



Substrate Caneberry Production: *Adopting the European Model*



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Outline

- What is substrate?
- Factors driving substrate production
- Positives and Negatives
- The future of substrate – is it for you?



What is Substrate?

“The surface material on, or from which an organism lives, grows, or obtains nourishment”

- Oxford Dictionary

“A growing medium that serves to keep the plant in place, as well as provide an environment in which the root system can function, and thrive”

- Wikipedia

What is Substrate?

- Non-soil based media, or blends of:
 - Coconut fiber / chips / pith
 - Peat
 - Bark
 - Perlite
 - Wood fiber
 - Nut shells (almond, hazelnut, walnut)





www.hortgrow.com

www.berger.ca



Peat moss

Lime

Bone meal

Cottonseed meal

Compost

Perlite

SAVVY GARDENING

www.savvygardening.com



www.grownetwork.com

What is Substrate Production?

- Typically above-ground
 - Containerized
- Substrate media inside:
- Pots
 - Troughs
 - Grow bags
 - Slabs
- Blueberries
 - Raspberries
 - Strawberries
 - Blackberries
 - Ornamentals
 - Bell Pepper
 - Tomatoes
 - Cucumber
 - Dwarf cherry
 - Dwarf peach
 - Cannabis
- Substrate production \neq hydroponics or aeroponics











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Factors Driving Substrate Production

- **In Europe:**

- Environmental regulations to reduce agricultural pollutants
- Loss of soil fumigants circa 2008
- Pressure from EU, public and supermarkets to reduce pesticides
- Farming and labor subsidies
- Increased berry consumption



Factors Driving Substrate Production

- **Globally**

- Soil not required
- Rapid testing / cycling of berry crops and cultivars
- Organic production in N. America*



*Organic Substrate Production

- Not allowed in EU
- Allowed in USA (domestic production, imports)

Substrate Organics Under Scrutiny in USA

March 4, 2020



Multiple tomato, berry and herb growers join with the Center for Food Safety to file lawsuit against USDA to immediately decertify organic container and hydroponic growers

Swanton Berry Farms, Full Belly Farm, Durst Organic Growers, Terra Firma Farms, Jacobs Farm/Del Cabo, Long Wind Farm, ONECERT (a certification company), Maine Organic Farmers and Gardeners Association and the Center for Food Safety filed [a lawsuit](#) against the U.S. Department of Agriculture and some of its employees with responsibility for the National Organic Program. The lawsuit requests that USDA be forced to immediately rescind certification of growers using containers and hydroponic methods on their organic farms.

The lawsuit claims that those growers are not making enough profits on their berry, tomato and herb operations, and USDA should be forced to restrict supplies of those products for organic consumers by changing the interpretations of USDA organic regulations. In addition, the lawsuit claims that since USDA did not agree to amend its regulations to specifically prohibit container and hydroponic production methods when requested by the Center

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Positives / Negatives

Positives	Negatives
Increased control for scheduling crops	Investment costs 30-50% higher than soil production
Location can be prioritized over soil type	Fertilizer costs 25-30% higher
Once installed, little soil work necessary	Plant costs high (especially long canes)
Lower planting densities	Reduced lifespan of plantings*
Reduced pest / disease build-up	Waste stream (old root balls, pots, etc.)
Irrigation water can be captured, recycled (\$\$\$)	Pot drainage = point-source pollution
Flat surfaces between rows conducive to picking carts, wheelchair entry, robots?	Can't rely on the rain for irrigation. Must have an injection system (\$\$\$).
Opportunities for diversification	Loss of flavor, terroir??















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Is Substrate Production for You?

- For commercial growers:
 - Depends on crop, location
 - Longer ROI commitments
- For non-commercial growers:
 - Has potential to diversify your business
 - Could attract U-pickers, labor?



Is Substrate Production for You?

- If interested:
 - Get to know substrates
 - Understand how to succeed without the soil
 - Attend international industry meetings

