strengthening Government-Industry-Consumer Partnership in Agrotech & Oekotech”

- The Workshop on Agricultural Textiles, third in the series of TECHNOTEX-2009 Workshops on Technical Textiles was organized on 18th September 2009 by Ministry of Textiles and FICCI in New Delhi. Over 160 representatives of Industry, Government, Agriculture Universities and Research Institutes attended the Workshop. Key speakers of the Workshop were:
 - **Smt. Rita Menon**, Secretary, Ministry of Textiles
 - **Shri Vijai Sharma**, Secretary, Ministry of Environment & Forests, Government of India
 - **Shri Bhupendra Singh**, Joint Secretary, Ministry of Textiles
 - **Shri A. B. Joshi**, Textile Commissioner, Government of India
 - **Dr U.K. Gangopadhyay**, Director, SASMIRA
 - **Dr Pitam Chandra**, Director, Central Institute of Agricultural Engineering, Bhopal
 - **Mr Kamlesh Bhatia**, General Manager, Rishi Packers
 - **Mr. Ranjit Dash**, AGM (Business Development – Landfill), Garware Wall Ropes

Following are the main highlights of the discussion of the Workshop:

- Dr Pitam Chandra, Director, Central Institute of Agricultural Engineering, Bhopal, explained that agrotexiles are woven, non-woven and knitted fabrics which use natural and/or synthetic fibres applied for agricultural & horticultural uses covering livestock protection, shading, weed and insect control and extension. The agrotech products could be classified as nets, mulch mats, crop covers, bird protection nets etc. Dr Chandra highlighted the significance of colour of mulch mats for crops. For instance, it was found that if tomatoes are grown under red mulch mats, the yield goes up by 15-20%.
- The technical textiles items can be used to protect young plants such as strawberries, potatoes and lattice from night frost and viruses and to protect crops from extreme hot or cold conditions. Giving examples of application of technical textiles, Dr Chandra said that fabric beds are used to grow mushrooms and fabric covers are used to control sunlight. Sun screens and wind shields are also used to protect crops from sun and wind respectively.

- In animal husbandry, technical textiles products are used for identification belts for cows, nets to support large udders and filters to filter milk in automatic milking system. Non-woven fabrics are also used as underlay to reduce mud on cattle path & trails and animal shelters.
- Technical textile products used in fisheries are fishing lines, nets, ropes and twines.
- Technical bags and containers, dryers and conveyors are also used in post harvest management and value addition to agricultural crops.
- The world market for technical textiles was estimated to be around \$107 billion (in 2005) out of which agrotech accounts for \$10 billion. Dr Pitam Chandra said that given that agriculture is the largest occupation pursued in India, we can increase the consumption of technical textiles in agriculture and can consume almost 50% of the current world consumption of agro textiles (i.e. 1 m tonnes).
- Mr Bhupendra Singh, Joint Secretary, Ministry of Textiles in his presentation highlighted some important features of global technical textiles industry, like technical textiles accounts for 22% of total fibre consumption globally. In countries like USA, it is as high as 23% whereas in India technical textiles accounts for only 4% of total fibre consumption.
- Total market size of technical textiles in 2007-08 is Rs.37118 crore out of which agrotech constitutes only Rs.553 crore (1.29%) and Oekotech constitutes a miniscule Rs.68 crore i.e. only 0.18%. Meager consumption of agrotech and oekotech products signifies under development, lack of awareness and sensitivity towards ecosystem, inadequate enforcement of environment laws etc.
- Mr Bhupendra Singh suggested to the Ministry of Environment that use of technical textiles in the land fill projects may be made mandatory and the concept of landfill waste management should be enforced by the Ministry of Environment and Forests under the Municipal Solid Waste Management and Handling Rules, 2000.
- Dr U K Gangopadhyay, Director, SITRA, made a detailed presentation on agricultural textiles. Agrotexiles are special textiles that are manufactured for agricultural applications like agriculture, horticulture and animal husbandry. Agrotexiles leads to improved productivity and quality of produce and lower cost of production. There are many factors influencing agricultural produce in India like Sunlight, Water, Climatic conditions including wind, hail,

humidity etc, external factors like birds, insects and weeds etc, post harvest handling of produce-storage and packaging. Absence of control factors lead to unsatisfactory yield percentage, poor quality of produce, damages to the produce, regional and seasonal limitation on cultivation. Agrotextiles are widely used internationally and they help cultivation of crops in arid and semi-arid regions.

- Oekotech is also an important area of technical textiles, they are used for environmental protection and waste disposal. Oekotech covers geogrids used to reinforce slopes beneath the waste, walls, cover soils and above geomembrances, geonets used in plane drainage geomembrane which are used as a barrier to liquids, gases, vapours and are used in landfill caps, geocomposites used for separation, filtration or drainage etc.
- Dr Gangopadhyay also highlighted the recent developments in the area of agrotextiles.
 - Polymer fibre balls acts as substitute for soil, provide excellent drainage, oxygenation and thermal insulation
 - Screening fabrics for sunlight management helps to control level of sunlight, air circulation, humidity and carbon dioxide concentration for vegetation
 - Knitted net hose for water transpiration helps in storing and transporting water near to plant roots for irrigation.
 - Superabsorbent polymer fibre mats helps to retain water, suitable for horticulture in drought prone areas.
 - Water retention nets enhance water retention properly to support plant growth.
 - Composites of hemp or poly propylene are found to be useful in protection of soil from chemical pollutants.
- SASMIRA has proposed many studies for standardization of agrotextiles like development of durable, breathable and barrier work wear fabrics for agrotextile applications, development of speciality fabric for water conservation and soil erosion control used in horticulture application, establishing structural parameters of agrotextile products and their influence on the functional characteristics of these products, development of reflective agrotextiles for sunlight management and developing barrier packaging for agricultural produce.
- Dr Gangopadhyay also presented various case studies on usage of certain prominent agrotextile products like shade nets, greenhouse, mulch mats and it was found that use of shade nets results in premium quality of produce, fetches higher market price, lesser crop

diseases and makes cultivation possible in all regions. Use of greenhouse results in 50-290% increment in yield and 60-467% increase in income (depending on the vegetables or flowers). Use of mulches results in water saving of 20-50%, increased yield of 20-53% and additional income of Rs.5000-30000 per hectare.

- Dr Gangopadhyay emphasised that their mission is to create awareness regarding agrotextiles, to assist the industry for entrepreneurship in the field of agrotextiles by providing training to the potential agrotextiles manufacturer, and to create state-of-the-art testing and certification facilities for these products.
- There is a huge unexplored potential for Agrotextiles in India. Centres of Excellence for Agrotech, Ministry of Textiles and Ministry of Agriculture should jointly consider the following steps for promoting usage of Agrotech:
 - Create awareness of the benefits of protected cultivation using agrotextile products amongst Indian farmers' co-operatives
 - Set up demonstration centres throughout the country for protected cultivation using green house, shade nets, mulch mats, hail nets, bird protection nets, harvesting nets, packaging sacks, sub surface drainage and drip irrigation.
 - Provide assistance for undertaking advanced feasibility studies with the use of agrotextile products for various produces
 - Norms and statutory regulations for agro shade nets to be set by the Ministry of Agriculture once the test standards for the products are established by COE of agrotextiles
 - Adequate subsidies should be given for usage of agrotextile products to farmers.
 - Financial aids & subsidies should be linked with the usage of agrotextiles to ensure better returns
 - Certification of agrotextile products should be made mandatory to avail institutional support
 - Special schemes for usage of agrotextiles in vulnerable areas/sensitive produces should be provided.
- Mr Ranjit Dash, AGM, Garware Wall Ropes presented the industry perspective in the area of Oekotech. Geotextiles can be used in filtration and separation, sealing and protection, drainage and erosion control and reinforcement. In India we produce 1 million tonnes of waste everyday. There is an immediate need to find solution to dispose it off. Geotextiles can play an effective role in this area.

- Mr Kamlesh Bhatia, General Manager- Marketing, Rishi Packers explained that there are several techniques through which agrotextiles can be used and each method offers specific advantages for a particular product.
- Vegetative and productive phase of all crops have specific requirement of light and temperature to function and produce optimally. Shade nets control growing conditions, manipulate growth patterns and protect crops from excess of sun, wind and hail by regulating quality and quantity of light required. Use of shade nets greatly improve crop yields and extend the growing season of some vegetables.
- Windbreakers are used to modify climatic conditions and provide effective protection against wind damage. Windbreaker nets also act as a defence against frost, low temperature and hails. Grapes are dried using these nets, used for vermi-composting, for protection and security of plants, bird nets to protect crops from birds.
- Smt. Rita Menon, Secretary, Ministry of Textiles while addressing the delegates in the Workshop said that critical issue of concern is that there is very low awareness about technical textile products. Awareness needs to be created to enhance agricultural productivity and to improve quality of the produce.
- Smt. Menon also emphasized the need for setting standards for Agricultural textiles with the coordinated effort of Ministry of Textiles and other departments.
- Shri Vijai Sharma, Secretary, Ministry of Environment & Forests suggested that there is a need to formulate inter-ministerial group to address the issues related to use of technical textiles in the area of environmental engineering. Mr Sharma also emphasised the need for setting standards for industry producing technical textiles.
- In discussion, the following issues were highlighted:
 - It was requested by one of the participants that everything discussed in the Workshop in the form of papers and presentations should be provided in Hindi for the understanding and benefit of Farmers.
 - A point was raised regarding the non-availability of greenhouse in Jammu & Kashmir and it was requested that demonstrations should be given to the farmers through co-operative societies.
 - In order to provide appropriate climate and to take care of weather fluctuations in agriculture, delegates have expressed the need for understanding how the use of

agrotextiles could be useful in this regard. Also, it was mentioned that some work is already underway in this area in IARI.