Coconut fiber (Coir)
The best natural fiber for protecting and preserving our environment

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Coconuts Trees (Cocos nucifera)

- Tall palm tree native to East India
- Coconut trees grow all over Sri Lanka
- No waste - every part of the tree can be used
- Grown as a plantation crop
- Year round production
- About 40,000 acres of coconuts grow in plantations
- Coconut fruits are harvested once in every 7 weeks
  - About 700 -1000 nuts/acre
- Manual harvest with a skilled labor force
Coconut trees have a life span of 60-80 years.
Uses of Coconut Trees

- Mainly for food
- Water inside is healthy to drink
- The outer hard shell is burnt to make activated carbon
- Left over husks are processed for fiber
- Coconut leaves can be used as temporary roofing material
- Wood can be used as lumber or firewood
What is Coconut fiber (coir)

- Abundant, renewable natural resource
- Byproduct from the coconut industry
- No waste is generated
Processing of coir

- Traditional coir processing involves curing (retting) the coconut husks in freshwater for at least 3 months.
- During curing, the coconut husks turn dark brown in color.
  - Curing also increases the durability, strength and flexibility of the coir.
- With increased demand, there are new machines to separate fiber without the retting process. This fiber is light brown in color and have less durability, strength and flexibility.
Coir Separation

- With skilled processing, coir fiber is separated into different grades, depending on the length of the fiber.
- This fiber separation process is done only in Sri Lanka. Many countries use coir as mixed fiber without separating.

Bristle Coir Fiber
Longer, thicker coir fiber

Mattress Coir Fiber
Shorter, thinner fiber
Coir Dust

- Pith (dust) is left after processing the fiber
- An excellent soil-less plant growing medium for organic gardening
- Coir pith can also be used in worm cultures and as reptile bedding
- High absorption - good for environmental cleanups
- No waste at all
Advantages of Coir Fiber

- Higher strength compared to most natural fibers
- High water holding capacity and supportive of plant growth
- Excellent filtering medium
- Unpalatable for animals and environmentally safe
- Capable of making a variety of economical finished products
- Slow rate of decomposition, last longer
- Easily mixed with soil and can provide mulch
- Readily available
Product Performance

- Fiber processing method
- Type of fiber used

Bristle Coir Woven Mat

Darker brown

Mixed coir woven mat

Lighter brown
Advantages of bristle coir woven blankets

- Holds moisture and supports vegetation growth
- No plastic netting
- Open weave allows seeding through the mat and re-seeding, if necessary
- Easy installation
- Higher resistance to UV light compared to synthetic mats
- Coir twine poses no threat to wildlife
- High tensile strength and provide initial support in bioengineering applications
- Last 4 - 6 years
Side by side comparison
coir mat vs synthetic mat

*Woven coir mat*  *Synthetic mat*
Advantages of Coir Sediment Control Products

- Filter sediment effectively
- Biodegradable
- No removal, hauling, and landfill costs
- No synthetic materials to interfere with wildlife
- Works well with heavy equipment
Coconut fiber industry in Sri Lanka

- Very stable production of coconuts
- Fiber price is dependent on demand
- Weather can have impact on production
- Labor cost continue to rise
Applications of Coir Sediment Control Products
Synthetic Sediment Control Products

- Increases costs
- Not environmentally friendly
Coir Streambank Restoration Products
Thank you!