Scaling Up Your Composting

AdAgrA 2025

Daniel Nicholls

Connection Question:

What do you think are the biggest benefits and the biggest drawbacks to amending with compost?

Please remember to hold all questions until the end of the presentation.

There will be a Q&A time at the end.

Who am I?

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Daniel Nicholls

Agriculture Director at Holbrook Indian School

Can you make enough compost to amend your entire farm/garden?

Let’s calculate how much compost you’ll need to make:

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Square Feet X 144 = Square Inches

Let’s calculate how much compost you’ll need to make:

Square Inches X
depth of compost = Cubic Inches

Let’s calculate how much compost you’ll need to make:

Cubic Inches / 1,728 = Cubic Feet

Let’s calculate how much compost you’ll need to make:

Cubic Feet / 27 = Yards

Need to source materials

Manure from local farms

*cow manure is the lowest in phosphorus

Food waste:

Yours, local restaurants, cafeteria

Garden waste:

From farm when cleaning out beds, lawn clippings, rake neighbor’s leaves, wood chips

Find a good mixture

Carbon to Nitrogen Ratio

30:1 by weight

Carbon sources:

Paper waste, leaves, wood chips, straw, animal bedding, saw dust, *biochar

Nitrogen sources:

Plant matter, manures

Organic material	C:N
Hog manure	5 to 7:1
Poultry manure (fresh)	10:1
Poultry manure (with litter)	13 to 18:1
Vegetable wastes	12 to 20:1
Coffee grounds	20:1
Cattle manure	20:1
Grass clippings	12 to 25:1
Horse manure (fresh)	25:1

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Horse manure (fresh)	25:1
Horse manure (with litter)	30 to 60:1
Corn stalks	60:1
Straw	40 to 100:1
Bark	100 to 130:1
Paper	150 to 200:1
Wood chips, sawdust	200 to 500:1
Wood	700:1

https://extension.missouri.edu/publications/g6956

Get it tested!!

You need to know what you are putting in your soil

— especially if you are using large amounts of it every year

Scaling Up

Recommended Tool:

Composting Thermometer

3 Bin Method

3 Bin Method

- Can be inexpensive
- Need to mix by hand
- Small batches (1/2 to 2 yards/batch)
- Takes several months (4 minimum)

Windrows

Windrows

- Very large batches
- Cost almost nothing (if you have a tractor; a turner can be pricey)
- Can be challenging to keep it moist
- Takes several months (4 minimum)

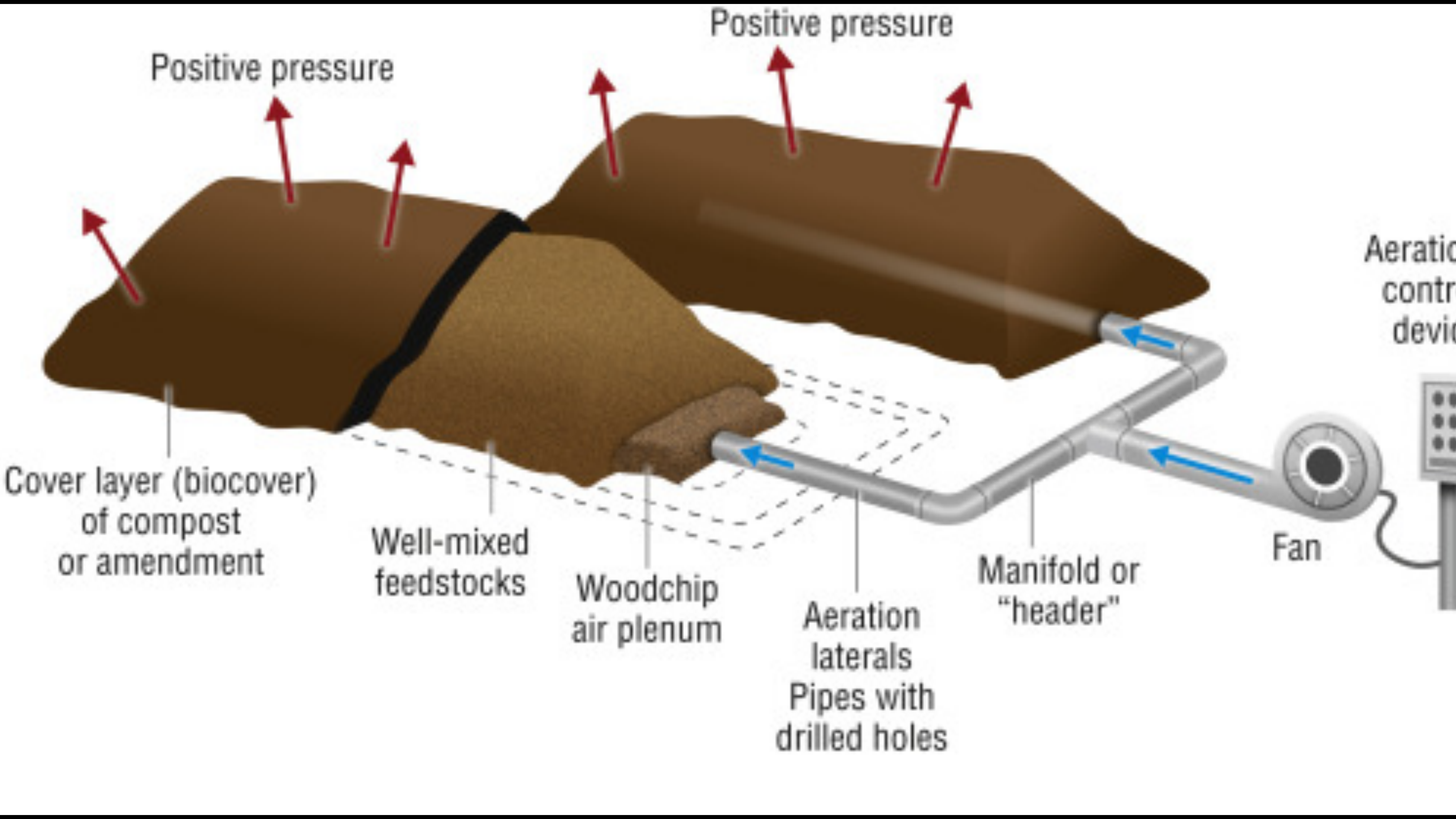

MENART
www.menart.eu
MENART

Johnson-Su Bioreactor

Johnson-Su Bioreactor

- Can be low cost
- No mixing
- Makes about 1 yard per batch
- Need to learn how to make and use
- Takes 1 year per batch

Aerated Static Pile


Positive pressure
Positive pressure
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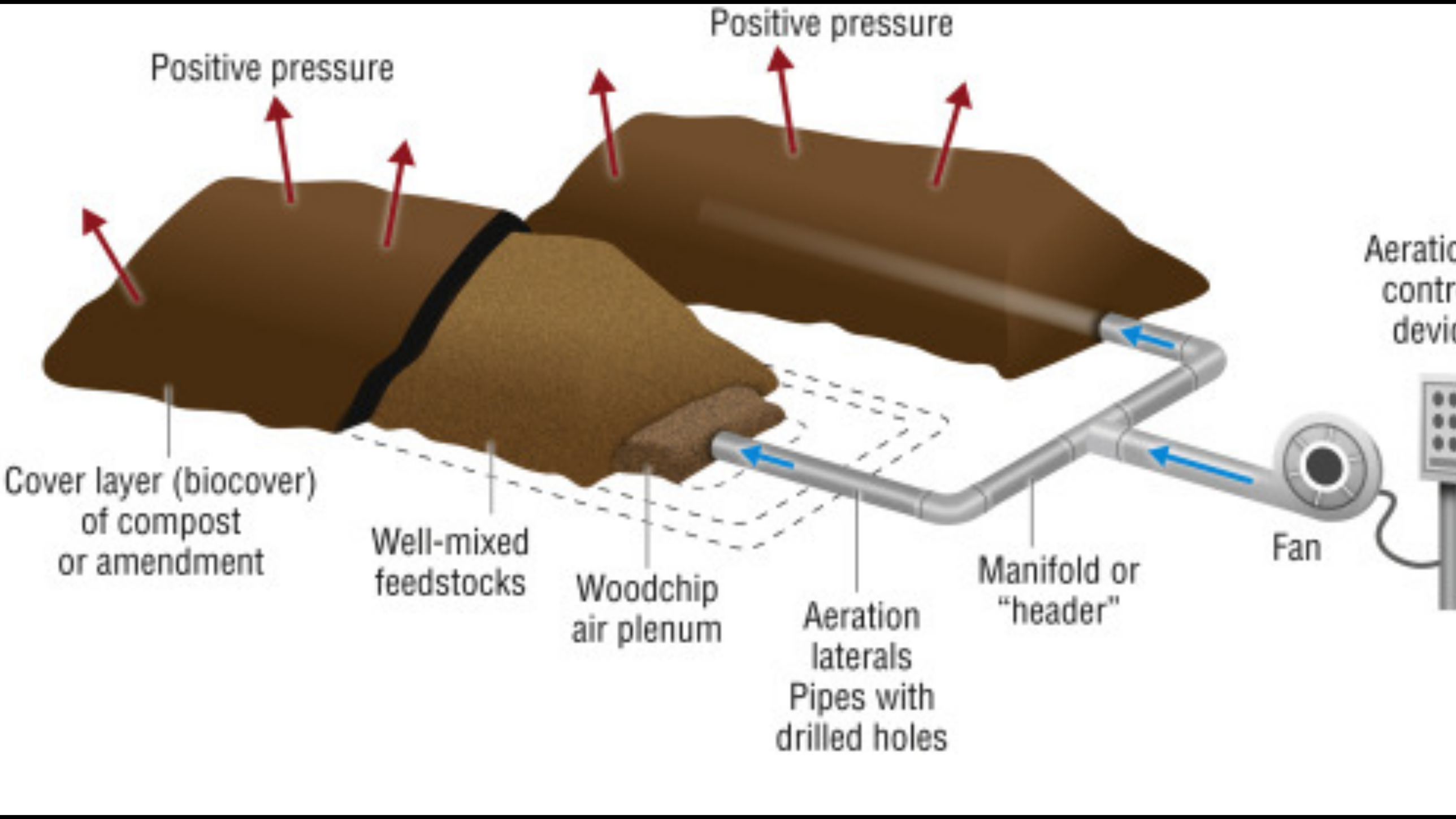
Cover layer (biocover)
of compost
or amendment
Well-mixed
feedstocks
Woodchip
air plenum
Aeration
laterals
Pipes with
drilled holes
Manifold or
"header"
Fan

Aerated Static Pile

- Cured compost in 30 days
- No mixing
- Can be scaled to any size
- Complex setup (can be expensive)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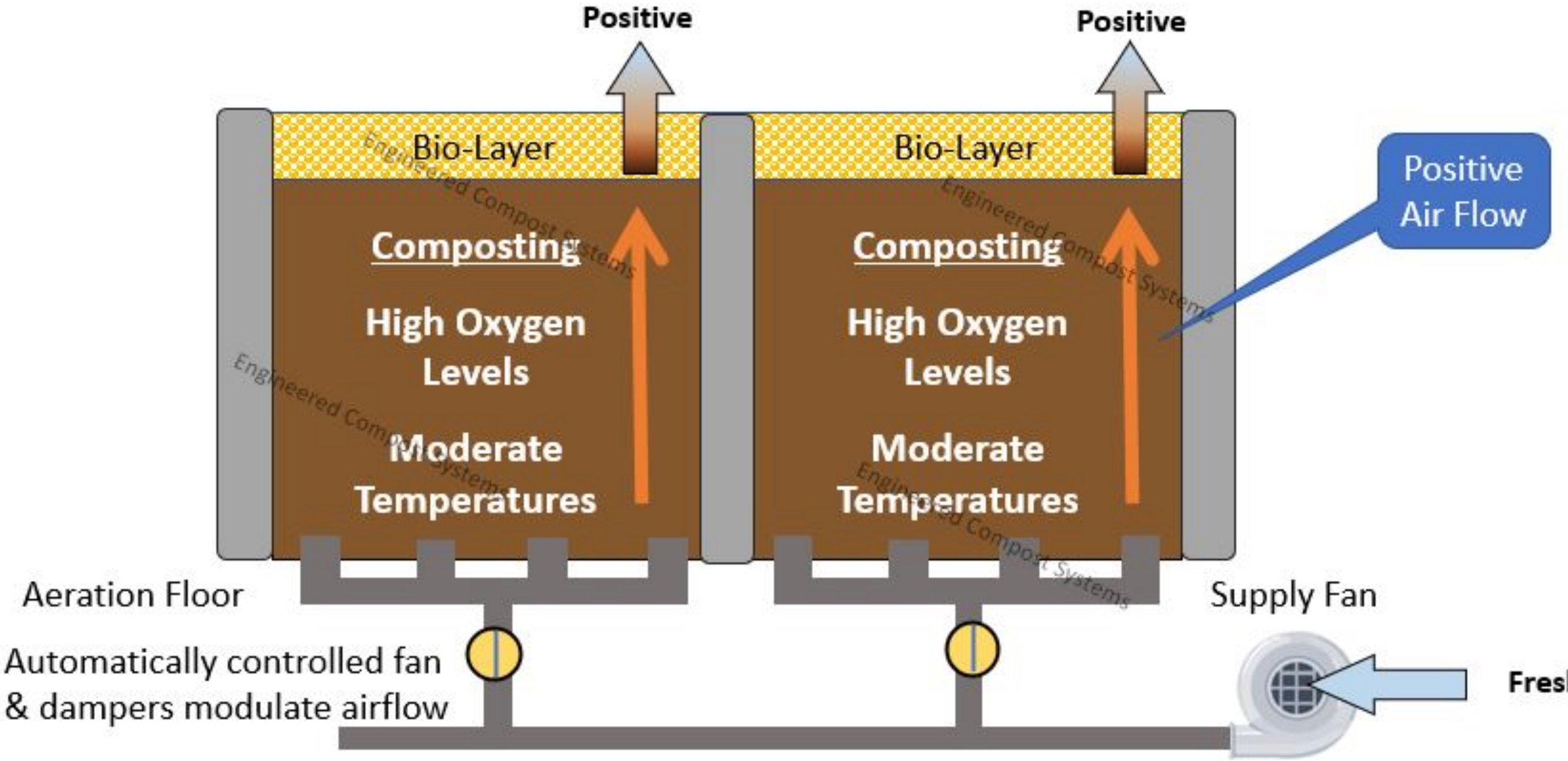
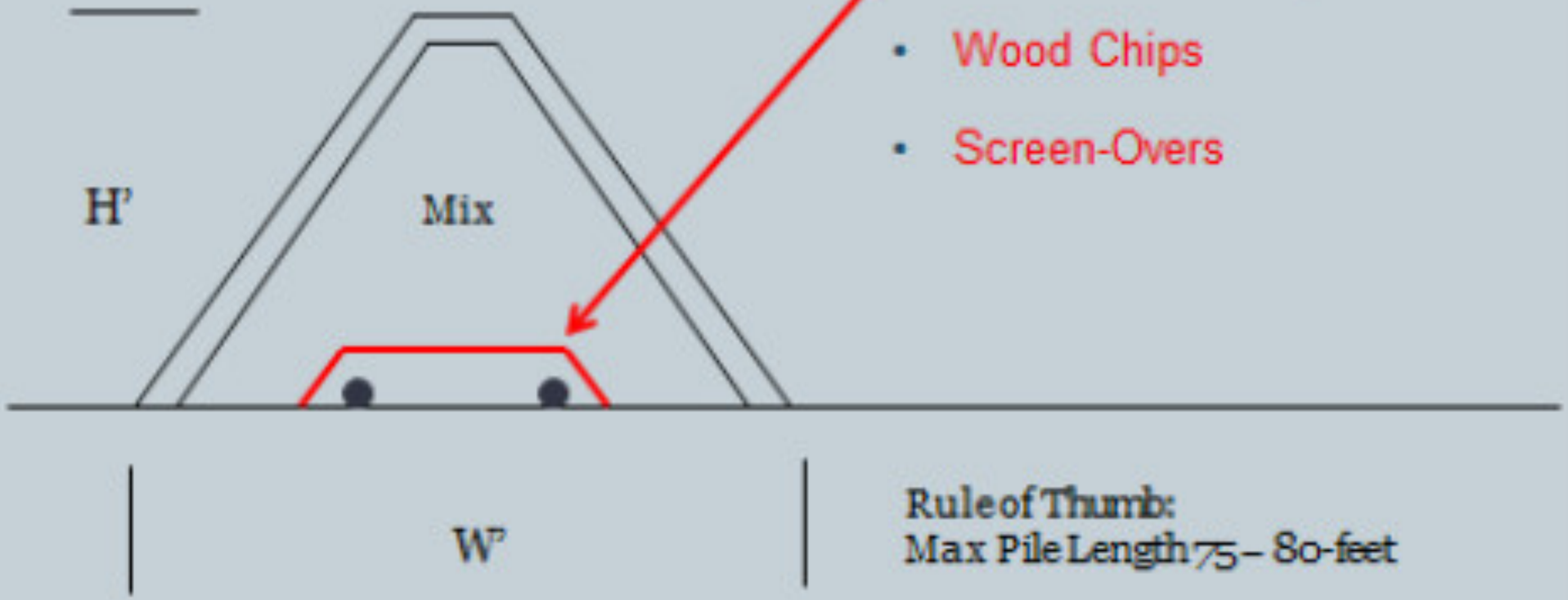
Positive Aeration



Section View of an ASP

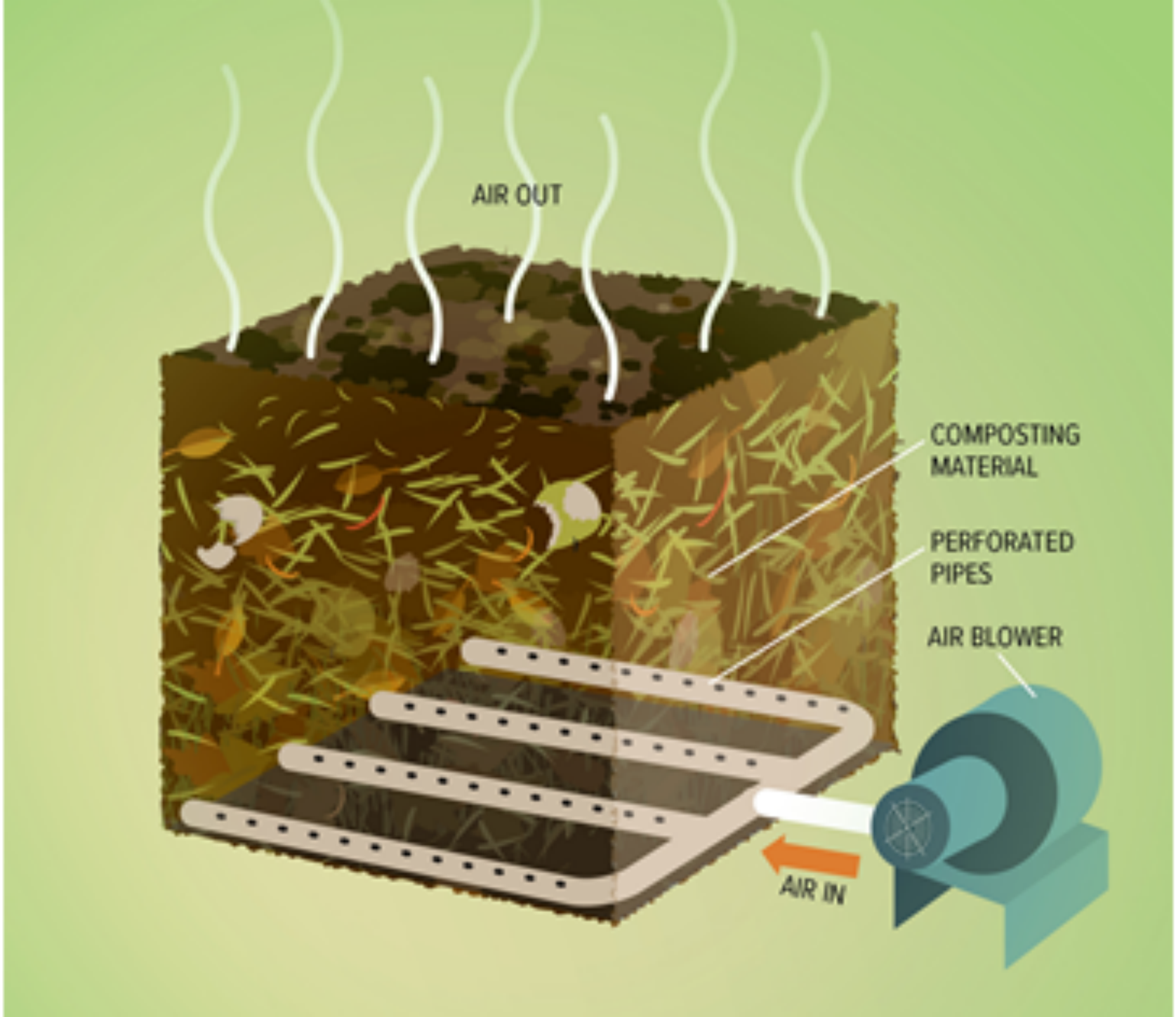


Pipes on Grade

Aeration Plenum Layer

- Wood Chips
- Screen-Overs

Rule of Thumb:
Max Pile Length 75 – 80-feet


AIR OUT
COMPOSTING MATERIAL
PERFORATED PIPES
AIR BLOWER
AIR IN

Resources:

Perry Labs
for soil and compost testing

perryaglab.com

Resources:

biocycle.net
o2compost.com blog

for information on ASP composting

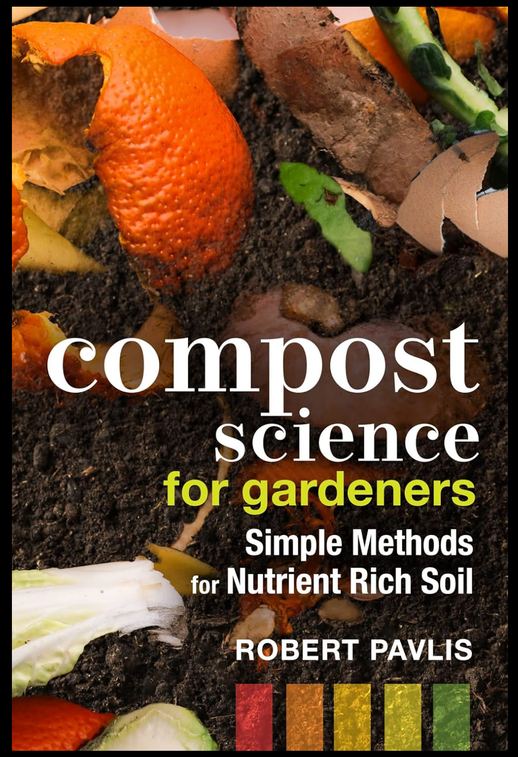
Resources:

Regeneration International
NMSU paper

for bioreactor design and details

Resources:

Book

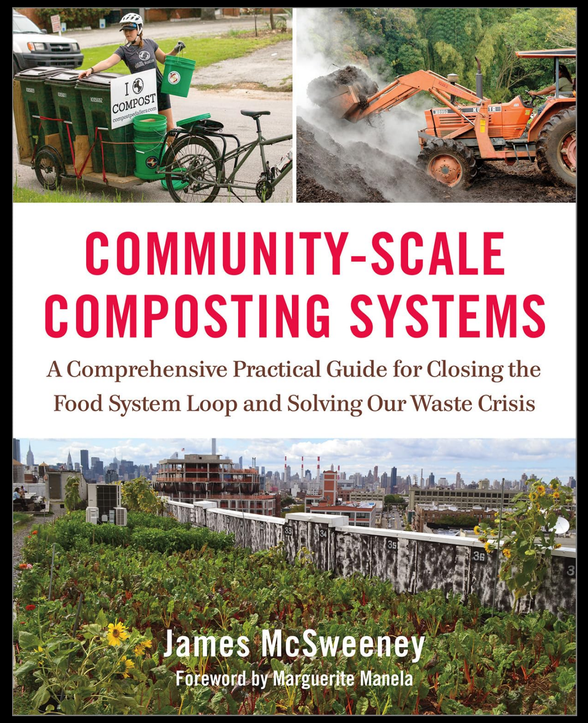


Compost Science For Gardeners
by Robert Pavlis

Resources:

Book

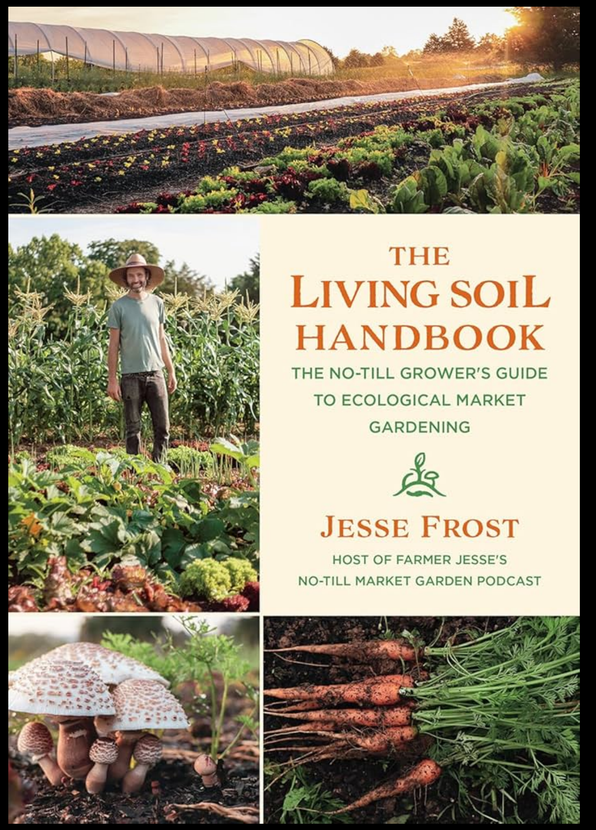
Community Scale Composting Systems
by James McSweeney



Resources:

Book

The Living Soil Handbook by Jesse Frost



Resources:

Book

Teaming with _____ series by Jeff Lowenfels

Questions