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Compost: The Basic Ingredients

Carbon + Nitrogen + Water + Oxygen

1. CARBON THE "C" OF THE C:N RATIO "BROWNS"

Carbon is most present in woody or dry/brown plant & processed materials.

1. dried fallen autumn leaves
2. fallen pine needles or brown redwood leaves
3. straw (never hay) or plant material that dies or dries before it is harvested
4. newspaper, cardboard, or shredded junk mail (no slick magazine paper or waxed cardboard)
5. wood, from sawdust to chunky wood chips (no treated wood products)
6. coir (ground coconut husk fiber or 'coco-peat')
7. seed or nut shells (make sure they are not salted)

CARBON is the energy source for microscopic decomposers. Simple carbons are broken down by beneficial bacteria. Woody materials have more complex carbon molecules which the beneficial fungi breakdown.

Rule of Thumb: Choose a variety of browns; at a ratio of 3 – 5 times greater than greens, by volume.

2. NITROGEN THE "N" OF THE C:N RATIO "GREENS"

Nitrogen is most present in fresh green plant material, animal parts & manures.

1. leguminous plant material, i.e. alfalfa, peas, beans, clover, vetch (processed, dried or fresh)
2. cow, pig, chicken manures (all vegetarian animals – no meat eaters; esp. from dogs & cats)
3. grass clippings (very powerful "green") and green plant trimmings (such as hedge/shrubs)
4. common weeds (don't use with seed heads or flowers present)
5. leafy green waste from produce markets; lettuce, cabbage, or other greens
6. coco-bean hulls (cacao/chocolate not coconut) (deadly for dogs if they consume)
7. coffee grounds (not all 'greens' are green)
8. vegetable-based kitchen food scraps (no meat, dairy, fish, fats, oils, or high sugar products)

NITROGEN is used by the microscopic decomposers for building new cells. The heat in a compost pile is the result of beneficial compost bacteria consuming "the greens". Heat quickens the composting process.

Rule of Thumb: Faster compost = more "greens" = more heat = more work turning to aerate pile. Use less "greens" for a cooler pile and to prevent the risk of smelly anaerobic conditions. Use the right kind & amount to time the turning of your pile. Never use more than 1/3 "greens" in the entire pile.

3. WATER ESSENTIAL FOR DECOMPOSITION TO OCCUR "MOISTURE"

Wet all ingredients thoroughly during assembly of a pile from scratch. Add more when needed during turning. If the pile gets too wet, turn it to bring air in and prevent sour or rotten smells, which indicate anaerobic (lack of oxygen) conditions. If it gets too dry, especially from escaping steam in a hot pile, add more water

when turning only; this distributes water evenly.

Rule of Thumb: Keep compost pile as wet as a well wrung out sponge.

4. OXYGEN NECESSARY FOR THE SWEET SMELLING MICROBES WE WANT "AIR"

Aerobic decomposition: the most desirable form of home/garden composting.

1. heat is the result of decomposer bacteria breaking down these materials.
2. as the beneficial bacteria metabolize the raw materials, they use up the available OXYGEN in air spaces between the particles in the pile.
3. This OXYGEN must be replenished on a scale equal to the pace of the bacteria's use or the reduced O2 will promote the growth of anaerobic by-products (swamp smell) at v. low pH

Rule of Thumb: Turn the pile when it reaches 140 – 160 degrees F – "use the hand test" and turn immediately when the "ouch meter" registers on high.

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The Process of Making Compost

Composting is defined as the **controlled biological decomposition** of organic materials under **managed** aerobic (good smelling) conditions, resulting in humus.

Q: What's the best method for your conditions and your available time to tend it?

METHODS:

1. Hot 'n fast – use the maximum allowed amount of "green" in proportion to the "browns"; allow time for daily temperature monitoring as the pile may reach 140 degrees F or higher; test with a compost thermometer or your hand in the center of the pile and be ready to turn it every 2 – 3 days for a few weeks; compost will be ready to begin using between 6 and 16 weeks.
2. Standard (moderate heat) – use the minimum proportion of "greens", monitor temps daily the first week; if the pile just gets warm, then turn once a week for 3 – 5 weeks; additional greens and browns can be added at turnings to adjust the activity of the pile. Expect finished compost in 12 – 24 weeks.
3. Passive method – if you have NO spare time, then toss materials to be composted in a heap or bin in contact with the soil and let nature take it from there (little to no effort). Add extra dried "browns" to cover each "green" and wet donation to the pile; esp. important with food scraps. If dogs or roof rats are an issue in your area, it is better to contain piles esp. when using food scraps as a "green" source; or consider vermicomposting (composting with worms). Your finished compost will slowly accumulate at the bottom of the pile; it could take as long as a year or more for a significant amount to build up.
4. Hybrid of the above methods – just remember that the amount of "greens" control the heat; heat affects the timing; the hotter the pile the faster the end product is ready; THE HOTTER THE PILE THE MORE WORK YOU MUST PUT INTO MONITORING AND TURNING. REALLY!

CONTAINMENT: Chose the bin or containment system that works for your methods.

1. Smith & Hawkin BioStack (your CA County may subsidize it) - made for easy turning in hot 'n fast and standard, slower piles; 3 tiered design is made for easy turning; Consumer Reports best bin award.
2. the compost gourmet – a single bin system made for passive composting methods. A door at the base of the unit opens for easier harvesting of the oldest, mature compost.
3. Homemade – wire mesh (hardware cloth) 3' by 12 feet running, looped and fastened; stacked waste wood pallets; corral made from straw bales; loose open pile; use your imagination.
4. Tumblers – freestanding, enclosed units with handles for turning. Can be very expensive and quite problematic; rarely makes finished compost in the time advertised; prone to anaerobic stinky materials.

Q: How do I know when my compost is finished or ready to use?

MATURE OR FINISHED COMPOST INDICATORS:

1. An even dark brown color (like 70% chocolate) – some variability ok but not black.
2. Most of the original material is broken down; no longer recognizable;
3. A "forest floor" smell; sweet or slightly fungal; may be undetectable, definitely not sour or stinky.
4. The pile no longer heats up when turned or moistened; it's biologically stable.
5 Texture is varying with fine or granular particles. Screen out larger chips and chunks.

USING COMPOST IN YOUR GARDEN:

1. Screen newly harvested compost for use in pots or seedling tray, or in-ground seed planting
2. Can be used directly on seeds in seeding trays, with seedlings & all transplants.
3. It can be amended as needed for particular plants or function.
4. Use un-screened, or rough compost for mulch layers on the surface of the soil.

REMEMBER: YOUR COMPOST IS ALIVE WITH BILLIONS OF BENEFICIAL MICROBES THAT DO THE JOB OF TURNING GARBAGE INTO GOLD, TRASH TO TREASURE