

Whole Cycle Tuesday

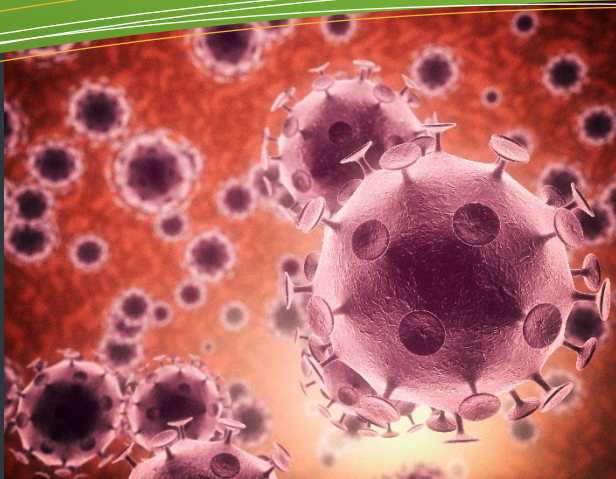
Takeaway:

Microbes don't just help compost happen—*they are composting.*

Managing a compost pile to support microbial life (think: oxygen, moisture, carbon-to-nitrogen balance) turns your organic waste into a living, breathing system of soil regeneration.

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"The environment is where we all meet; where we all have a mutual interest; it is the one thing all of us share." — Lady Bird Johnson

MICROBES: THE ENGINE OF COMPOSTING

Microorganisms

Bacteria, fungi, protozoa, and actinomycetes—are the biological drivers of the composting process. These organisms break down complex organic materials into simpler compounds, converting waste into humus: the nutrient-rich foundation of healthy soil.

How it works:

1. Mesophilic bacteria kick off the process, thriving in moderate temperatures and quickly breaking down sugars and proteins.
2. As the pile heats up, thermophilic bacteria take over. These heat-loving microbes work at 104–160°F (40–71°C), rapidly decomposing tougher materials like cellulose and killing off pathogens and weed seeds.
3. Fungi and actinomycetes (filamentous bacteria) step in later to tackle complex organics like lignin and chitin—think woody stems and shells.

4. Protozoa and nematodes also help regulate bacterial populations and contribute to nutrient cycling.

Why microbes matter:

- Efficient decomposition: Microbes break down waste faster than physical or chemical methods alone.
- Soil enrichment: Finished compost adds organic matter, improves soil structure, and promotes nutrient availability.
- Carbon cycling: Microbial activity in composting reduces methane emissions compared to anaerobic landfill decomposition.

Next time you turn your compost pile, remember—you're not just tending to waste. You're supporting an invisible ecosystem working tirelessly to heal the soil.

