

Monitor Colony Losses 2006-2009: Population Dynamics

Romée van der Zee



Monitor Colony Losses 2006-2009: Population Dynamics

Assessment of the difference in bee mortality across the years between beekeepers with low and high losses in an initial year.

- Two groups were formed:
-Beekeepers with low (0-20%) losses
-Beekeepers with high (20%+) losses

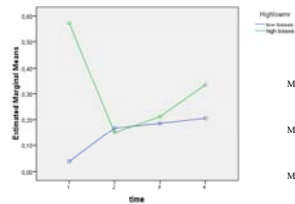
Beekeepers with 0-20% losses vs beekeepers with 20+ losses

2006, 2007, 2008 and 2009

Beekeepers with 0-20% losses vs beekeepers with 20+ losses



Estimated Marginal Means of MEASURE_1



Highlowmr	Mean	Std. Deviation	N
MR0506			
low losses	,0387	,06693	93
high losses	,5720	,27443	54
MR0607			
low losses	,1669	,24496	93
high losses	,1495	,22309	54
MR0708			
low losses	,1857	,27672	93
high losses	,2117	,28130	54
MR0809			
low losses	,2054	,26991	93
high losses	,3345	,33951	54

Beekeepers with 0-20% losses vs beekeepers with 20+ losses

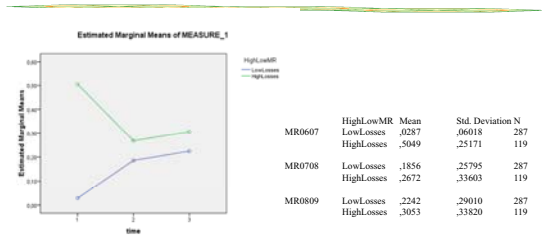
Mixed between-within subjects analysis of variance was conducted.

There was a significant interaction between time and colony losses for the initial high and low loss groups. (Wilks Lambda = .49, F= 50.27, p=.001)

Beekeepers with 0-20% losses vs beekeepers with 20+ losses

2007, 2008 and 2009

Beekeepers with 0-20 % losses vs beekeepers with 20+ losses



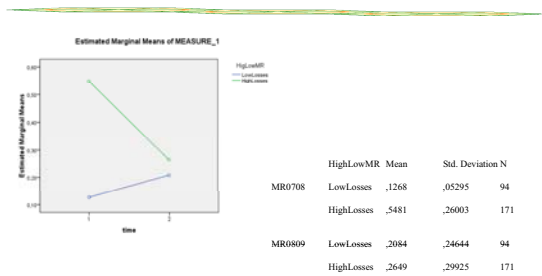
Beekeepers with 0-20 % losses vs beekeepers with 20+ losses

Mixed between-within subjects analysis of variance was conducted.
 There was a significant interaction between time and colony losses for the initial high and low loss groups. (Wilks Lambda = .66, F= 104, p=.001)

Beekeepers with 0-20 % losses vs beekeepers with 20+ losses

2008 and 2009

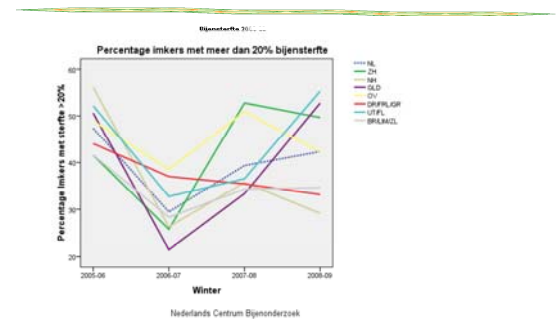
Beekeepers with 0-20 % losses vs beekeepers with 20+ losses



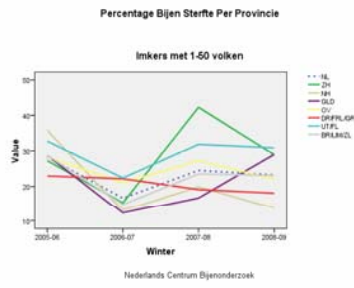
Beekeepers with 0-20 % losses vs beekeepers with 20+ losses

Mixed between-within subjects analysis of variance was conducted.
 There was a significant interaction between time and colony losses for the initial high and low loss groups. (Wilks Lambda = .79, F= 70, p=.001)

Percentage beekeepers with 20+ losses per Dutch Province



Percentage colony losses per Dutch Province: 1-50 colonies



Beekeepers with 0-20% losses vs beekeepers with 20+ losses:

winter	N respons	coltot	collos	colliv	mr	gem.tot.
05-06 =<20% verloren						
05-06	92	700	37	663	5%	8
06-07	92	786	116	670	15%	9
07-08	92	787	122	665	16%	9
08-09	92	815	151	664	19%	9
gemiddeld		772	107	666	14%	8
05-06 > 20% verloren						
05-06	52	348	184	164	53%	7
06-07	52	329	68	261	21%	6
07-08	52	324	69	255	21%	6
08-09	52	309	104	205	34%	6
gemiddeld		327,5	106	221	32%	6

Beekeepers with 0-20% losses vs beekeepers with 20+ losses

Winter sterfte 2007-2009: imkers met hoge of lage sterfte						
2006-07 =< 20% verloren						
Winter	Aantal Imkers	Volken Ingewinterd	Volken Verloren	Volken Levend	Sterfte %	Volken Gemiddeld
2006-07	280	2192	90	2101	4%	8
2007-08	280	2372	395	1977	17%	8
2008-09	280	2349	433	1916	18%	8
gem. 3 jaar	280	2304	306	1998	13%	8
gem. 08 en 09	280	2361	414	1947	18%	8
2006-07 > 20% verloren						
2006-07	116	861	407	454	47%	7
2007-08	116	828	208	620	25%	7
2008-09	116	846	233	613	28%	7
gem. 3 jaar	116	845	283	562	33%	7
gem. 08 en 09	116					

Monitor Colony Losses 2006, 2007, 2008 and 2009

Conclusions:

- Beekeepers with high colony losses in an initial year had significantly higher losses across the following years than beekeepers with low losses.
- The number of colonies has slightly grown over the years. This effect was due to expansion by beekeepers with low losses.
- Production capacity (honey and pollination) has decreased. This effect was due to the need of producing new colonies for replacement by beekeepers with high losses.

Beekeepers with 0-20% losses vs beekeepers with 20+ losses

Thank You for your attention

Romée van der Zee