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AGROTEXTILE - GROUND COVER (MULCH)

Ground Cover

Ground cover also known as mulch mat or weed mat, plays a vital role in modern agriculture by serving various purposes aimed at controlling weed growth, optimizing soil health, conserving moisture, and promoting overall crop well-being.

Significant roles and purposes of mulch mats in the agricultural landscape.

1. Weed Suppression

Purpose: Control weed growth.

Benefits: • Prevents the emergence and proliferation of unwanted weed.
• Minimizes competition for nutrients and sunlight, promoting crop growth.

2. Soil Moisture Conservation

Purpose: Retention of soil moisture.

Benefits: • Reduces water evaporation from the soil surface.
• Enhances water conservation.

3. Temperature Regulation

Purpose: Thermal insulation.

Benefits: • Moderates soil temperature, protecting roots from extremes.
• Creates a stable microclimate for optimal plant growth.

4. Erosion Control

Purpose: Prevention of soil erosion.

Benefits: • Stabilizes the soil surface, reducing the risk of erosion.
• Protects against water runoff during heavy rainfall.

5. Nutrient Retention

Purpose: Preserve soil nutrients.

Benefits: • Acts as a protective layer, preventing nutrient leaching.
• Enhances nutrient availability for plant uptake.

6. Improved Plant Health

Purpose: Support plant well-being.

Benefits: • Creates a favorable environment for root development.
• Reduces stress on plants by providing stable growing conditions.

7. Enhanced Crop Yield

Purpose: To increase crop productivity.

Benefits: • Optimizes growing conditions, leading to higher crop yields.
• Improves produce quality.

8. Disease Prevention

Purpose: Protection against soil-borne diseases.

Benefits: • Reduces the risk of disease transmission.
• Maintains a Better environment for plant growth.

9. Aesthetic Improvement

Purpose: Cleanliness & appearance of crops.

Benefits: • Provides a neat and organized appearance to the agricultural landscape.
• Supports a clean and professional farming environment.

10. Sustainable Agriculture

Purpose: Economical & Environment friendly practice

Benefits: • Reduces the need for chemical weed control.
• Promotes eco-friendly and resource-efficient agricultural practices.

Types of Ground Cover

Ground covers, commonly known as mulch mats, come in various types, each manufactured from different materials and manufactured using specific techniques. The diversity in ground cover options allows farmers to choose the most suitable solution for their agricultural needs.



HDPE Woven
Ground Cover



PP Woven
Ground Cover



PP Spunbond
Nonwoven Ground Cover



Jute Needle Punch
Nonwoven Ground Cover



Coir Needle Punch
Nonwoven Ground Cover

Mulch Mat Durability: The Vital Role of UV Treatment

Mulch, a key component in modern agriculture, faces constant exposure to sunlight and outdoor elements. To ensure its longevity and effectiveness, UV treatment plays a crucial role in enhancing the resilience of mulch materials.

Key Considerations

1. Vulnerability to UV Degradation:

- Mulch materials, especially those made from synthetic polymers like polyethylene, are susceptible to UV radiation.
- Prolonged exposure to sunlight can lead to material breakdown, diminishing the mulch's functionality.

2.UV Additives for Protection

- UV treatment involves incorporating UV stabilizers or additives into the polymeric material during the manufacturing process.
- These additives act as a shield, protecting the mulch from the harmful effects of UV radiation.

3.Improving Outdoor Durability

- Mulch is primarily designed for outdoor applications, where UV exposure is inevitable.
- UV treatment significantly improves the mulch's ability to withstand prolonged sunlight, ensuring sustained performance in various weather conditions.

4.Extending Mulch Lifespan

- UV treatment plays a crucial role in extending the lifespan of mulch.
- By mitigating UV-induced degradation, treated mulch maintains its structural integrity, providing reliable performance over an extended period.

5.Preserving Mulch Functionality

- Mulch serves multiple purposes, including weed suppression, soil moisture conservation, and temperature regulation.
- UV treatment ensures that the mulch continues to fulfill its intended functions effectively.

Why UV Treatment Matters ?

1.Product Reliability

- UV-treated mulch is more reliable and durable, ensuring long-lasting protection for crops.

2.Cost-Efficiency

- Investing in UV-treated mulch proves cost-effective in the long run, as it requires less frequent replacement.

3.Crop Protection

- UV-resistant mulch effectively safeguards crops, contributing to healthier and more robust plant growth.

4.Environmental Adaptability

- UV treatment enables mulch to adapt to varying environmental conditions, making it suitable for different regions and climates.

Choosing UV-Treated Mulch

When selecting mulch for your agricultural needs, prioritize those that undergo UV treatment. Look for products that explicitly mention UV resistance, ensuring that your investment provides enduring protection for your crops.

Ground Cover vs. Mulch Film

In the world of agricultural practices, the choice between ground cover and Mulch Film is a critical decision that impacts soil health, environmental sustainability, and overall farming success. Let's explore the advantages of ground cover over plastic film-based mulch.

Ground Cover

Strength and Durability

- Ground covers, being textile-based mulch, are robust and resistant to tearing during installation or removal.
- Their sturdy fabric ensures longevity and reliability, minimizing the risk of fragmentation or tearing.

Environmental Impact

- Ground covers are environmentally friendly as they are made from either natural material or synthetic recyclable materials, reducing the ecological footprint.
- These textile-based mulches don't leave tucked portions in the soil, avoiding interference with soil fertility.

Animal Health

- Ground covers pose no risk of harm to animals as they are tear-resistant and do not fragment into harmful pieces.
- Livestock and wildlife are spared from ingesting plastic fragments, preventing potential health issues.

Longevity and Cost Efficiency

- Although ground covers may have a higher upfront cost, their extended lifespan of 3-5 years makes them more cost-effective over time.
- The durability of ground covers translates into long-term benefits, making them a wise investment.

Mulch Film

Soil Fertility Concerns

- Plastic film-based mulch can leave tucked parts in the soil, potentially hindering soil fertility over time.
- The buried film fragments can create an undesirable environment for plant growth.

Environmental Challenges

- Plastic films are not environmentally friendly, as they contribute to non-biodegradable waste.
- Disposal of torn or used plastic film can pose challenges in waste management and contribute to pollution.

Animal Hazards

- Fragments of torn plastic films may be ingested by animals, leading to severe health issues.
- Plastic ingestion by animals poses risks to both wildlife and domesticated livestock.

Shorter Lifespan

- Plastic film-based mulch typically has a shorter lifespan, requiring more frequent replacement.
- The need for frequent replacements may result in higher long-term costs.

Conclusion

While ground covers may involve a slightly higher initial investment, their numerous advantages in terms of strength, environmental impact, animal safety, and long-term cost efficiency make them a superior choice over plastic film-based mulch. Making the right choice aligns with sustainable agricultural practices, ensuring soil health and overall farming success.

BIS Standards for Ground Cover

At CoE Agrotech, we take pride in contributing to the development and standardization of Agrotexiles. Our commitment to quality is reflected in a comprehensive set of 24 Agrotexile standards, developed in collaboration with the Technical Committee TXD35 under the Bureau of Indian Standards (BIS). This committee, chaired by CoE Agrotech, comprises industry experts, academicians, agriculturists, and BIS officials. These standards serve as a benchmark, ensuring that Agrotexile products meet rigorous criteria for performance, durability, and safety. The relevant BIS standards for three ground covers are as follows

1- IS16202: 2014 Ground cover made from Polypropylene (PP)

SI No. (1)	Characteristic(s) (2)	Requirement(s) (3)
i)	Mass. g/m ² . Min	100
ii)	Tensile strength (grab). kgf, Min	
a)	Wrap way	65
b)	Welf way	35
iii)	Tear strength, kgf, Min	
a)	Wrap way	30
b)	Welf way	18
iv)	Air permeability, cft/ft ² /s, Min	20
v)	Index puncture resistance, kgf, Min	25
vi)	UV accelerated exposure testing, percent strength retained, Min	70
vii)	Water permeability It/m ² /s, Min	7
viii)	Water vapour permeability, g/m ² /Day, Min	730

2- 17070: 2019 Ground cover made from Jute

SI No. (1)	Characteristic (2)	Requirement		
		Type 1 (3)	Type 2 (4)	Type 3 (5)
i)	Mass at 20 percent moisture regain, g/m ² , Min	500	800	1000
ii)	Thickness, mm, Min	3.5	6	7
iii)	Width, cm	150 ± 5 percent	150 ± 5 percent	150 ± 5 percent
iv)	Wide width tensile strength, [MD x CD], Min	1.75 x 1.5	2 x 1.5	4.5 x 2
v)	Tear strength, N, [MD x CD], Min	65 x 35	65 x 40	65 x 45
vi)	Bursting strength, kPa, Min	1100	1400	1600
vii)	Index puncture resistance, N, Min	175	200	300
viii)	Air Permeability (at 10mm WG) cubic foot / square foot/s, Min	2.5	1.25	1.25
ix)	Water perminitivity, s ⁻¹ , Min	3.0	1.25	1.25

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