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Organic dairy production without concentrates: Effects on milk yield, animal health and economics

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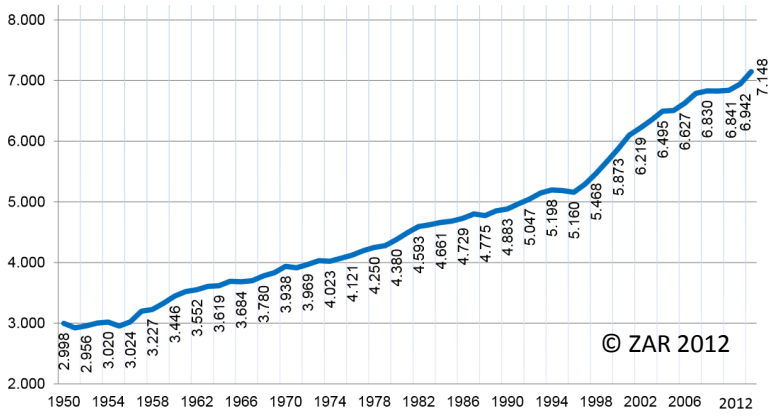
Why concentrates?



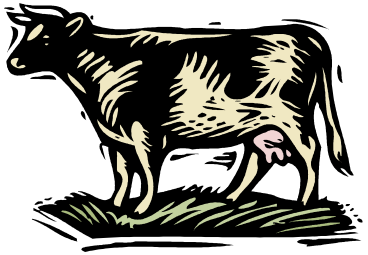
Performance

On-farm handling

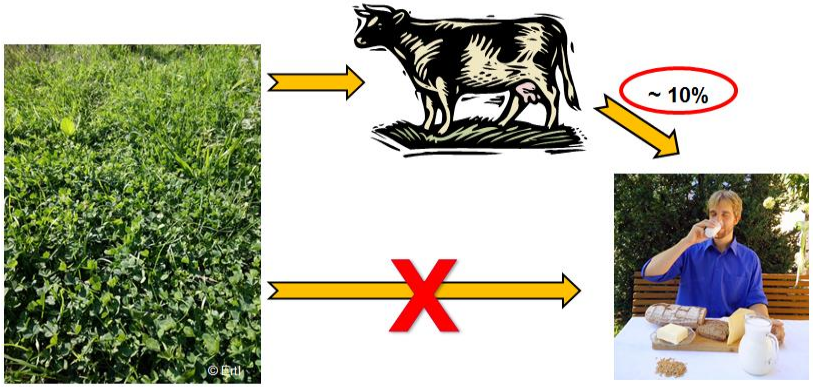
Price

Balance rations

Why no concentrates?



Biology



Feed to food efficiency

Price

Origin of concentrates

Research questions

- Milk performance without concentrates?
- Effects on animal health and fertility?
- Lower milk yield = lower marginal income?

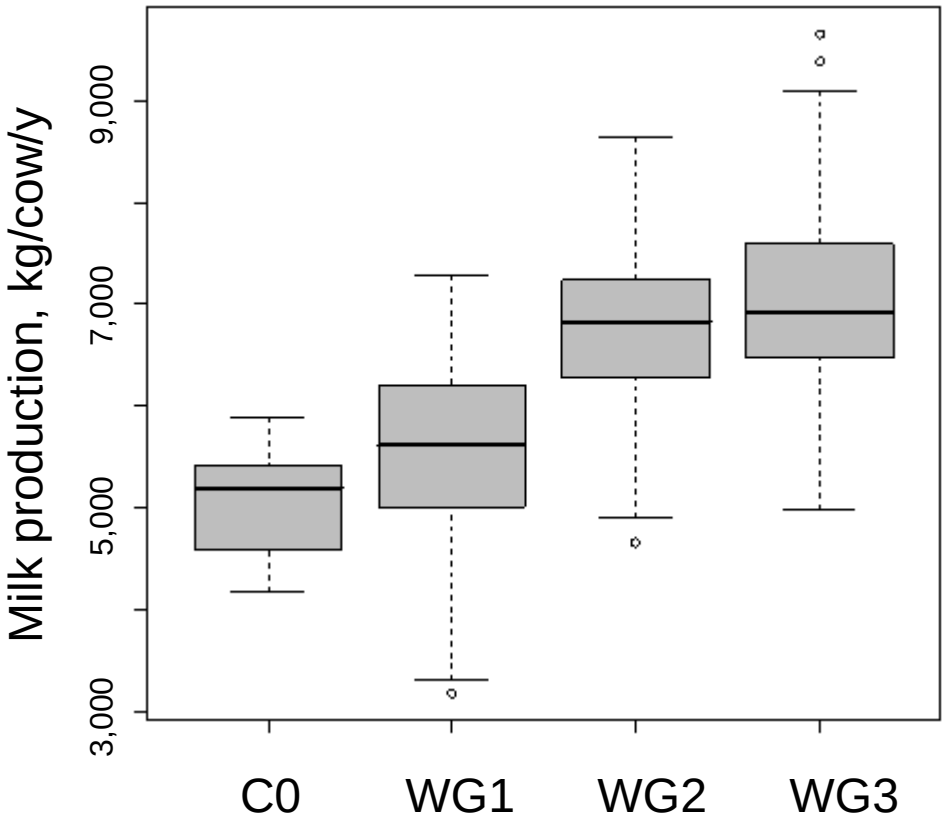
Animals, Materials and methods

- Field data of 2 years from 8 organic dairy farms without concentrates (C0)
- Compared with ~140 organic farms included in a federal program (WG)
- 3 groups depending on annual concentrates per cow
  - WG 1: <975 kg
  - WG 2: 976 – 1,400 kg
  - WG 3: >1,400 kg

Farm data

Item	C0	WG1	WG2	WG3	*P* - Value
Farms (2010/2011), n	8/8	40/53	42/48	49/39	
Herd size, n	23.0	26.1	26.6	26.8	0.829
Concentrates, kg/cow/y	7^{a}	710^{b}	$1{,}237^{c}$	$1{,}657^{d}$	<0.001
Concentrates, g/kg milk	1^{a}	124^{b}	189^{c}	245^{d}	<0.001
Breeding value (TMI)	107^{a}	120^{b}	122^{bc}	123^{c}	<0.001
Age at 1st calving, mo	32.4^{a}	31.1^{a}	30.1^{ab}	29.4^{b}	<0.001

Milk performance

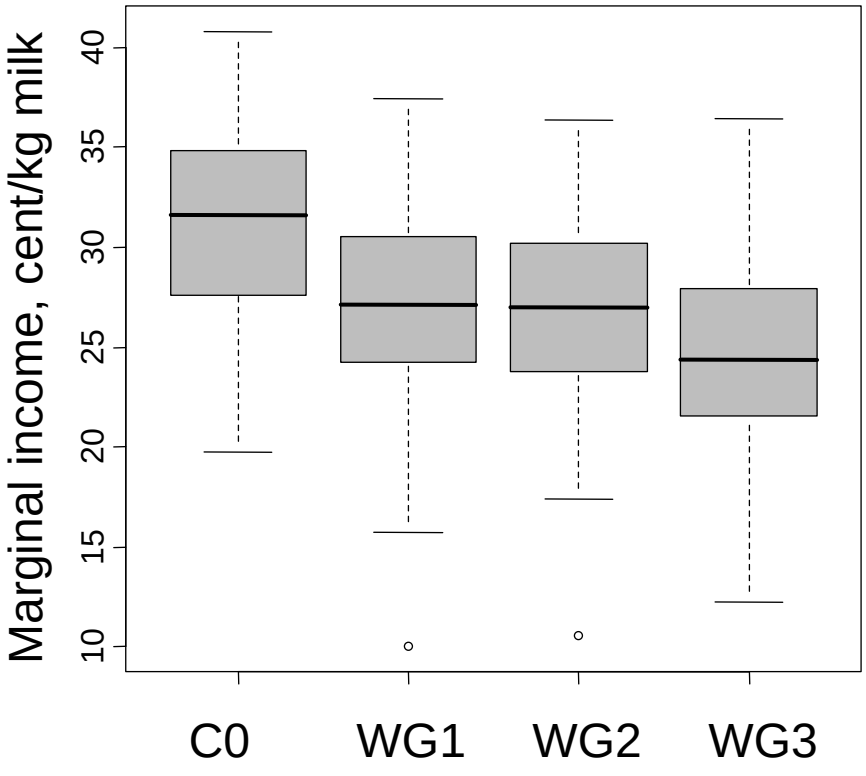


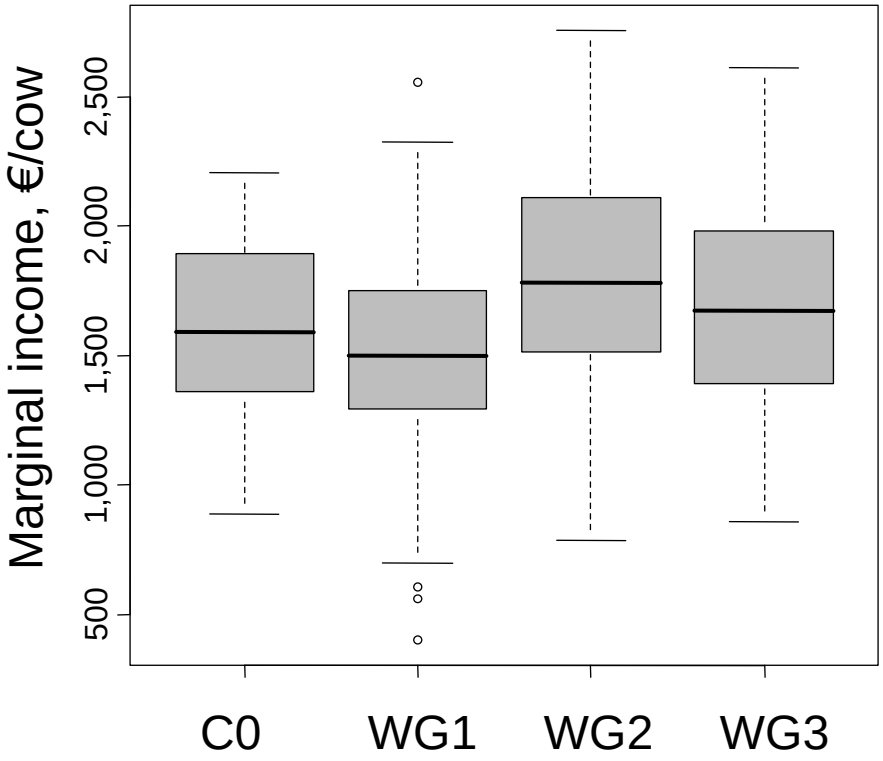
- C0: 5,093 kg
- WG1: 5,813 kg
- WG2: 6,597 kg
- WG3: 6,824 kg

Veterinary costs and fertility

Item	C0	WG1	WG2	WG3	*P* - Value
Veterinary costs, cent/kg milk	0.51	1.05	1.13	1.06	0.051
Veterinary costs, €/cow/y	26.2^{a}	59.3^{ab}	73.8^{c}	71.1^{bc}	0.001
NRR 90, %	71.0	61.4	60.8	61.3	0.176
Insemination index	1.52	1.61	1.62	1.60	0.800
SCC, x1,000/ml	230	190	168	184	0.067
Calving interval, d	410^{a}	396^{ab}	393^{ab}	388^{b}	0.026

Economics


Marginal income, cent/kg milk
10
15
20
25
30
35
40
C0
WG1
WG2
WG3


Marginal income, €/cow
500
1,000
1,500
2,000
2,500
C0
WG1
WG2
WG3

Take home messages

- Organic dairy production without concentrates is possible
- Need for adapted dairy production
- Marginal income ≠ milk price * milk performance

Questions?