

## Liquid manure decomposition

*The rotting of organic matter is a minimal phenomenon in nature that, in the end, through biological oxidation leads to material recycle.*

The goal of decomposition is to produce the flammable gas, methane or "biogas"

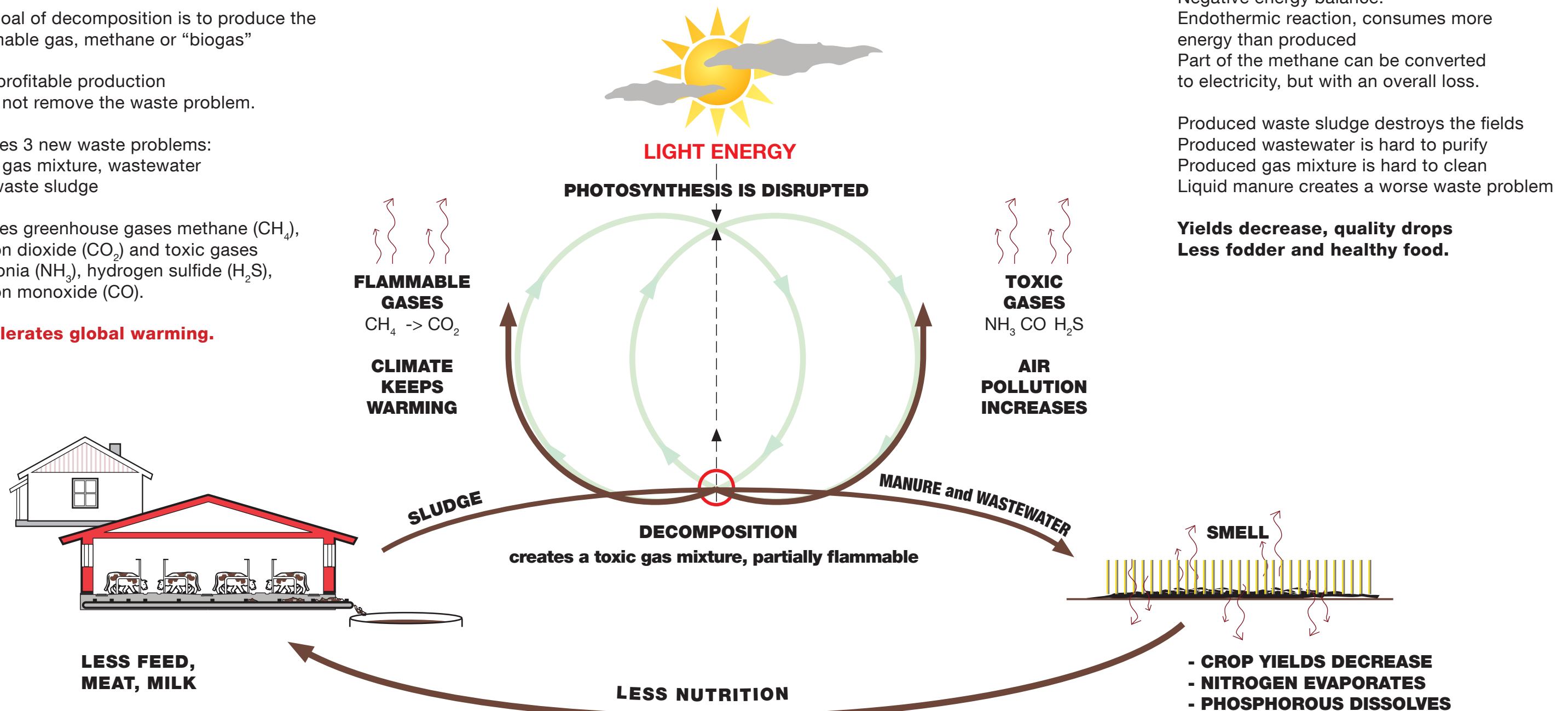
Non-profitable production  
Does not remove the waste problem.

Creates 3 new waste problems:  
Toxic gas mixture, wastewater and waste sludge

Creates greenhouse gases methane ( $\text{CH}_4$ ), carbon dioxide ( $\text{CO}_2$ ) and toxic gases ammonia ( $\text{NH}_3$ ), hydrogen sulfide ( $\text{H}_2\text{S}$ ), carbon monoxide ( $\text{CO}$ ).

**Accelerates global warming.**

## Decomposition (rotting) of organic material DESTROYS THE FOUNDATION OF LIFE



Negative material balance:

Large nutrition losses  
Nitrogen evaporates, phosphorous dissolves into water systems

Negative energy balance:

Endothermic reaction, consumes more energy than produced  
Part of the methane can be converted to electricity, but with an overall loss.

Produced waste sludge destroys the fields  
Produced wastewater is hard to purify  
Produced gas mixture is hard to clean  
Liquid manure creates a worse waste problem

**Yields decrease, quality drops**  
**Less fodder and healthy food.**

**DECOMPOSITION (Biogas production)**  
=> green house gases ( $\text{CH}_4$   $\text{CO}_2$ ) from decomposition accelerate global warming  
=> decrease yields  
=> one problem leads to three new problems  
=> negative material and energy balance => costly and non-profitable method