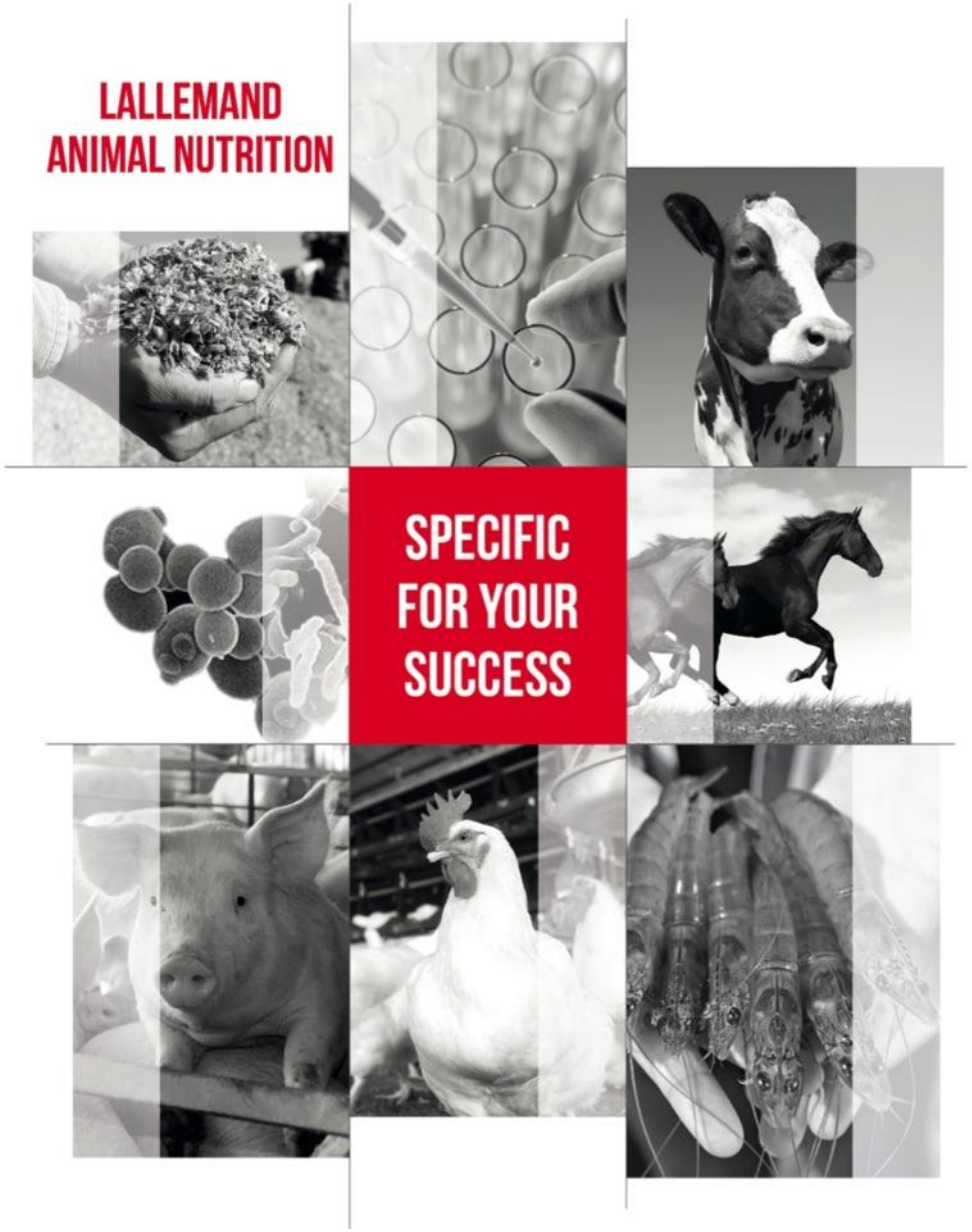

On-farm corn silage investigation

Multi-analysis on silage practices, silage quality and its effect on aerobic stability

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Objectives

- Silage represents more than 50% of the dry matter intake with losses ranging from few to >20%

- Very few available and practical on-farm methods to analyze silage quality
  - Corn Silage Investigation

- Picture the current situation about farmer practices and their consequences

Material and method

- 2012 and 2013 seasons
  - Springs and summers (June - July)
- Corn silage on 149 dairy farms located in France, Italy and Greece
  - Different conditions
  - Different silage additives
- Investigation according to the standardized “CSI” method

Material and method

- Silage survey : CSI
  - Silage management
    - Field to fork
  - Silage quality
    - Temperature
    - pH
    - Density
    - Fermentation profile

Results

- Silos with high densities show lower temperature at the front face
  - Forage characteristics
  - Equipment
  - Method of packing
  - …

	Density	Temperature
Low	209±47 kgDM/m3	25±4.7°C[a]
High	238±48kg DM/m3	22±3.0°C[b]

P<0.05

Results

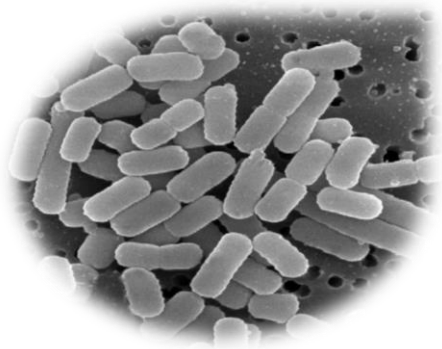
- Bunker silos were significant cooler than drive over pile silos
  - More likely packed
  - Lower porosity

	Temperature	Mean density
Pile silos	25±4°C [a]	184.6[a]
Bunker silos	24±3°C [b]	237.7[b]

P<0.05

Results

- Silage treatment and aerobic stability
  - L.buchneri NCIMB40788* shows best aerobic stability, thus lower DM losses associated



	Temperature
Control	26±3.4°C[a]
Others	24±3.6°C[a]
L.buchneri NCIMB 40788*	22±2.7°C[b]

P<0.05

*applied at 300 000cfu/g

Results

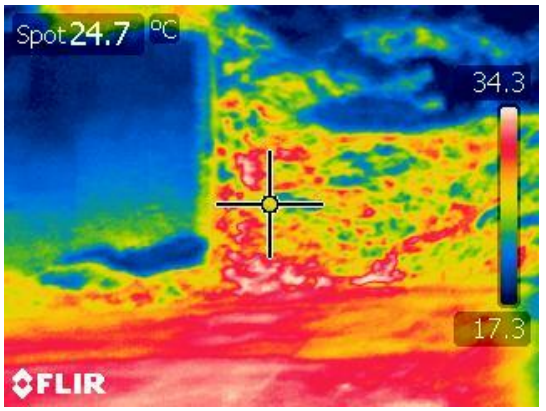
- Fermentation profile
  - L.buchneri NCIMB 40788 treatment gives greater concentration of acetic acid whilst no significant differences in pH or lactic acid
  - Higher acetic acid levels in silages give better aerobic stability

	pH	Lactic acid	Acetic acid
Control	3.85 ± 0.02	30.4 ± 2.62	11.1 ± 0.7 [a]
Others	3.83 ± 0.01	28.6 ± 4.70	18.7 ± 2.8 [ab]
LB 40788	3.80 ± 0.01	34.1 ± 3.47	21.2 ± 3.5 [b]

[a,b] differ when P<0.05

Results

- Front face management
  - Low speedout increases the challenge (<20cm/day)
    - Time x Exposure
  - Equipment and method for defacing
    - Upward or downward moves



Conclusions

- Good silage quality is highly related to the sum of each good silage practices
  - Farmers practices not always in line with the golden rules
  - Appropriate silage inoculant has demonstrated its effect under various conditions
- Standardized method of analysis allows to detect margins of improvement

Thank you for your attention !

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