



Grow bags used in tomato production (Photo: FibreDust LLC).

Hydroponic Media: Give Slab Production a Second Look

For growers implementing controlled environment methods for crops such as cannabis and edibles, new media options can maximize crop growth.

BY TAMI VAN GAAL

Many proven practices in horticultural production can be leveraged to increase efficiencies in cannabis and other hydroponic production. One place to start is by examining options in growing media.

While peat-based media prevail in the ornamental market, the world of controlled environment agriculture (CEA) is dominated by hydroponic production methods. Leafy greens are generally produced in obvious hydroponic systems, including floating rafts

and nutrient film technique (NFT) systems. Other CEA growers combine container-based production systems with an inert or low-reactive media that provides support but little fertility. Examples of this strategy include Dutch buckets and 100 percent coir media in traditional pots.

However, one production method clearly leads the market for hydroponic production: the slab method. Growers commonly use the slab method to support hydroponic production of high-wire

crops, including tomato, cucumber and pepper. The slab method is also readily adaptable to cannabis production.

The slab method ingeniously supports crops from propagation to harvest while avoiding any transplant-related stress. Propagation begins in a plug. As the young plant matures, the plug is placed into a dibbled or carved hole in a larger block, generally 3 to 4 inches square. The young plant is grown in the blocks at high density while it quickly roots into the surrounding media. As the roots penetrate to the edges of the block, the block is placed on the surface of a larger slab. The roots move into the slab, which will support the plant for the remainder of its production cycle.

Rockwool media has dominated slab production for many years. Also called stone wool, rockwool affords several desirable attributes for production, most remarkable being its inert nature. However, rockwool presents a significant drawback: Disposal can be challenging because rockwool does not break down. For growers for whom disposal is a problem, two other options now exist for slab production.

Two media alternatives solve the disposal problem while maintaining the integrity of the

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slab system. Both provide all three components for the system (plug, block and slab), and both offer slabs wrapped in poly for ease of use, even moisture levels and minimizing algae growth. Therefore, while implementing a change in media types will, of course, lead to a change in irrigation strategy, the transition won't alter the basic production approach. Space utilization and crop stages match the known process, right down to the placement of drip tubes.

COIR

The first alternative media to adopt the slab system was coir. Coir has grown in popularity as a peat alternative in conventional

production due to its plentiful, renewable supply and positive attributes for root growth, including good water holding capacity and high porosity. Coir offers about half the cation-exchange capacity as peat, which means it holds less nutrition than peat. For all practical purposes, pure coir presents a hydroponic system.

Coir is considered to be the most environmentally friendly of the three media types most commonly used in slab grow bags. Of the three, coir alone provides an organic option; it's relatively easy to find an OMRI-listed coir slab. Once the poly bag is removed after production, the coir can simply be composted. Readily available, easy to grow in and easy to dispose, cost-effective coir is an appealing solution for many growers.

Consider a few factors when switching to coir slabs. First, look for a product with a low EC to avoid the need to leach or condition prior to planting. Next, look for consistent quality and a blend developed for your particular crop. The FibreDust product line, for example, ships with a very low EC (less than 0.5 mS/cm at shipping), and offers readily available blend options and strong product consistency. Slabs ship compressed and dry.



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PRODUCTION

Table 1. Media comparison chart.

	Rockwool	Coir	Oasis Easy Plant
Organic	No	Yes	No
Mechanical and biological breakdown	No	Yes	Yes
Inert	Yes	No	Yes
Sterile (at manufacture)	Yes	No	Yes
Weight	Heavy	Heavy	Light

They fluff naturally after irrigation. While FibreDust products won't require conditioning, allow several hours for the product to fully hydrate prior to use.

PHENOLIC FOAM

The newest option for slab production brings an intermediate solution to rockwool and coir. The Easy Plant System from Smithers-Oasis utilizes the well-known Oasis phenolic foam in slab and block forms. Like rockwool, the media is inert; it won't interact with nutrients or crop-protection products. Unlike rockwool, Oasis' phenolic foam will break down over time. The breakdown process takes longer than for coir, but mechanical and biological break down will occur over 18 to 24 months. This timeline for breakdown means that the product will maintain its integrity during production.

Phenolic foam is a manufactured product. This means that the product is highly uniform,

highly consistent and also sterile at the time of manufacturing. Both density and pore size are controlled during the manufacturing process. Some of the pores are sized to hold moisture while others are sized to hold air. Since air is always held in the foam, the crop cannot be overwatered. Lightweight foam brings

additional advantages when it comes to shipping costs: Low weight translates into low freight.

Table 1 summarizes the differences between coir and Oasis slab systems:

When moving from rockwool to coir or foam,

growers should expect to modify their irrigation strategy. Moving to coir may also warrant a slight adjustment to the existing fertility program. Consult your supplier for guidance in making adjustments to maximize crop growth in the new media. *gpn*

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