



Expertise Centre for Farm Management and Knowledge Transfer WUR

Analysis antibiotic use in dairy sector in The Netherlands

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Pharmaceutical Industry

Sales of pharmaceuticals in 2010 in the Netherlands

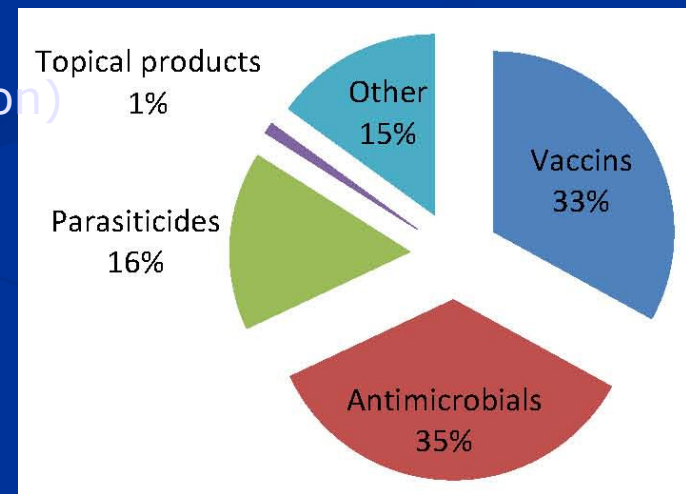
Drugs for human use total: € 6 billion

Comprising 6% antibiotics (€ 360 million)

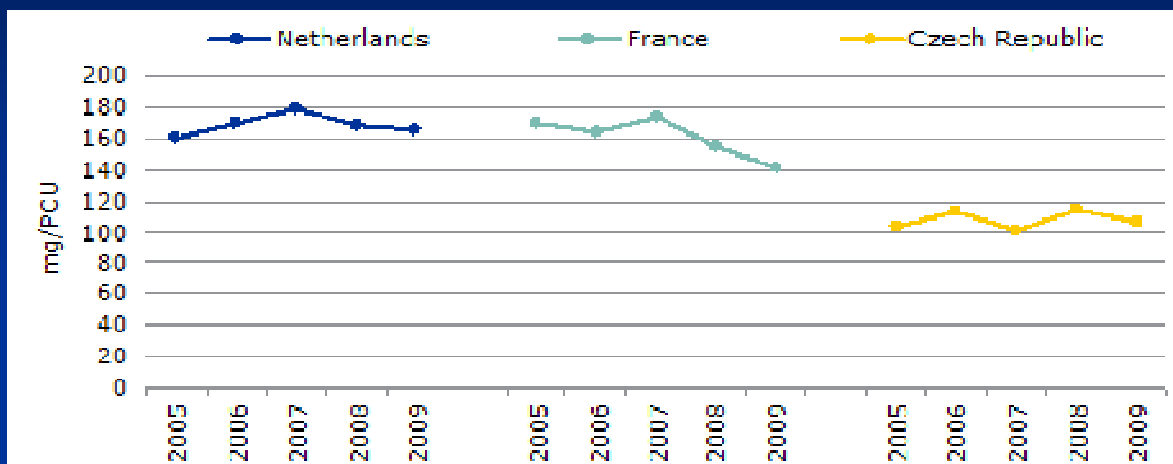
Veterinary drugs total: € 250 million

Comprising 35% antibiotics (€ 87,5 million)

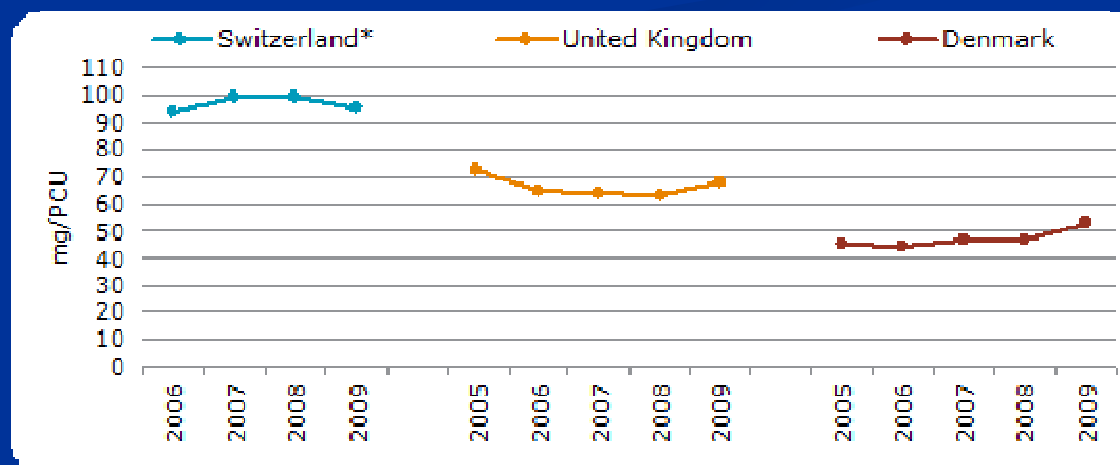
(>99% for food producing animals)



Total sales NL and other countries (EMA, 2011)



Note the differences



ON FARM LEVEL
INDICATION OF MEDICINE
USE

No. daily dosages

Reflects exposure to antibiotics

Definition

Number of daily dosages per cow per year indicates

how many days per year an average cow in the herd under treatment of antibiotics is

Based on veterinary invoices

Youngstock is included

National project

2008-2010

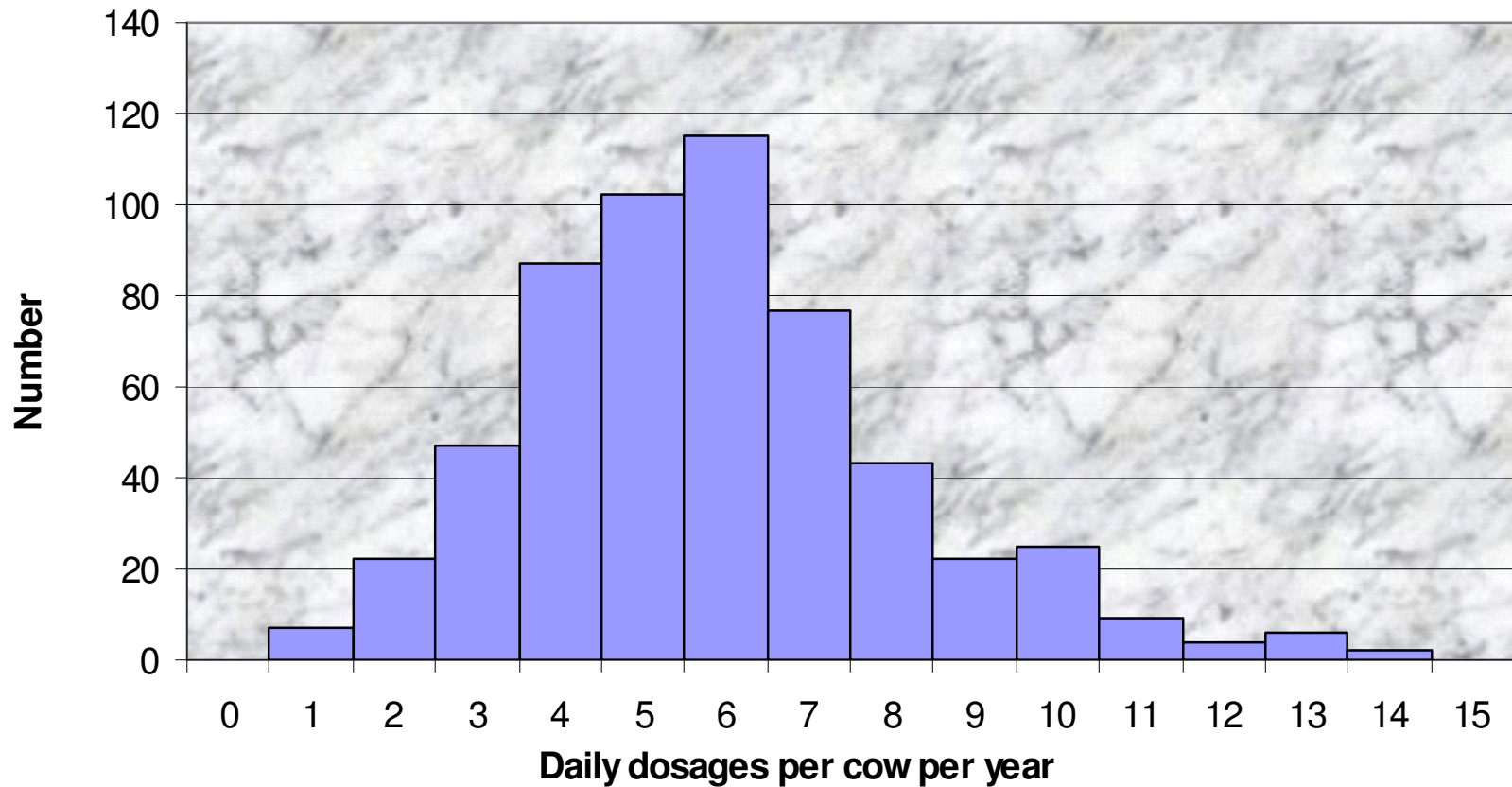
6 Veterinary practices

6-10 dairymen each
guided

- 3 Veterinary practices
plus experimental farms and other
not guided
- 84 farms + 30 FADN farms + 13 Environmental
project farms

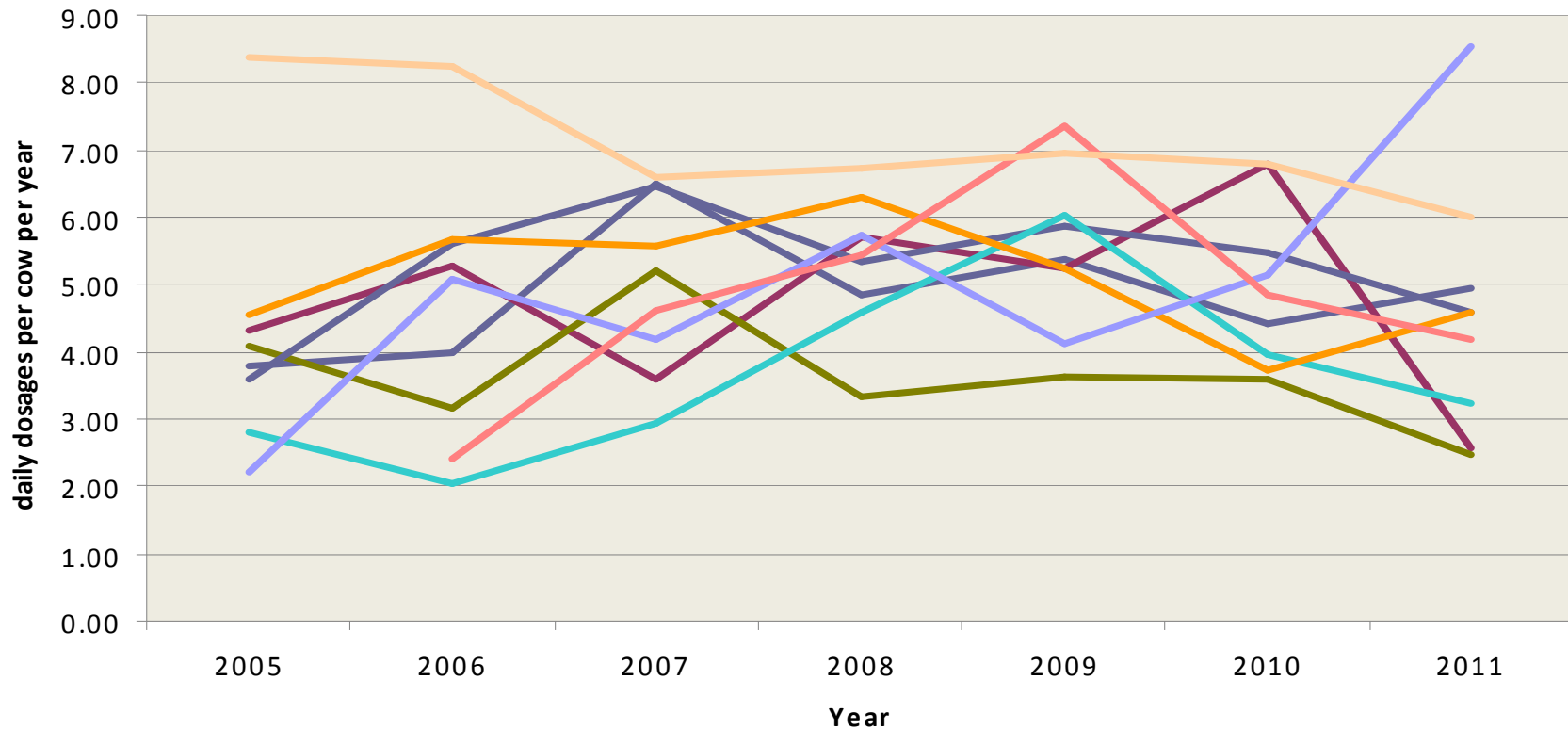


Daily dosages on anual basis



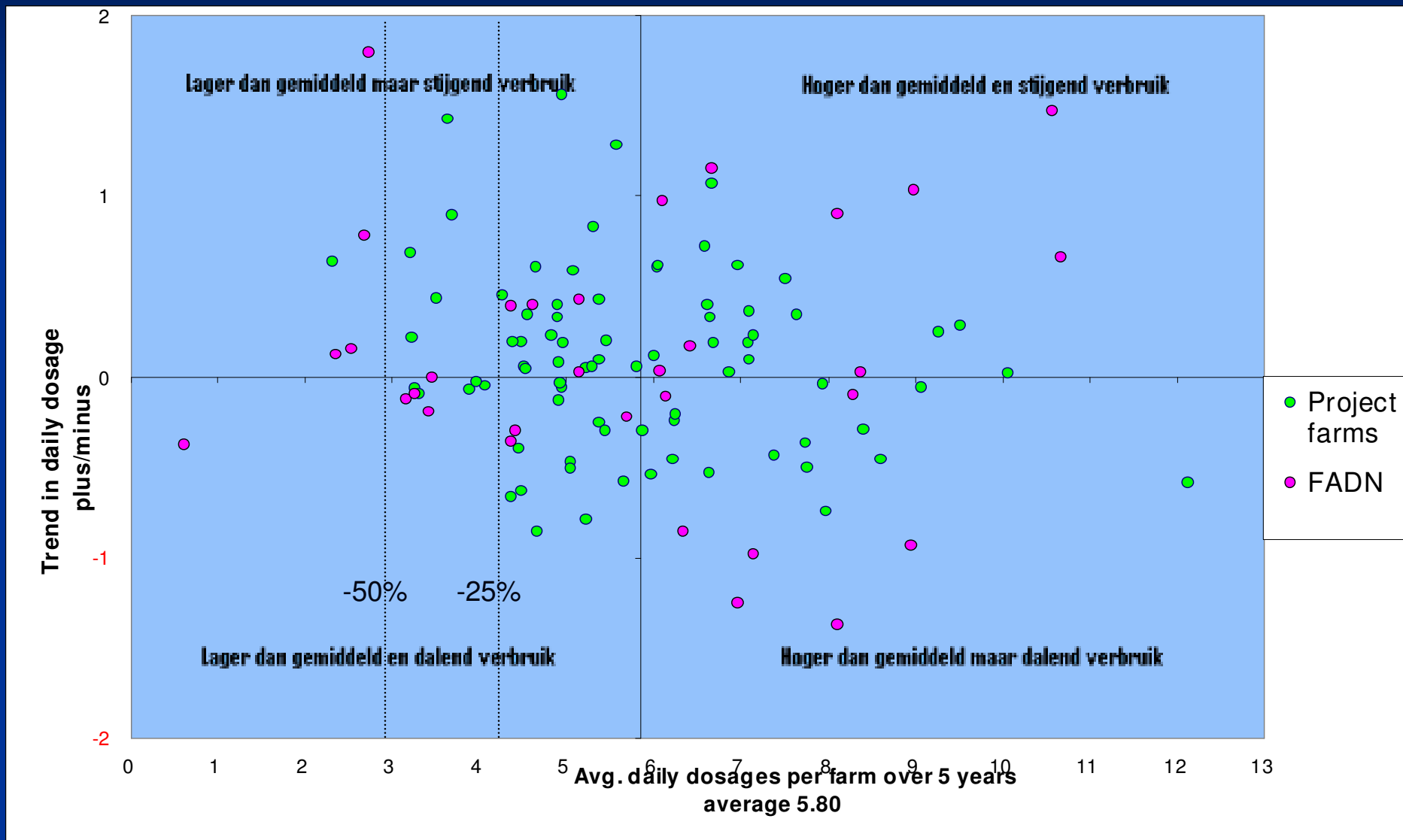
Avg.
5.84

Trend daily dosages per cow year in veterinary practice Oosterwolde



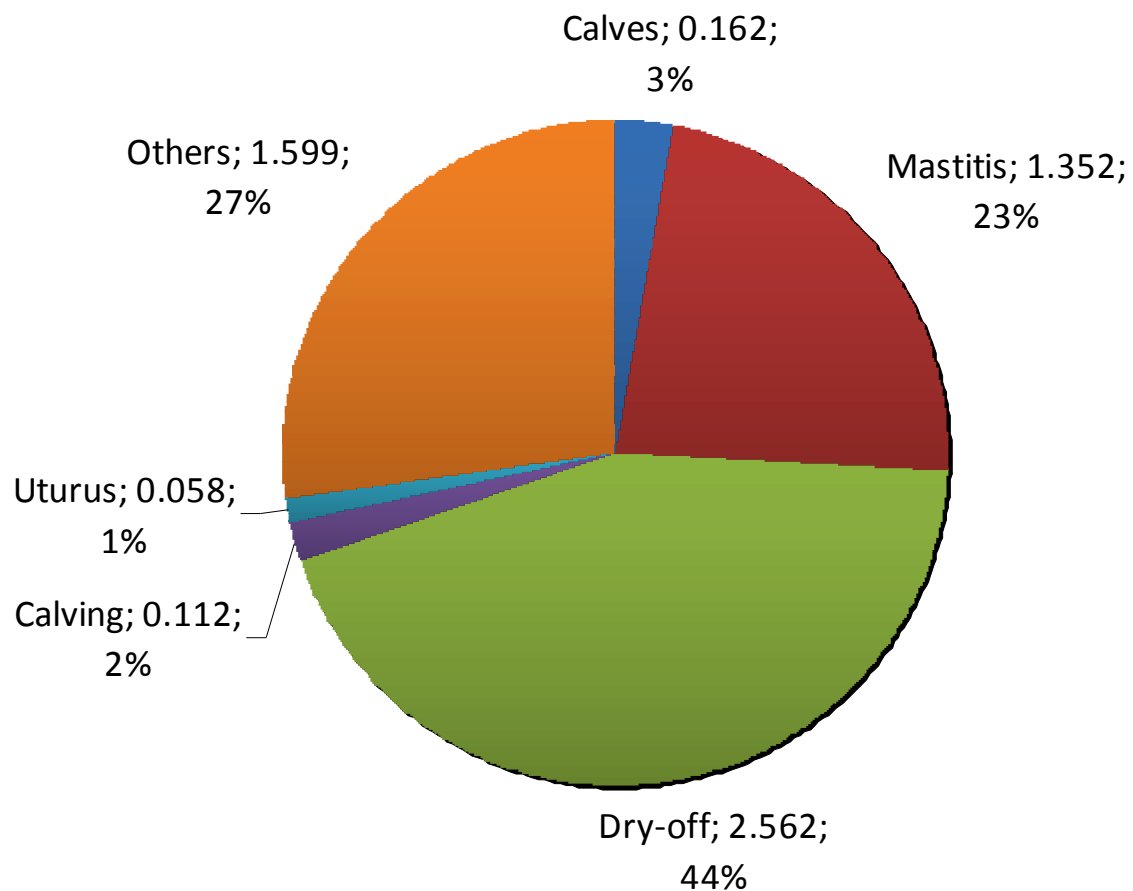


Trend and average usage per farm

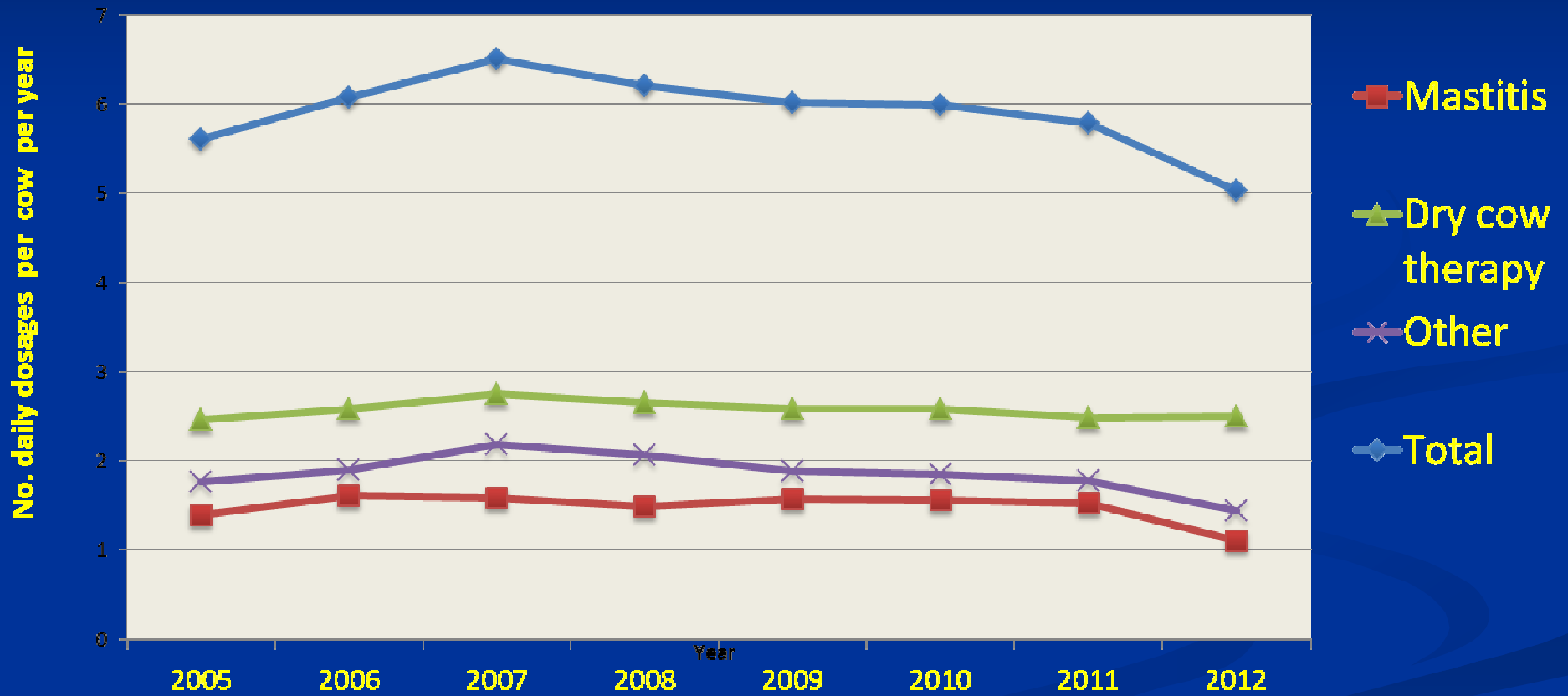




Split up daily dosages in health categories (avg. 8 years)

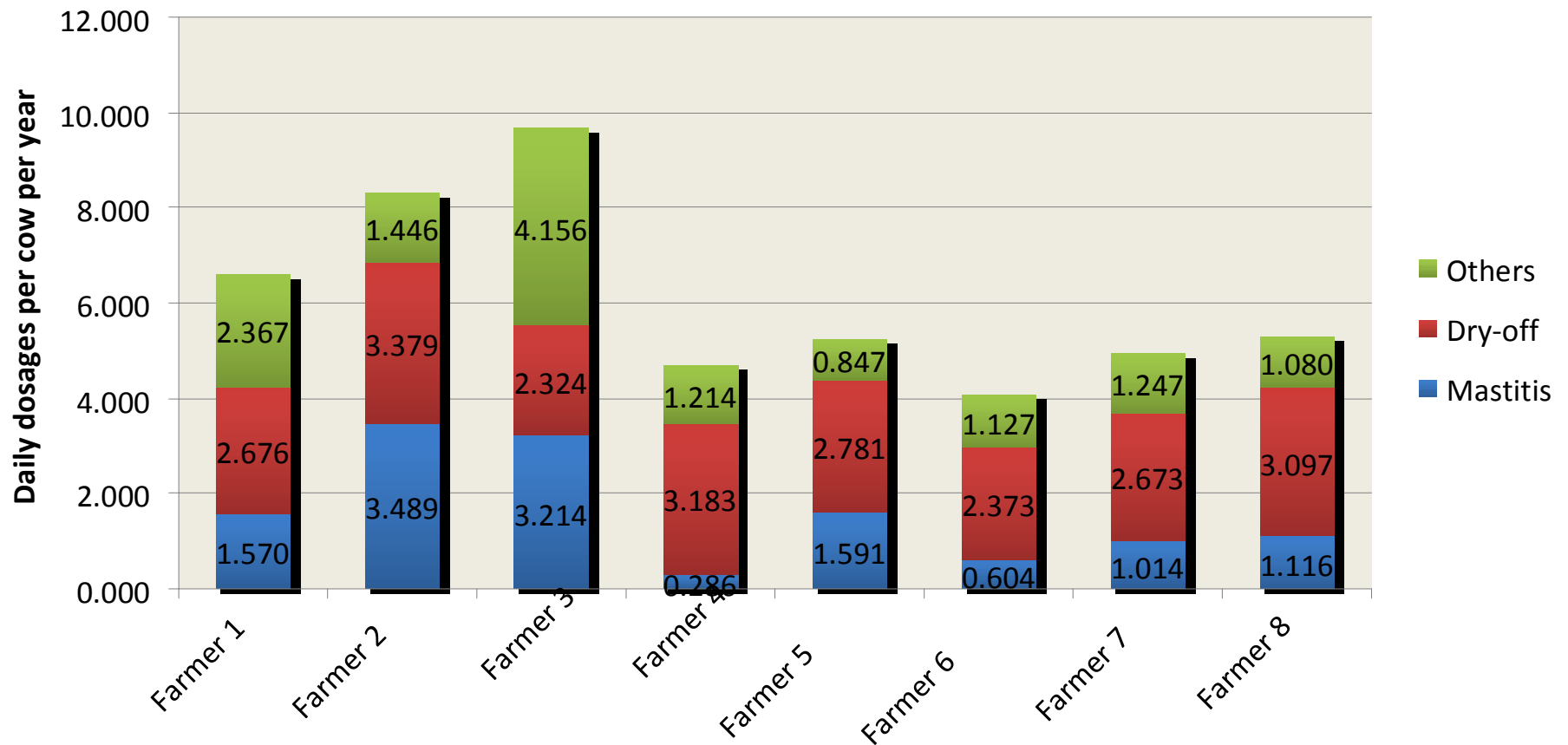


Trend in number daily dosages per cow per year

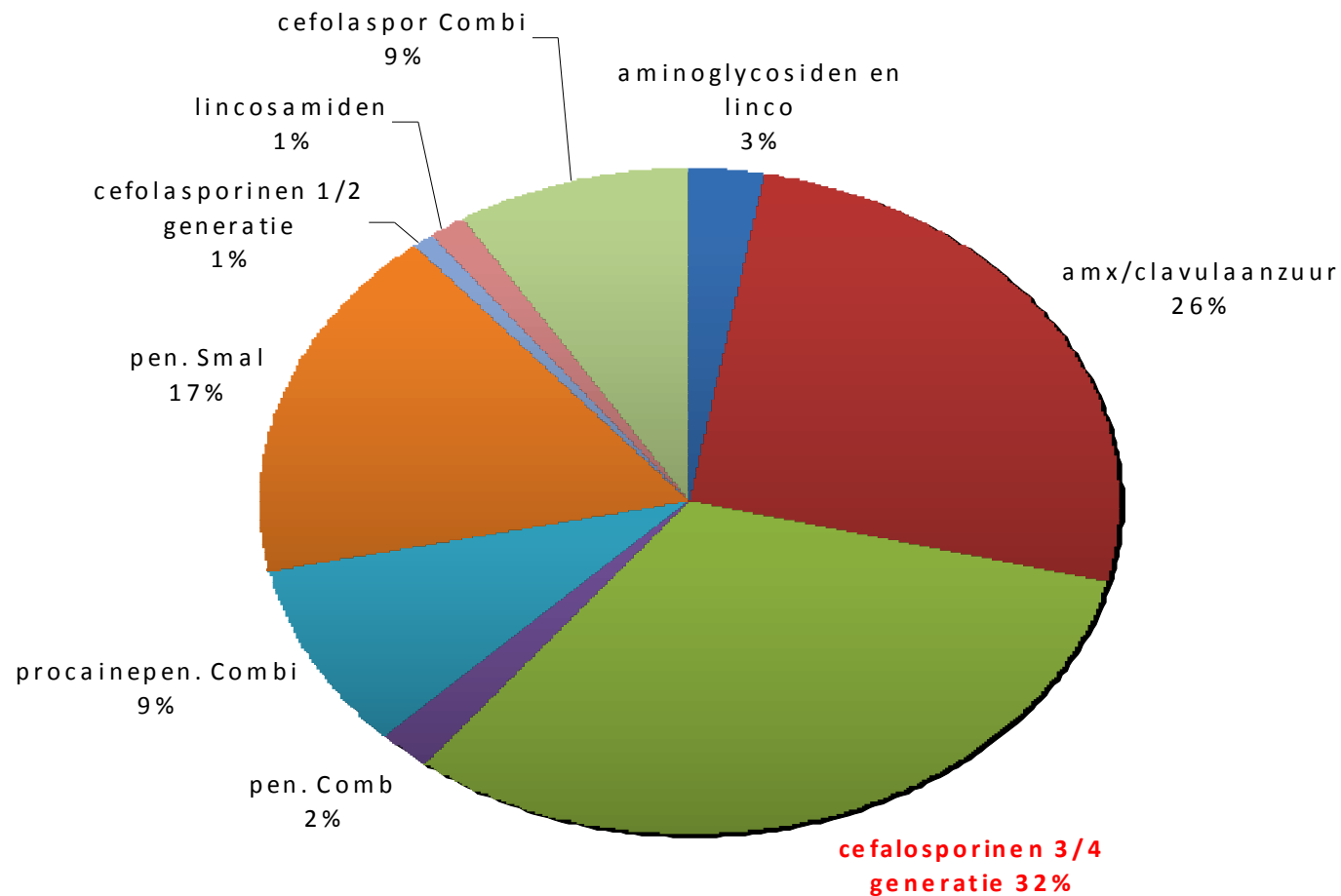




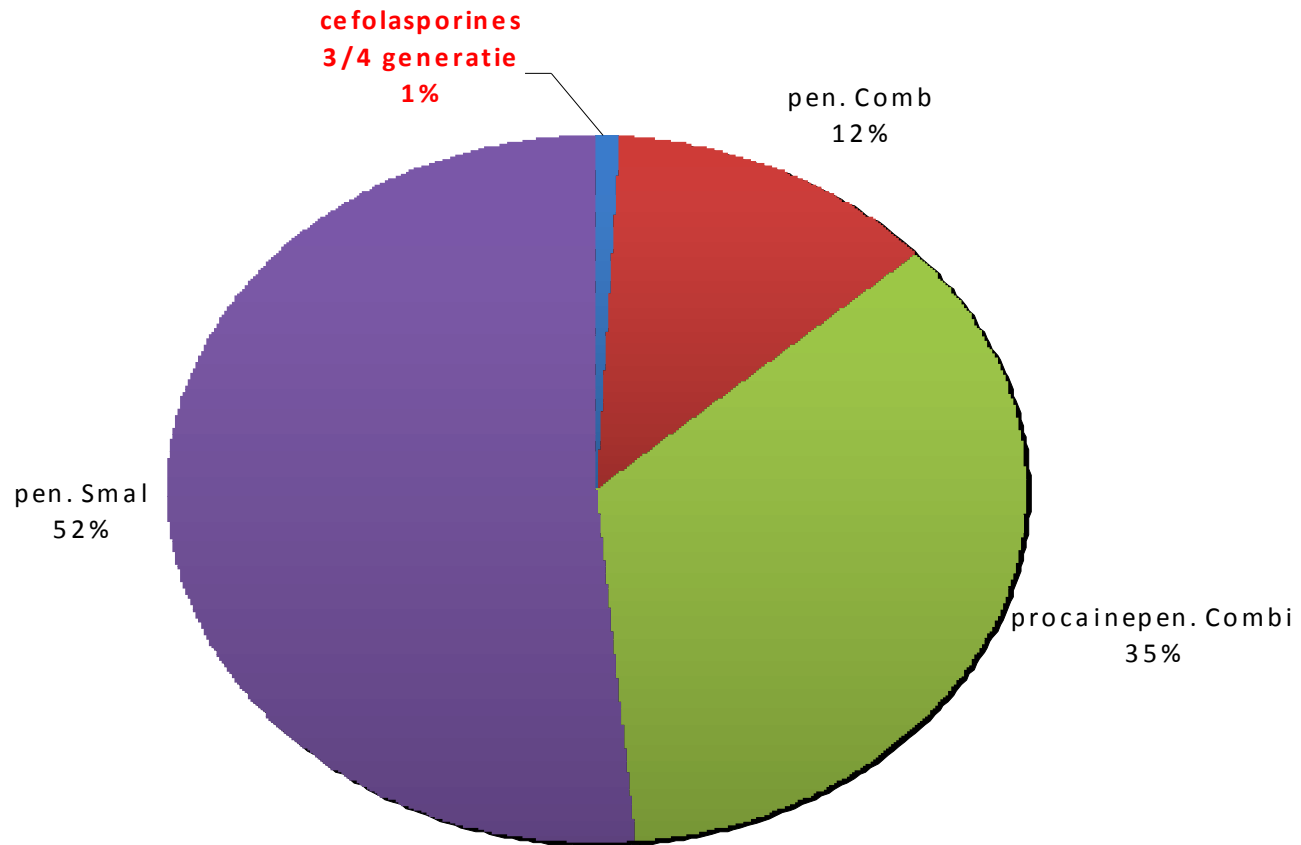
Split up daily dosages for group of farms (average over 8 years)



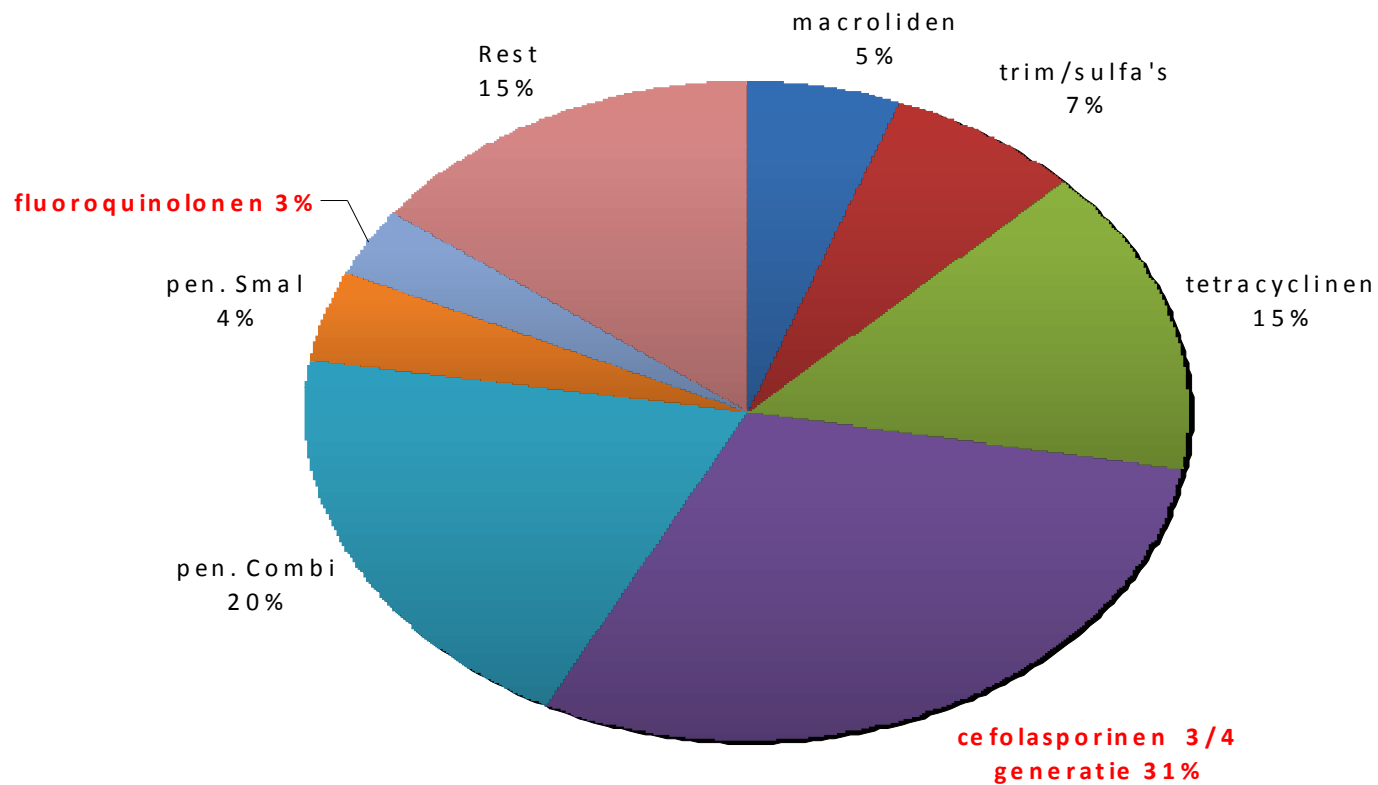
Daily dosages mastitis split up in active substance (2005-2011)



Daily dosages dry-off split up in active substance (2005-2011)



Daily dosages other split up in active substance (2005-2011)

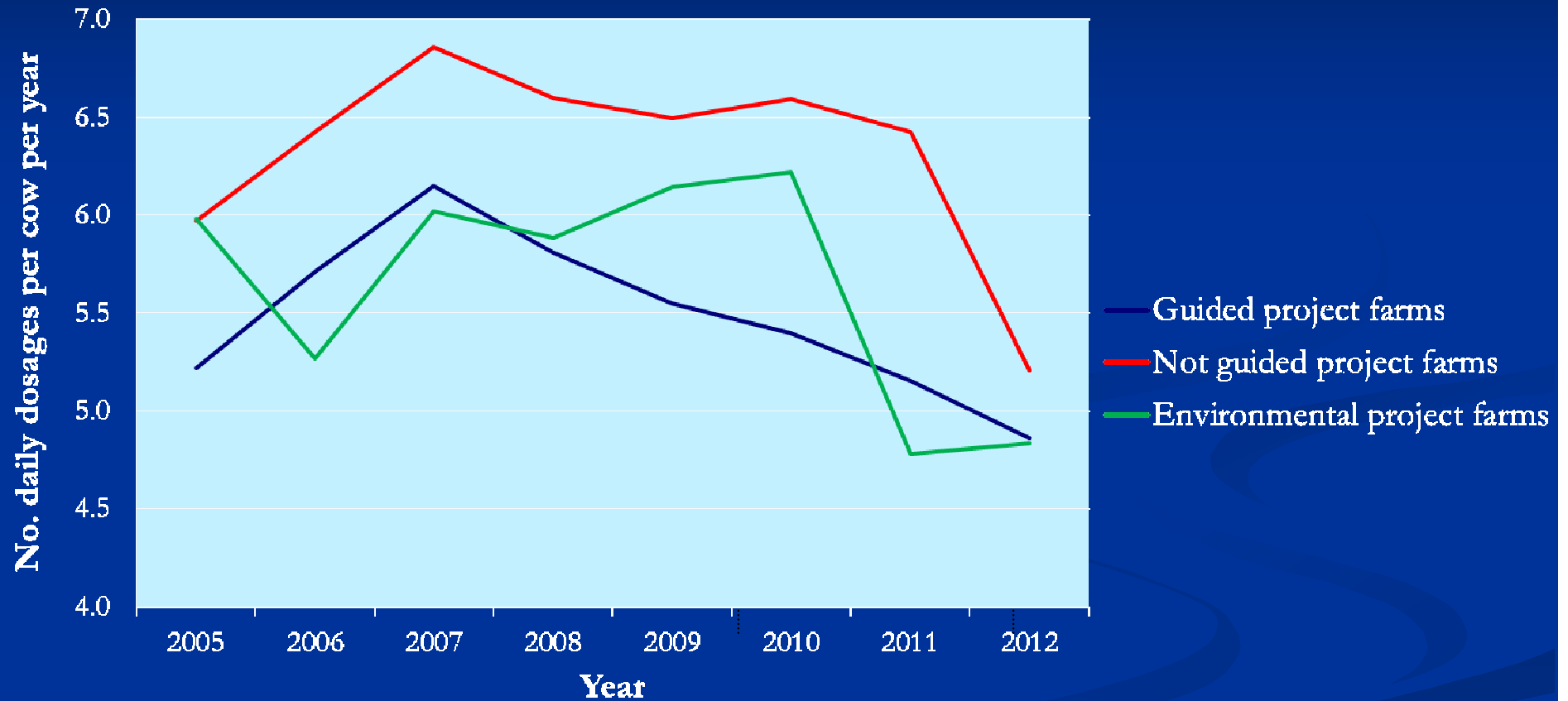


Restrictive use 3-4th generation antibiotics

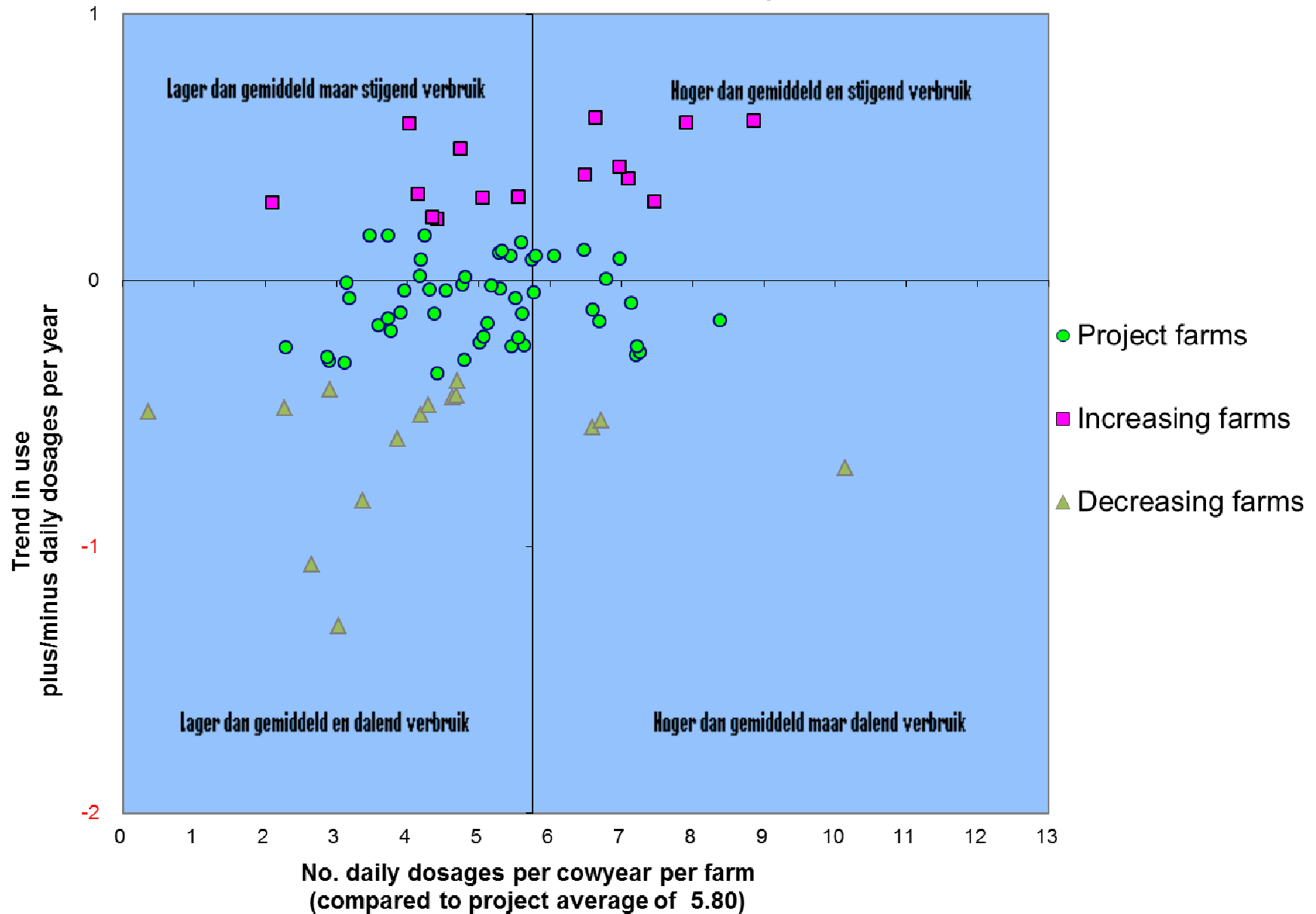
from 2011 on

3-4 th generation 2005-2010	19%
2011	17%
2012	1%

Trends of guided and not guided groups in period 2005-2012



Average daily dosages per farm in 2012 and trend in use over last 8 years



Increase and decrease in use

		Daily dosages		
		2005 - 2010	2011	2012
Farms	decreasing	7,23	5,09	4,30
	increasing	4,72	5,89	5,72

Do farm and farmer characteristics influence the amount of antibiotics used?

Data collected:

Farm and herd: 28 characteristics

- Production level; health; cell count; grazing

Farmer: socio-economic factors

- relation to veterinarian, to others

- attitude towards treatment of cow health problems

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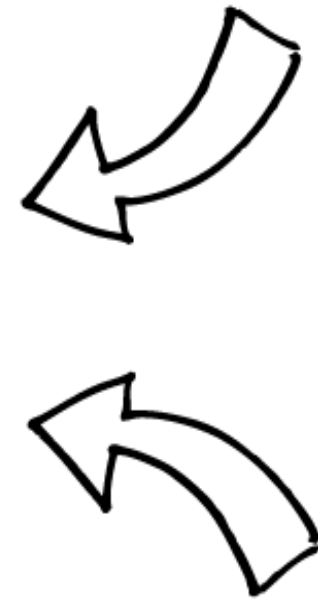
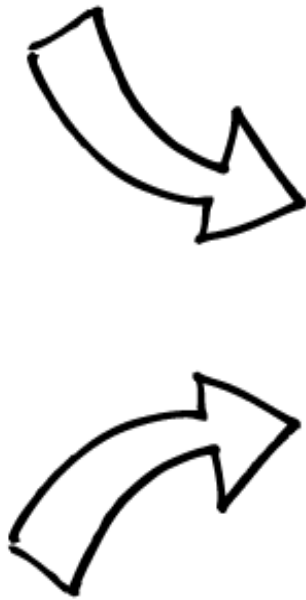
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Influence of farm technical indicators (59 farms)

Antibiotics indicator	Farm factors of influence	Relation	R ²
Number daily dosages total	Quota Cell count Health status	+ - +	0,39
Daily dosages mastitis	Number of cows Quota Access to pasture	- + -	0,28
Daily dosages dry-off	Cellcount Calving interval Health status	- -0,50 - +	0,46
Daily dosages other	Quota Milk cows Young stock/10 mk % cows removed	+ - + -	0,36

Higher Education

Higher Health Status Herd



Younger Farmer

Higher Milk Return Per Cow



Lower Celcount

Influence social-economic factors (39 farms)

Antibiotics indicator	SO factors of influence	Relation	R ²
Number daily dosages total			
Daily dosages mastitis			
Daily dosages dry-off	<p>.....</p> <p>Relation to veterinarian</p> <p>.....</p> <p>.....</p>	+	0,5-0,6
Daily dosages other			

Conclusions

- Daily dosages useful as policy tool to gain a global view of antibiotics use
- Wide variation; should be based on more years to give a fair impression
- More than 65% of antibiotics to udder
- Trade off between level cell count and level antibiotics use
- Antibiotics use partly explained by farm characteristics
- Mindset of farmer and veterinarian more important
- Policies and regulation affected use significantly