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The GM PRO Julie Newman on Growing Trends

Julie Newman is farm adviser, University of California Cooperative Extension, 669 County Square Drive, Suite 100, Ventura, CA 93003-5401; (805) 645-1459; fax (805) 645-1474; jpnewman@ucdavis.edu

Core facts about coir

Coir is made from the fiber found between the husk and the outer shell of coconuts. It is a relatively new growing medium that is becoming popular throughout the world in growing mixes and as a substrate for hydroponics.

Coir processing

Coir is produced primarily in Sri Lanka, the Philippines, Indonesia, Mexico and parts of the Caribbean and South America. The fibrous coconut husks are stripped, shredded and screened into long fibers and pith. The pith (cocopeat and coco dust) accounts for two-thirds of the coconut pulp by weight and was long considered a waste product. Millions of tons still sit in huge piles in India and Sri Lanka due to its slow decomposition rate of 20 years,

During the last half of the 1980s, researchers successfully developed processing techniques to transform coir into a mulching amendment and hydroponic medium. The processing of coir pith involves washing, composting, screening and grading.

Coir uses

Coconut fiber has long been used for manufacturing rope, mats and carpeting. The trend toward using cocopeat in growing media for plane production began in the Far Easi and quickly made its way to the Netherlands and Canada. Over the past decade, its use in the United States began as a replacement for rockwool in hydroponic rose production. Today, coir pith and coil chips are used by greenhouse growers, in container mixes.

Coir advantages

Composed of strong cellulose fiber with high lignin content, coil has a significantly higher water-holding capacity than rockwool Additionally, coir readily absorb water; a wetting agent is not needed as is the case with sphagnum peat moss. Coir also maintains greater oxygen levels than rockwool.

Coir decomposes slowly over time due to its composition of more than 45 percent woody lignin. Though the resiliency of coir is impressive, it varies depending on age and form, generally lasting to four years. Precomposted coconut can last four years without shrinkage or compaction. Non-composted husks usually last two years.

Coir with a lower amount of fiber, containing more pulp, also has a shorter lifespan. The finer the coir, the faster it decomposes; the coarser it is, the longer it lasts.

Slow decomposition and limited shrinkage and compaction results in a stable open substrate structure that air can penetrate. This encourages larger, healthier roots.

Adding lime is not necessary when using coir as it is when using sphagnum peat. The pH of coir can range from 5.6 to 6.9, but most commercially available sources range from 5.8 to 6.5.

Coir is environmentally sound and reusable after it's sanitized. Since coir is completely natural, there are no biohazard or disposal problems. However, the coir fiber industry, which produces this waste product, does contribute to significant water pollution. At least one coir manufacturing company claims to be treating its effluent water.

Some research has also shown that coir might have insect-repelling abilities. Coir can deter fungus gnats and algae growth by keeping the top surface of the growing medium dry. In this way, coir acts like a mulch on the medium surface, distributing moisture evenly with its natural wicking action. How well fungus gnats and algae are controlled with coir depends on the grower's watering preferences and the environment.

In spite of its advantages, the trend with growing mixes is to combine coir with other components such as peat to reap the benefits of other elements in combination. For example, when mixed with peat, coir can improve the medium by allowing water to be taken up more readily without the need of a wetting agent. Peat mixes can also improve the consistency of coir so that there are fewer clumps of "coir fur ball."

Coir disadvantages

The most common problem with coir is that it can have high salt content, especially lower-grade supplies. The electrical conductivity of coir has been reported to range from 0.3 to 2.9 micromhos per centimeter. Coir with a high salt concentration needs to be leached before use.

Chloride levels of 400 to 700 parts per million are not uncommon in coir. However, these chloride levels typically do not present a problem as long as the electrical conductivity is in an acceptable range.

Coir with a high salt level is usually the result of suppliers washing the coconut husks with salt water instead of fresh water. The problem can be resolved by buying from a reputable dealer. Cheaper coir with a high electrical conductivity may be more expensive than higher-priced coir with an acceptable electrical conductivity level once the additional leaching labor costs and water are added in.

With a cation-exchange capacity of 39 to 60 milliequivalents per 100 gallons, coir provides for nutrient-holding capacity in the medium, but its cation-exchange capacity is lower than that of sphagnum peat moss. Growers switching from sphagnum peat to coir will have to change their fertilization practices. Because coir has better wettability, growers who are used to watering growing mixes containing peat will also have to modify their irrigation practices when switching to or adding coir.

A disadvantage of coir is its clumpy form, which may not move smoothly through automated mixing and filling equipment, although some forms are less likely to clump. Good communication with your supplier can avoid importing coir that is too salty, chunky or fresh.

Cost often depends on how the product is shipped. Stringy, ropelike coir is more expensive because it is ready for use immediately. Coir that is compressed into bricks or a pallet is cheaper but needs to be expanded before use.