

A Guide to Wood Substrates: Global Manufacturing Products and Producers

This is the third article in a six-part series highlighting the sourcing, engineering, commercial availability, and use of engineered wood substrates.

By Dr. Brian E. Jackson

As discussed in the second article of this series, which ran last month, numerous processing and manufacturing technologies are now used to produce wood substrate components. Many of these approaches were adopted from other wood-processing industries (pulp and paper, fiberboard, etc.), then adapted through equipment design and processing parameters to create materials with properties suited for growing media. Companies with decades of experience in wood-processing equipment have recognized the opportunity in horticulture and are developing and marketing machinery for substrate producers and growers working with organic biomass materials. This expertise has helped substrate producers scale up quickly in recent years. Conservatively, there are now more than 120 wood substrate processing units worldwide.

Processing Technologies and Equipment

For substrate producers or growers who want to manufacture their own substrate components, there are more options today than ever before, with new technologies entering the market each year. **Figure 1** provides a partial list of companies specializing in wood, bark, and other biomass processing machinery and technologies. Most sell equipment internationally and maintain offices, production facilities, and distribution centers across Europe and North America, and to a lesser extent, Asia and South America.

Most manufacturers supply versions of disc-refiners (defibrators) and screw processors (extruders, bioextruders, retruders, pressafiners), the two most common methods for producing wood fiber substrate materials. **Figure 1** also includes several U.S. companies that sell hammer mill systems (fixed, swing, knife, crusher, etc.), a processing approach currently used more often in the U.S. than Europe for substrate production.

It is also worth noting that many substrate processing machines in operation are not new turnkey systems. Many have been custom-built or retrofitted by substrate companies over time, and some, based on personal observation, are decades old and still operating.

Wood Product Suppliers

Since engineered wood fiber substrates emerged in Europe in the late 1970s, the number of growing media suppliers offering wood products has increased exponentially, especially over the past five to seven years. Many suppliers have produced wood fiber for decades, while others have recently invested in their own fiber production facilities rather

Company	Machine Type	Headquarters
Lehmann-UMT GmbH	Bioextruder	Germany
Promeco Bioextruder	Bioextruder	Italy
FibriTechnology	Biomaterial Tech	Poland
Saalasti Biomass	Crusher/Press	Finland
Clextal (Bivis)	Extruder	France
Premier Tech (Slootweg)	Extruder	Netherlands
Bliss Industries	Hammer Mills	USA, OK
Meadows Mills	Hammer Mills	USA, NC
Prater Industries	Hammer Mills	USA, IL
Schutte Hammermill	Hammer Mills	USA, NY
West Salem Machinery	Hammer Mills	USA, OR
Williams Crusher	Hammer Mills	USA, MI
Voith Group GmbH	InfibraFiner/Refiner	Germany
Agricon (FiberBeast)	Mill/Refiner	Belgium
Andritz	Refiner/Pressafiner	Austria
EMZ-WERKE	Refiner/Defibrator	Belgium
EnTaPa Consulting	Refiner/Defibrator	Spain
Pallmann (Siempelkamp)	Refiner/Defibrator	Germany
StreFas GmbH	Refiner/Defibrator	Germany
Valmet (Sunds)	Refiner/Defibrator	Finland
Willems	Refiner/Defibrator	Netherlands
Zm-Technik	Retruder	Switzerland

Figure 1: A few examples of global manufacturing companies and the types of machinery they offer for producing engineered wood fiber for growing media. Graphic and Photo: Brian Jackson

than sourcing from third parties. Some European substrate suppliers now operate multiple wood fiber units at one or more production sites to reduce transport costs and take advantage of regional forest and biomass resources.

Companies outside of Europe have also been producing wood fiber in recent years, including operations in Australia and New Zealand, with more capacity planned in the years ahead. **Figure 2** lists examples of global substrate companies that currently manufacture, sell, and/or use engineered wood fiber for professional and hobby growing media markets. This list focuses on companies associated with pure engineered wood fiber and is not comprehensive. Some companies listed are subsidiaries or co-packers of other firms included.

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PRODUCTION

Manufacturer	Product	Country
Australian Wood Fiber	AWF Fiber	Australia
Australian Growing Sol.	GrowFibre	Australia
Rocky Point	HydroGro	Australia
Agaris	Wood Fiber	Belgium
Agricon	Fiberbeast	Belgium
Eifel-Holz AG	Fiohta & Witumix	Belgium
EMZ Werke Manderfeld	EMZ Fiber	Belgium
Pindstrup	Forest Gold	Denmark
ICL	Fibagro	England
Sinclair	West+	England
HansaPeat	Wood Fiber	Estonia
Miksgrow	Wood Fiber	Estonia
Novarbo (Biolan Group)	Biofiber	Finland
Aquiland	HortiFibre	France
Florentaise	HortiFibre	France
Premier Tech	Wood Fiber	France
Anton Knoll Rohstoffe	Wood Fiber	Germany
Brill (Kekkila-BVB)	LignoDrain & LignoTer	Germany
Bruning Group	Wood Fibre/Lint	Germany
Floragard	FloraFibre	Germany
Gramoflor	LignoFibre	Germany
Klasmann-Deilmann	GreenFibre	Germany
Kleeschulte	Topora	Germany
Kronen Group	EcoFibrex	Germany
Patzer-Erden	Lignahum	Germany
Stender	Wood Fiber and Foam	Germany
Ziegler	Timpor	Germany
AgroFlora	Green Fiber	Greece
Fibra SRL	Conifiber/Timberfiber	Italy
Nuova Flesan	Sun Fiber	Italy
VigorPlant	Ecofibra/Fyberal	Italy
CompaqPeat (Pindstrup)	EcoFibri	Latvia
Rekyva	Wood Fiber	Lithuania
BOL Peat (Klasmann)	GreenFibre	Netherlands
Den Ouden	HortiFibre	Netherlands
Kekkila-BVB	Wood Fiber	Netherlands
Lenli	HortiFibre	Netherlands
Daltons	PineGro	New Zealand
Hunton	FiberGrow	Norway
FibriTech	FibriAgri	Poland
Flora Baltica	Wood Fiber	Spain
Masecor	Wood Fiber	Spain
Econova	Fibermull (Fiber Wool)	Sweden
Fagerhults Garden AB	Wood Fiber	Sweden

Figure 2: Examples of global substrate producers offering engineered wood fiber products.



Figure 3: Slabs and blocks of an engineered wood fiber (Fibergrow) produced by Hunton in Norway.

Beyond Loose-Fill: New Wood Substrate Formats

Driven by advances in wood processing and increased demand for wood-based substrates, new products are entering the market beyond loose-fill fiber. Fibergrow slabs and grow blocks (produced by Hunton in Norway) are one example, though not the first. Similar wood slabs were used in European greenhouse vegetable production in the late 1980s and 1990s as alternatives to stone wool (Figure 3).

Other companies are offering propagation cubes and grow mats made entirely of wood fiber, as well as compressed blocks that can be hydrated and expanded, like coir products. Additional prototypes are in development and, once commercialized, should provide growers with more options and production solutions.

Global Perspectives on Growing Media Security

Year-to-year fluctuations in substrate supply, combined with some peat reduction efforts worldwide, have brought scientists and industry leaders together to assess current limitations on substrate availability and identify barriers to future substrate development. While attending the ISHS Growing Media Symposium in Germany last September, I participated in a workshop on “Emerging Limitations to Growing Media Security (2025–2035),” which included experts from academia, industry, NGOs, and policy circles. The workshop, coordinated and led by Dr. Beatrix Alsanius (Sweden), focused on six overarching concepts shaping the future of growing media and soilless crop cultivation:

1. Climate and environmental stressors
2. Political and regulatory constraints
3. Market and economic factors
4. Resource scarcity and supply chain fragility
5. Quality, performance, and technical challenges
6. Knowledge, innovation, and transition gaps

Workshop discussions suggested that geopolitical uncertainties, limited market access to peat alternatives, and the lack of investment in soilless substrates can create “barriers to transition” for many growers. For more global perspectives on growing media security, visit [GreenhouseGrower.com](https://www.greenhousegrower.com).

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