

# **Comparison of costs and benefits of field drying, barn drying and ensiling**

*Model calculations based on a three-year trial*

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# Comparison experiment of four methods

## Field drying



## Barn drying + cold air ventilation



## Barn drying + solar ventilation and dehumidifier



## Ensiling - grass silage



- Three-year trial
  - 3x4 cuts, identical meadow & date
  - 4x4 fed to Holstein/Simmentaler

**Forage**



**Forage yield & quality**  
**Feed intake & milk**

**Technology**



**Investment costs**  
**Machinery & energy**

**Markets**



**Market value**  
**Haymilk premium**

**Risks**



**Weather risks**  
**Forage losses**

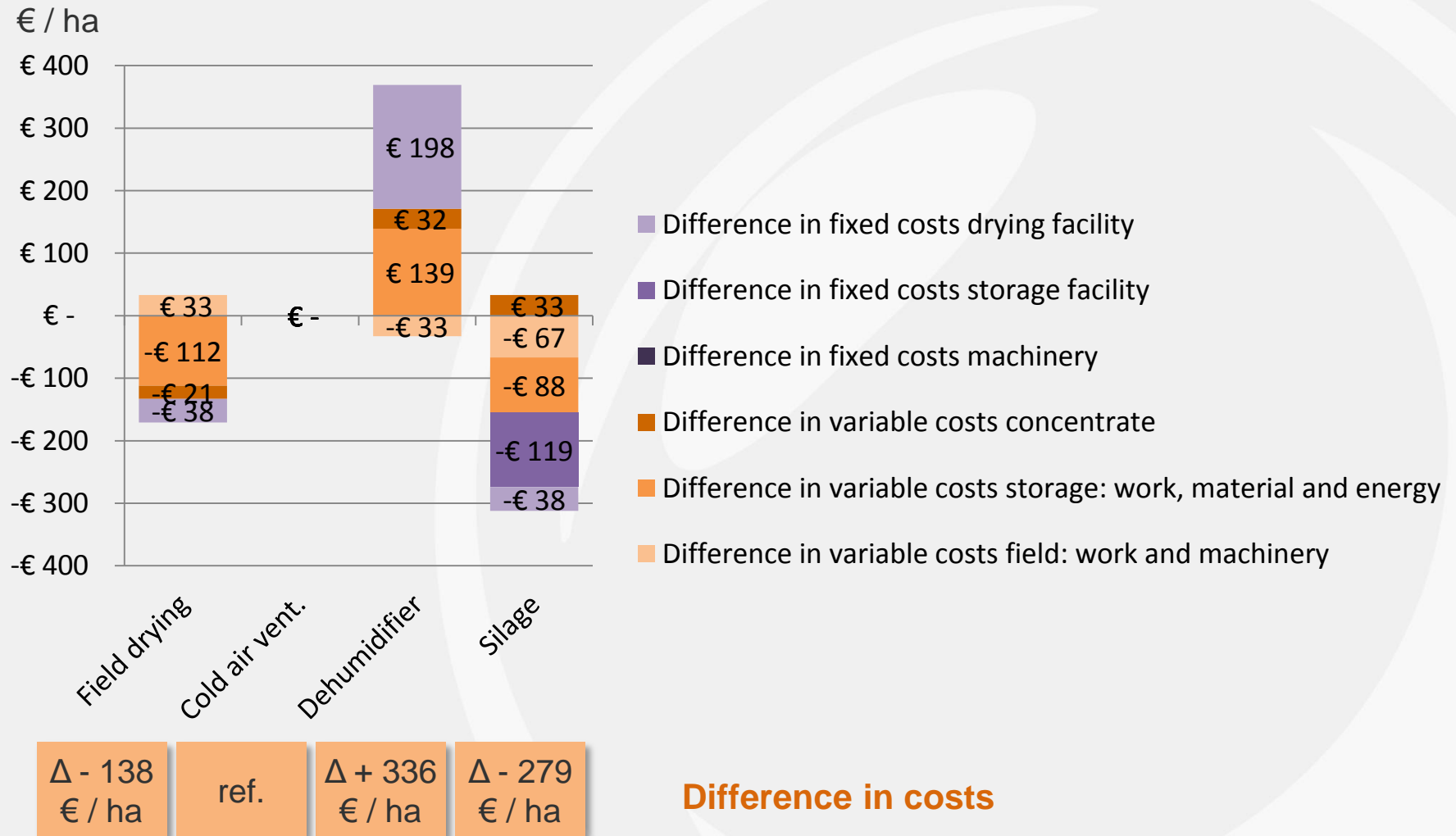
# Harvesting losses, storage losses, yield

<b>Yield at mowing</b> [kg DM / ha] [MJ NEL / kg TM] [MJ NEL / ha]	<b>7.913</b> <b>6,0</b> <b>47.475</b>			
<b>Field drying and tedding</b> [DM] [average count]	Field drying 81 % 4 x	Cold air vent. 71 % 3 x	Dehumidifier 62 % 2 x	Silage 38 % 1 x
<b>Harvesting losses [%]</b>	27 %	21 %	15 %	11 %
<b>Yield at storage</b> [MJ NEL / ha]	34.655	37.633	40.140	42.312
<b>Storage losses [%]</b>	9 %	5 %	6 %	12 %
<b>Yield at feeding</b> [kg TM / ha] [MJ NEL / kg TM] [MJ NEL / ha]	5.750 5,51 31.684	6.205 5,75 35.678	6.574 5,72 37.601	6.530 5,69 37.154
<b>Overall losses</b> [MJ NEL / ha] [%]	15.791 33 %	11.797 25 %	9.874 21 %	10.321 22 %

# Productivity and revenues

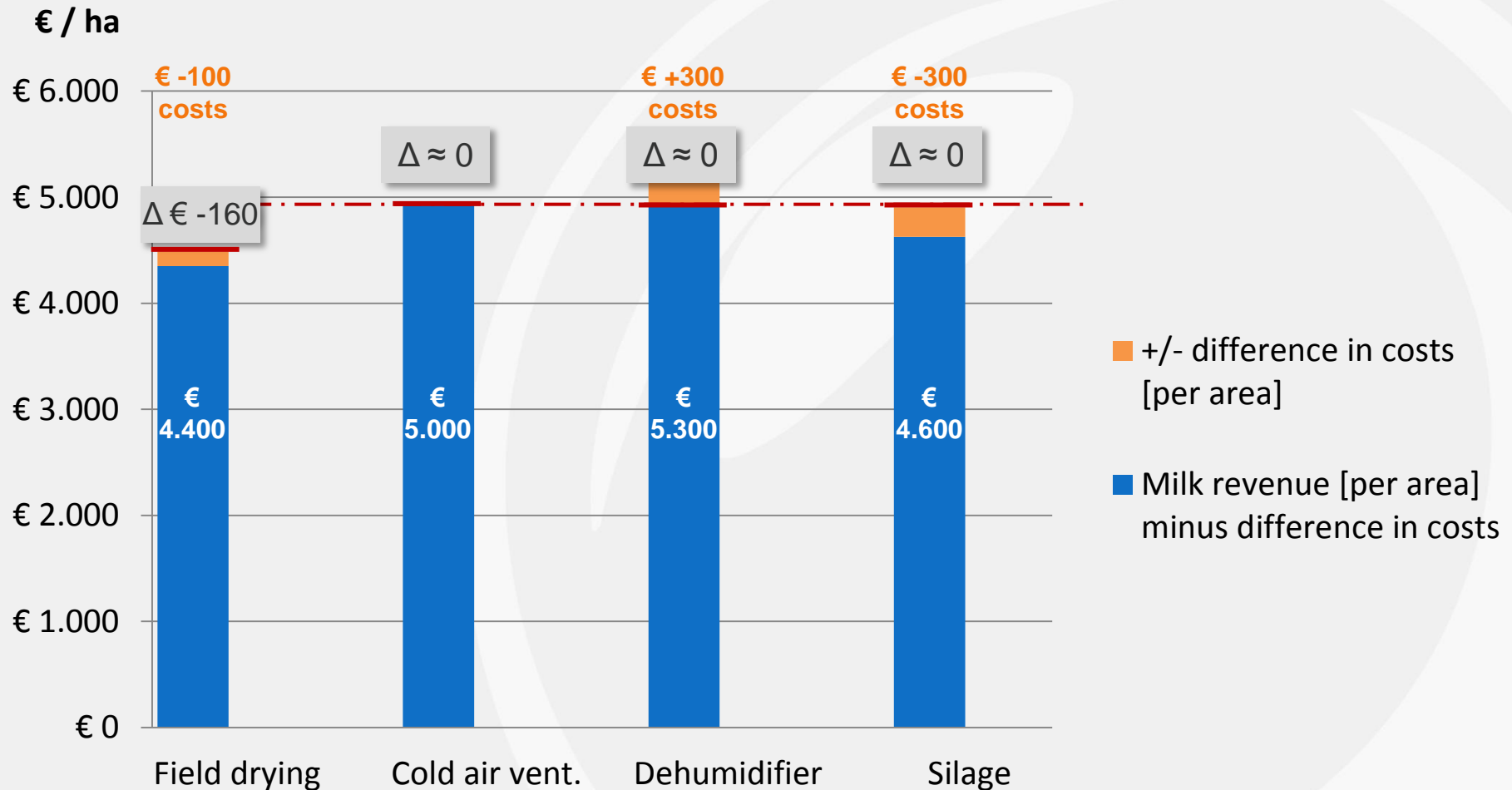
	Field drying	Cold air vent.	Dehumidifier	Silage
<b>Forage intake</b> [kg DM / cow / d] [MJ NEL / cow / a]	<b>15,4<sup>a</sup></b> <b>28.937</b>	<b>15,8<sup>b</sup></b> <b>30.653</b>	<b>15,8<sup>b</sup></b> <b>30.504</b>	<b>14,6<sup>c</sup></b> <b>28.510</b>
<b>Concentrate intake</b> [kg DM / cow / a] (20 % of dry matter intake)	<b>3,9</b>	<b>3,9</b>	<b>3,9</b>	<b>3,9</b>
<b>Milk yield per cow</b> [kg / cow / a]	7.747	8.296	8.327	7.473
<b>Milk yield per area</b> [kg / ha / a]	8.058	9.173	9.751	9.251
<b>Milk revenue [€ / ha]</b> € 0,50 / kg basic price € 0,04 / kg haymilk premium	<b>4.351</b> 4.029 322	<b>4.953</b> 4.587 367	<b>5.265</b> 4.875 390	<b>4.626</b> 4.626 0
<b>Difference in revenues</b> at € 0,54 / kg milk [€ / ha / a]	<b>Δ - 602</b> € / ha	ref.	<b>Δ + 312</b> € / ha	<b>Δ - 327</b> € / ha

# Difference in costs of forage production



# Difference in revenues and costs

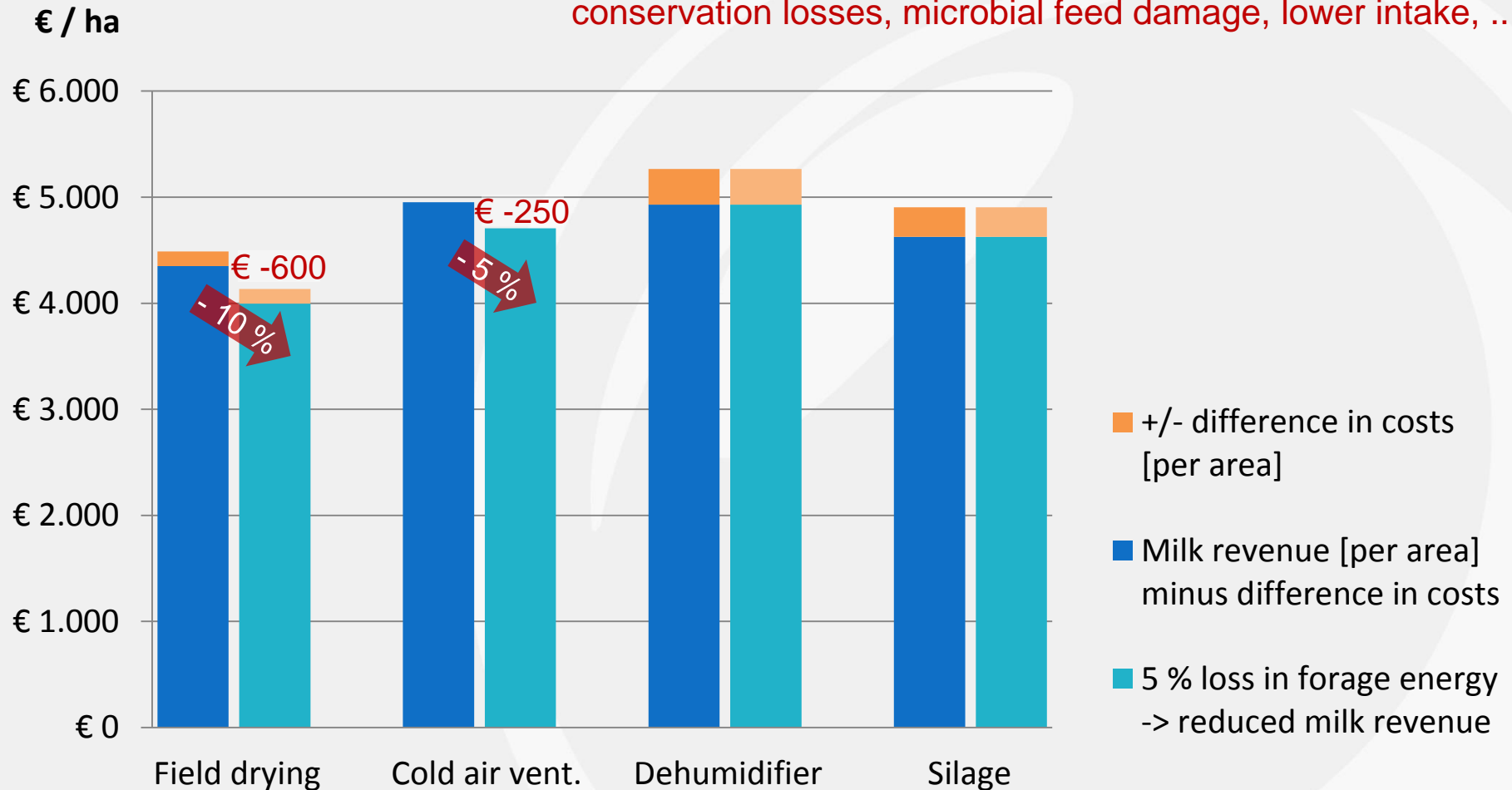
=> Risk of weather / harvest losses?



# Risk of weather / harvest losses

Forage energy [MJ NEL]

Harvesting losses, lower energy concentration, conservation losses, microbial feed damage, lower intake, ...



# Conclusions

## (1) Considerations

- Environmental effects are not included
- Investment costs and energy costs vary considerably

## (2) Bottom line

- No direct difference between barn drying and ensiling
- Forage yield and weather risks important