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Education and Research EAER

Agroscope

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Introduction of the Swiss FADN random sample
First experiences and results

Daniel Hoop

October 1st 2014

New Swiss FADN System

- Current FADN sample
  - Approx. 30 accounting offices in Switzerland submitting over 3000 accounts closings (biased)
  - Very detailed figures
  - Cost accounting

  transformed and reduced to 2300 farms

  Farm management sample

- New random based sample
  - Approx. 2300 farms from all over Switzerland (2015+) *~ 900 farms in 2014*

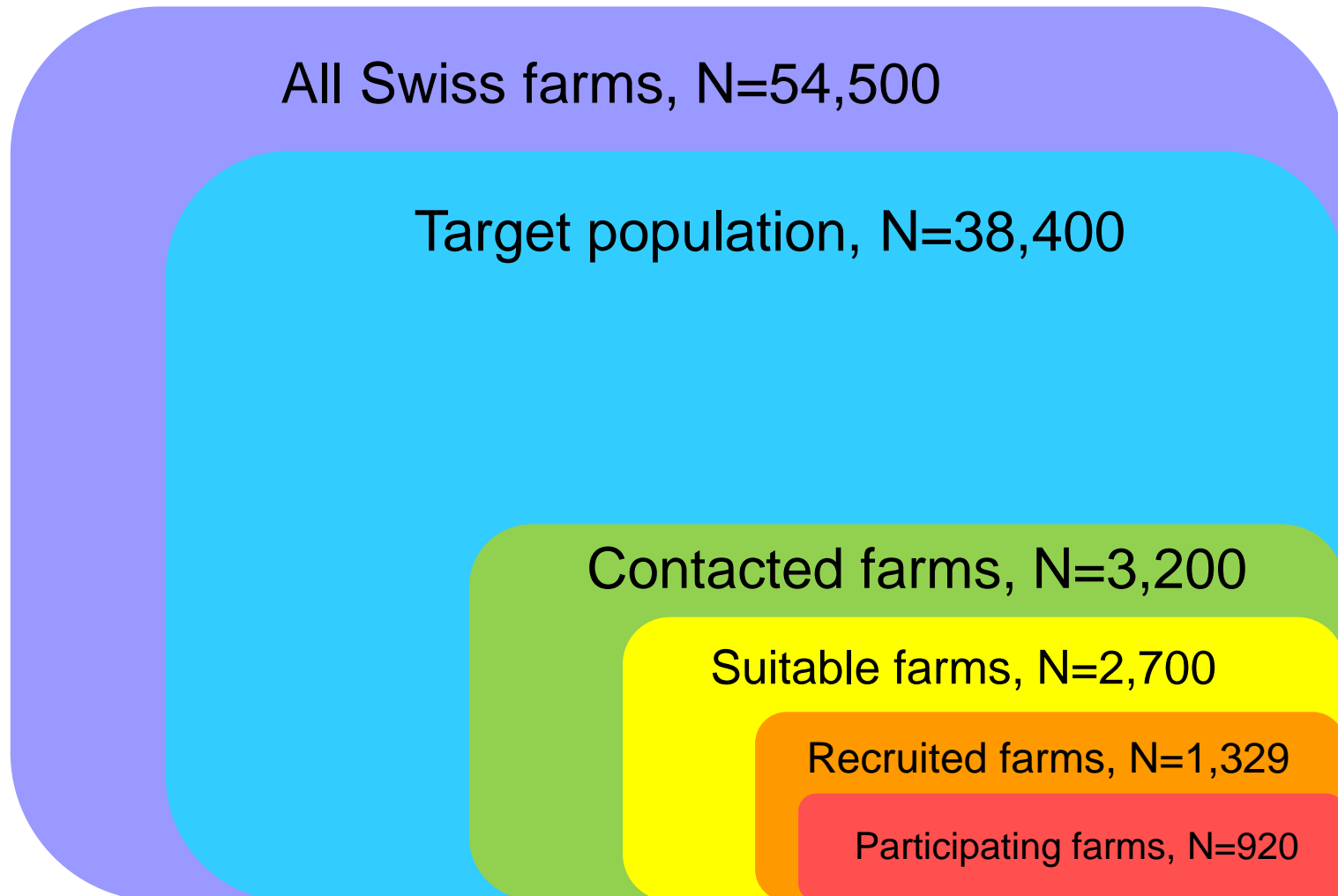 - Figures on high aggregation level
  - Financial accounting

  Income situation sample

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Target population & sample size

All Swiss farms, N=54,500

Target population, N=38,400

Contacted farms, N=3,200

Suitable farms, N=2,700

Recruited farms, N=1,329

Participating farms, N=920

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Sampling Design

- Number of farms in the different strata is determined such that income in the strata AND all over Switzerland will be estimated most precisely (compromise). *High number of farms in strata where standard deviation of standard gross margin is high.*

Region	Plain		Hill		Mountain	
Size	<= 20 ha	> 20 ha	<= 20 ha	> 20 ha	<= 20 ha	> 20 ha
Field Crops	12	90	17			
Special Crops	**344**		45		60	
Dairy Farms	31	82	38	84	33	75
Suckler Cows	14		18		19	
Other Cattle	19		25		23	31
Horse/Sheep/Goat	25		20		28	
Pigs/Poultry	**119**		76	33		
Comb. Dairy/Crops	25	**131**	34			
Comb. Suckler C.	48		17			
Comb. Pigs/Poultry	**102**	**188**	51	82	17	36
Comb. Other	45	**131**	21	70	28	

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Determining the random sample

- Balanced sampling determined by the

  Cube method
  J.C. Deville & Y. Tillé (*2002*)

- Target figures
  - Farm area
  - Live stock

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«Getting in contact»

- call center contacts farms
- voluntary participation
- data directly submitted to FADN via website

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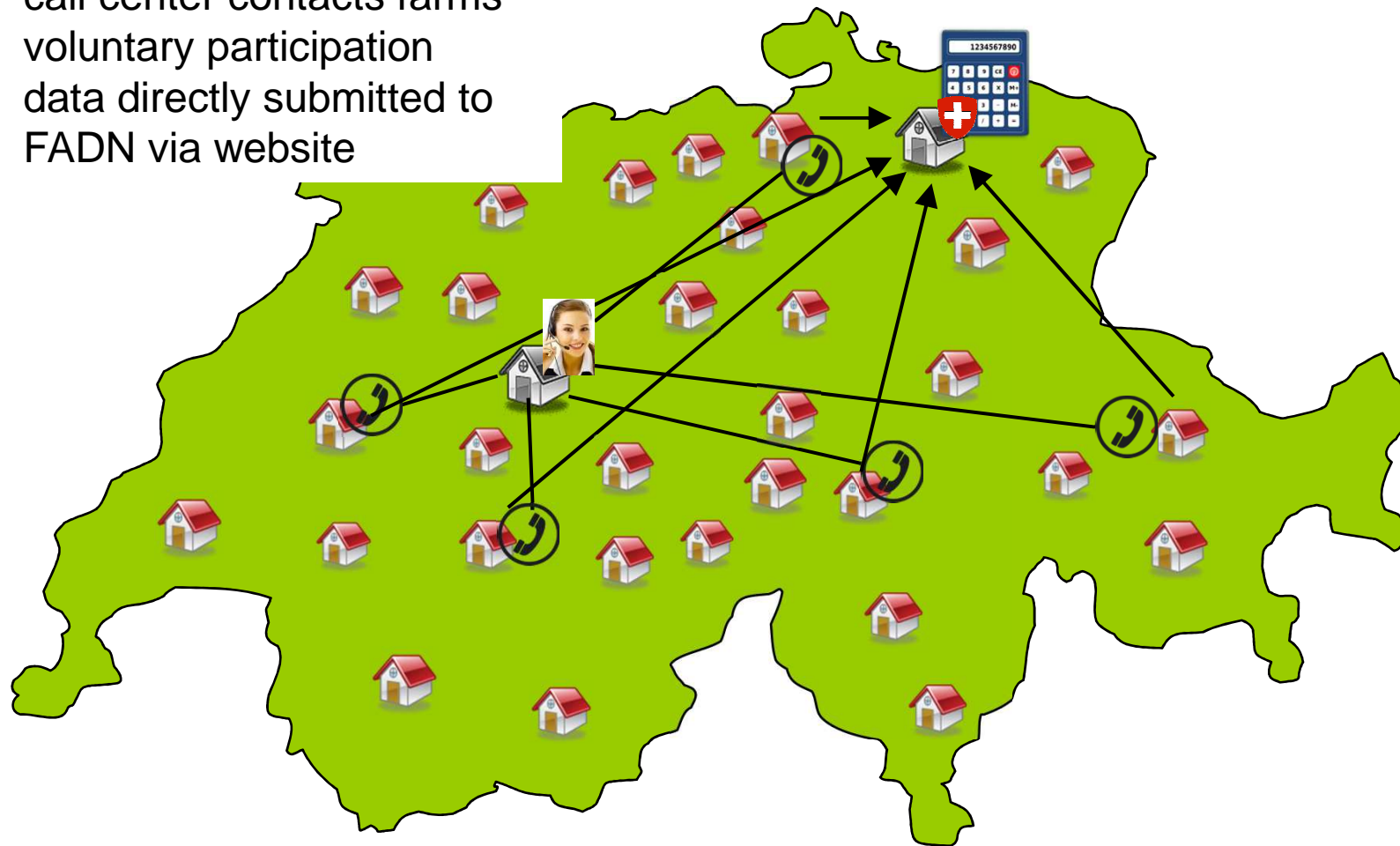
Horizon 20xx
- The Goal

- High response rates
- Small bias
- Most precise estimation of farm income

Sunset 2014
- Reality ☺

- Varying response rates: Could be higher

- Small bias (only in some strata!)

- Precision of farm income estimation can not be determined

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Recruited farms: Target

20= minimum number of recruited farms in order to be able to estimate response rates

Region / Size	Plain <= 20 ha	Plain > 20 ha	Hill <= 20 ha	Hill > 20 ha	Mountain <= 20 ha	Mountain > 20 ha	total
Field Crops	20	47	20		0		**87**
Special Crops	99		25		28		**152**
Dairy Farms	20	43	22	46	20	40	**191**
Suckler Cows	20		20		20		**60**
Other Cattle	20		20		20	20	**80**
Horse/Sheep/Goat	20		20		20		**60**
Pigs/Poultry	84		56		0		**140**
Comb. Dairy/Crops	20	69	21		0		**110**
Comb. Suckler C.	24		20		0		**44**
Comb. Pigs/Poultry	39	67	34	49	20	21	**230**
Comb. Other	31	66	20	38	20		**175**
	689		**411**		**229**		**1329**

- Empirical values from 3 test phases (2010-2012) helped to estimate the needed number of recruited farms in order to achieve the target number of finally participating (delivering) farms.

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Recruited farms: Target - achieved

Region	Plain		Hill		Mountain		total
Size	<= 20	> 20	<= 20	> 20	<= 20	> 20	
Field Crops	-5	6	-2				**-1**
Special Crops	8		-1		-11		**-4**
Dairy Farms	-3	-1	13	2	13	5	**29**
Suckler Cows	-1		-5		-2		**-8**
Other Cattle	1		-1		-1	-4	**-5**
Horse/Sheep/Goat	-4		1		-1		**-4**
Pigs/Poultry	-11		-2				**-13**
Comb. Dairy/Crops	-4	-3	2				**-5**
Comb. Suckler C.	-2		-2				**-4**
Comb. Pigs/Poultry	-2	-2	2	3	3	6	**10**
Comb. Other	-1	2	-1	-2	-3		**-5**
	-22		**7**		**5**		**-10**

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⛨ Response Rates
- Differences between the languages

	Total	GER	FR	IT
Activated adresses by call center (%)	100%	100%	100%	100%
Invalid adresses or phone number (%)	14%	13%	17%	11%
Farms without financial accounting (%)	6%	4%	10%	52%
Refusal (%)	41%	44%	31%	21%
Willing to pariticipate (%)	48%	46%	57%	46%
Received accounts closings Base: Willing to participate (%)	67%	74%	44%	18%
Received accounts closings Base: Activated adresses (%)	32%	34%	25%	8%

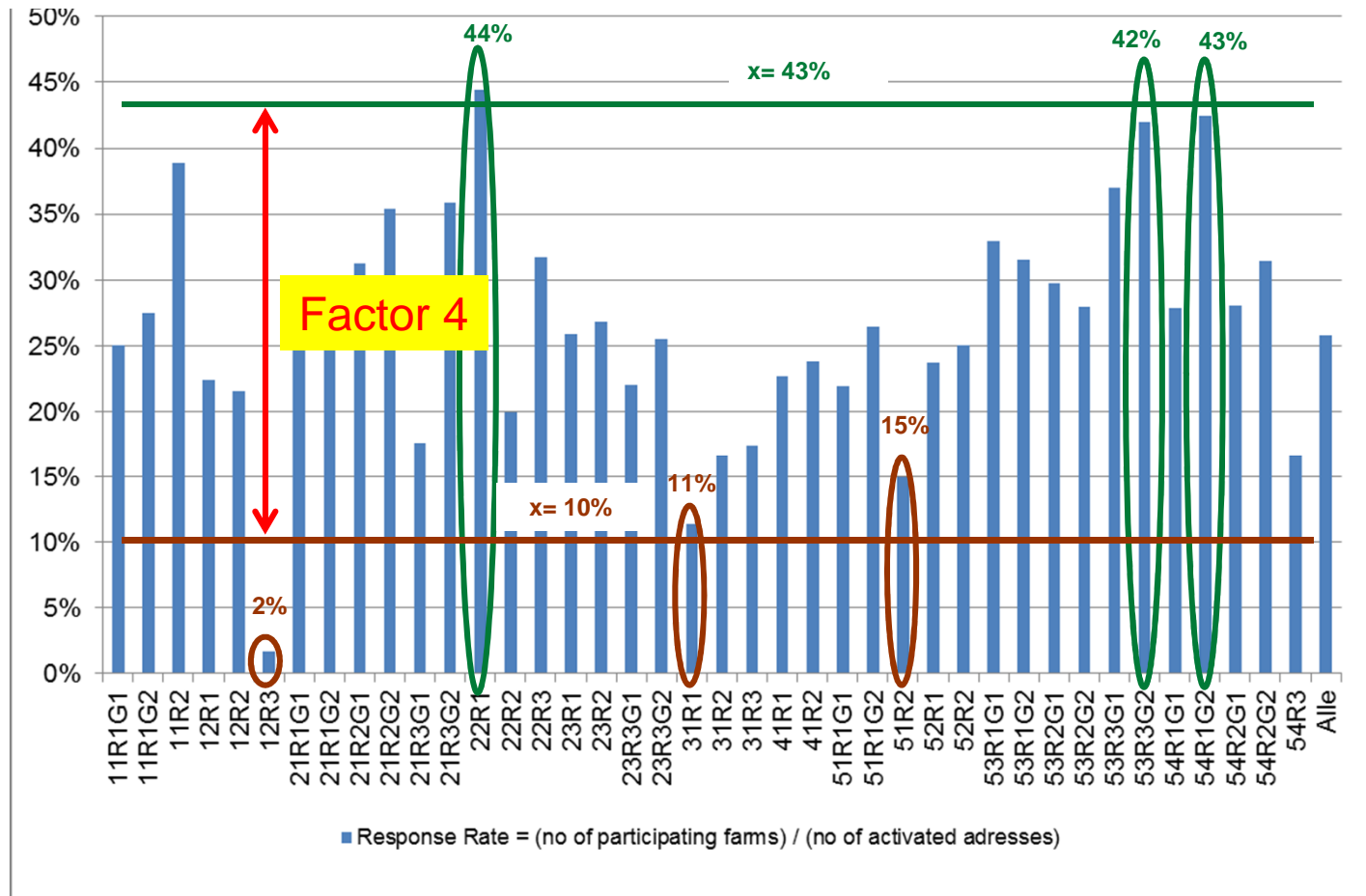|	Total	GER	FR	IT
Received accounts closings by accounting offices Base: Willing to participate (%)	68%	76%	43%	17%
Received accounts closings by farmers (directly) Base: Willing to participate (%)	59%	63%	49%	20%

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Response Rates
- Differences between the languages

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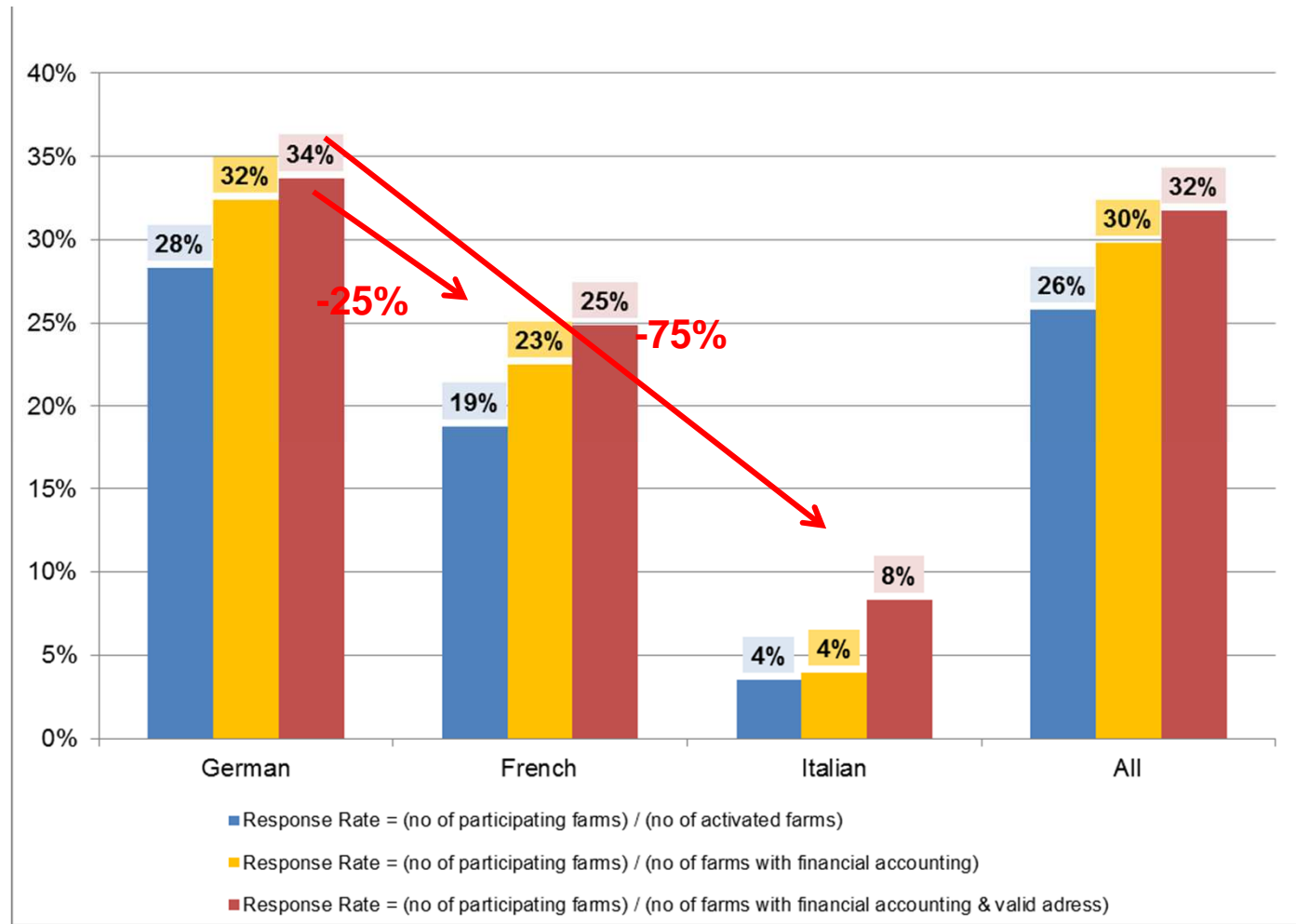
Response Rates
- Differences between strata

Response Rate = (no of participating farms) / (no of activated adresses)

Erosion of the panel

Share of farms from year x that are still in the panel.
Base: Participating farms

Year (x) Activated	Share	
	Special Crops	Dairy Farms
2012	60%	67%
2011	34%	50%
2010	**31%**	**40%**

Share of farms from year x that are (still) in the panel.
Base: Activated adresses

Year (x) Activated	Sahre	
	Special Crops	Dairy Farms
2013	13%	31%
2012	8%	21%
2011	4%	16%
2010	**4%**	**12%**

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Sample bias
- Influence of farm size (UAA)

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Sample bias
- Influence of farm size (LSU)

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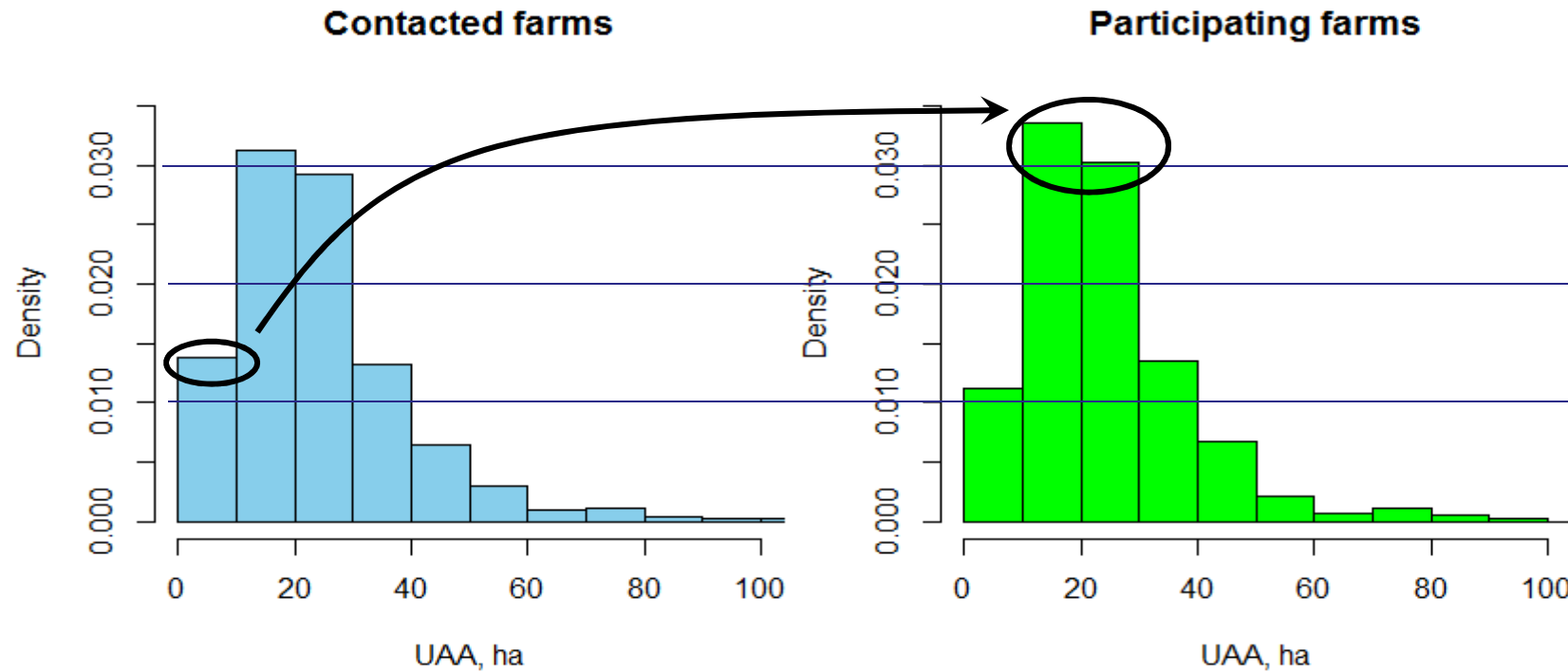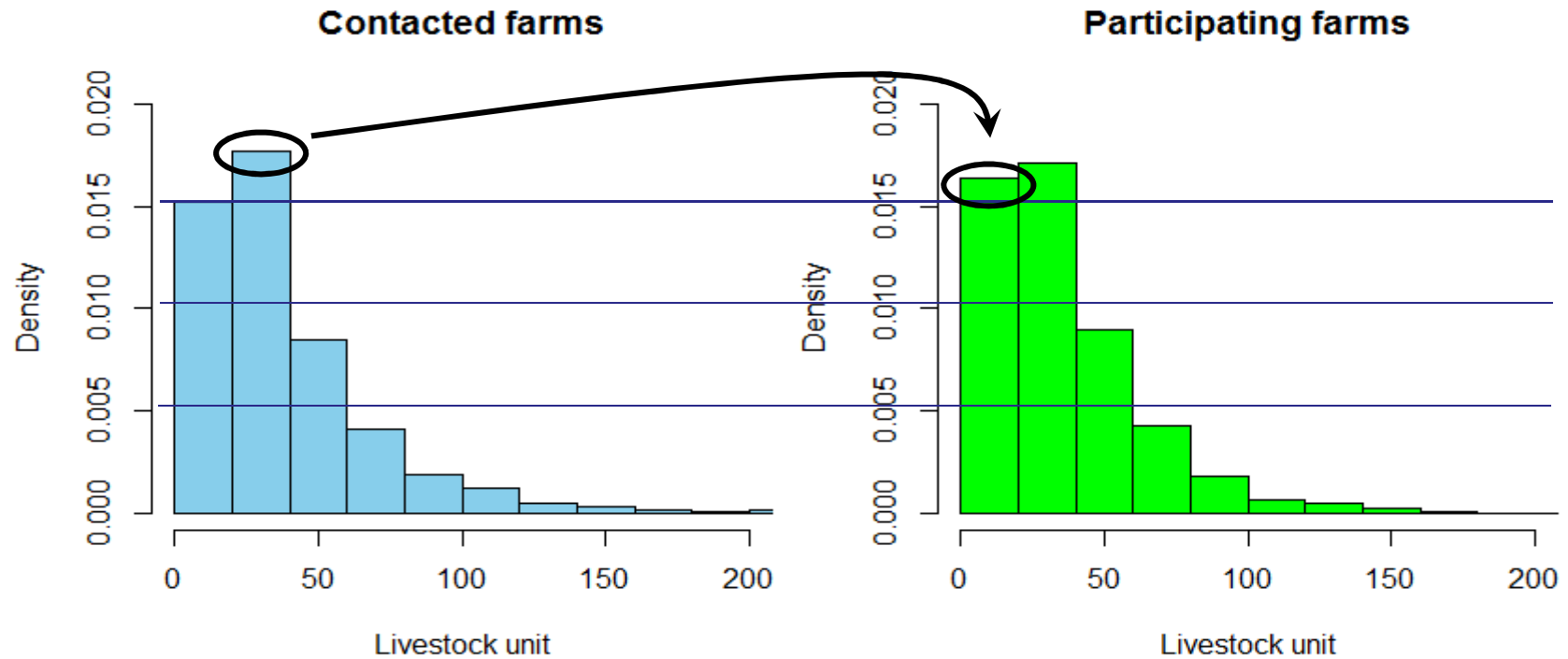
Sample bias

Sample bias (median of UAA, LSU, SGM, SO)

Legend:
- (UAA participated / UAA contacted-1)*100
- (SO participated / SO contacted-1)*100
- (LSU participated / LSU contacted-1)*100
- (SGM participated / SGM contacted-1)*100
- (SO/ha participated / SO/ha contacted-1)*100

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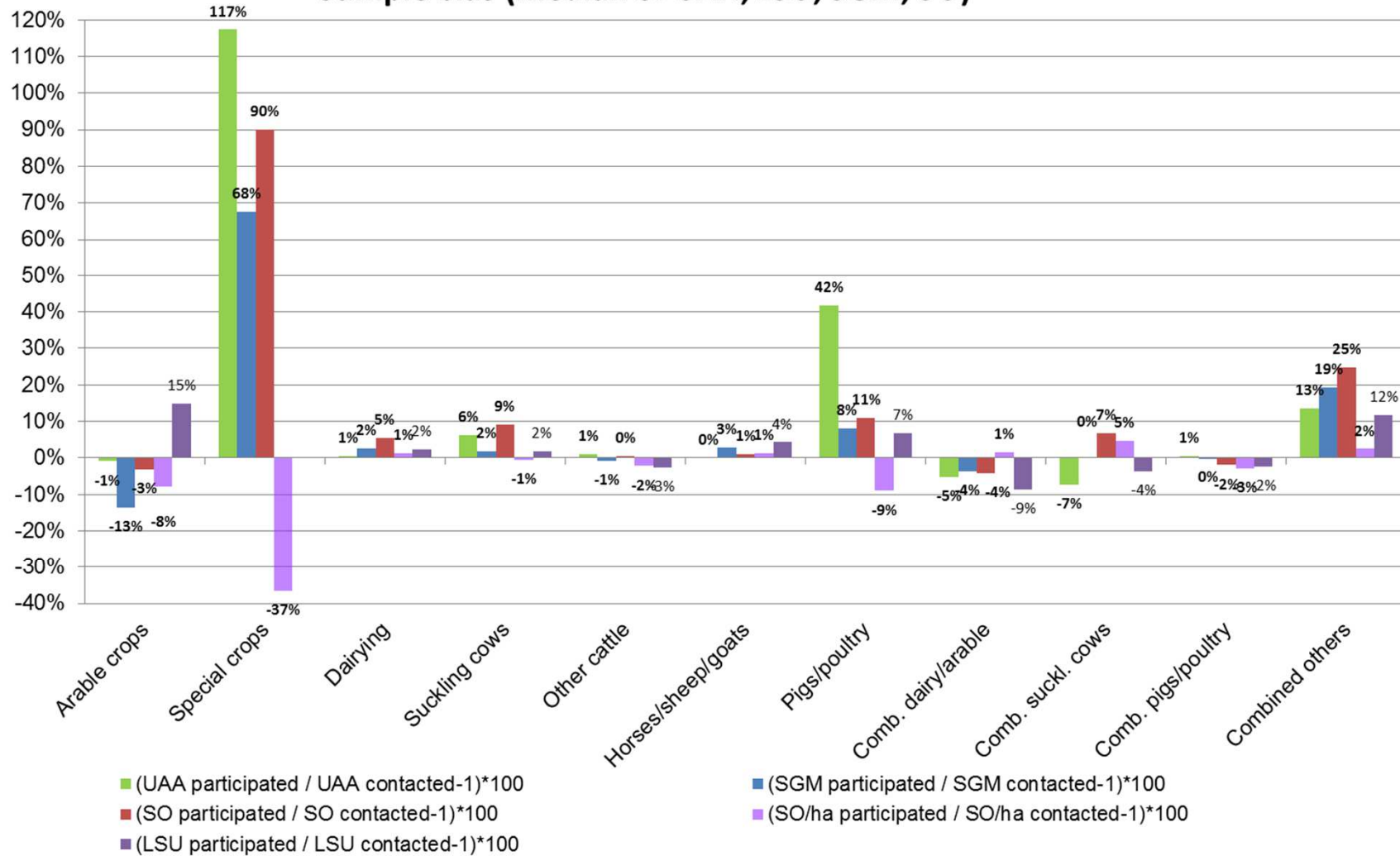
Thank you for your attention

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