

## **Inbreeding in Dutch dairy cattle**

For eight groups of female animals average inbreeding per year of birth is given in tables and graphs:

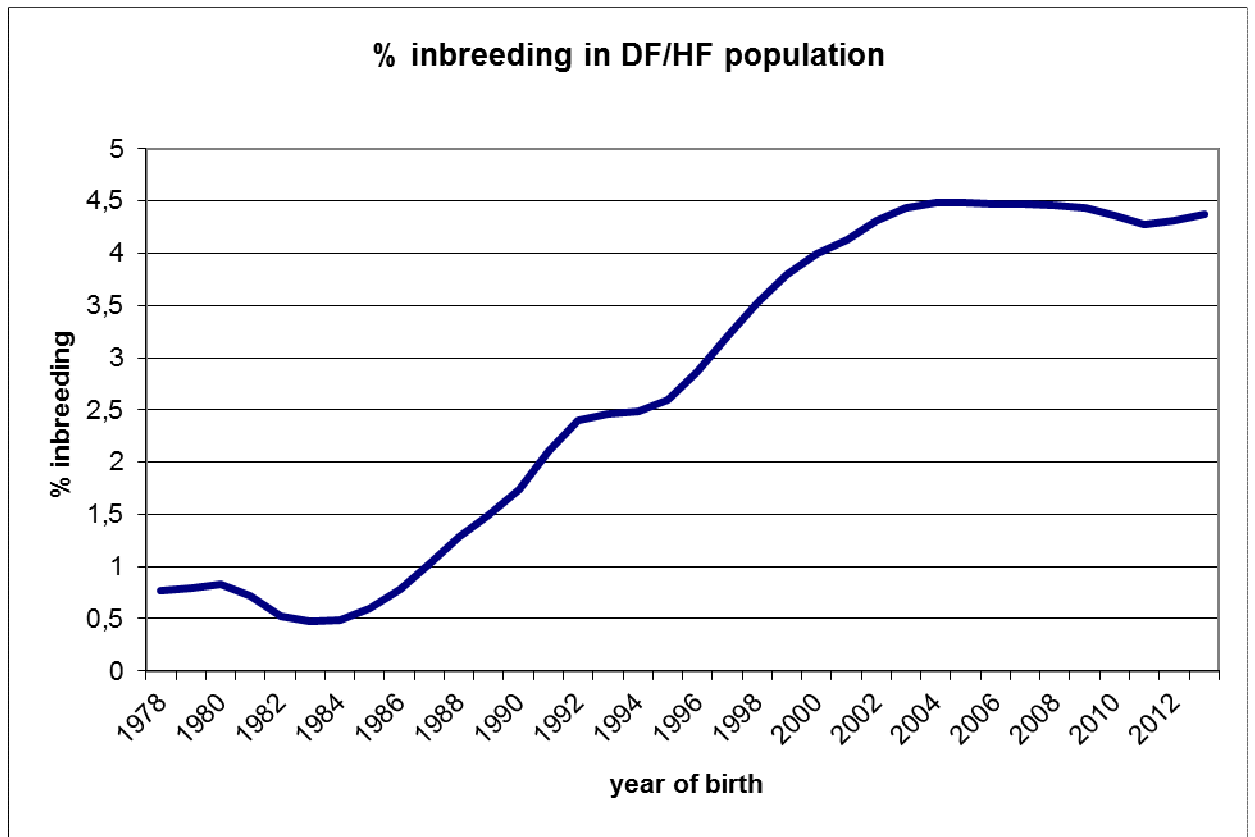
1. female animals having genes from the Dutch Friesian and/or Holstein Friesian breed, black&white and red&white animals
2. female animals which are pure (100%) Holstein Friesian, black&white and red&white animals
3. female animals which are pure (100%) Dutch Friesian (Fries Hollands)
4. female animals which are pure (100%) MRIJ
5. female animals having genes from the Dutch Friesian and/or Holstein Friesian breed, black&white animals
6. female animals having genes from the Dutch Friesian and/or Holstein Friesian breed, red&white animals
7. female animals which are pure (100%) Holstein Friesian, black&white animals
8. female animals which are pure (100%) Holstein Friesian, red&white animals

## Group 1

Table 1. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch Friesian and/or Holstein-Friesian breed, black&white and red&white animals.

birthyear	% inbreeding
1978	0,77
1979	0,79
1980	0,83
1981	0,72
1982	0,53
1983	0,47
1984	0,49
1985	0,60
1986	0,78
1987	1,03
1988	1,28
1989	1,49
1990	1,74
1991	2,11
1992	2,40
1993	2,46
1994	2,48
1995	2,60
1996	2,86
1997	3,20
1998	3,53
1999	3,80
2000	3,99
2001	4,13
2002	4,31
2003	4,44
2004	4,48
2005	4,49
2006	4,47
2007	4,47
2008	4,46
2009	4,44
2010	4,36
2011	4,28
2012	4,31
2013	4,38

Graph 1. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch Friesian and/or Holstein-Friesian breed.

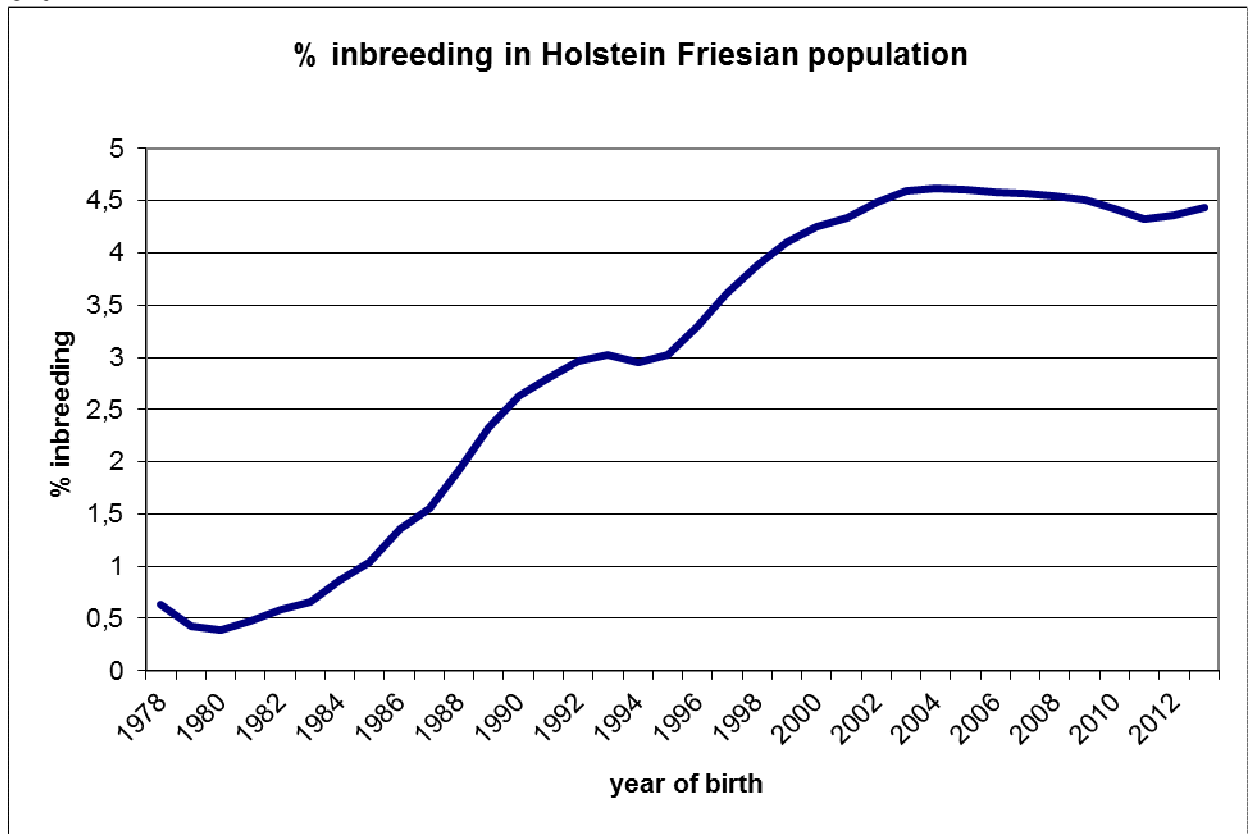


## Group 2

Table 2. Percentage inbreeding in pure (100%) Holstein-Friesian animals per year of birth, black&white and red&white animals.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,63
1979	0,43
1980	0,39
1981	0,47
1982	0,58
1983	0,66
1984	0,87
1985	1,04
1986	1,36
1987	1,56
1988	1,92
1989	2,33
1990	2,63
1991	2,80
1992	2,96
1993	3,02
1994	2,95
1995	3,02
1996	3,29
1997	3,61
1998	3,88
1999	4,11
2000	4,25
2001	4,34
2002	4,49
2003	4,60
2004	4,62
2005	4,61
2006	4,58
2007	4,57
2008	4,54
2009	4,51
2010	4,42
2011	4,33
2012	4,36
2013	4,43

Graph 2. Percentage inbreeding in pure (100%) Holstein-Friesian animals per year of birth.

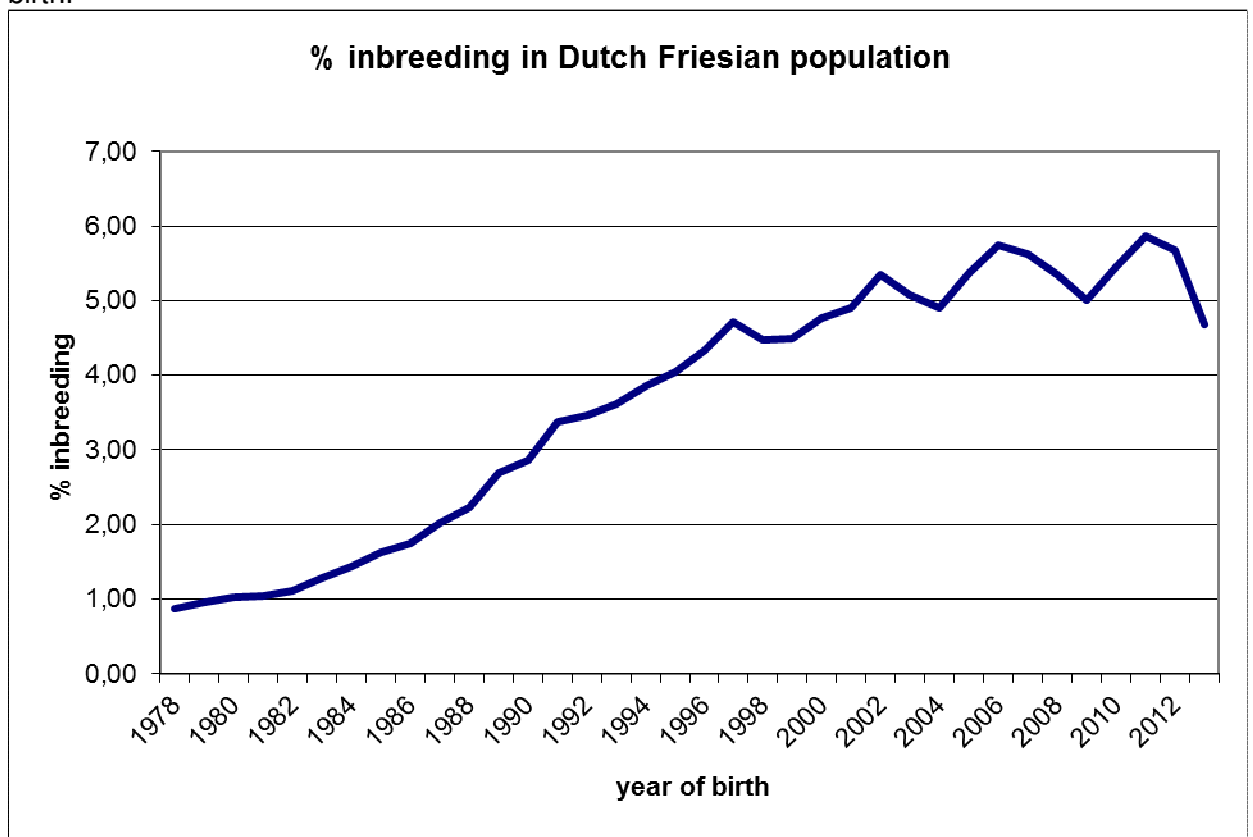


### Group 3

Table 3. Percentage inbreeding in pure (100%) Dutch Friesian animals per year of birth, black&white and red&white animals.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,87
1979	0,95
1980	1,03
1981	1,04
1982	1,12
1983	1,28
1984	1,43
1985	1,62
1986	1,75
1987	2,02
1988	2,23
1989	2,69
1990	2,86
1991	3,37
1992	3,46
1993	3,61
1994	3,85
1995	4,04
1996	4,33
1997	4,72
1998	4,48
1999	4,49
2000	4,77
2001	4,91
2002	5,35
2003	5,07
2004	4,91
2005	5,37
2006	5,75
2007	5,63
2008	5,35
2009	5,01
2010	5,46
2011	5,87
2012	5,67
2013	4,69

Graph 3. Percentage inbreeding in pure (100%) Dutch Friesian animals per year of birth.



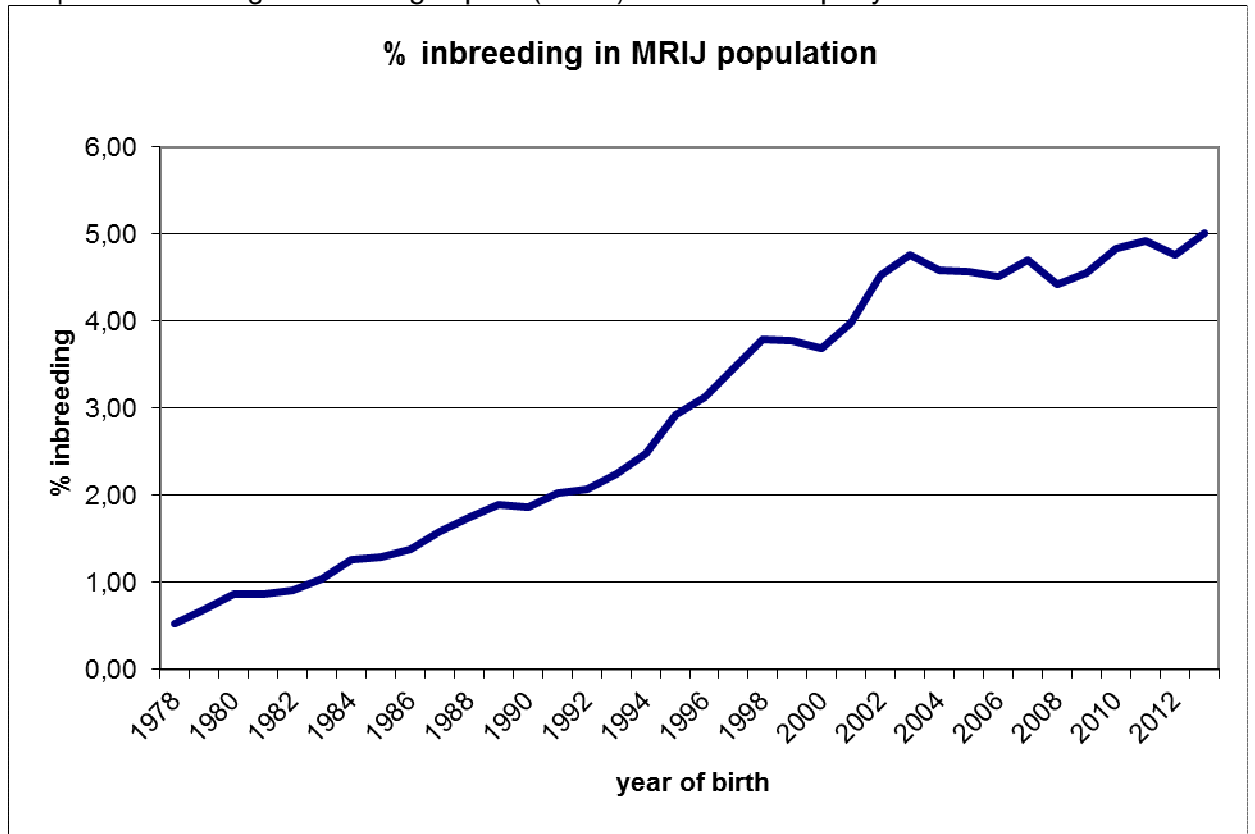
## Group 4

Table 4. Percentage inbreeding in pure (100%) MRIJ animals per year of birth.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,52
1979	0,69
1980	0,87
1981	0,86
1982	0,91
1983	1,04
1984	1,26
1985	1,29
1986	1,38
1987	1,58
1988	1,74
1989	1,89
1990	1,86
1991	2,02
1992	2,07
1993	2,25
1994	2,49
1995	2,93
1996	3,13
1997	3,45
1998	3,79
1999	3,78
2000	3,69
2001	3,98
2002	4,53
2003	4,77
2004	4,58
2005	4,57
2006	4,52
2007	4,71
2008	4,42
2009	4,55
2010	4,83
2011	4,93
2012	4,77
2013	5,02



Graph 4. Percentage inbreeding in pure (100%) MRIJ animals per year of birth.

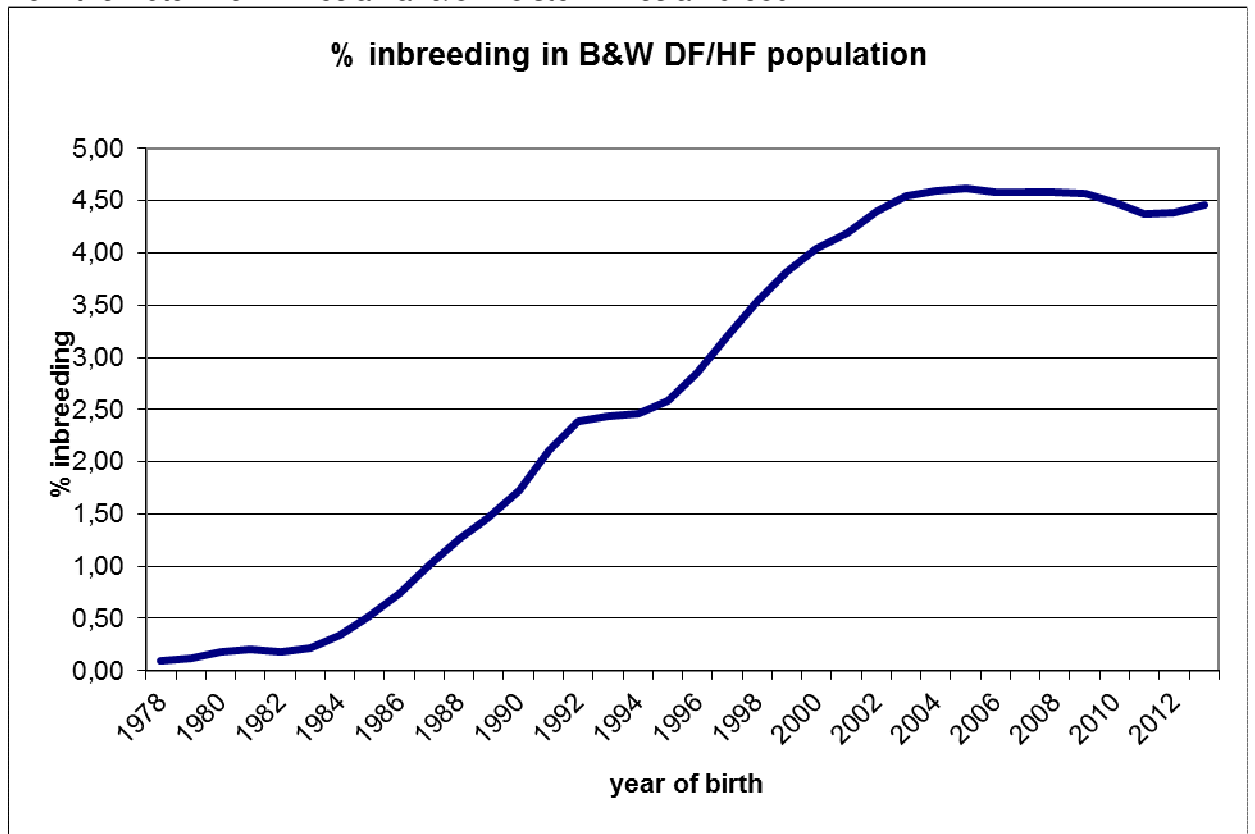


## Group 5

Table 5. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch Friesian and/or Holstein-Friesian breed, black&white animals.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,09
1979	0,12
1980	0,18
1981	0,21
1982	0,18
1983	0,22
1984	0,34
1985	0,52
1986	0,74
1987	1,01
1988	1,26
1989	1,47
1990	1,72
1991	2,10
1992	2,39
1993	2,44
1994	2,46
1995	2,59
1996	2,85
1997	3,20
1998	3,54
1999	3,82
2000	4,04
2001	4,19
2002	4,40
2003	4,54
2004	4,59
2005	4,62
2006	4,58
2007	4,58
2008	4,58
2009	4,57
2010	4,49
2011	4,37
2012	4,39
2013	4,46

Graph 5. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch B&W Friesian and/or Holstein-Friesian breed.

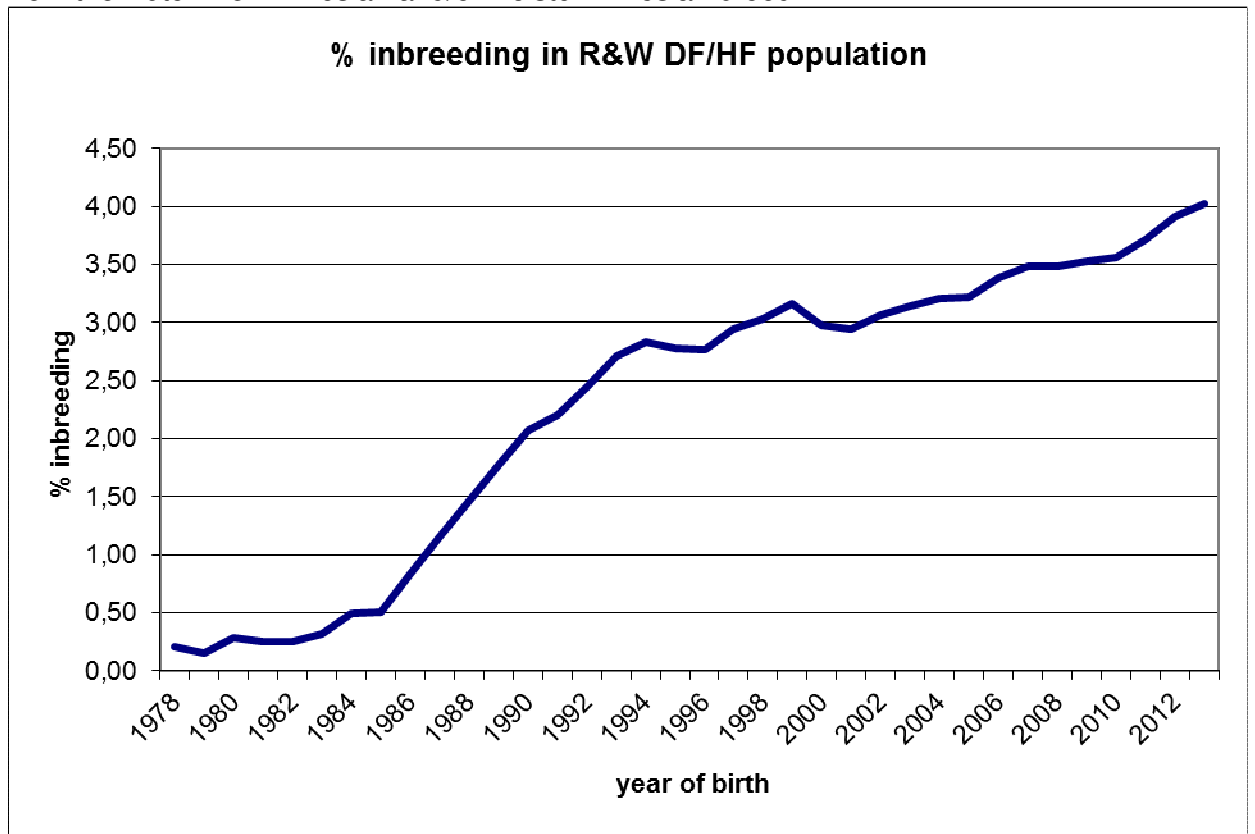


## Group 6

Table 6. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch Friesian and/or Holstein-Friesian breed, red&white animals.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,21
1979	0,15
1980	0,28
1981	0,25
1982	0,25
1983	0,32
1984	0,49
1985	0,50
1986	0,84
1987	1,16
1988	1,47
1989	1,77
1990	2,07
1991	2,20
1992	2,45
1993	2,71
1994	2,83
1995	2,78
1996	2,77
1997	2,94
1998	3,03
1999	3,16
2000	2,98
2001	2,94
2002	3,07
2003	3,14
2004	3,21
2005	3,22
2006	3,38
2007	3,48
2008	3,48
2009	3,53
2010	3,56
2011	3,72
2012	3,91
2013	4,02

Graph 6. Percentage inbreeding in animals per year of birth. Animals have genes from the Dutch R&W Friesian and/or Holstein-Friesian breed.

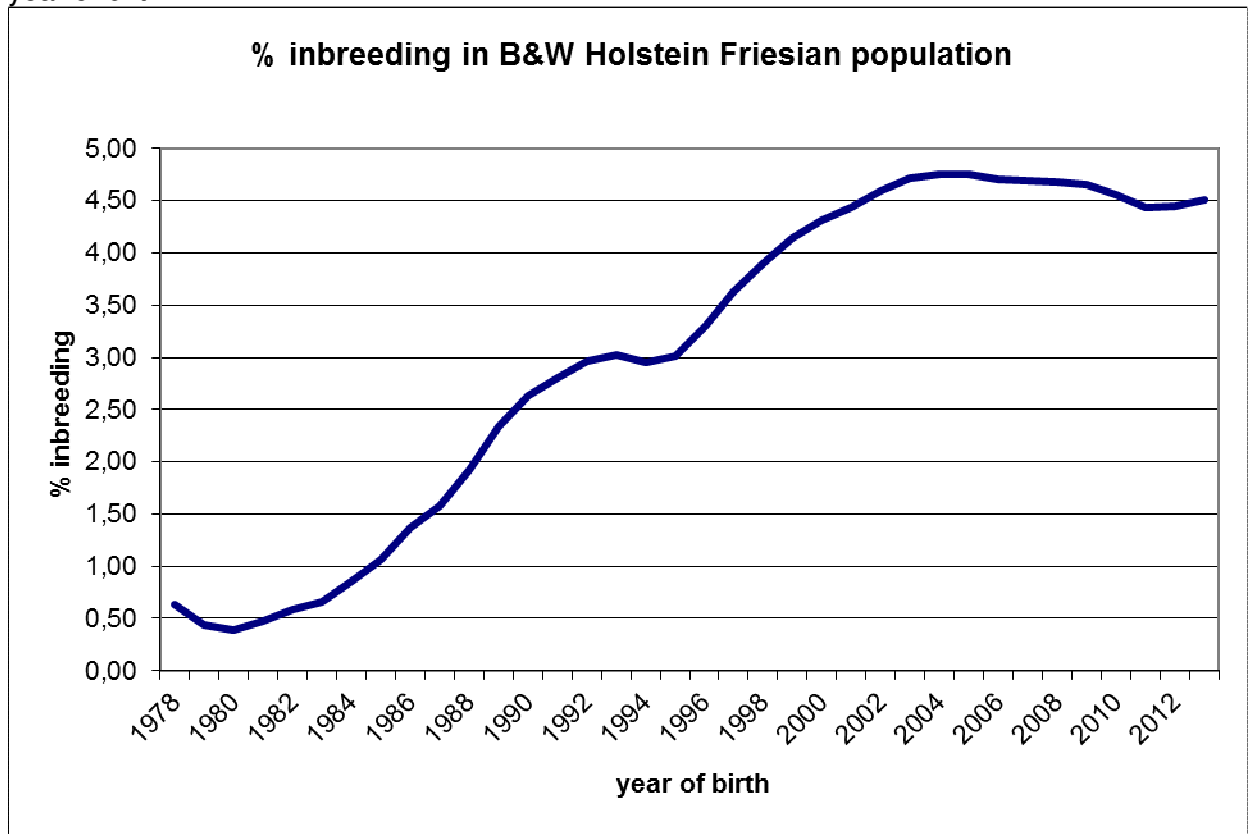


## Group 7

Table 7. Percentage inbreeding in pure (100%) Holstein-Friesian animals per year of birth, black&white animals.

birth year	% inbreeding
1978	0,63
1979	0,44
1980	0,39
1981	0,47
1982	0,58
1983	0,66
1984	0,86
1985	1,06
1986	1,37
1987	1,58
1988	1,92
1989	2,34
1990	2,63
1991	2,81
1992	2,97
1993	3,03
1994	2,95
1995	3,01
1996	3,30
1997	3,62
1998	3,90
1999	4,14
2000	4,31
2001	4,43
2002	4,60
2003	4,72
2004	4,75
2005	4,76
2006	4,70
2007	4,69
2008	4,68
2009	4,66
2010	4,56
2011	4,44
2012	4,45
2013	4,51

Graph 7. Percentage inbreeding in pure (100%) B&W Holstein-Friesian animals per year of birth.



## Group 8

Table 8. Percentage inbreeding in pure (100%) Holstein-Friesian animals per year of birth, red&white animals.

<u>birth year</u>	<u>% inbreeding</u>
1978	0,52
1979	0,25
1980	0,31
1981	0,49
1982	0,83
1983	0,57
1984	1,18
1985	0,71
1986	1,04
1987	1,26
1988	1,91
1989	2,03
1990	2,50
1991	2,57
1992	2,74
1993	2,94
1994	3,11
1995	3,08
1996	3,12
1997	3,28
1998	3,23
1999	3,32
2000	3,06
2001	2,98
2002	3,11
2003	3,18
2004	3,24
2005	3,24
2006	3,40
2007	3,50
2008	3,49
2009	3,54
2010	3,58
2011	3,73
2012	3,93
2013	4,03



Graph 8. Percentage inbreeding in pure (100%) R&W Holstein-Friesian animals per year of birth.

