

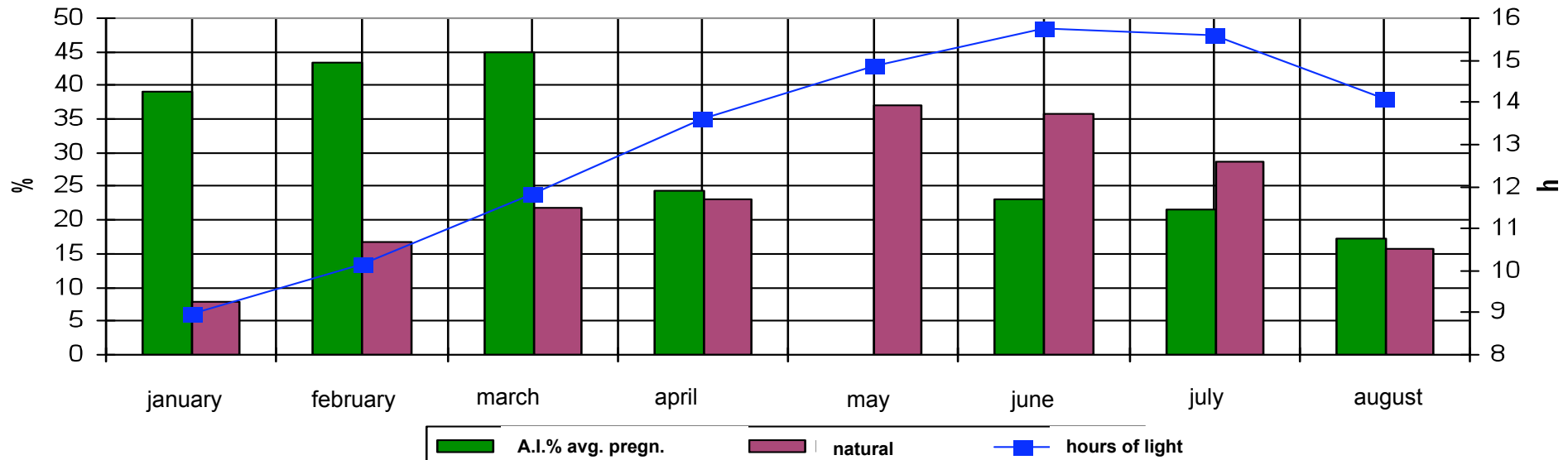
USE OF SEXED SEMEN vs. CONVENTIONAL SEMEN IN MEDITERRANEAN WATER BUFFALO

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Percentage of Pregnancies with Natural Insemination vs. Artificial Insemination in Water Buffalos (average % of pregnancies in 2008 and 2009)



A.I. has good PREGNANCIES RATE during all the Year.

PREGNANCIES RATE with Natural Ins. increase with the increasing of hours of light (seasonal effect).

Bull anestrus

- We have recently verified (Pelagalli et al., 2009) that in April **only** 23%, 31% and 29% of the bulls showed values higher than the average value respectively of testosterone, dihydrotestosterone and androstenedione.

DAIRY COWS

EXAMPLE OF A DAIRY HERD WITH 100 COWS

Replacement rate 45%; stillbirths 0%		
	Semen	
	sexed	normal
Objective:	45 female calves	45 female calves
Pregnancies in cows	45	55 (*)
Pregnancies in heifers	0	35 (*)
Total female calvs	45 (**)	45 (**)
<div style="display: flex; justify-content: space-between;"> <div style="width: 35%;"> <p>(*) 50 % male calves.</p> </div> <div style="width: 60%; background-color: yellow; padding: 5px;"> <p>Sexed semen allows to have female calves from the best cows/heifers</p> </div> </div>		

MEDITERRANEAN

WATER BUFFALO

EXAMPLE OF A WATER BUFFALO DAIRY HERD WITH 100 MILKING FEMALES

Replacement rate 20%; stillbirths = 0 %; Average herd production= kg 2.550		
	semen	
	sexed	normal
Objective	20 female calves	20 female calves
Conception %	40	45
% of Water Buffalo choosen for insemination (the best of the herd)	50	90 (*)
Average production of the choosen females (kg)	2800	2600
Difference from selected group and average of herd (kg)	250	50
Heritable quota (30%) (kg)	75	15
(*) 50 % male calves	Sexed semen allows to have female calves from the best buffalos	

Simulation of Milk Production with sexed semen in a Wather Buffalo Herd (kg 2550 = herd production at the start of simulation)

	Sexed semen	Normal semen	Sexed semen	Normal semen
Year	Avg. (kg)	Avg. (kg)	best 5 buf	best 9 buf
0	2550	2550	2800	2600
4	2725	2713	2950	2759
5	2874	2839	3047	2876
6	2992	2927	3110	2952
7	3078	2976	3158	2985
8	3129	2986	3192	2994
Year	Diff. of select. (kg)	Diff. of select. (kg)	h2 = 30% (kg)	h2 = 30% (kg)
0	250	50	75	15
4	225	46	68	14
5	174	38	52	11
6	117	25	35	8
7	80	8	24	3
8	63	8	19	2

Difference from the Initial Average Herd Production (kg 2.550)

				return difference (sex vs. normal) for buffalo	
Year after	Milk				
	sexed	normal	Difference	1	10
	(kg)	(kg)	(kg)	€	€
4	175	163	12	15	150
5	324	289	35	43	434
6	442	377	66	82	821
7	528	426	102	127	1274
8	579	436	143	178	1782

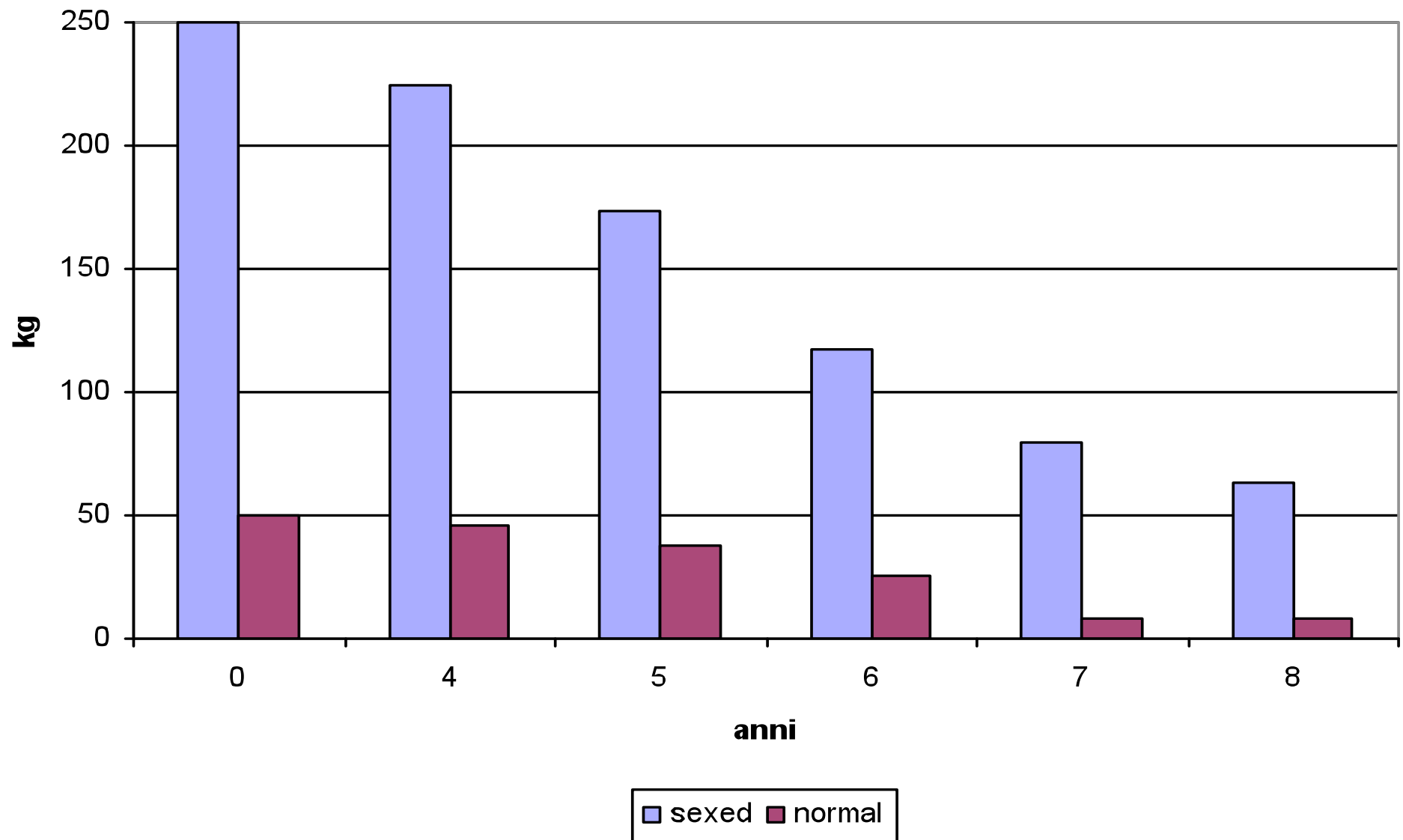
Resume of returns, of costs, and of net income (kg 2.550)

	5 Ins.	9 Ins.	difference
Yars after	Sexed straws € 35	Normal straws € 15	For each female calf (sexed – normal)
	€	€	€
4	175	135	20
5	175	135	20
6	175	135	20
7	175	135	20
8	175	135	20
€ 20/6 calving = € 3,3 for calving			

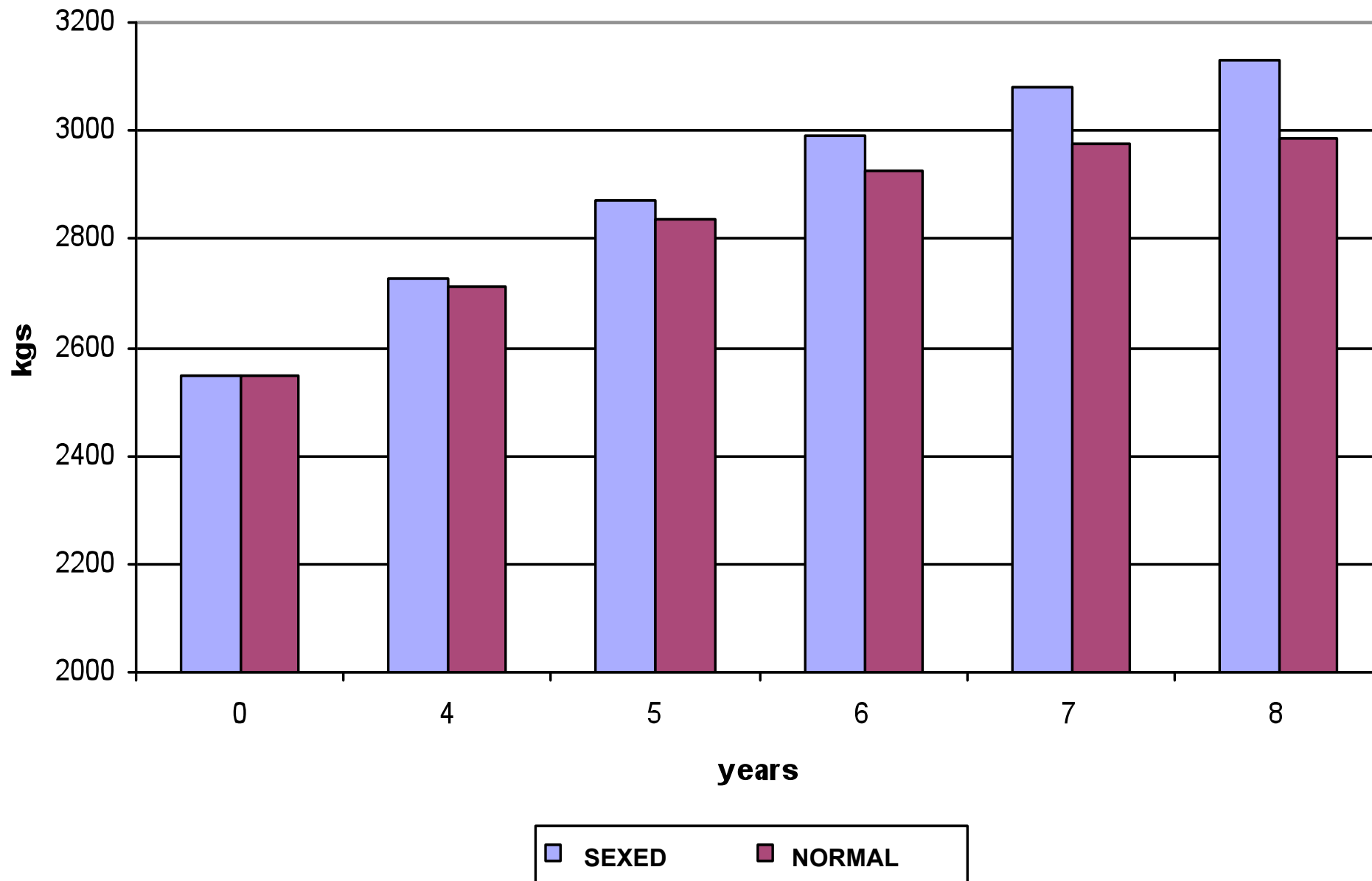
Resume of returns, of costs, and of net income (kg 2.550)

Years after	sexed – normal (milk x 10 buff.)	Net Income
	€	€
4	150	110
5	434	394
6	821	781
7	1274	1234
8	1782	1742
total		4261

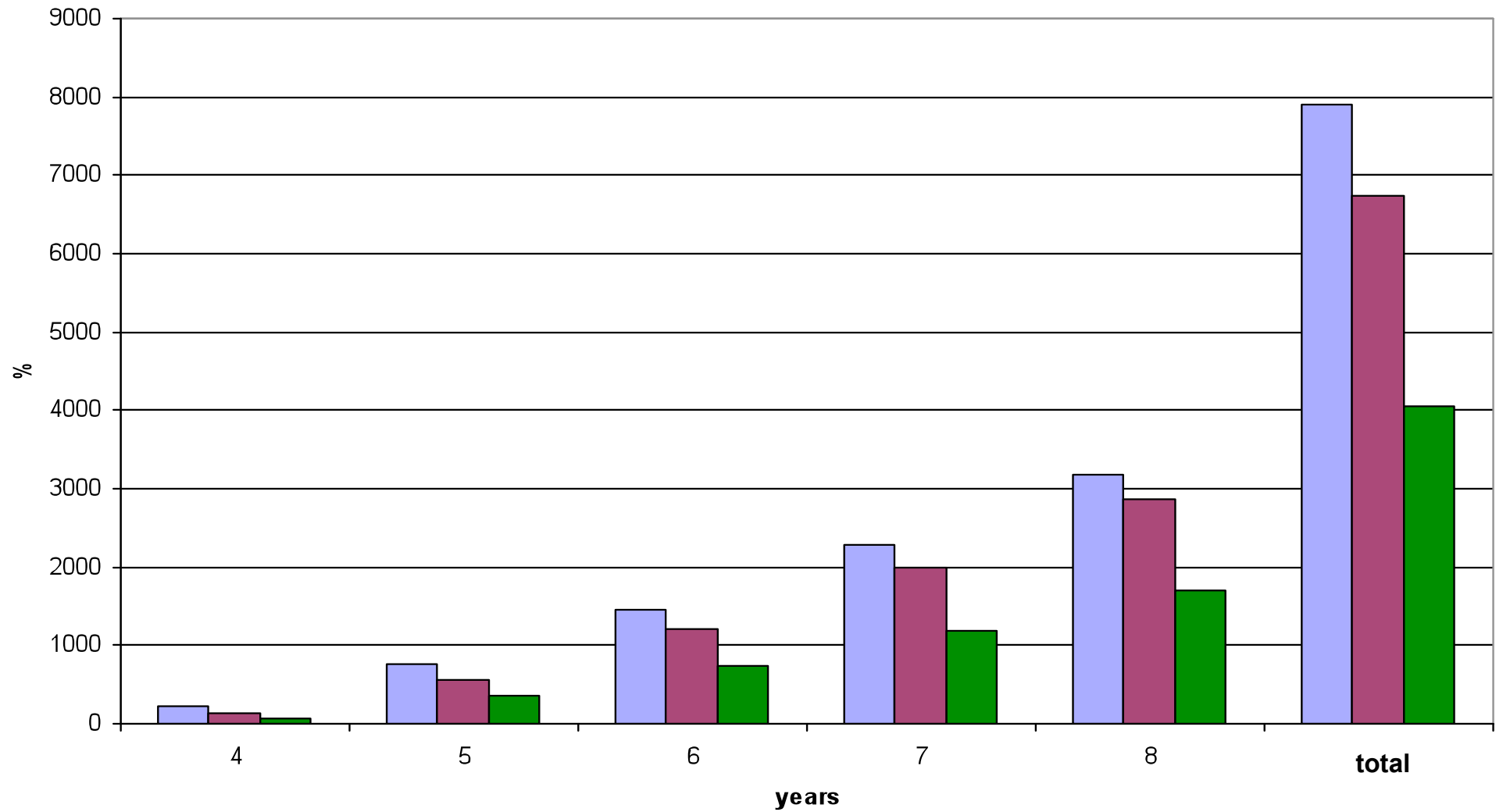
Difference of Selection during 8 years simulation of use of sexed semen vr. Normal semen in Water Buffalo Herd (initial Avg. Herd Production = 2550 kgs)



Comparison of productions after 8 years of usage of SEXED SEMEN vs. NORMAL SEMEN (replacement rate of 20 %)

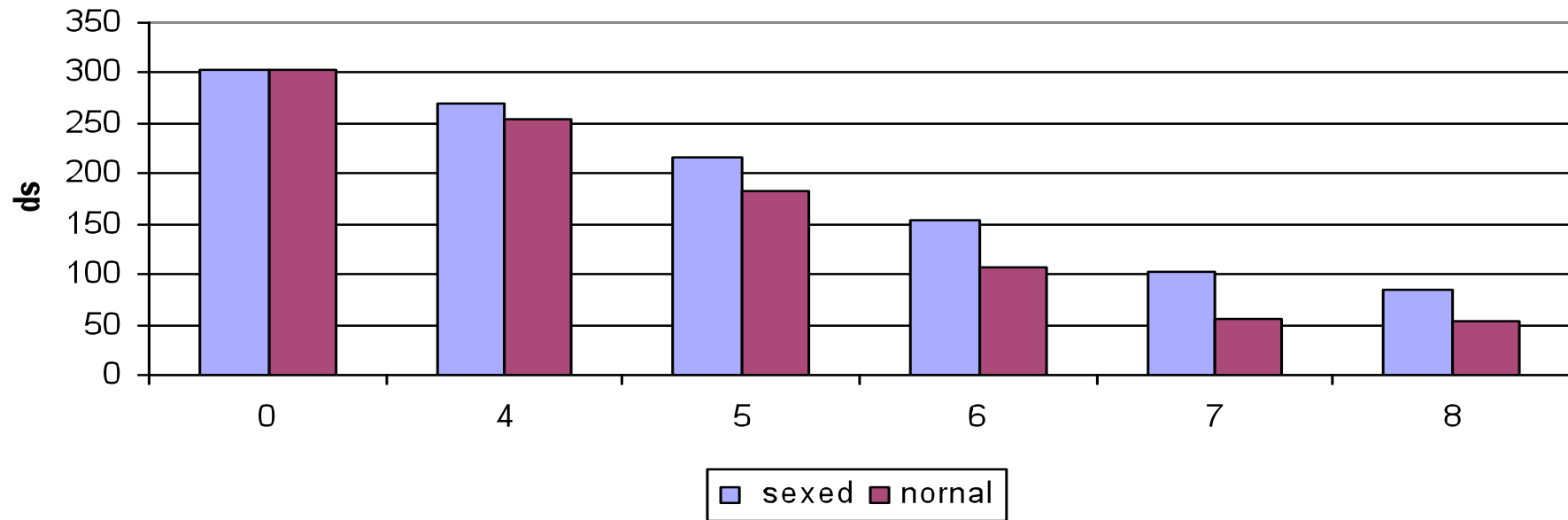


Net Income in function of the initial Avg. Herd Production

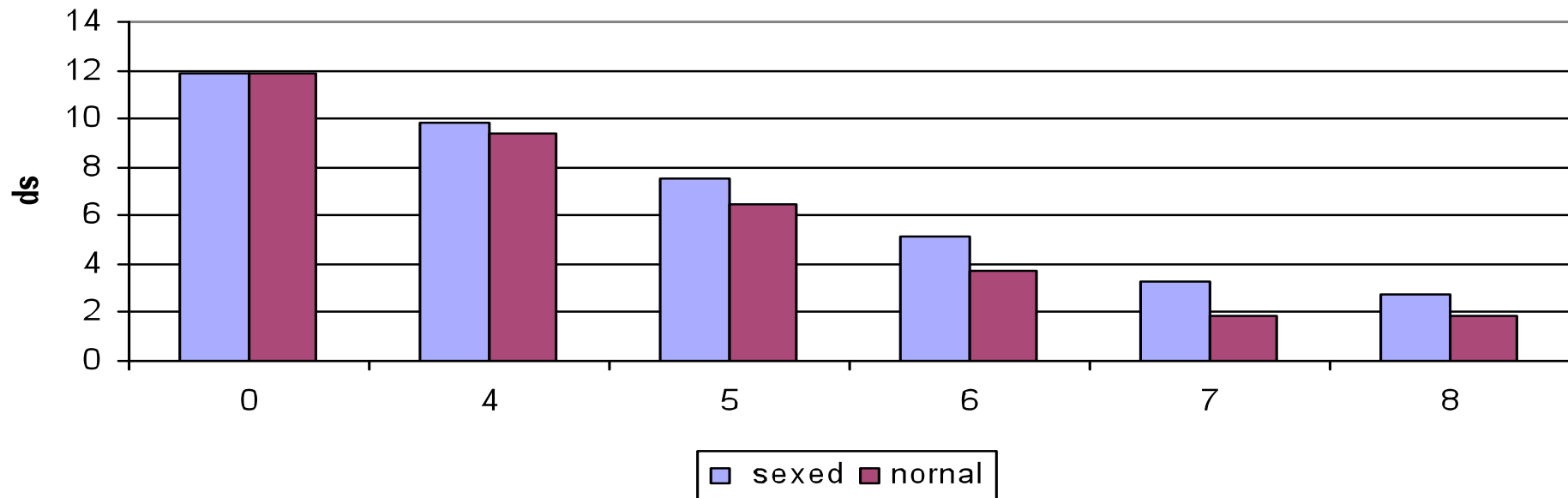


kg 2270 kg 2290 kg 2550

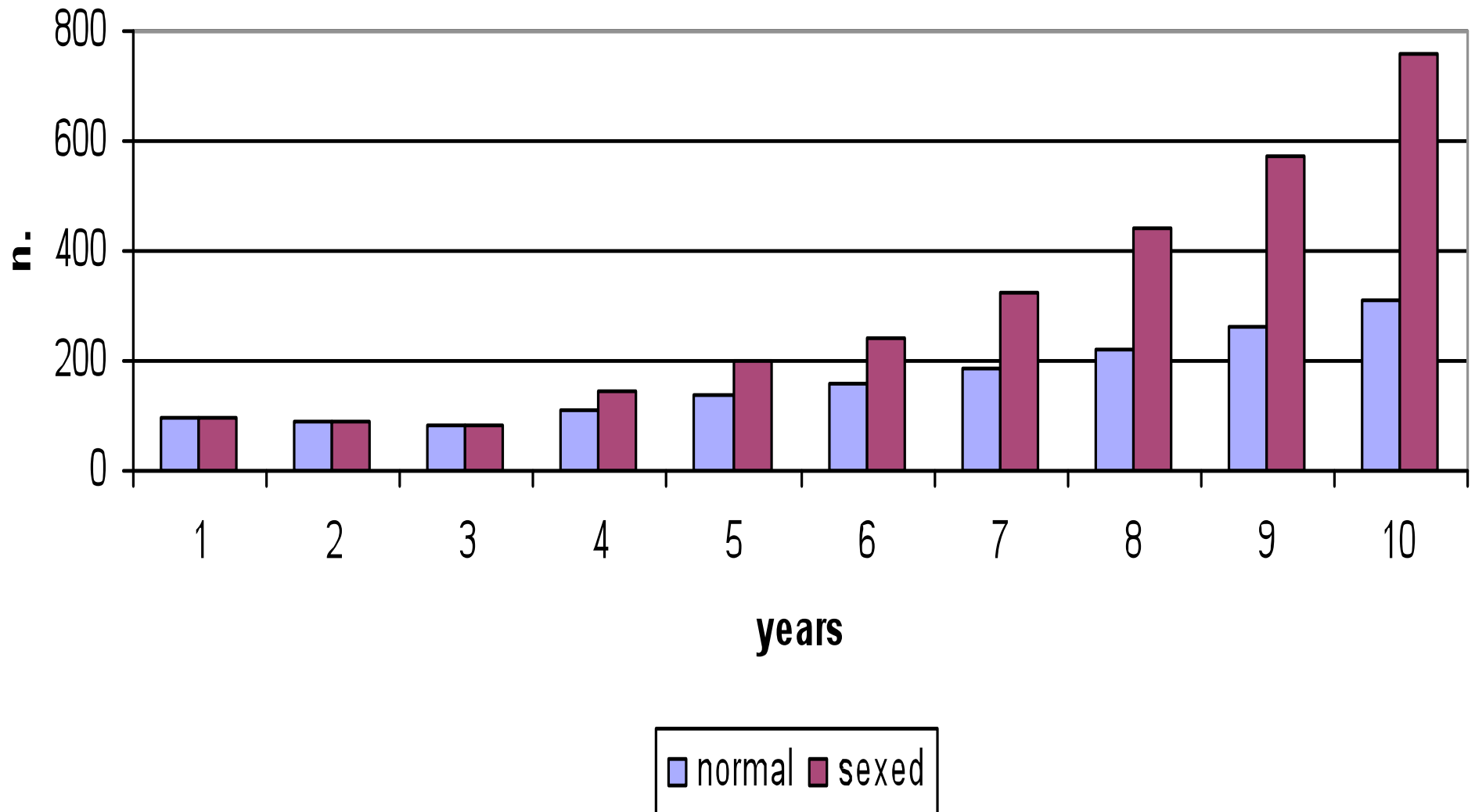
Standard deviation after 0-8 years with normal or sexed sperm



Variability coefficient after 0-8 years with normal or sexed sperm



**The improvement of buffalo population in a herd of 100 buffaloes
that utilize normal or sexed semen in then years (Replacement rate
10%; stillbirths = 0 %)**





Tanks

