Economics of mastitis

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What to expect?

- Mastitis from an economic perspective
- Costs of mastitis
  - Farmers own estimation
- Benefits of improved management
- Conclusions

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Economics of mastitis

Dairy farm

Dairy processor

Consumption

Input
Capital
- Buildings
- Equipment
- Feedstuffs
- Health care
- …..

Labour
Land

→

Output
Main product
- Milk

Side products
- Calves
- Meat
- …..

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After: McInerney, 1996

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Economics of mastitis

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Other input
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Land

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Land

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Main product
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Side products
- Calves
- Meat
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Output
Fresh milk
Cheese
Deserts
……

Satisfaction

Economics of mastitis

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Satisfaction

1. Lower efficiency

Mastitis

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Satisfaction

1. Lower efficiency
2. Lower suitability for processing

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1. Lower efficiency
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3. Less satisfaction

Mastitis

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Deserts
……

Satisfaction

1. Lower efficiency
2. Lower suitability for processing
3. Less satisfaction
4. Lower societal value

Mastitis

Effects

- Lower efficiency
- Lower suitability for processing
- Less satisfaction
- Lower societal value

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Cost of mastitis

- Default cost calculations
  - Based on literature and expertise
  - Clinical mastitis: Yearly incidence
  - Subclinical mastitis: Bulk milk somatic cell count
  - Conservative estimations
- Data collection
  - 64 dairy farms
  - Data entry at “open farm days”
  - Assistance from researcher

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Theory vs practise (€/cow/year)

	Default
Production losses subclinical	16
Production losses clinical	23
Veterinarian (€/cow/year)	0.3
Drugs	6
Discarded milk	9
Culling	22
Penalties	0
Labour	4
Total economic losses	81

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Theory vs practise (€/cow/year)

	Default	Farm specific		
		Mean	Low	High
Production losses subclinical	16	36	6.8	72.4
Production losses clinical	23	10	2.5	22
Veterinarian (€/cow/year)	0.3	0.6	0	2.5
Drugs	6	10.6	3.5	26.7
Discarded milk	9	7.9	2.5	17.9
Culling	22	17.9	0	46
Penalties	0	0.30	0	2.4
Labour	4	3.8	0	15
Total economic losses	81	78	31.4	153.8

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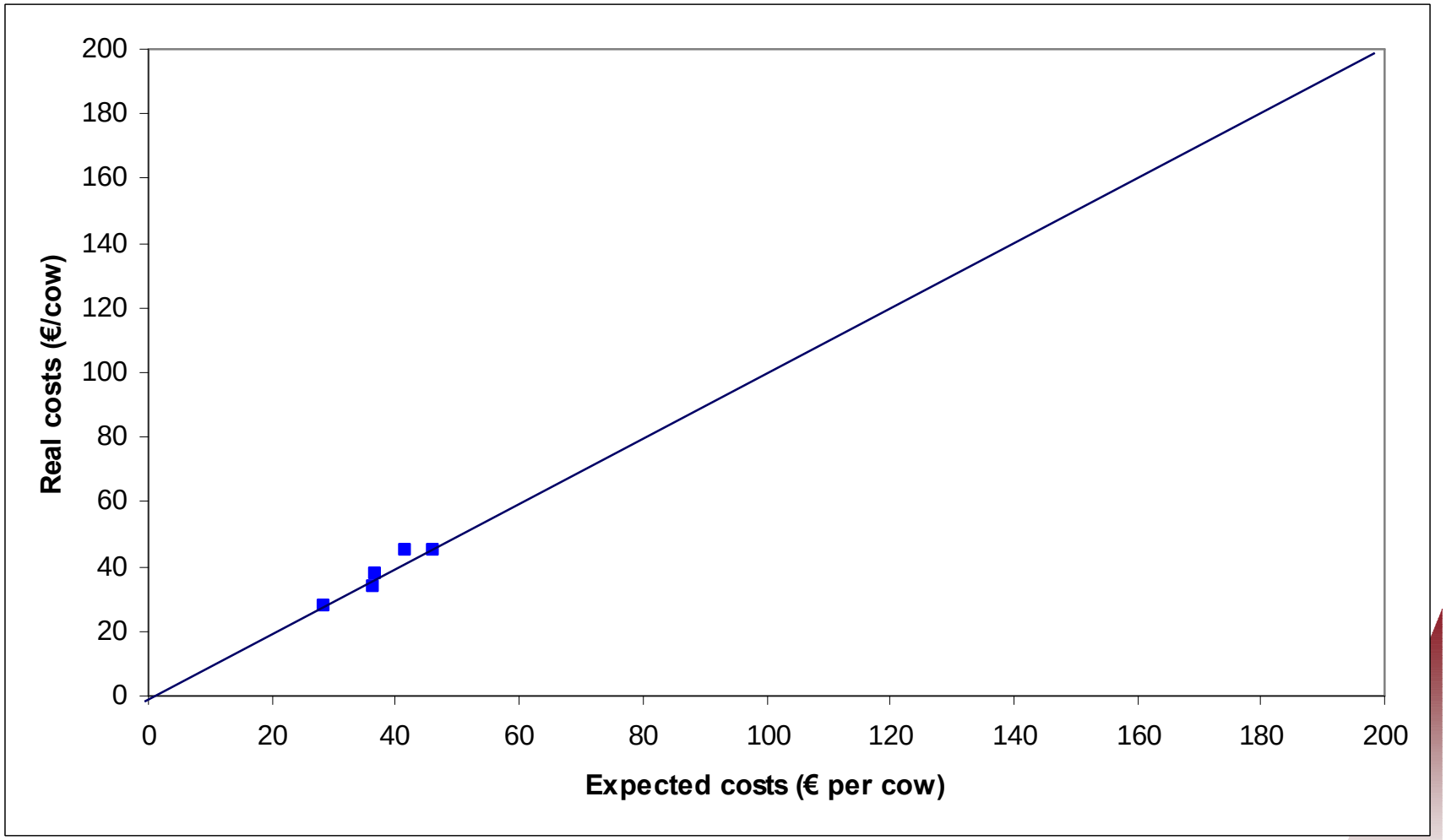
What's behind this

	Default	Farm specific		
		Mean	Low	High
Costs milk prod. losses (€/kg)	0.12	0.07	0.03	0.10
Visit costs (€/visit)	20	24	0	67.8
Drug costs (€/treatment)	20	33	17.5	73.5
Value labour (€/hour)	18	19	0	30
Culling costs (€/culled case)	480	383	0	750

Real vs expected costs (n=64)



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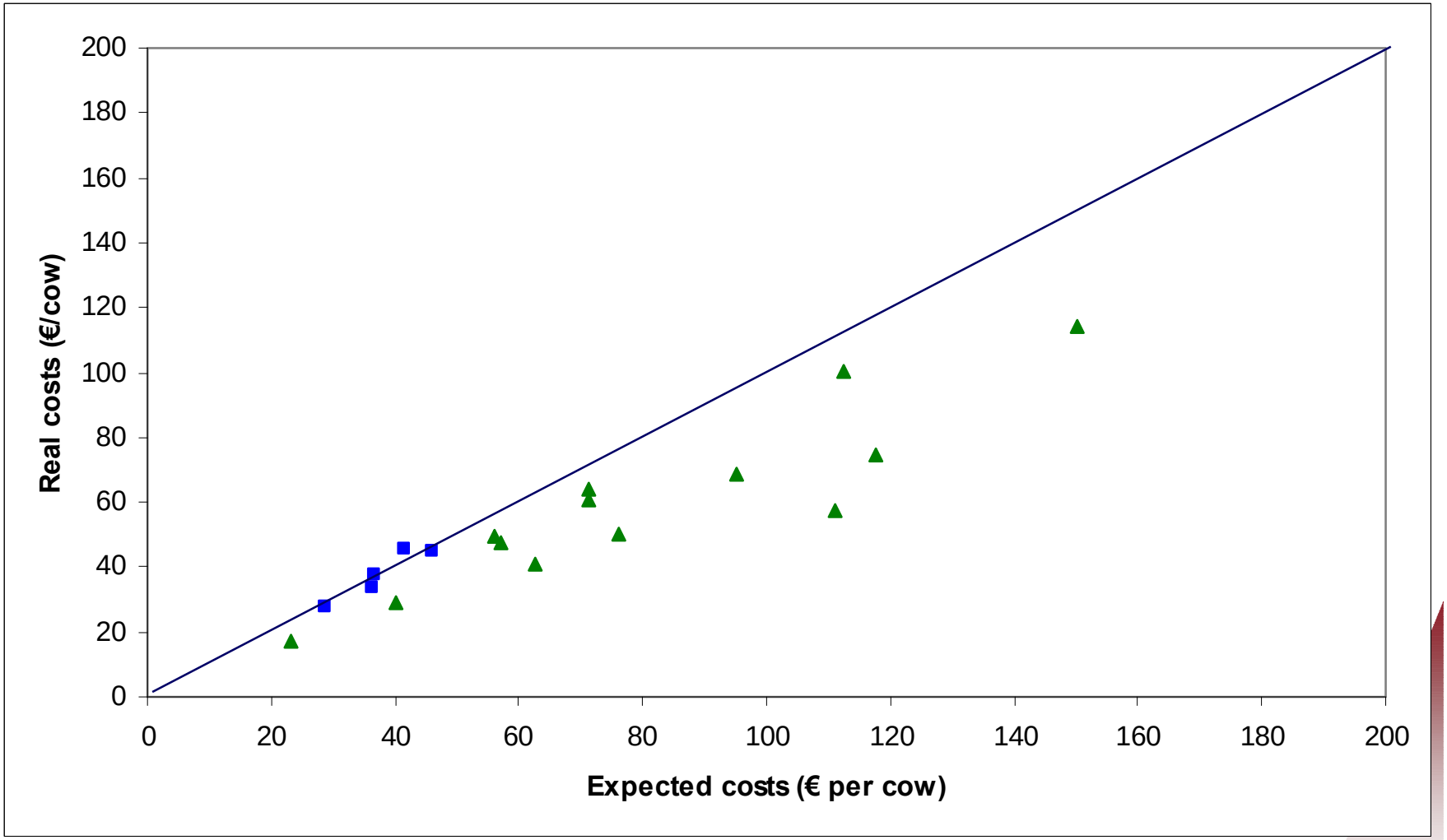
Too high estimation



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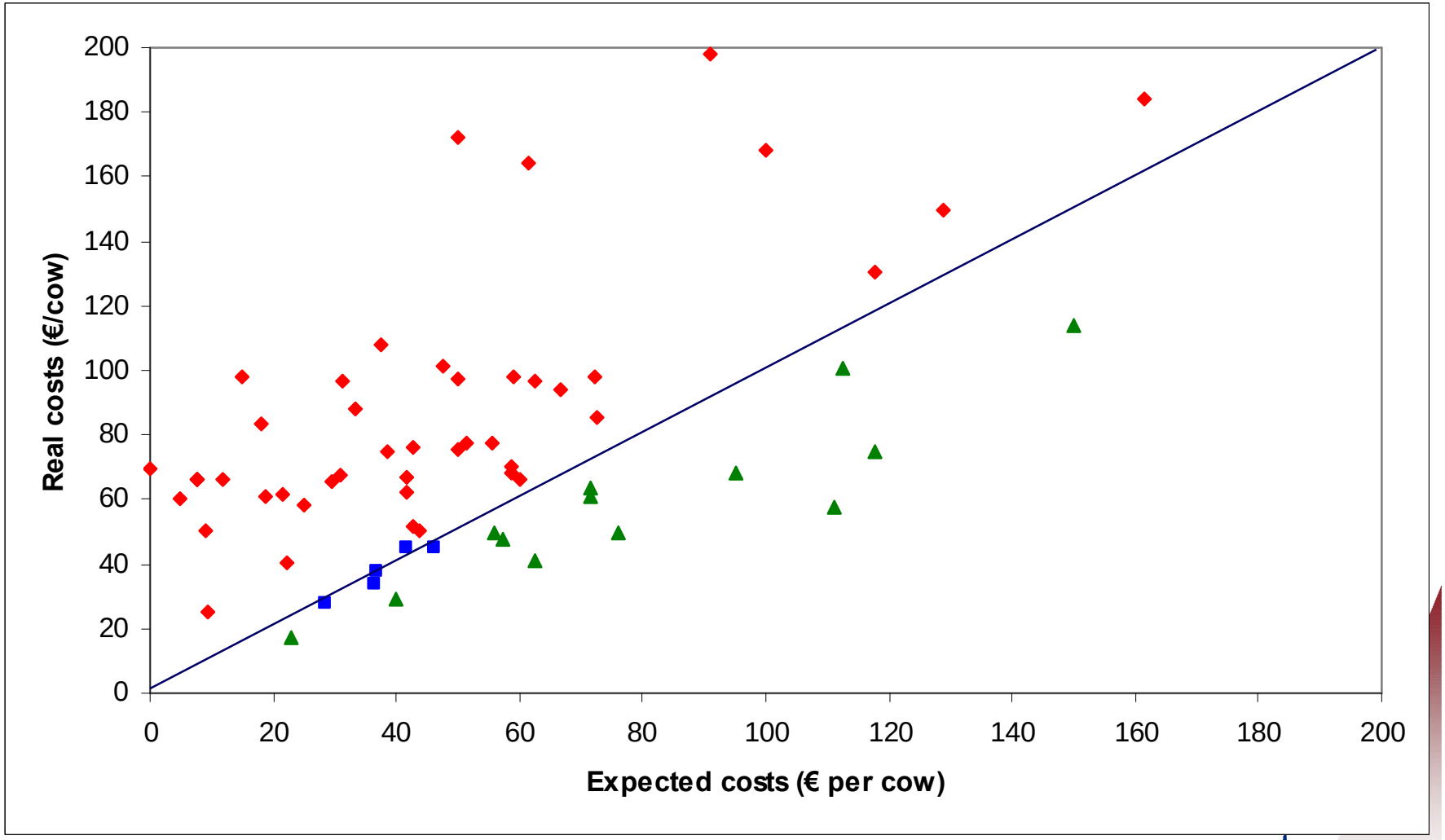
Too low estimation



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Costs alone are useless

- Is there room for improvement?

- 18 management measures (Huijps et al., 2010)
  - -Quantify effect
  - -436 scientific papers (1996-2006)
  - -43 relevant and useful

- Expert sessions
  - -Effect 100 % contagious
  - -Effect 100 % environmental
  - -Efffect on BMSCC
  - -Efffect on clinical mastitis

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Calculate benefits

- Current costs of mastitis -

  new costs of mastitis (with new effects) +

  costs management measures (labour and materials)

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	Average
Farm characteristic	
Nr cows	65
Production (kg/cow/year)	8,500
% environmental mastitis	65
% contagious mastitis	35
BTSCC	200
Incidence of clinical mastitis (%)	30
Milking places in milking parlour	12
Costs of mastitis (€/farm/year)	4,743
Costs of mastitis (€/cow/year	73

	Farm type		
	Average	Problem	Good
Farm characteristic			
Nr cows	65	65	65
Production (kg/cow/year)	8,500	8,500	8,500
% environmental mastitis	65	50	50
% contagious mastitis	35	50	50
BTSCC	200	350	100
Incidence of clinical mastitis (%)	30	40	10
Milking places in milking parlour	12	12	12
Costs of mastitis (€/farm/year)	4,743	7,199	1,405
Costs of mastitis (€/cow/year	73	111	22
Net benefits (€/cow/year) of management measure			
Milking clinical last	-29	-39	-9
Milking subclinical last	-28	-36	-10
Separate cloth	-17	-12	-21
Wash dirty udder	2	5	-2
Prestripping	-28	-23	-32
Milkers' gloves	2	7	-3
Dipping	0,3	16	-21
Rinse clusters clinical	6	14	1
Rinse clusters subclinical	-116	-170	-46
Replace teat cup liners	-7	-3	-10
Treatment protocol	-4	1	-9
Drying off	27	46	4
Keep cows standing	4	9	1
Dry cow minerals	-0,3	9	-9
Overcrowding	-14	-7	-20
Clean boxes	-47	-41	-51
Clean yards	-45	-42	-50
Optimize feed	-11	-3	-21

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In summary

- Mastitis costs money
  - Mastitis is still expensive (farmers underestimate)
  - Losses differ -> farm specific calculations
- Effectiveness of management
  - Farm specific effectiveness
  - Effect of measure depends on assumptions (dynamics)

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Thank you for your attention!