



Nursery & Garden Industry
Queensland

Coir or coconut fibre

Note: Growing media is an important component in producing plants in container production and it is strongly recommended that growers undertake extensive trials with new blends and mixes before making changes to their standard growing media.

Coir, coir fibre pith or coconut fibre is a one hundred percent natural, environmentally friendly product. It is a sustainable and renewable resource. Coir is derived from the husk of the coconut, the fruit of the coconut palm *Cocos nucifera* which can often produce in excess of one hundred coconut fruits per tree per year. Coir is produced in many countries throughout the world; however the major production originates from Sri Lanka and India.

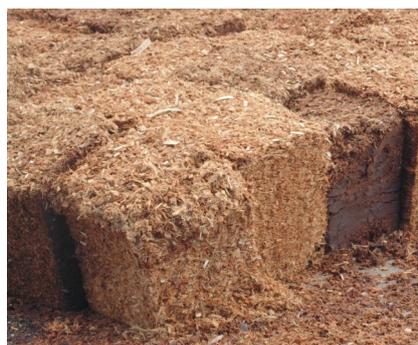
Coir is a 'peat like' byproduct produced from the processing of coconut husks. It is the fibrous material found between the hard, internal shell and the outer coat of a coconut. The coir is removed by soaking the husk in water to loosen the fibres, often by floating the husks in a lagoon for several months. The fibres are then removed and screened for size, dried and compressed into blocks or bales (other treatments are employed by some processors including heat treatment and

washing in fresh water). Coir chips are obtained by cutting the coconut husk into small graded pieces.

Coir is a homogenous material composed of millions of capillary micro-sponges. The individual fibre cells are narrow and hollow with thick walls made of cellulose and lignin. The naturally aerated structure of the coir fibre allows it to hold up to eight times its weight in water while its fibrous nature allows moisture to easily drain. Coir has a natural pH of 5.7 to 6.5.

Coir is sustainable, lightweight, retains moisture and is currently an affordable growing media substrate or component in a growing media blend. Growers using coir fibre in container production have observed that the crops produced have a stronger, healthy, more fibrous root system.

Coir has an excellent Water Holding Capacity (WHC). The inclusion of coir in growing media can improve the water holding capacity of the mix while maintaining good air filled porosity and good drainage. The higher the volume of coir in the growing media, the greater quantity of water the growing media can support. Improved WHC of growing media leads to less irrigation, less water used, less energy consumed in irrigation pumping, and less leaching of fertilisers providing better,



faster plant growth. The high WHC and wettability of coir aids in the development of a strong fibrous root system throughout the container. Growers report the WHC of coir provides quicker plant establishment, less transplant shock, longer shelf life and fewer production losses.

Coir has an excellent wetting and rewetting capacity. Many growing media components such as pine bark and peat moss are difficult to rewet as they dry out and are labeled hydrophobic in that they repel water. Coir remains hydrophilic or water attracting and contains no waxy cutin to repel water as is the case with peat moss. With overhead and drip irrigation, coir ensures quick and efficient rewetting of the entire growing media in the container. In capillary watering the coir assists in quickly establishing a capillary connection with the capillary mat. The capillary action of coir also assists in redistributing water throughout the container as it is absorbed by the growing media.

Coir maintains an excellent Air Filled Porosity (AFP) of approximately 20%. The AFP of the growing media in containers is a measure of the air available to the plant root system required to sustain plant growth. Coir chips and blends of coir fibre and chips often have a much higher AFP.

Coir has a high Cation Exchange Capacity (CEC) similar to peat moss. This CEC ability to hold nutrients in the growing media ensures the fertiliser applied is available to the crops in containers through the growing period.

Coir has excellent physical stability. Each tough course fibre maintains its shape when incorporated into growing media. The coir fibers resist compaction providing more airspace in the container. Coir fibre growing media blends do not shrink and settle in the container. The high lignin content of the coir material means the growing media will be longer lasting, hold more water and

will not shrink from the sides of the container as it dries out.

Grower experience has identified that a growing media blend or mix with 10 – 20% coir provides all the benefits of coir while allowing growers to 'stand out' the batch with other crops that may not have coir included in the media. This is particularly valuable as growers make the transition to coir based growing media mixes throughout the production. Growers have used coir at rates above 20% with increased benefits with some producers using 100% coir (100% coir growing media is generally a blend of 60% coir chip and 40% coir fibre however blends can be tailor-made to suit grower requirements) Coir is often used as a replacement for sand in growing media mixes.

Coir is available in various grades and blend combinations of fine and chip material. Each grade and blend of coir will exhibit different physical properties and it is important to specify to the distributor the exact grade or blend required.

Coir is supplied in compressed blocks or bales individually wrapped or in bulk quantities on pallets. Blocks can be expanded by adding water and physically breaking up the bale as water is absorbed or bales can be placed in special shredders to break up the bale before wetting and use. Small quantities can be placed in a tub or wheelbarrow of water to expand or larger quantities placed in a concrete bay and water applied slowly through sprinklers.

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