

Teaching as if the Earth Matters

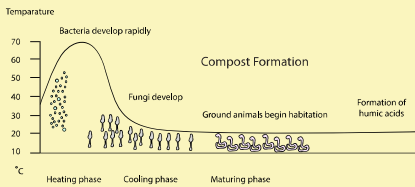
# Origins of Composting

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"All the human and animal manure which the world wastes, restored to the land instead of being cast into the water, would suffice to nourish the world..." – *Les Misérables*, Victor Hugo

## What is composting?

Composting is the human regulated transformation of animal dung, leftover foods and other organic waste carried out by microorganisms, insects and worms. The compost produced, as a result, completes the cycle of life – living vegetative matter dies, and is broken down by other organisms to produce more living matter.



## Why compost?

**COMPOST POWER!** We began composting as a way to enrich soils to grow safe, healthy food. Thus, the origin of composting mirrors the origin of agriculture – dating back to about 10,000 years ago. In fact, till synthetic fertilizers were manufactured in the 18th century, soil was fertilized only with manure – so all food was organic!



Today, the benefits of composting are not limited to agriculture. By providing a powerful way of converting degradable waste into food, composting offers a way of ridding our cities of rotting vegetable and animal waste.

## How do we know the origins of composting?

Since composting and manuring are such integral parts of agriculture, knowledge about them was unique to each location and often shared by word of mouth. Recorded works on composting are therefore sparse and often in the form of recollections of people's experiences and practices. This broad timeline has been pieced together from anecdotal information and reported archaeological records.

NEED A MEDIA UPGRADE?



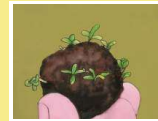
**2320 BCE - 2120 BCE:** Earliest written accounts of composting were found in a set of clay tablets carved during the Akkadian Dynasty that ruled Mesopotamia (modern day Iraq). Not much is known about the complete contents of these tablets.

**3000 BCE - 2000 BCE:** Archaeological evidence from Hamoukar, one of the largest 3rd millennium centres in North-East Syria, provides evidence of household level composting of animal waste, soiled bedding, and spoiled fodder in sump like structures outside the main house.



**1500 BCE - 400 BCE:** In ancient India, the *Rigveda* and *Atharvaveda* contain references to the practice of throwing some items onto the ground to increase soil fertility, and the value of the manure prepared from straw of barley and sesame plants in improving land productivity. The *Atharvaveda* also mentions the use of dry cow-dung as manure.

**1000 BCE - 1500 BCE:** The Native Americans planted uneaten fish parts or other animal parts with seeds as a nutrient source. They also pioneered the use of seed balls to enhance growth. These balls consisted of seeds, rolled in clay and compostable materials. When thrown on soil, the seeds were protected by the clay balls which kept them moist, while the compost provided nutrients as they germinated and grew.



Native American seed balls.

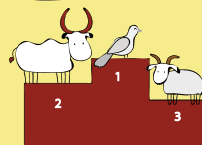
OH BOY, MORE ADDITIONS TO THE NEW SYLLABUS!



**362 BCE:** Xenophon's *Oeconomicus*, a treatise on the science of the household, is among the earliest accounts of composting among the Greeks. Translations of the treatise indicate that agricultural residues were composted to form manure.

**350 BCE:** Carthaginian writer Mago, called the Father of Farming by the Greeks and Romans alike, wrote a vast treatise on agriculture in 28 books which reportedly contained information regarding Punic manuring practices. This is known through ~40 citations found primarily in works by other Roman and Greek scholars.

CONGRATULATIONS TO OUR BEST DUNG AWARD WINNERS



**160 BCE:** A retired Roman General Marcus Porcius Cato described composting in his book *De Agri Cultura* (Concerning the Culture of the Fields). According to him, goat, sheep, cattle and other dung were composted with plant wastes such as straw, chaff, bean stalks, husk, oak leaves etc. These different types of animal manure were ranked differently – whilst favouring goat, sheep and ox dung, all of which must be stored carefully, pigeon dung was the most highly prized, to be spread on pastures, gardens and arable farms. Street sweepings and other organic waste were also mixed to produce compost. This book is also the first to describe composting using worms.

SERIOUSLY?



**100 BCE:** Archaeological records from Neolithic sites in Northern China and the first century BCE Agricultural Manual authored by the Chinese scholar Fan Sheng-Chih Shu indicate that the ancient Chinese enriched soils by recycling a variety of organic matter, including cooked bones, leather, manure, silkworm remains and human waste!

**77 AD:** Pliny's *Naturalis Historia* from the medieval world put together advice on manure and manuring provided by earlier authorities.



**50 BCE:** Cleopatra reportedly made worms sacred after observing their composting abilities, enacting laws to make the removal of earthworms from Egypt a crime punishable by death!

**450 AD - 510 AD:** Palladius's fourth-century text *De re rustica* and the tenth-century Byzantine compilation of agricultural instructions known as *Geoponica* laid the foundations for western manuring practices in the nineteenth century.



**200 AD - 1200 AD:** In India, Tamil people carried out systematic ploughing, manuring, weeding, irrigation and crop protection for sustained agriculture.

Archaeological evidence of structures and isotopic nitrogen analysis shows that compost making in various forms was practiced in the Indus Valley. Straw from animal stalls, dung and urine were buried in cultivated fields to increase soil fertility.



## Basis of Modern Composting

Most modern methods of composting are based on the Indore method, developed by the renowned agriculturist Sir Albert Howard while he was stationed in India (1905 onwards). It was inspired by Howard's observation that just as "The forest manures itself. It makes its own humus and supplies itself with minerals", peasants in India and China fertilized their soils: "cultivators of the Orient have followed Nature's method as seen in the primeval forest."

Howard tested this method for several years in India. In the late 1930s and early 1940s, it was successfully adopted in several African countries, the United Kingdom and the United States of America. Today, in spite of the domination of the industrial method of agriculture, the Indore Method continues to be the basis of composting methods all over the world.