



AETE

Association Européenne de Transfert Embryonnaire
European Embryo Transfer Association

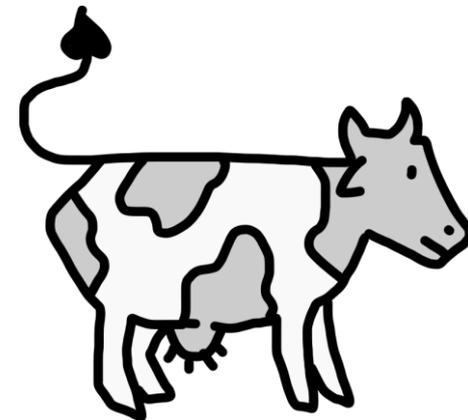
National Statistical Data of Embryo Transfer Activity in Europe 2015

Marja Mikkola



Data collection form

- Collection form was sent to **37** countries
- **31** countries answered (84%)
 - (8 reported no activity in bovine ET)
- 6 countries no reply, data missing (9 countries in 2015)





Bovine *In vivo* embryo production



Bovine ET-teams

In countries reporting activity in cattle ET **and** reporting the number of teams:

- There are **180** ET-teams
- **124** teams providing data (69%)

Top 3 countries in number of teams:

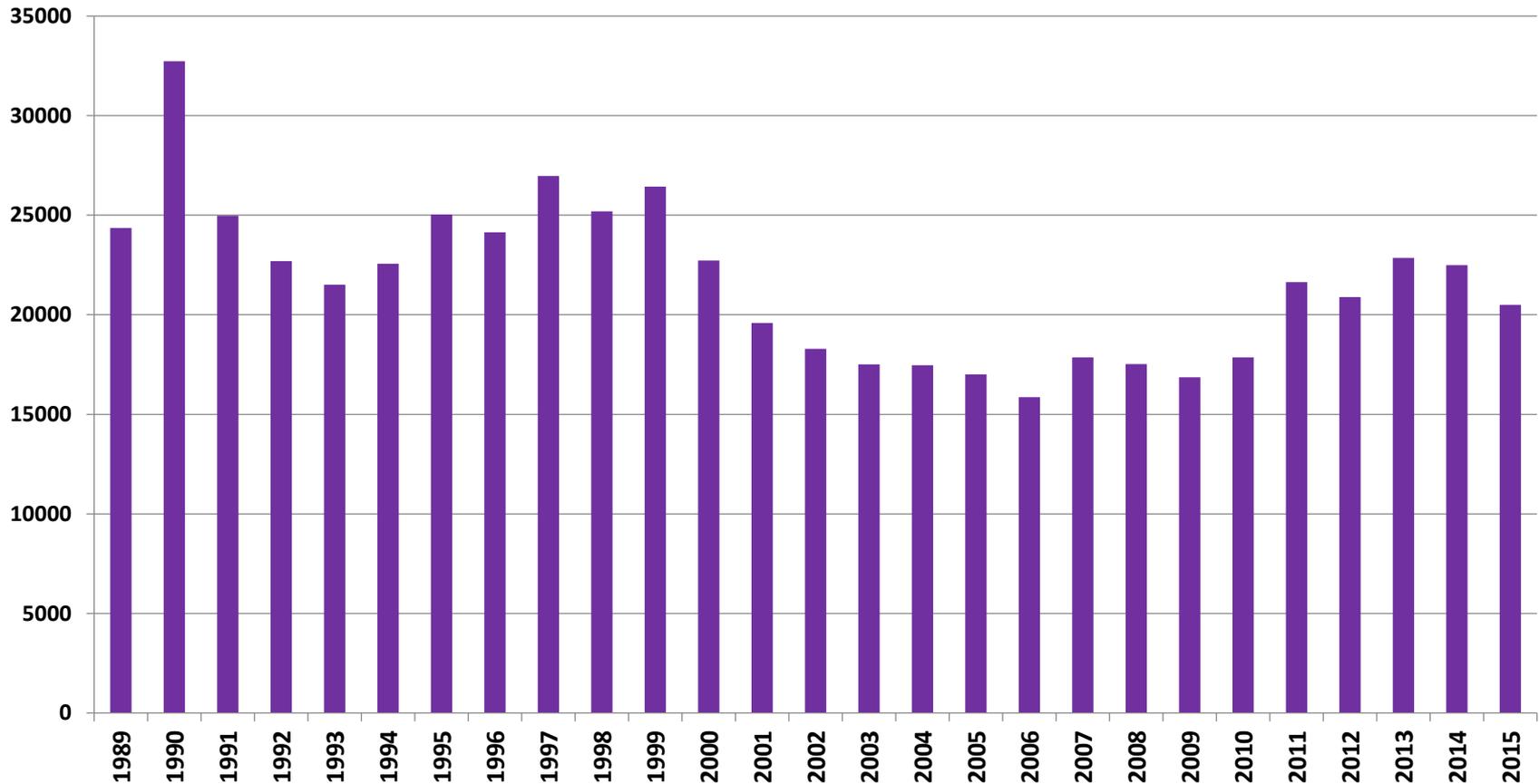
- | | | |
|-----------|-----------|-------------------------|
| • Germany | 39 | Hubert Cramer |
| • Spain | 21 | Santiago Fuentes Ibanez |
| • France | 19 | Serge Lacaze |

Activity in bovine *in vivo*-embryo production in 23 countries





Embryo collections (flushings)



• 2015: 20,497 collections (2014: 22,490)

Countries sorted by no. of collections



Country	2015
France	6926
The Netherlands	3519
Germany	3011
Italy	2012
Belgium	1155
Denmark	593
Spain	492
Switzerland	473
Russian Federation	447
Ireland	420
Finland	333
Austria	257
Luxembourg	219
Sweden	198
Poland	162
Portugal	88
Lithuania	80
Hungary	73
Norway	16
Czech Republic	8
Slovenia	7
Ukraine	5
Greece	3

Country	Increase/Decrease
Sweden	230,0 %
Lithuania	88,2 %
Russian Federation	41,0 %
Austria	31,8 %
Luxembourg	17,1 %
Belgium	16,1 %
Switzerland	14,9 %
Germany	10,0 %
Poland	5,9 %
France	-1,5 %
Portugal	-1,7 %
Italy	-6,1 %
Denmark	-6,2 %
Spain	-12,3 %
Hungary	-18,9 %
Finland	-24,7 %
The Netherlands	-26,1 %
Ireland	-42,1 %
Greece	
Norway	
Slovenia	
Ukraine	
Czech Republic	
Total	-9,6 %

Countries sorted by change in no. of collections



Collections/ 1000 cows (dairy)

Country	Collections/ 1000 cows
Luxembourg	4,36
Netherlands	2,05
France	1,54
Finland	1,18
Italy	0,96
Denmark	0,92
Switzerland	0,78
Sweden	0,58
Germany	0,52
Spain	0,52
Belgium	0,47
Portugal	0,36
Ireland	0,34
Austria	0,25
Lithuania	0,23
Poland	0,08
Slovenia	0,06
Hungary	0,06
Greece	0,03



Breeds

19/23 countries differentiated collections between dairy and beef donors (80 % of collections are specified for breed)

- 79 % dairy
- 21 % beef



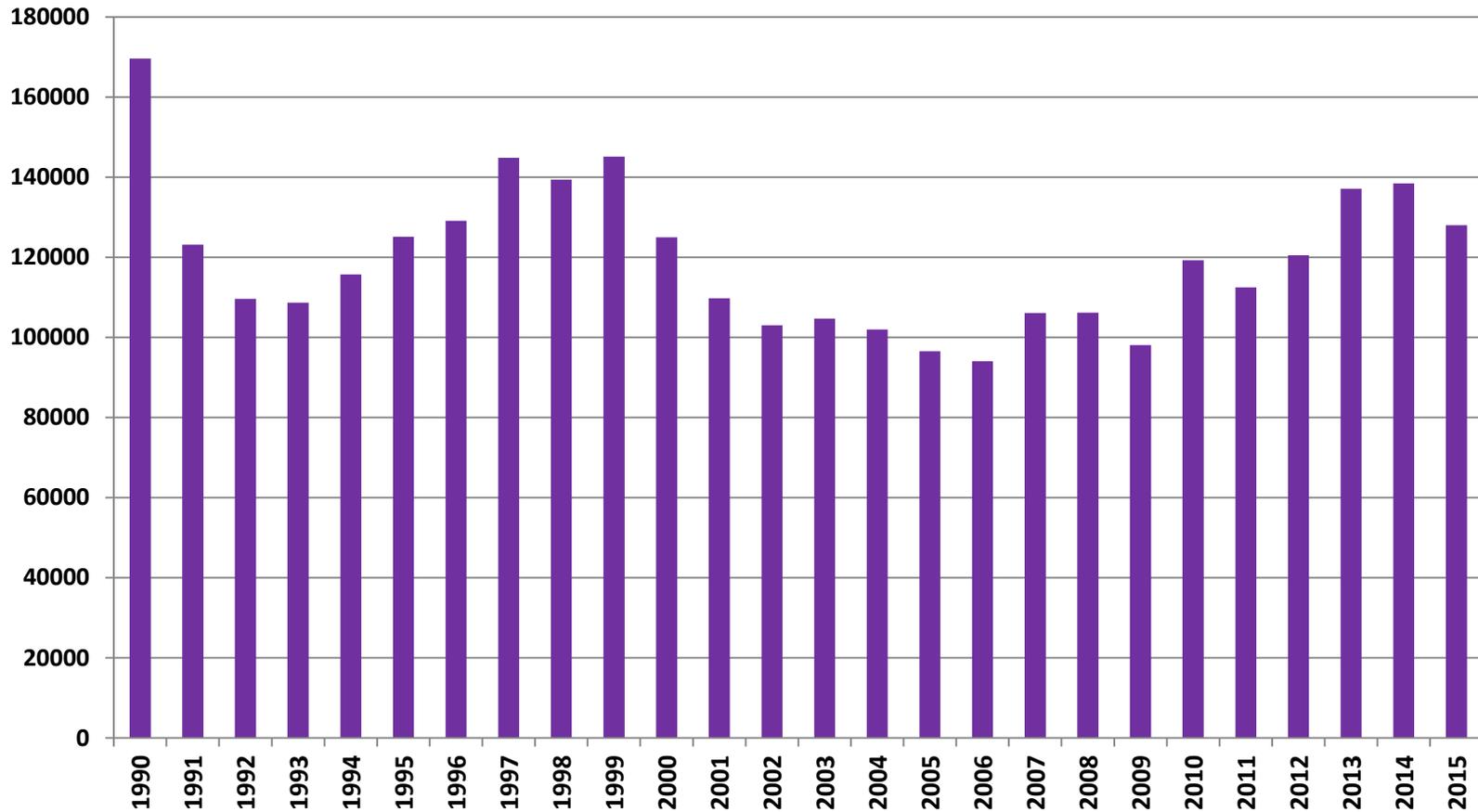
Sexed semen

- 11 countries reported use of sexed semen
- Sexed semen was used in 6.6 % of collections





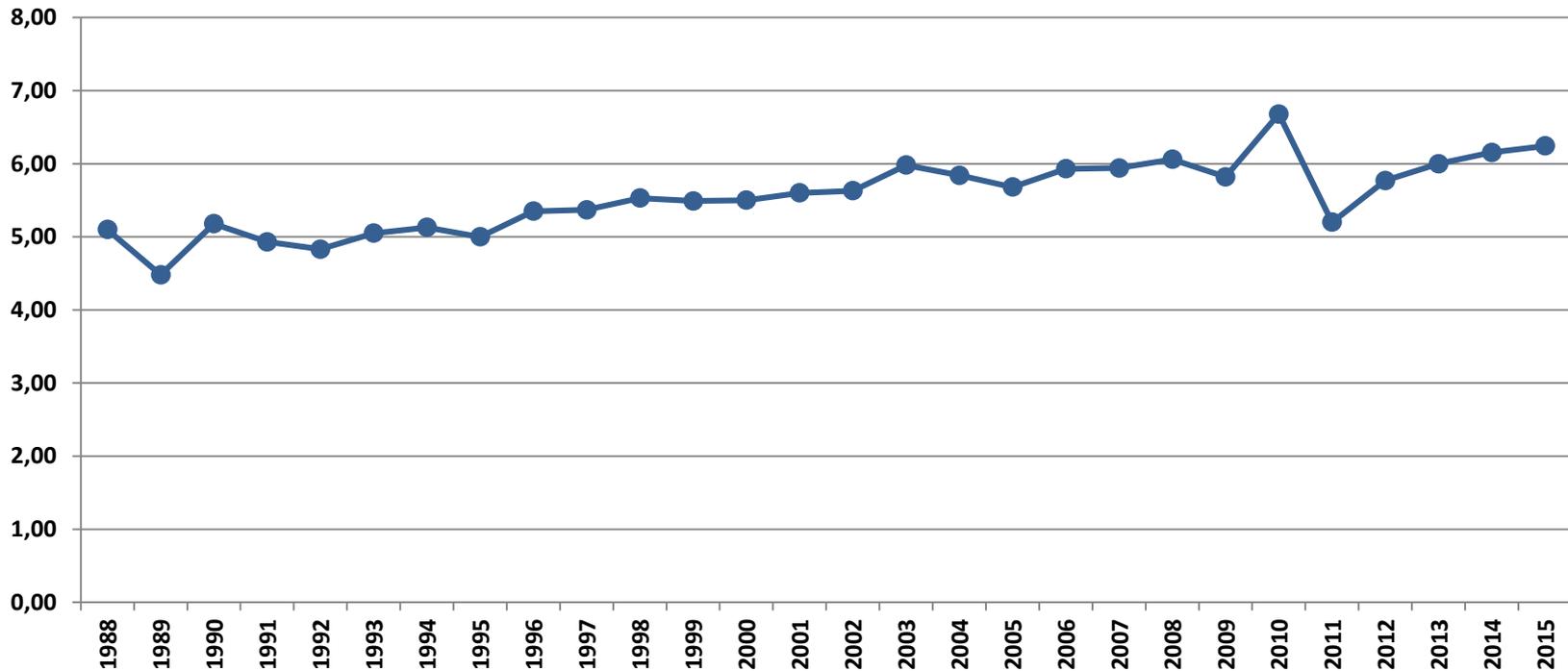
Transferable *in vivo* embryos produced



2015: 127,980 embryos produced (2014: 138,418)



Embryos per collection



2014: 6,24 transferable embryos/ collection



Bovine *In vitro* embryo production



Activity in OPU-IVP

8 countries reported activity on bovine OPU (2014:7):

- Austria
- Finland
- France
- Germany
- Italy
- The Netherlands
- Spain
- Russian Federation

1 country reported activity on equine OPU:

- Italy



Bovine *in vitro* embryo production from slaughtered donors

4 countries (2014:5) :

- Germany
- Italy
- Lithuania (oocyte cryopreservation for gene bank)
- The Netherlands

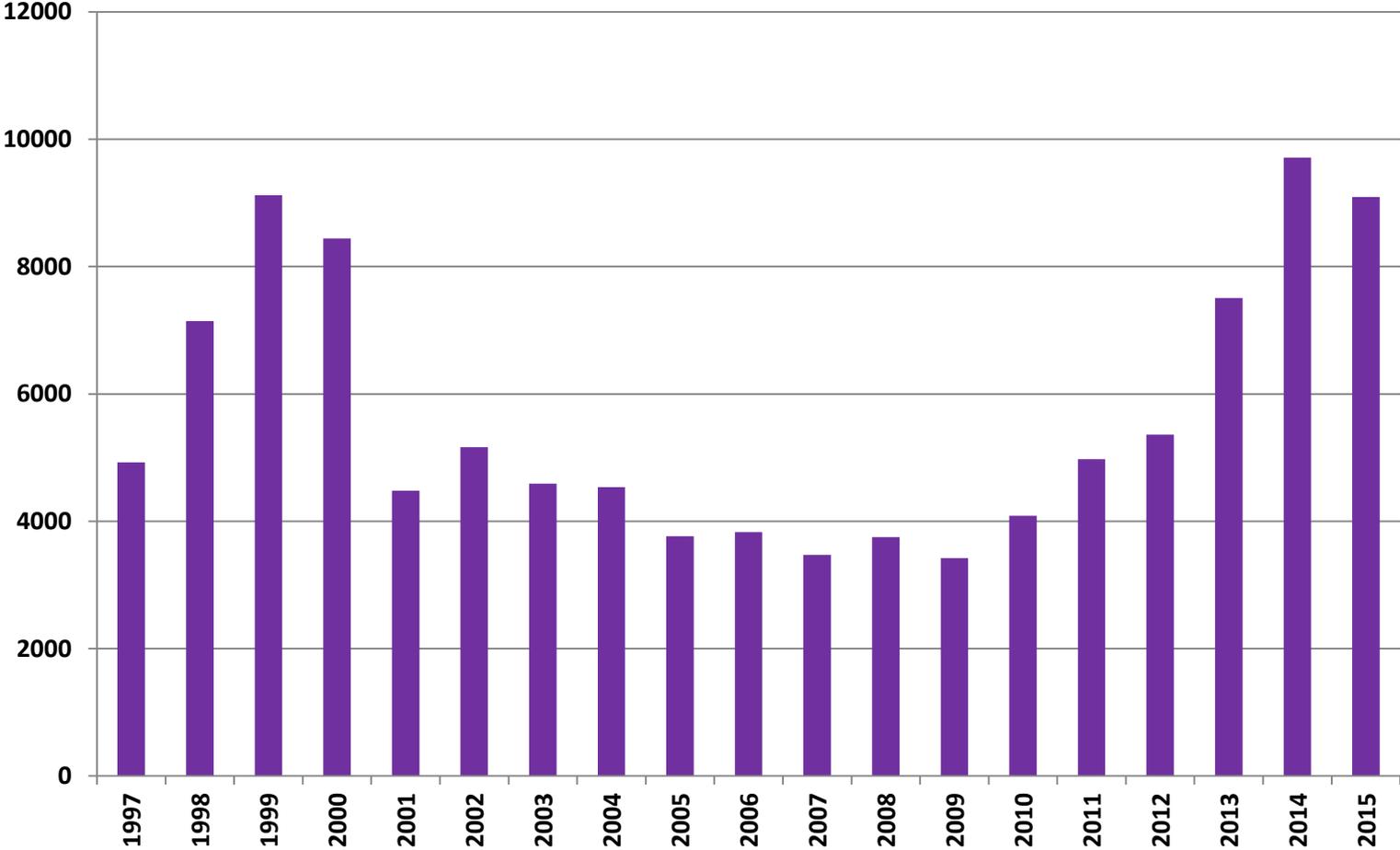
65 donors → 434 embryos produced (6.7 embryos/donor)

2014:

1335 donors → 1369 embryos produced (1.0 embryo/donor)



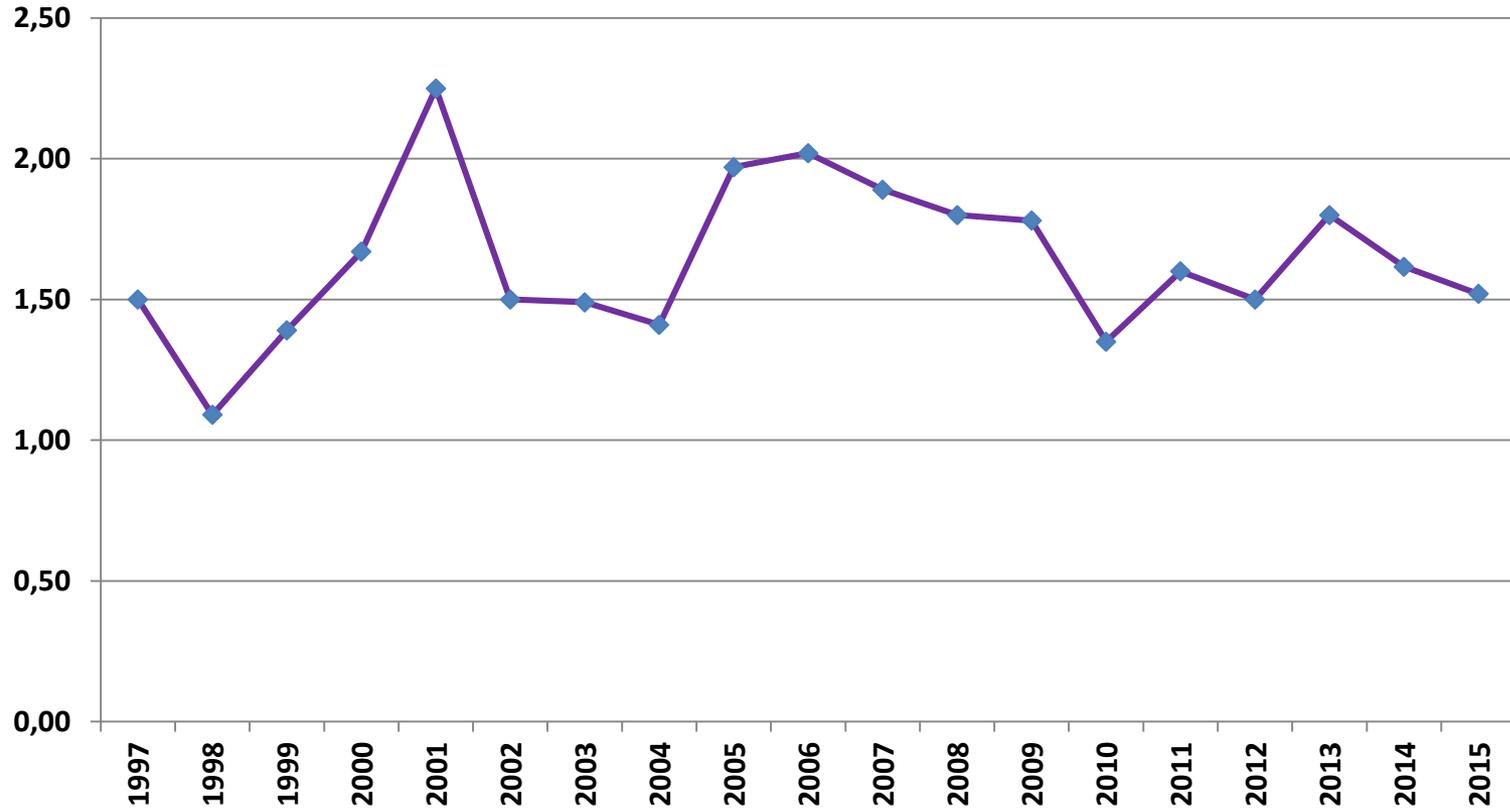
OPU sessions



2015: 9,092 OPU-sessions (2014: 9,710)



Embryos per OPU session



1,5 transferable embryos / session

OPU – breed and stimulation



- 97% of OPU sessions on dairy breeds
- Stimulated 3%,
- Non-stimulated 15%
- Not specified 82%
- Sexed semen was used in 424 sessions (4.7%)

	Non-stimulated	Stimulated	Not specified	Total
Dairy	1183	220	7427	8830
Beef	186	54	22	262
Total	1369	274	7449	9092

OPU – oocytes and embryos per session



No. of oocytes per session

	Non-stimulated	Stimulated	Not specified
Dairy	8.32	10.44	7.76
Beef	13.99	11.11	18.64
Total	9.09	10.57	7.79

No. embryos per session

	Non-stimulated	Stimulated	Not specified
Dairy	1.13	2.57	1.47
Beef	3.52	4.65	1.59
Total	1.46	2.98	1.47



Total bovine embryo production 2015

Number of transferable embryos:

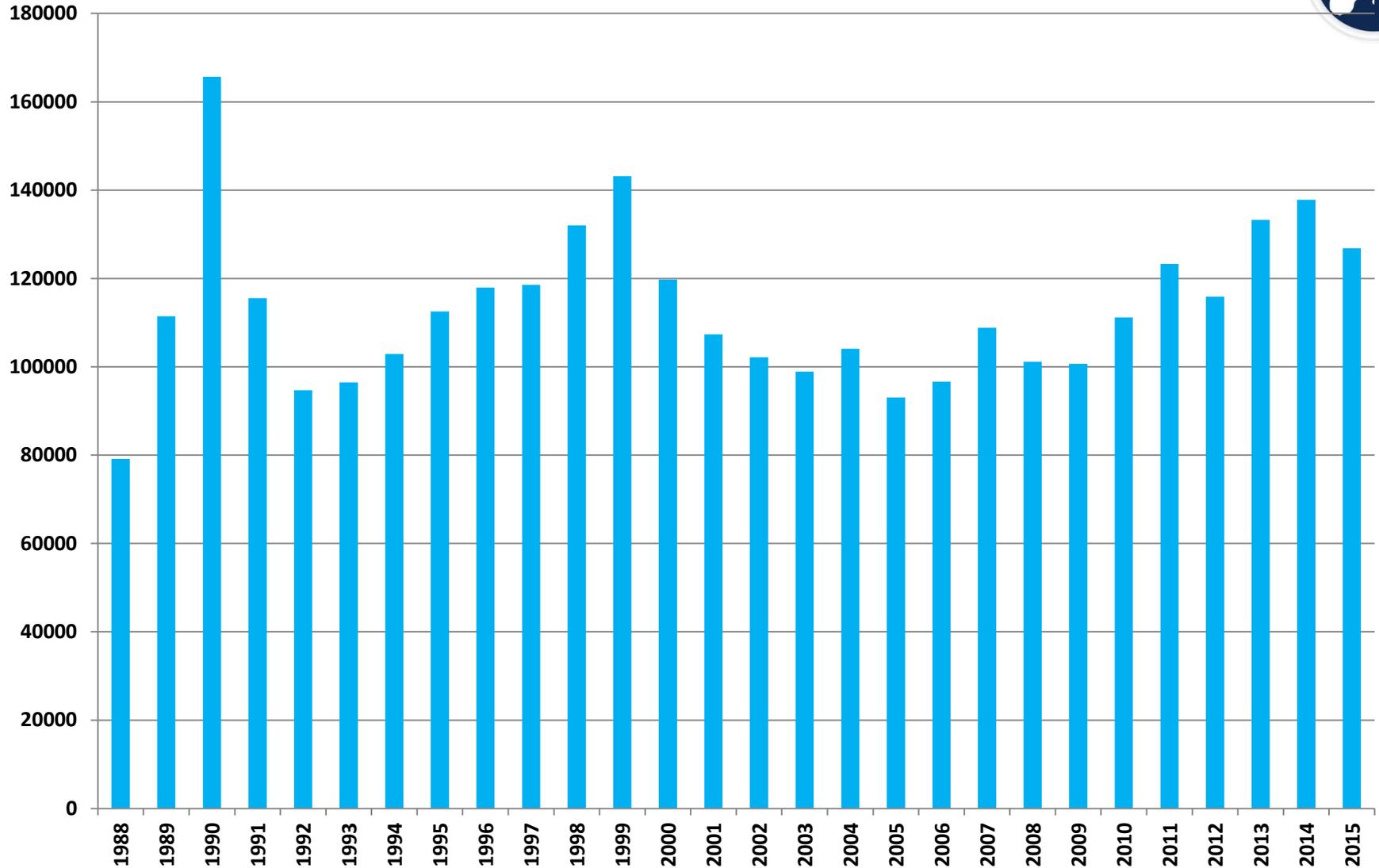
• In vivo	127,980	(2014: 138,418)
• In vitro	13,780	(2014: 15,693)
	<u>= 141,760</u>	(2014: 154,111)



Bovine embryo transfer

(In vivo & in vitro)

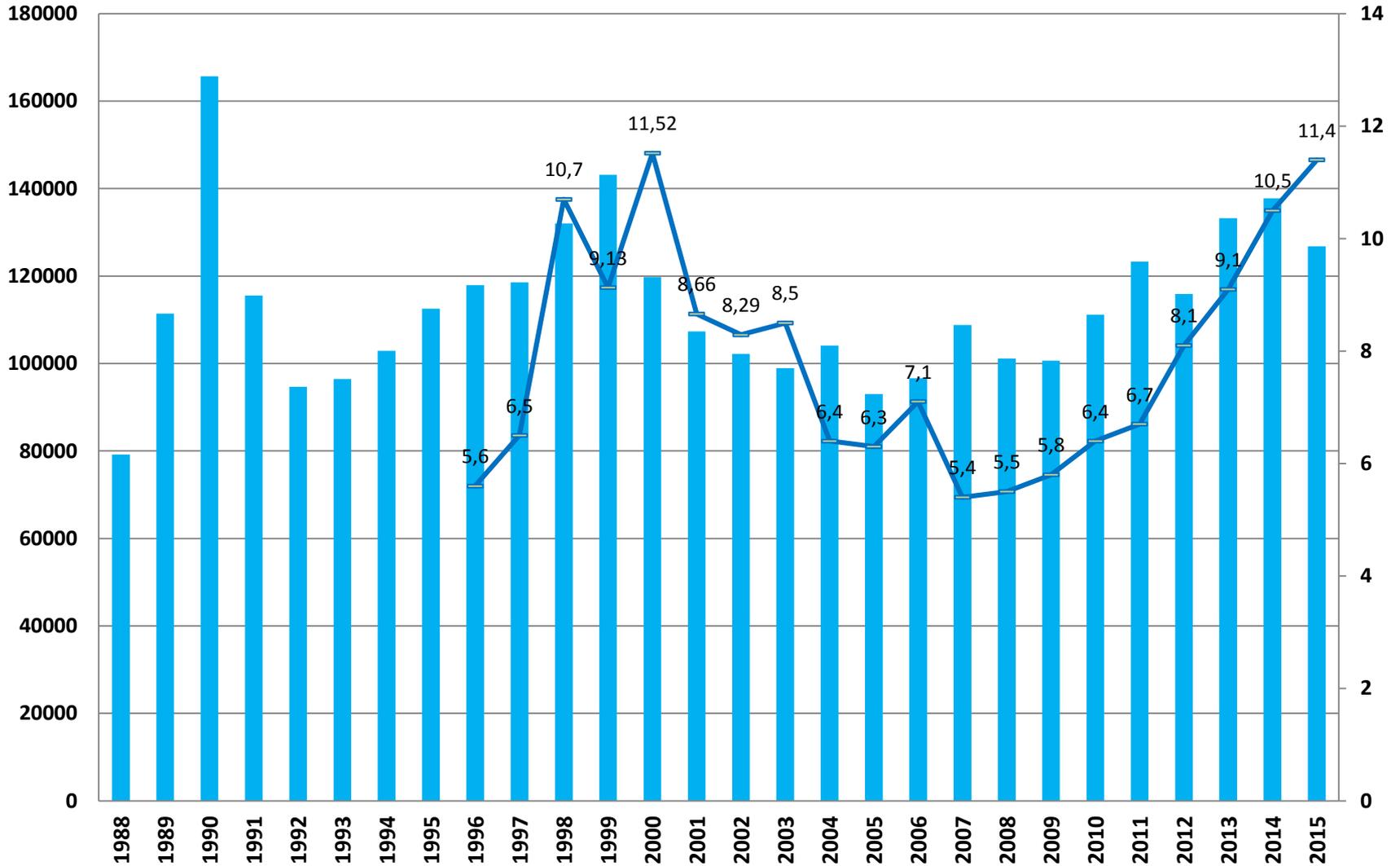
Number of transferred embryos



2015: 126,808 (2013:137,802)

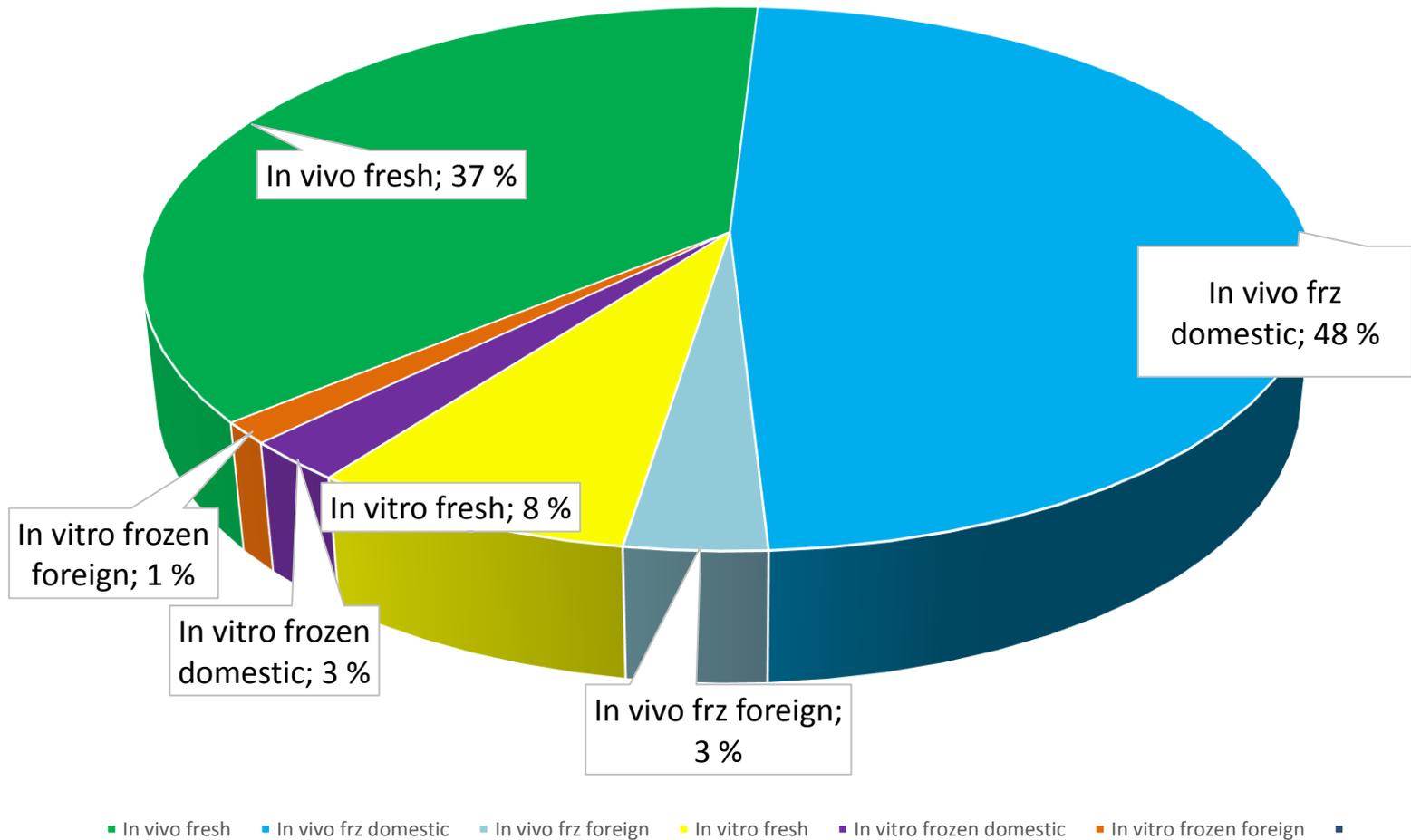


Number of transferred embryos with % IVP embryos





Embryo transfer by embryo type





Exported embryos

- 1780 embryos were exported

- 10 countries

The Netherlands

France

Belgium

Denmark

Switzerland

Spain

Luxembourg

Portugal

Hungary

Finland

- No *in vitro* embryos exported



Sexing and genotyping of embryos

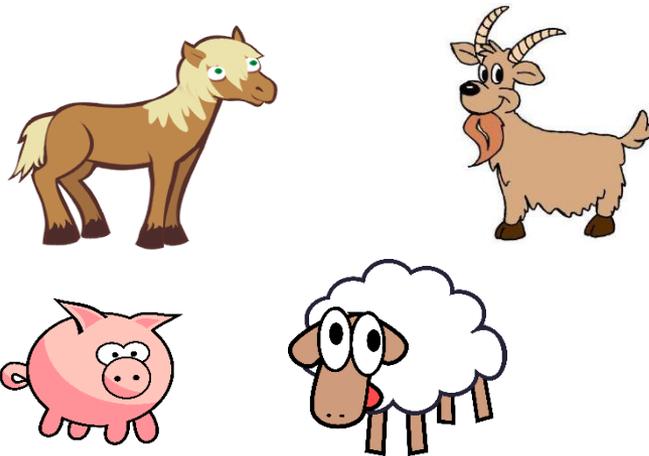
- 4 countries reported sexing of embryos: France, Germany, Netherlands, Hungary
- 3 countries reported genotyping of embryos: France, Germany, Netherlands

Country	Sexed embryos(biopsy)		Genotyped embryos	
	In vivo	In vitro	In vivo	In vitro
France	984		634	
Germany	865	154	371	38
Netherlands			90	
Hungary	24			
Total	1873	154	1095	38



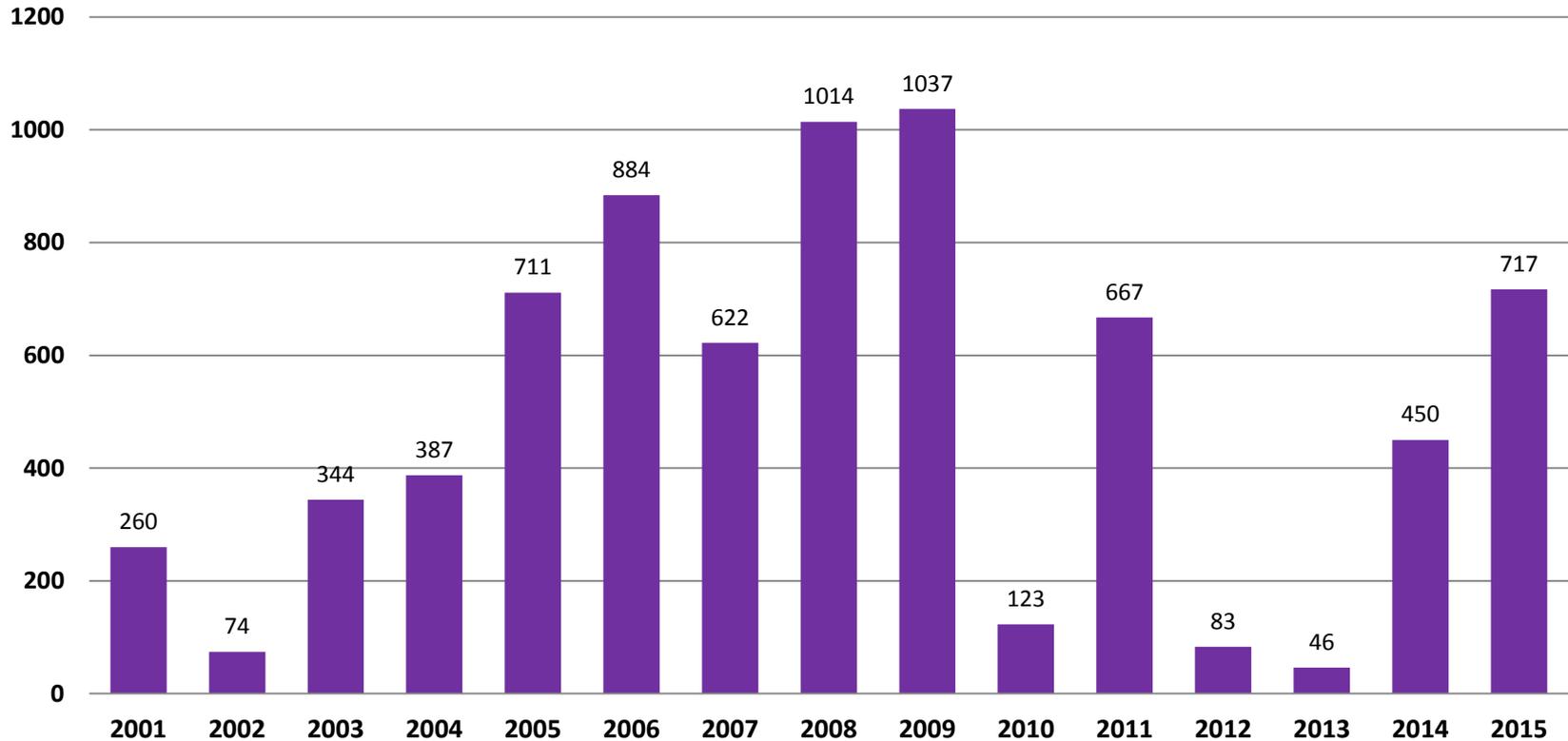
Other species

- Data is difficult to collect, majority of data is lacking and therefore numbers are underestimated
- 11 countries reported activities in other species





Number of embryos transferred - equine



Italy, France, Hungary, Poland, Sweden, Switzerland

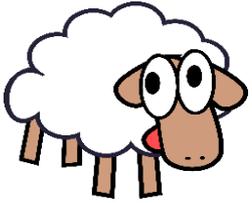
■ Equine



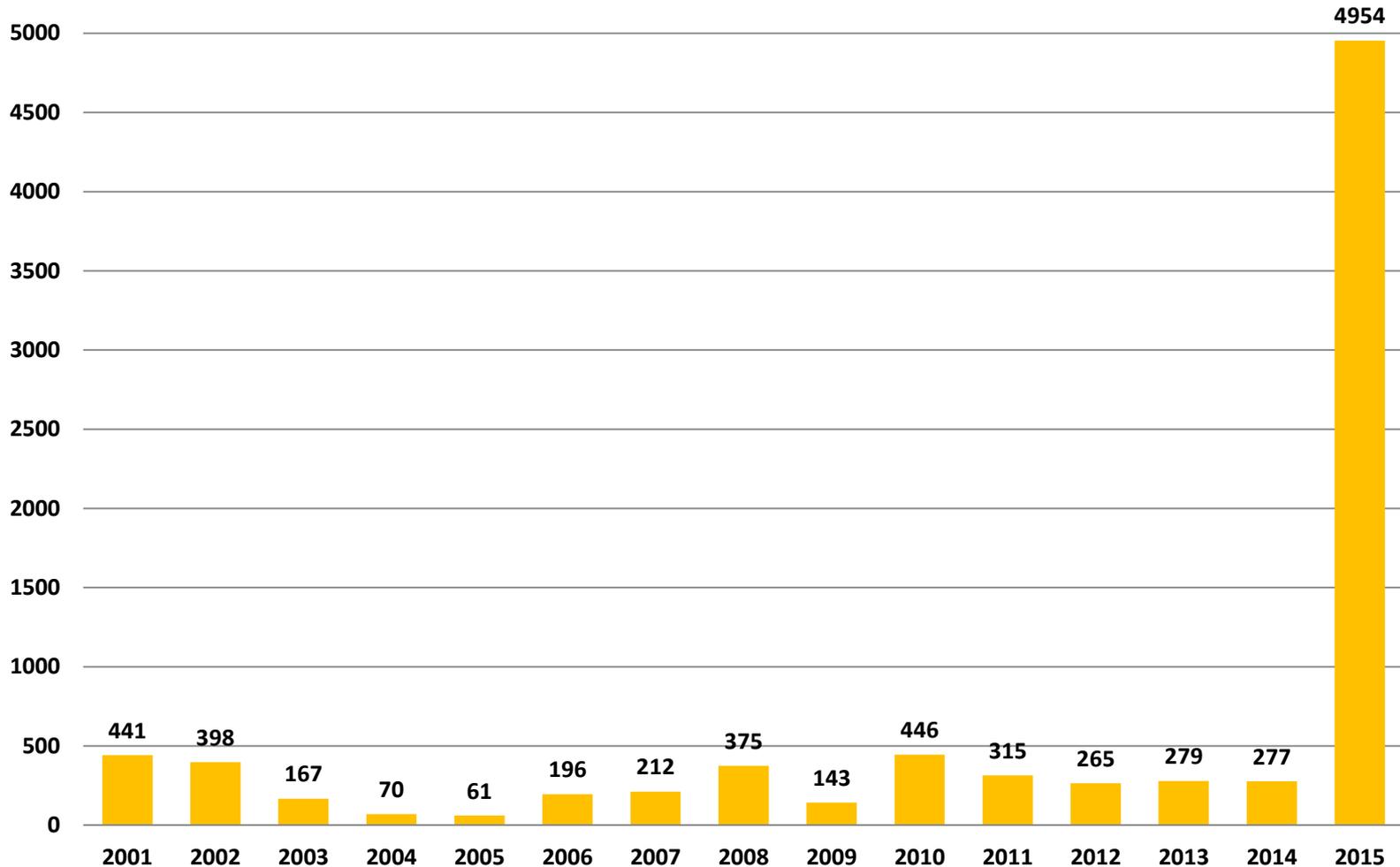
Equine OPU

- Italy
- 594 sessions → 6273 oocytes → 551 embryos





Number of embryos transferred - sheep



Greece, Hungary, Norway, Spain, Sweden, Turkey, United Kingdom

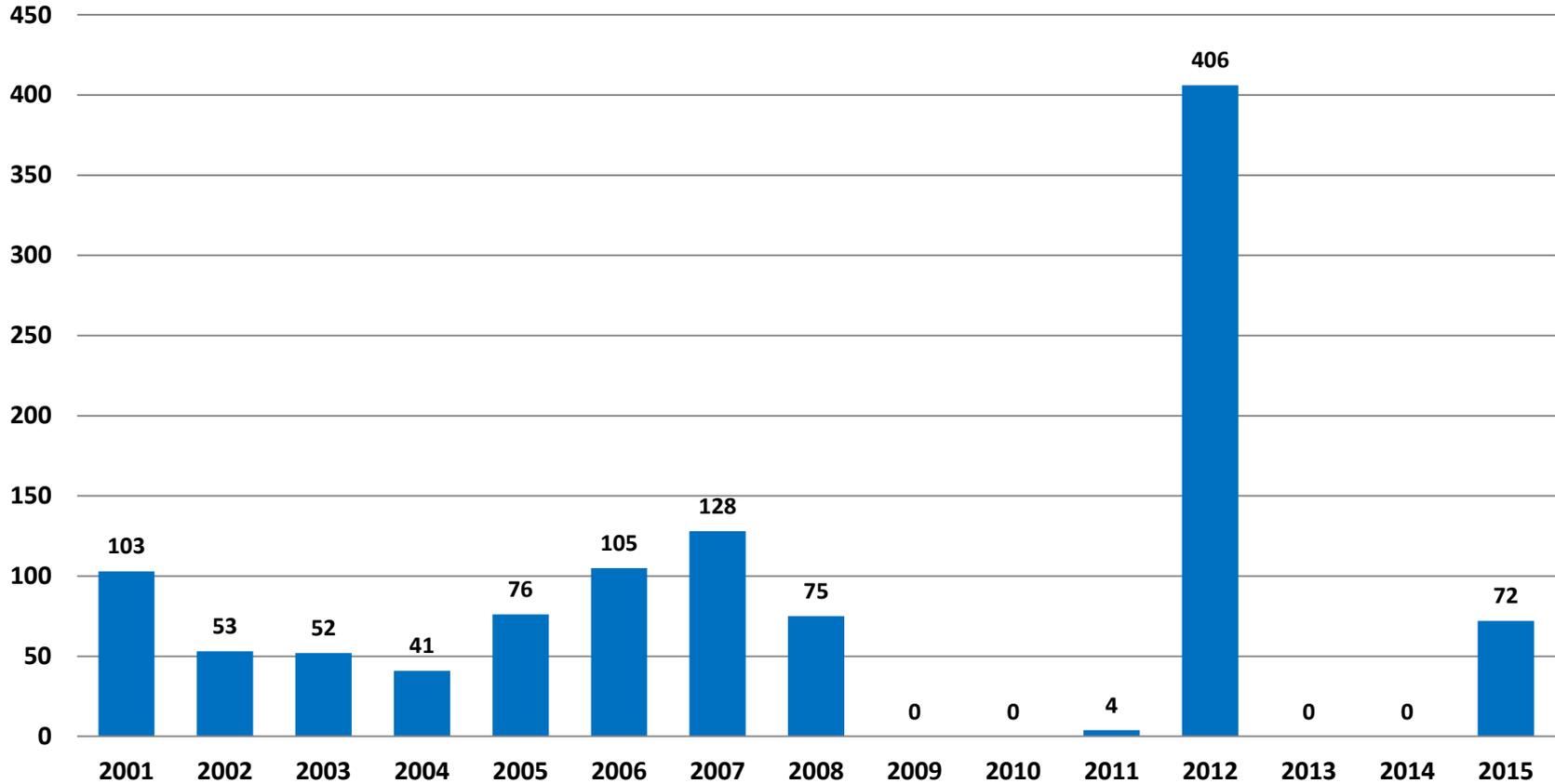


- Embryo production /transfer porcine:
0 reported





Number of embryos transferred - goat



Turkey



Data collection

- European data is provided by AETE for the International Embryo Technology Society (IETS)
- Collection of 2016: data collection form will be changed from Word-format to Excel
- IETS-data form has been modified according to AETE
- National collectors can continue sending their data to AETE or enter data directly to the IETS database
- Also practitioners can have access to enter their data if required



Bovine *In vitro* embryo production

Breeds	Ovum pick up (OPU)			
	N° of OPU sessions	N° of oocytes collected	N° of transferable embryos	N° of IVF s with conve /sexed sen
Dairy, non-stimulated				conv. sexed
Dairy, stimulation				conv. sexed
Beef or Dairy, non-stimulated				conv. sexed
Beef or Dairy, stimulation				conv.
Total				
	slaughtered donors (genetic recovery)	N° of oocytes collected	N° of transferable embryos	
Total				

Slaughtered donors: only include oocytes produced for commerce, not for research purposes

Bovine embryo technologies

	N° of embryos	N° of embryos
Number of embryos (via biopsy)		
Number of genotyped embryos		

Bovine embryo transfer

	Total number of transferred embryos		
	Fresh	Frozen	
		Domestic origin	Foreign origin
<i>In vivo</i>			
<i>In vitro</i>			

Country:	
Other Information	



Number of embryo collected

Notes: Re number of flushes, if no sexed semen data available, put data under "Conventional Semen"

Re number of OPU sessions, if no information available on "non-stimulated" vs "stimulated", put data under 'non-stimulated'

Re dairy and beef breeds, if no information available as to cattle type, put all under your most common situation.

SPECIES	TYPE	No. flushes		Total No of Collections	Total No. Transferable Embryos Collected
		Conventional semen	Sexed semen		
BOVINE VIVO	IN- Dairy				
	IN- Beef & Other Breeds				
SPECIES	TYPE	No. of OPU sessions		No. of Oocytes	No. of transferable embryos**
		Conventional semen	Sexed semen		
BOVINE VITRO PICKUP	IN- Dairy - non-stimulated				
	IN- Dairy - stimulated				
	IN- Beef or other - non-stimulated				
	IN- Beef or other - stimulated				
		No. abattoir donors			
BOVINE VITRO ABATTOIR	IN- DAIRY				
	IN- BEEF				
		No. in-vivo embryos		No. in-vitro embryos	
BOVINE EMBRYO TECHNOLOGIES	No. of sexed embryos (via biopsy)				
	No. of genotyped embryos				
			No. flushes		No. of transferable embryos**
WATER BUFFALO <i>Bubalis bubalis</i>	in vivo only				
SHEEP	in vivo only				
GOATS	in vivo only				
CERVIDS	in vivo only				
HORSES	in vivo only				
SWINE	in vivo only				
OTHERS	in vivo only				
		No. OPU sessions		No. of Oocytes	No. of transferable embryos**
		Conventional semen	Sexed semen		
WATER BUFFALO <i>Bubalis bubalis</i>	in vitro only				
SHEEP	in vitro only				
GOATS	in vitro only				
CERVIDS	in vitro only				
HORSES	in vitro only				
SWINE	in vitro only				
OTHERS	in vitro only				



The corrected and updated version of tables
on the website: electronic Proceedings

Graphs and overview on the website:
Statistics 2015 PDF

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Thank You for all data collectors!