Pre-estimation of silage density via an application by using data available on farm

1

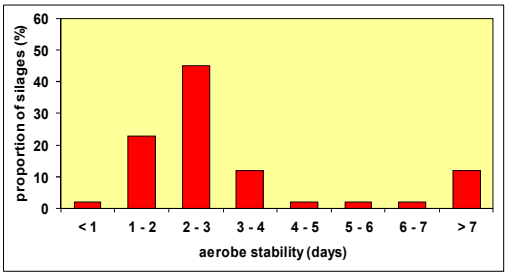
introduction

-re-heating (aerobic instability) is an common problem
-quite often not recognized

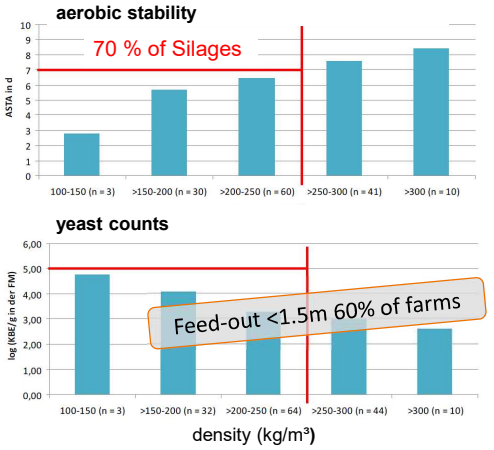
2

2

introduction



Aerobic stability in maize silages (Kaiser & Pilz 2002)



Aerobic stability and yeast counts in dependence of silage density (Weiß und Thaysen 2014)

3

introduction

Why?

-re-heating (aerobic instability) is an common problem
-quite often not recognized
-problems get visible long time after cause
-measurement of temperature, indirect info about density or
-density measurements via auger (complicated)
-and both measurements possible only after the bunker is reopened

Solution!

- **control the process during it is running**
- **even better, check the process before starting it !!**

4

4

solution

ADDCON

Muck & Holmes 1999 and 2000

Table 2. Correlation of factors with adjusted dry matter density

Factor	Correlation Coefficient
Initial layer thickness	−0.279*
Average packing tractor weight	0.262*
Average wheel load	0.224*
Dry matter content	0.209*
Total weight of packing tractor(s)	0.200*
Tire condition (1 = New, 3 = Bald)	0.195*
Average particle size	0.194*
Packing time (min/t as-fed)	0.162*
Speed of packing (1 ≥ 8 km/h; 4 ≤ 1.6 km/h)	0.147
Number of packing tractors	0.146
Wheels per packing tractor	0.126
Slip during packing (1 = none; 3 = frequently)	0.101
Tire pressure	0.098
Crop (1 = corn; 2 = alfalfa)	0.086
Packing time (min/t DM)	0.078
Front wheel drive (1 = front wheel drive, assist; 2 = rear wheel drive only)	0.075
Packing method (1 = horizontal, 2 = progressive wedge, 3 = distribute only)	−0.068
Delivery wagon or truck drives over pile (1 = yes)	0.059

* Significant correlations ($P < 0.05$).

$$Est.\ DMD\ (lbs\ DM/ft^3) = (8.5 + PF \times 0.0155) \times (0.818 + 0.0136 \times D)$$

$$PF = \left(\frac{W}{L}\right) \times \sqrt{N \times DM \div C}$$

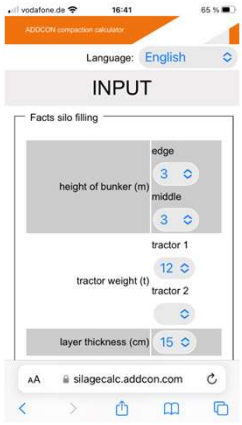
Formula is well suited to use at farm level?

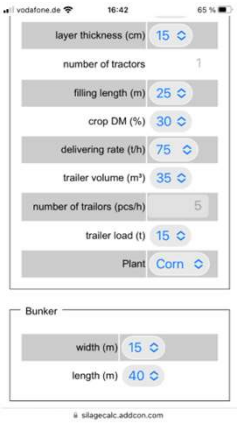
NO !!

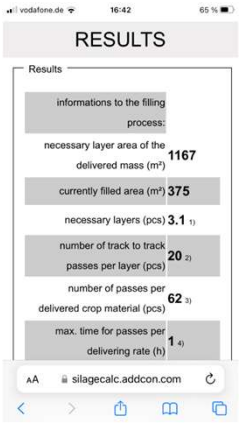
The idea popped up to develop based on Muck & Holmes an **App** for smartphones

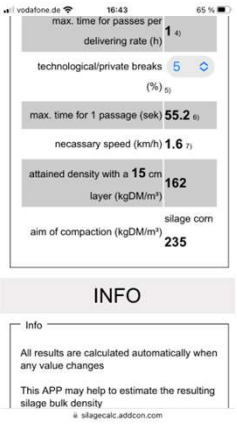
solution

ADDCON









summary

Try it !

https://silagecalc.addcon.com

Start to play

learn more about your bunker filling technology!