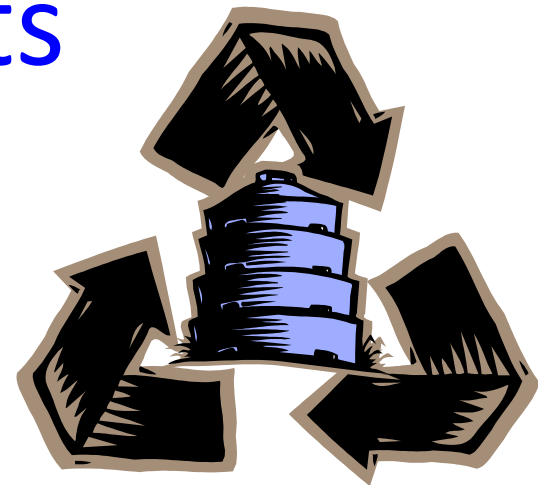
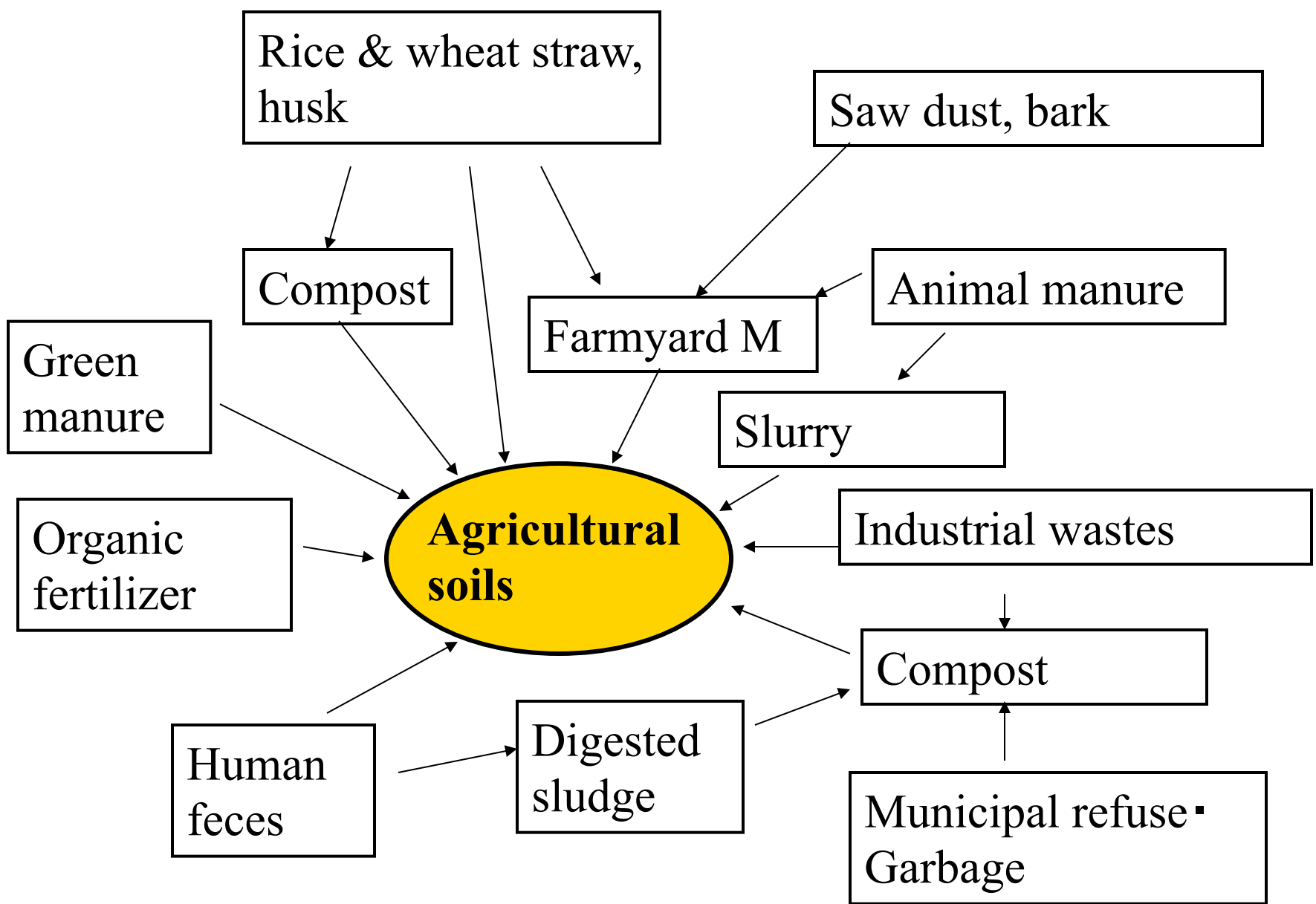


# Compost and Farmyard Manure

Preparation methods,  
Characteristics, Effects





**Organic matter Input in Agriculture**

# Purpose of composting... 1

- 1 To make manure easy for handling and transporting, by reducing dirty feeling, malodor, and stickiness.
2. To prevent soil reduction and emission of harmful gasses and the resulting inhibition in crop growth which is assumed to occur when raw material is applied to soil.

# Purpose of composting...2

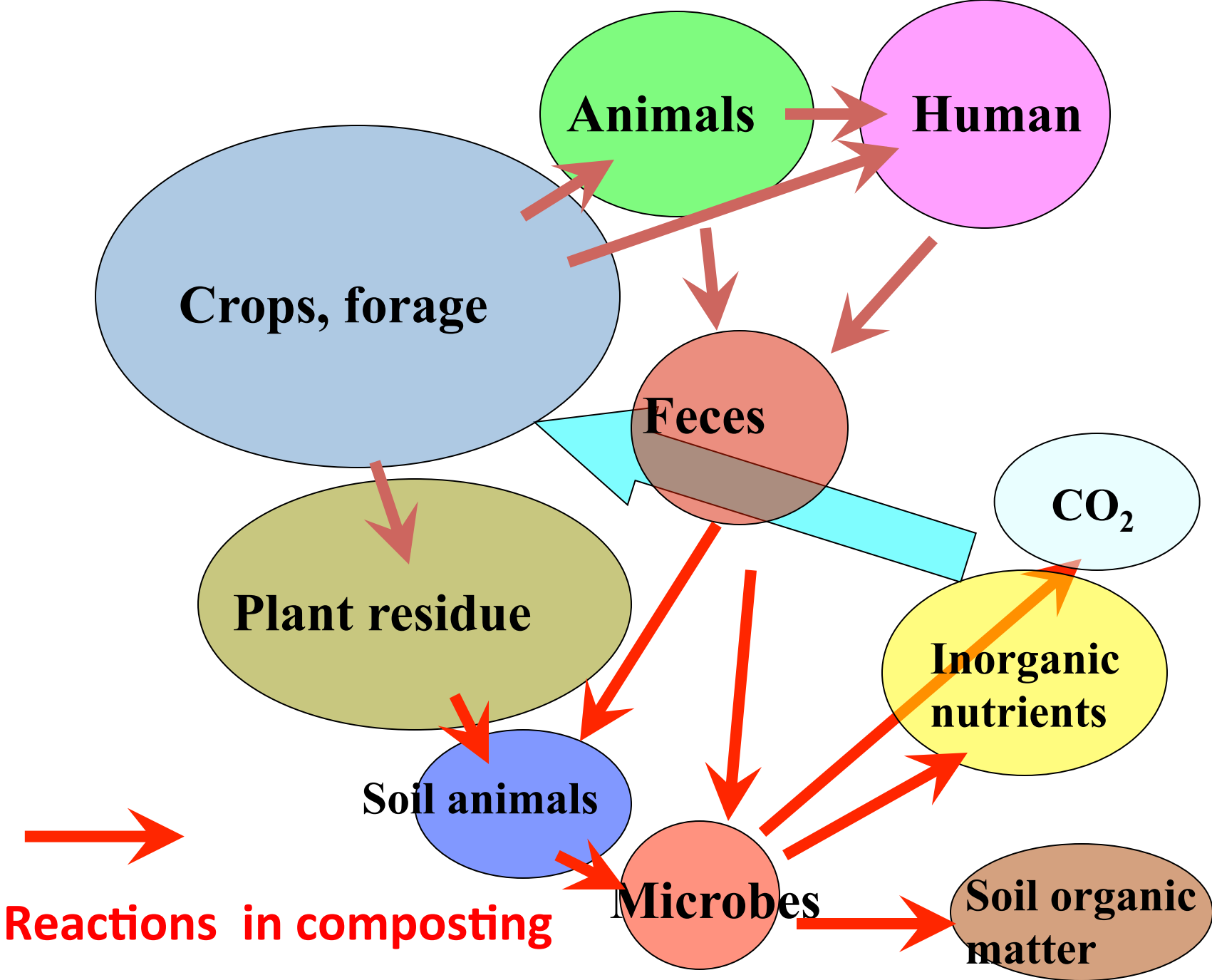
3. To **kill pathogens and parasites** for human, animals, and plants.
4. To **kill the weed seeds** which are mixed in feces, hays and feedstocks.
5. To **decompose phenolic compounds** in feedstocks such as straw and sawdust and low molecular weight organic acids in feces which are assumed to cause growth inhibition of plants.

# Significance of composting

- Source of nutrients for crops.
- However, the function of compost is not limited to the value as nutrients.
- Compost > Fertilizer

# Significance of composting

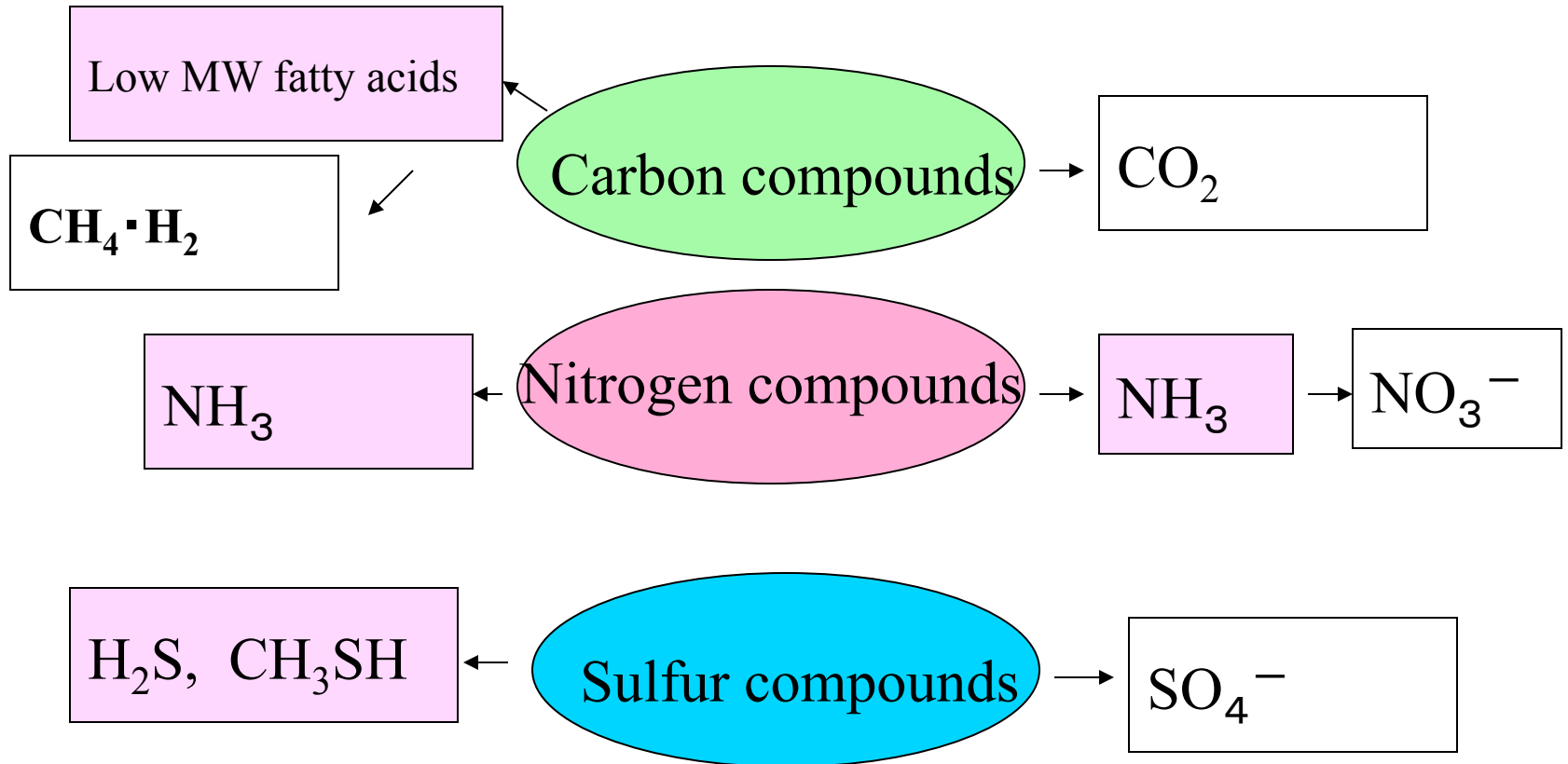
- By composting, we can change the waste to resource.
- Compost can supply energy to soil biota, and stimulate their activity.
- Compost is a source of humic substances, which have physical, chemical, and physiological functions to crops.



Anaerobic

# Aerobic and anaerobic treatments of cattle feces

Aerobic



**Malodour & harmful substances**



## Germination rate of weed seeds in compost (%)

	< 50°C	2 days at 60°C	Japanese name
<i>Digitaria ciliaria</i> Koeler	96	0	メヒシバ
<i>Echinochloa</i> spp.	72	0	ノビエ
<i>Cyperus</i> spp.	56	0	カヤツリグサ
<i>Chenopodium album</i> Linn.	26	0	シロザ
<i>Percicara lapathiola</i> Linn.	8	0	オオイヌタデ
<i>Portulaca oelacea</i> Linn.	85	0	スベリヒユ
<i>Amaranthus lividus</i> Linn.	68	0	イヌビユ
<i>Acalypha australis</i> Linn.	7	0	エノキグサ
<i>Fatoua villosa</i> Nakai	26	0	クワクサ



*Digitaria ciliaria*

メヒシバ



*Cyperus* spp.

カヤツリグサ



Chenopodium album  
Linn. シロザ



*Percicara lapacifolia*  
Linn.

オオイヌタデ





*Portulaca oleracea*  
Linn.

スベリヒユ



*Amarantus lividus* Linn.

イヌビユ



*Acalipha australis* Linn.

エノキグサ



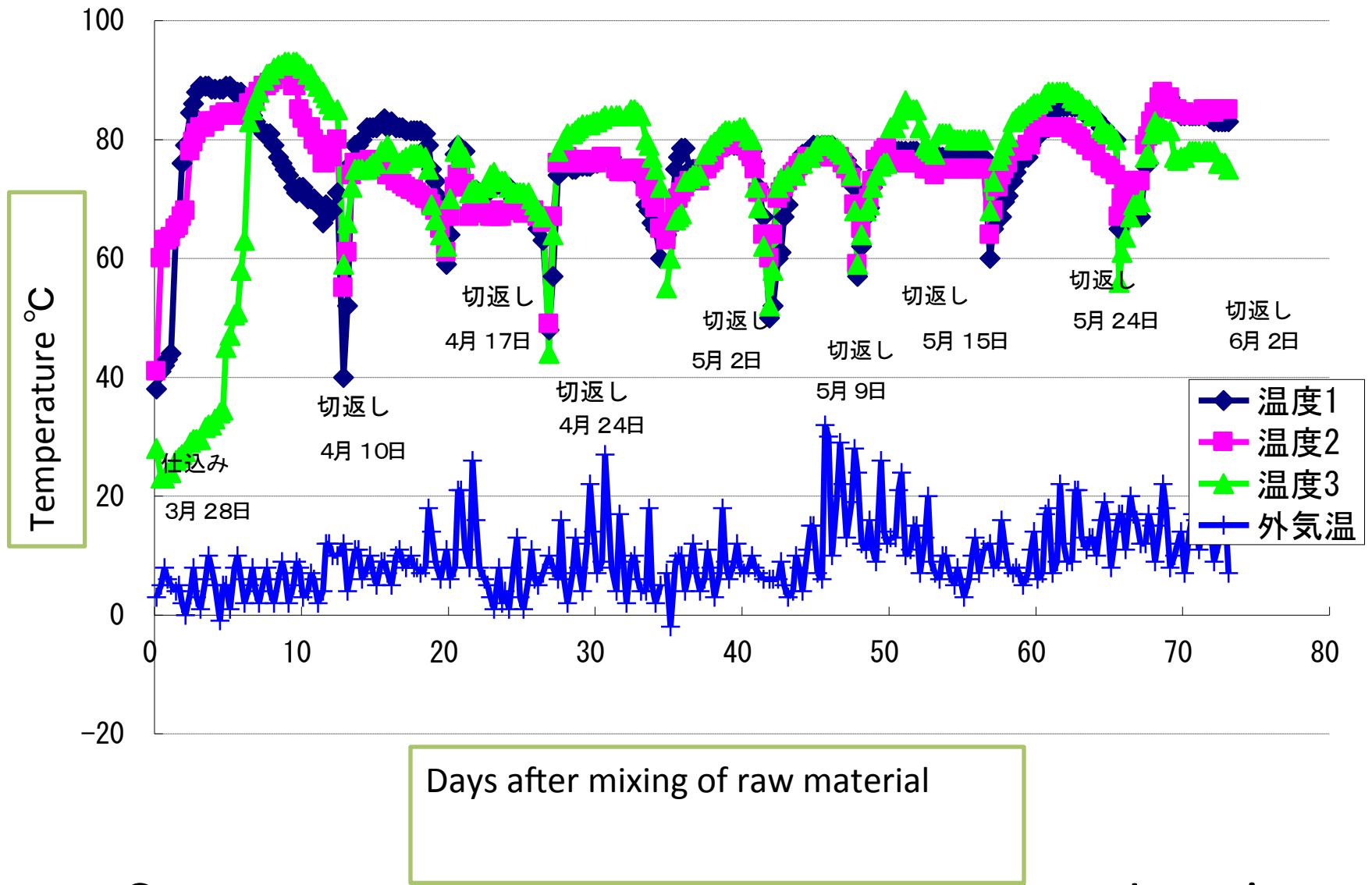
*Fatoua villosa* Nakai

クワクサ





Compost turning (Ultra-high temperature composting plant)



Compost temperature from late March to June in the ultra-high temperature composting plant

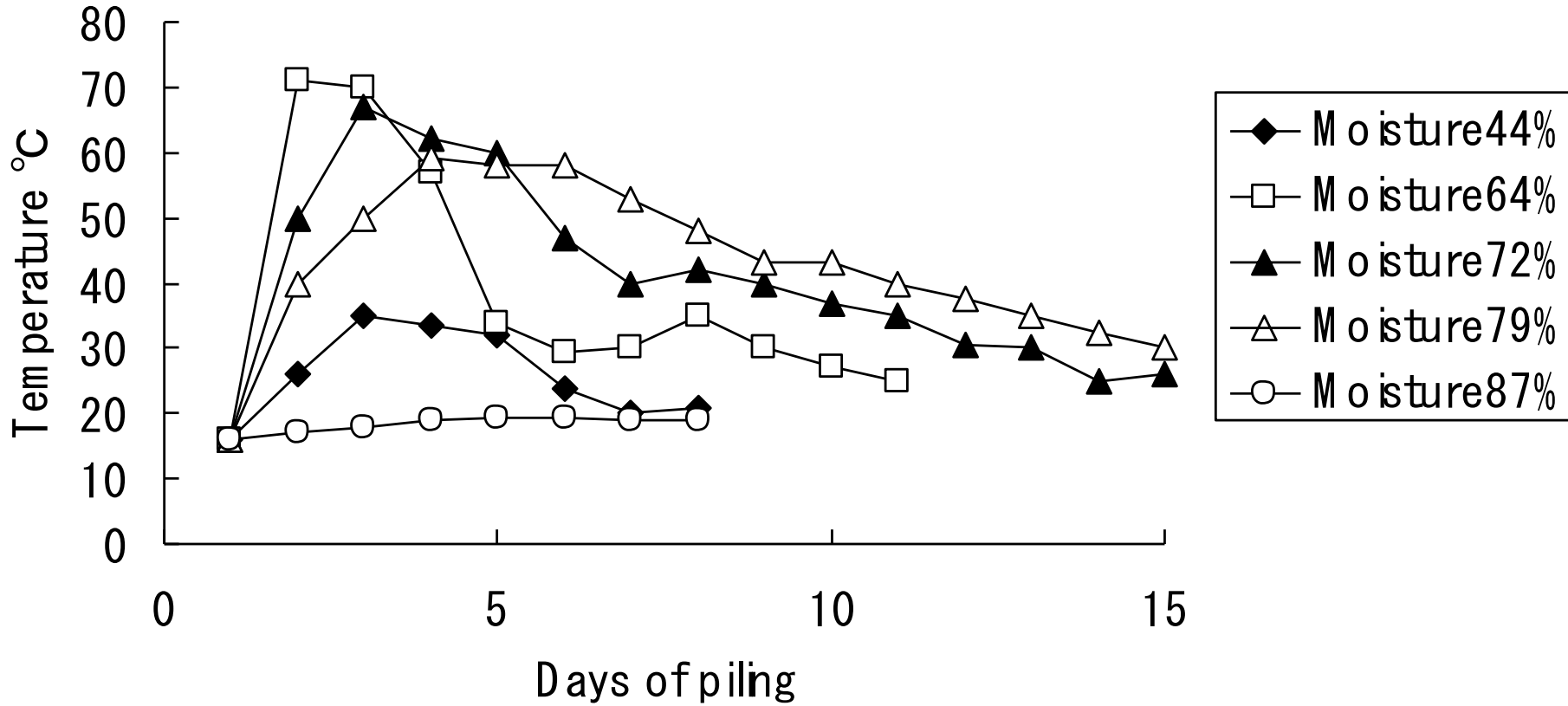
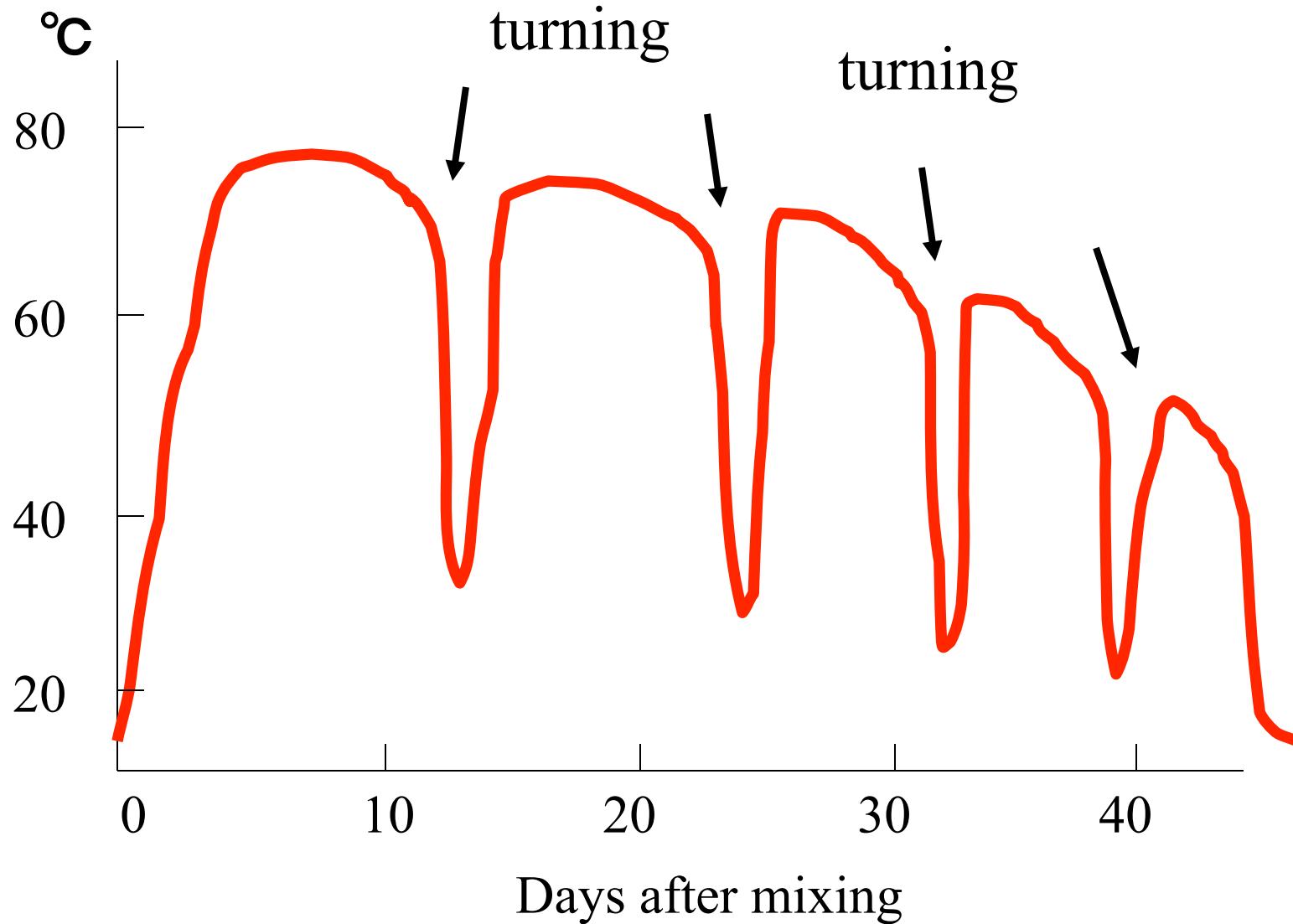


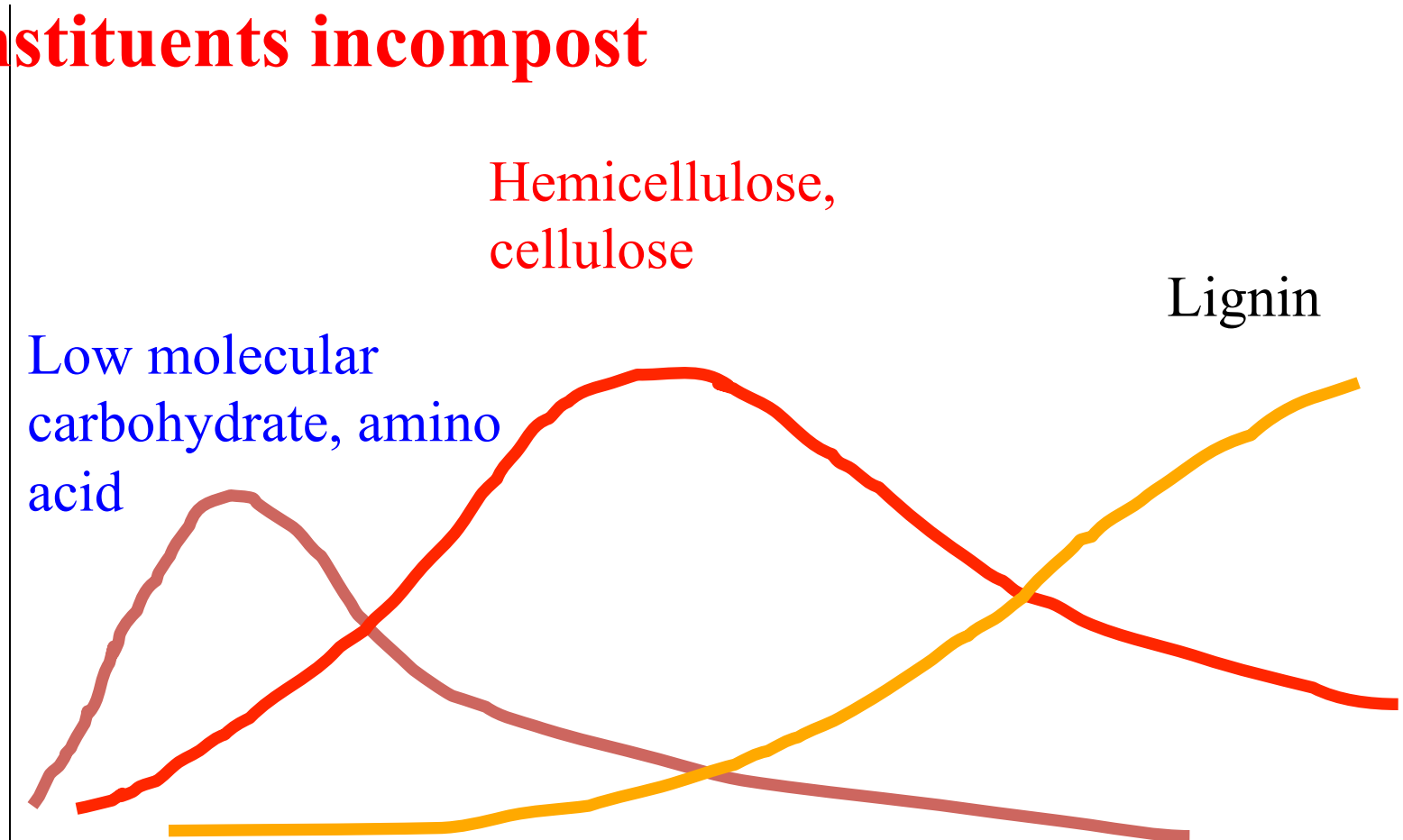
Fig. 1. Fermentation temperature of cow manure depending on different moisture contents  
(Shintoku Experiment Station of Animal Husbandry, 1998)

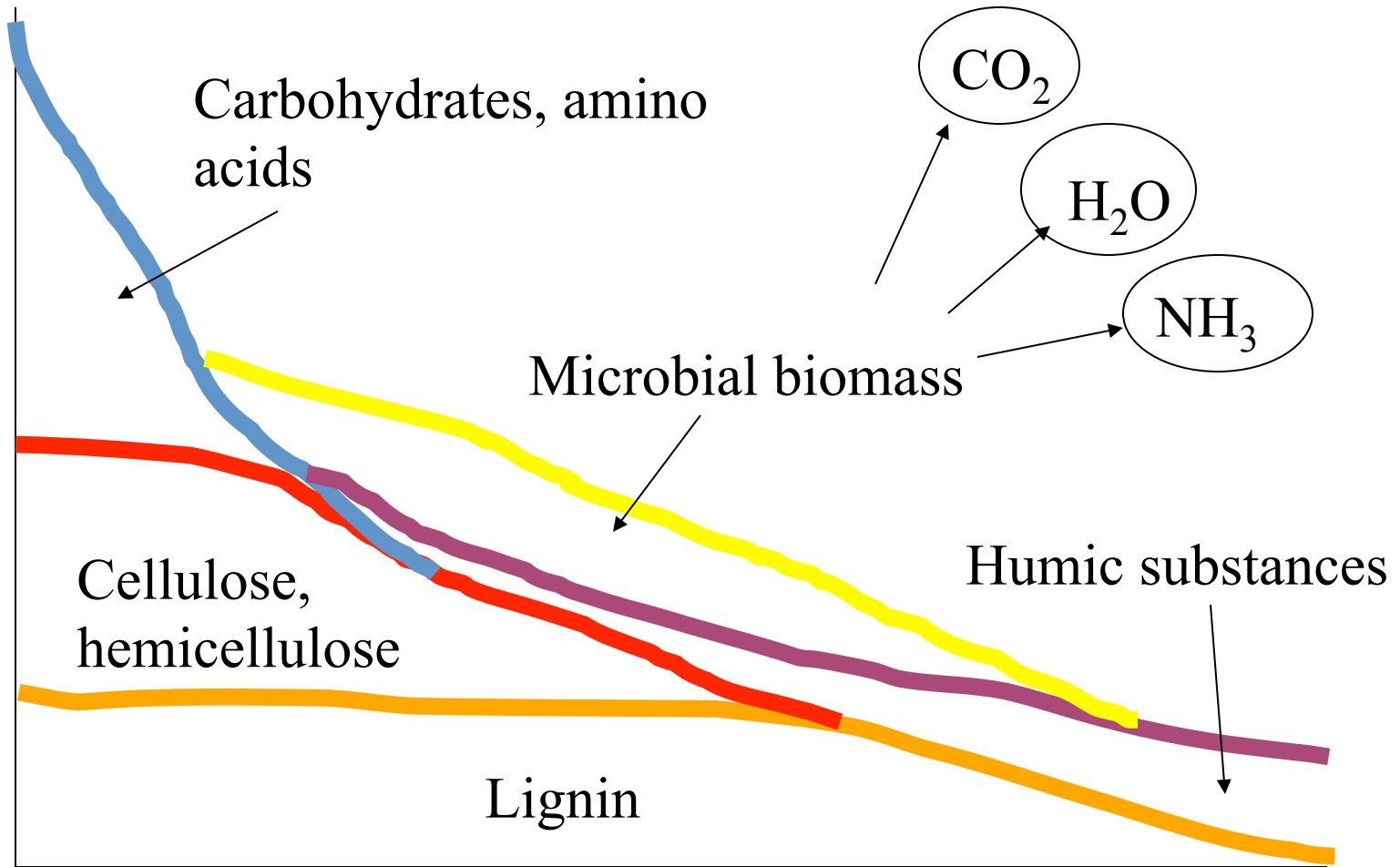


# Change in compost temperature

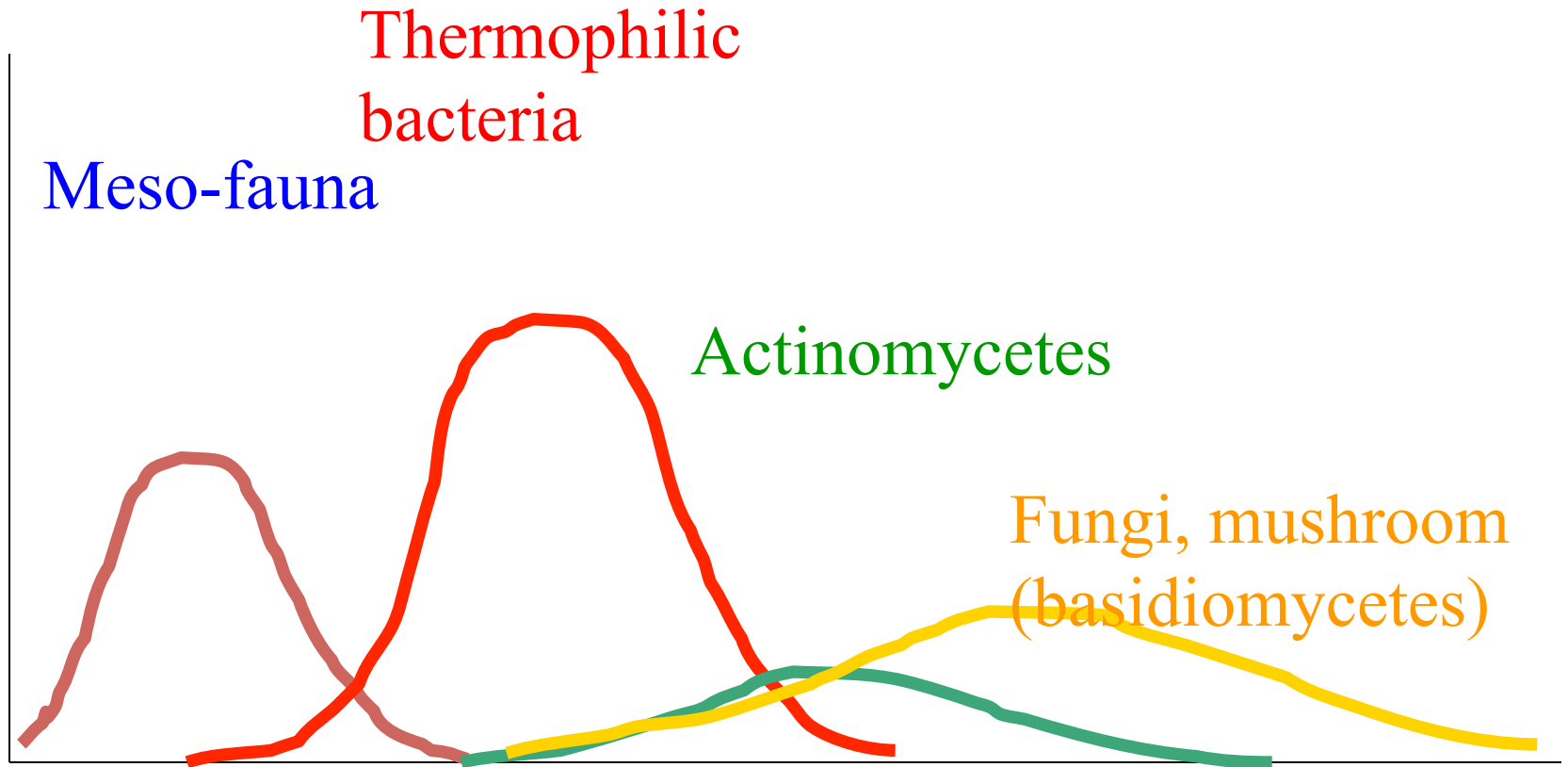


# Decomposition rates of different constituents in compost





Change in organic matter constituents during composting



## Succession of microbial fauna during composting