

TECHNICAL TEXTILES – PART XI

REF: TT/ JAN 2022/ WK 4

Application of Agriculture Textiles

Agro textiles are used in farming, animal husbandry, and horticulture. These textiles are used to control the adverse effects of environment and climatic factors on crop production and cattle breeding. Agro-textiles decrease the requirement of fertilizers, water, harmful pesticides and herbicides. They prevent the soil from drying out and increase crop yield. Thermal protection textiles are treated with ultraviolet ray stabilizers and it can save energy in heating greenhouses. Their use prevents staining and improves uniformity of color. They increase the early maturing of crops and protect from climatic changes and its effect. Agro textiles avoid branches from breaking, increase the cleanliness of the crop and make harvesting easy. Agro textiles products can be woven, non-woven or knitted and are used for various purposes.

- A) Agro textiles in production of crops** - The selection of Agro-textile product depends on crop needs and geographical location. Some of the applications of agro textiles in crops in this area are :
- **Sunscreen net** - The Warp-knitted nets are used in order to protect fields and greenhouses from the intense solar radiation for healthy plant growth and good harvest. Sunscreen nets with open mesh construction are used to control sunshine and amount of shade required. These net fabrics allow the air to flow freely. So the excess heat does not built up under the screen.
 - **Bird protection nets** - Knitted monofilament nets provide protection of seeds, crops and fruit against damage caused by birds and a variety of pests. Open-mesh net fabrics are used as a means of protecting fruit plantation. The special open structure repels birds, provides minimal shading and excellent air circulation. These net are strong yet lightweight and protect the fruit without restricting plant growth. The use of polyethylene tape yarns/mono filament yarns makes the net durable.
 - **Mulch films** - Mulch films are used to suppress weed growth in horticulture applications.
 - **Plant net** – Fruits can be kept away from the damp soil by allowing them to grow through the nets to keep the amount of decayed fruit to a minimum. These are made from polyolefin type of fiber.
 - **Ground cover net** - Ground cover net is a fabric used for weed control, moisture conservation and separation. It reduces weed growth, conserves ground moisture and protects from UV rays; thus helps the plant to grow healthy. These nets are used in borders, nursery display areas, greenhouse floors, soft fruits beds, and seed harvesting areas.



- **Insect meshes net** - Various pests and insects attack some plants and vegetables. Woven and knitted polyethylene monofilament meshes are used to protect them. The fine woven screens protect plants from insect attack.
 - **Cold and frost control fabrics** - Cold and frost control fabrics are laid directly on the plants; these fabrics protect the plant from frost kill.
- B) Agro textiles in horticulture and floriculture** - Nets, non-woven mats, movable screens for glass/poly houses, non-woven sheets etc. are used in horticulture. Nets are also used for protection against hailstorms, intense sunrays, etc. Light resistant woven and non-woven polyester fabrics are used in the inside of greenhouse to protect the plants from extreme hot or cold conditions. They are also used on the outside of the green houses as screen to control sun light. Some of the agro-textiles used in horticultural and floriculture are: rain and hail protection fabrics, wind control fabrics, harvesting nets etc.
- C) Agro Textile for Animal Husbandry** - Non-woven fabrics is used to filter the milk in automatic milking systems.
- D) Packing materials for agricultural products** - Nets can be used for packaging of farm products. It includes packing sacks for vegetables, tubular packing nets for fruits and wrappers. Nets are used because of their high strength, low weight and air permeability.



Fig 1.1 Agro textile products

Ref: slideplayer.com

References:

1. <https://atira.in/>
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4. <https://www.technicaltextile.net/>
5. <https://www.wptnonwovens.com/>

.....To be continued.....



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Last week`s Answers: 1) NONWOVEN 2) ULTRAVIOLET 3) ANIMALS 4) ABSORBING

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