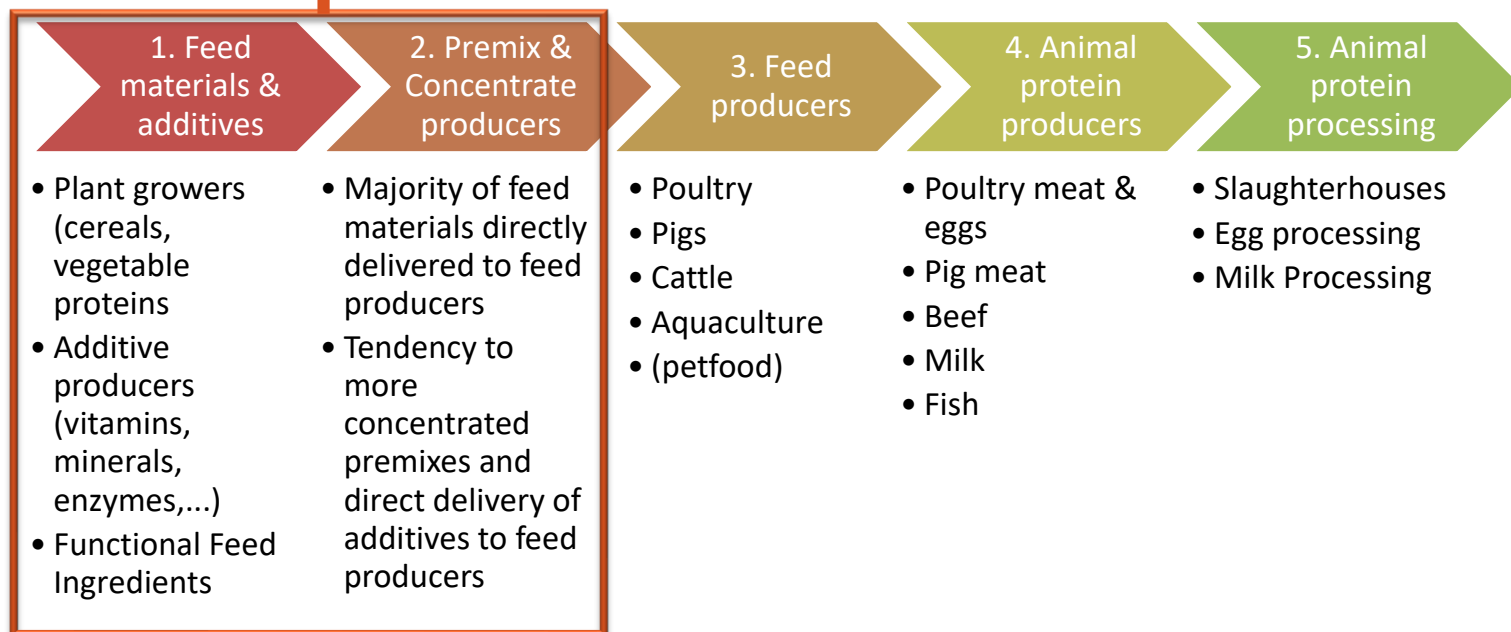




Industrial Potential and Valorisation of Biotech Solutions for the Animal Feed Business

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Knowledge partner in nutrition and health



Introduction: What is Fermentation ?

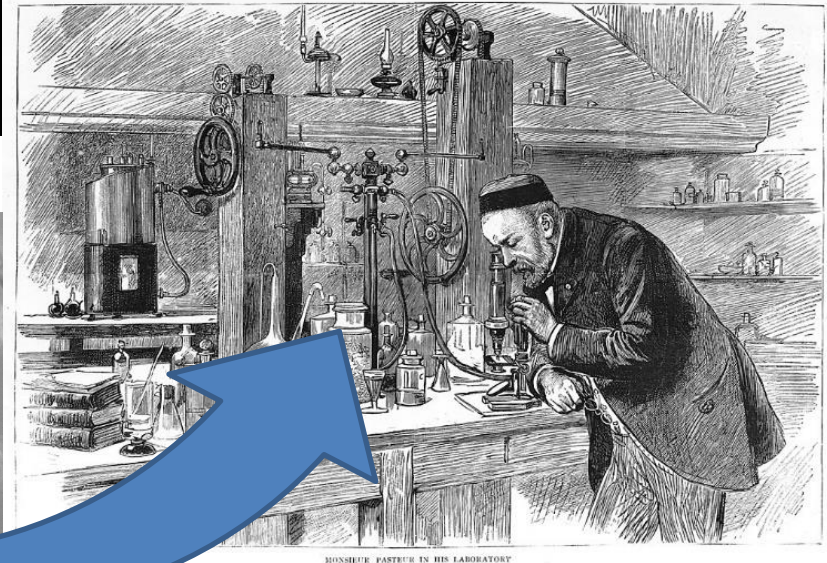
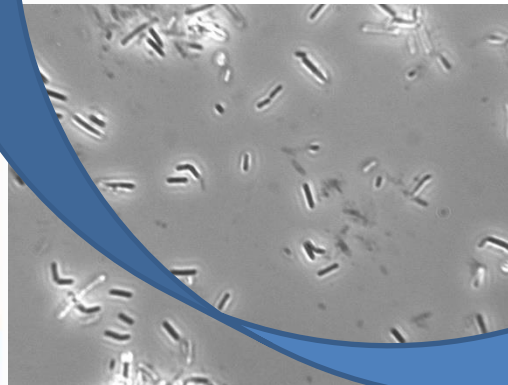


Bacteria

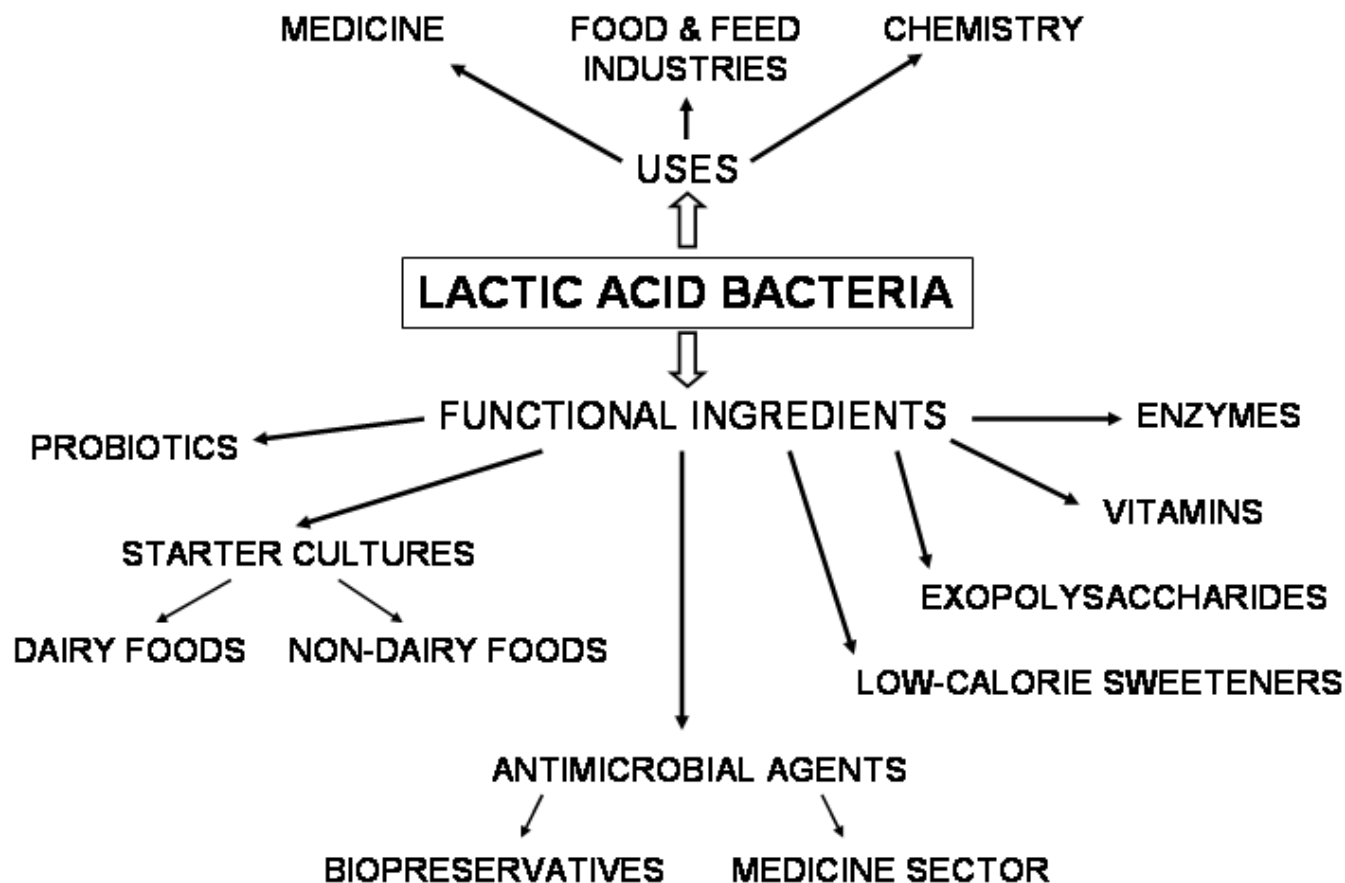
- Gram positive
→ Lactic Acid Bacteria
- Gram negative

Yeast

Fungi



Many Potentials for LAB



Applications of Fermentation



Alcoholic beverages (YEAST !)
Bioethanol (YEAST !) → DDGS

- Fermented foods: bread, soy, ...
- Biomass
 - SCP → nutritional content
 - Probiotics → GIT health
- Metabolites: lactic acid
- Feed Fermentation



Why Animal Feed Fermentation ?

- Release more nutrients & energy from raw materials
- Reduce use of phytase
- To acidify the feed: lactic acid
- To improve feed intake
- Reduce use of medication
- ...

Today's "Reference" Technology



Today's "Reference" Technology



Fermentation of complete feed

- Hygiene !!!
 - Pre-, in- and post fermentation
 - @ Farm !
- Strong discipline required
- Expiry date of fermented feed: **MAX.** 3 weeks
 - Logistics to and conservation at farms
- No antibiotic use: living micro-organism
- Major responsibility at feed manufacturer
- Easy-to-copy: competitive edge ?



Fermentation of grains to complement feed

- Only applicable at farms applying liquid feeding !
 - Less applicable in all farms (no “pass-partout”)
- Fermented grain supplemented to liquid feed (“*premix*” concept)
 - Need for regular mixing to avoid segmentation
 - Different grain blends (35-45 % DM) depending on application
- Less hygienic & discipline problems
 - Due to smaller blend volumes of ferment production
- Expiry date: **MAX** 2. weeks
- No antibiotic use: living micro-organism
- Major responsibility at farmer
- Easy-to-copy: competitive edge ?



Going beyond the State-of-the-Art

- Copy-proof and identified *in-house* strain !
- Applicable in solid feed & full flexibility: “*pass-partout*”
 - Blend ferment in low amount with your feed application
 - Production foreseen in China and Belgium
 - Fully under control
- Only need for the basic feed hygienic & discipline rules @ farm
- Normal expiry dates of the feed (6 months)
- Not sensitive to antibiotics
- Major responsibility at Nuscience



Models with minimal proven earn-back

- Sell the whole fermented feed @ farm
- Sell inoculum for fermenting raw materials / feed @ farm
- Sell “fermented premix” to farmer for blending in (liquid) feed @ farms

All above wet/semi-dry/dry

Proposed earn-back model

Sell ferment-upgraded-feed @ farm → Nuscience strategy



THANK YOU