

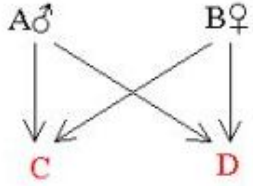
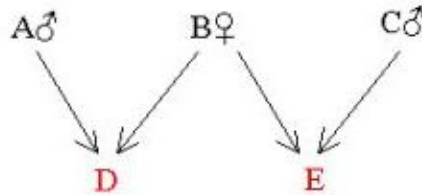
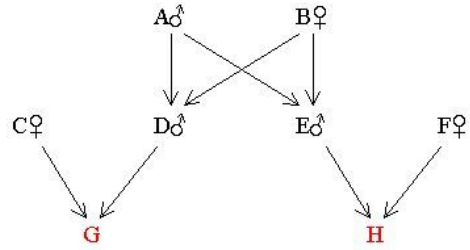
PREVENTION OF RELATED MATING IN THE SLOVENIAN LIPIZZAN POPULATION

Klemen Potočnik¹, Jurij Krsnik ¹, Miran Štepec ¹ and Janez Rus ²

¹ University of Ljubljana, Biotechnical Faculty,
Department of Animal Science, Slovenia

² University of Ljubljana, Veterinary Faculty, Slovenia

Mating of related partners

Mating Partners	R	Offspring IC
Full-sibs 	0.5	0.25
Half-sibs 	0.25	0.125
First cousins 	0.125	0.0625

Benefits and deficits of inbreeding

- * High inbreeding causes vitality problems

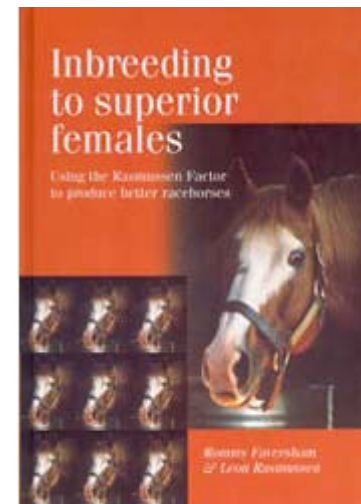
 - ~ Higher mortality

- * Reduced longevity

- * Depression in production

ON AVERAGE

IN SOME CASES
Better performance



Lipizzaner population in Slovenia

- * National Stud Farm Lipica

- ~ 400 horses

- ~ 60 breeding mares

- ~ 40 breeding stallions

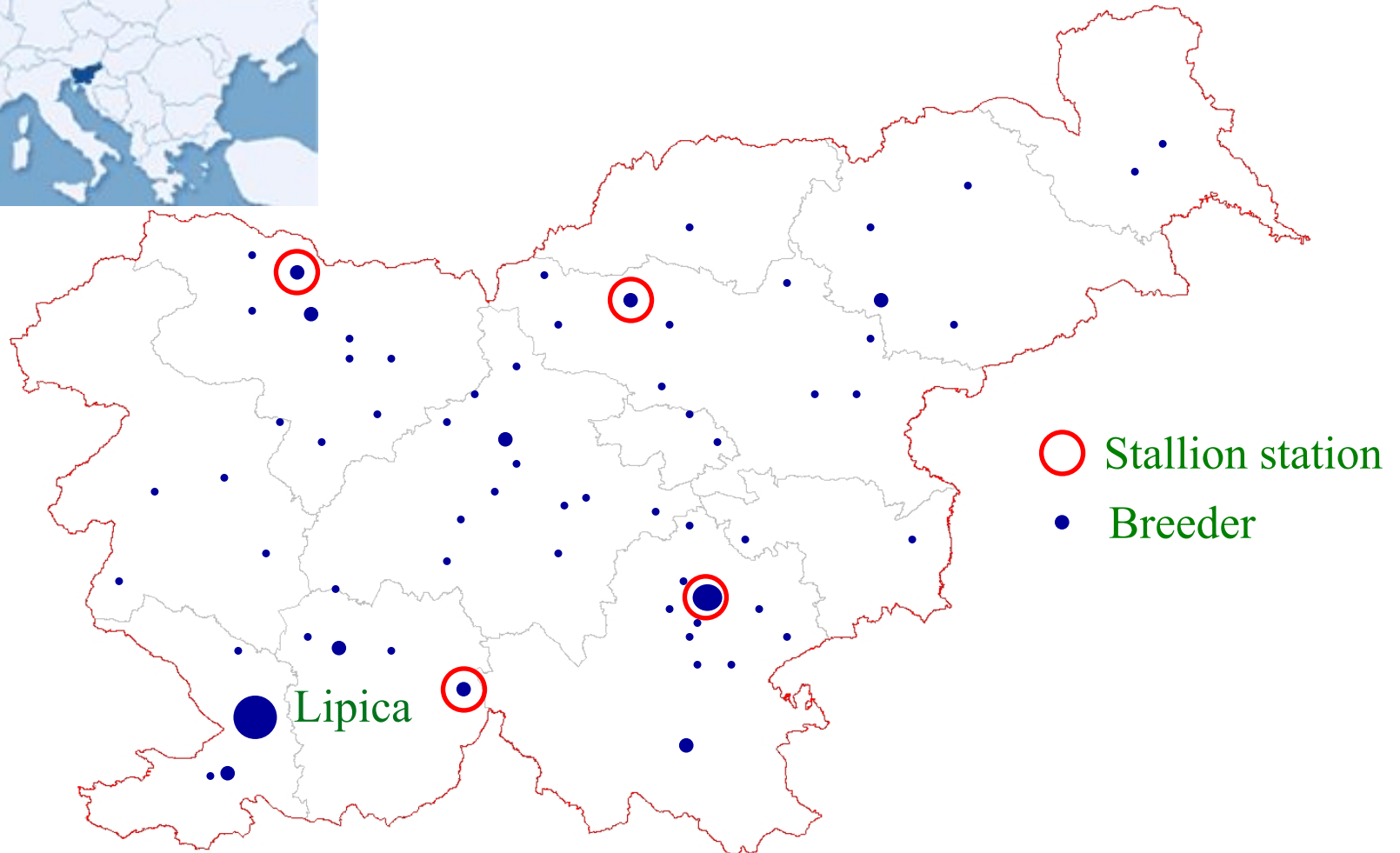
- * Slovenian Association of Lipizzaner Breeders

- ~ 600 horses

- ~ 250 breeding mares

- ~ ? breeding stallions

Lipizzaner population in Slovenia



Material



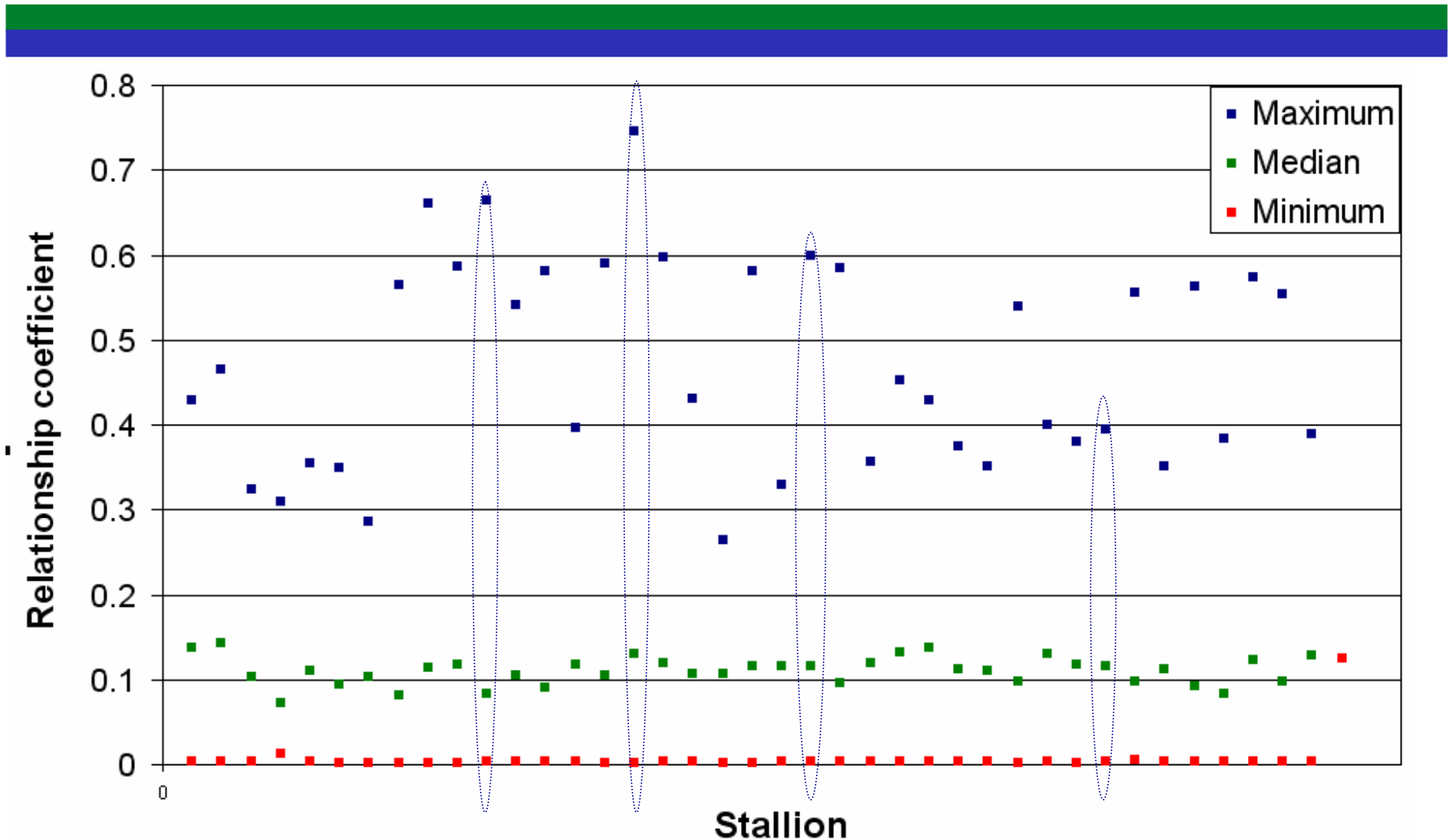
- * Data base of 2382 Lipizzaner horses
 - ~ Young animals not included
 - ~ 1465 females
- * Breeding mares from Stud Lipica and SALB
 - ~ 263 born on year 1997 to 2004
- * Relationship coefficient for each BM with all 40 stallions

Method

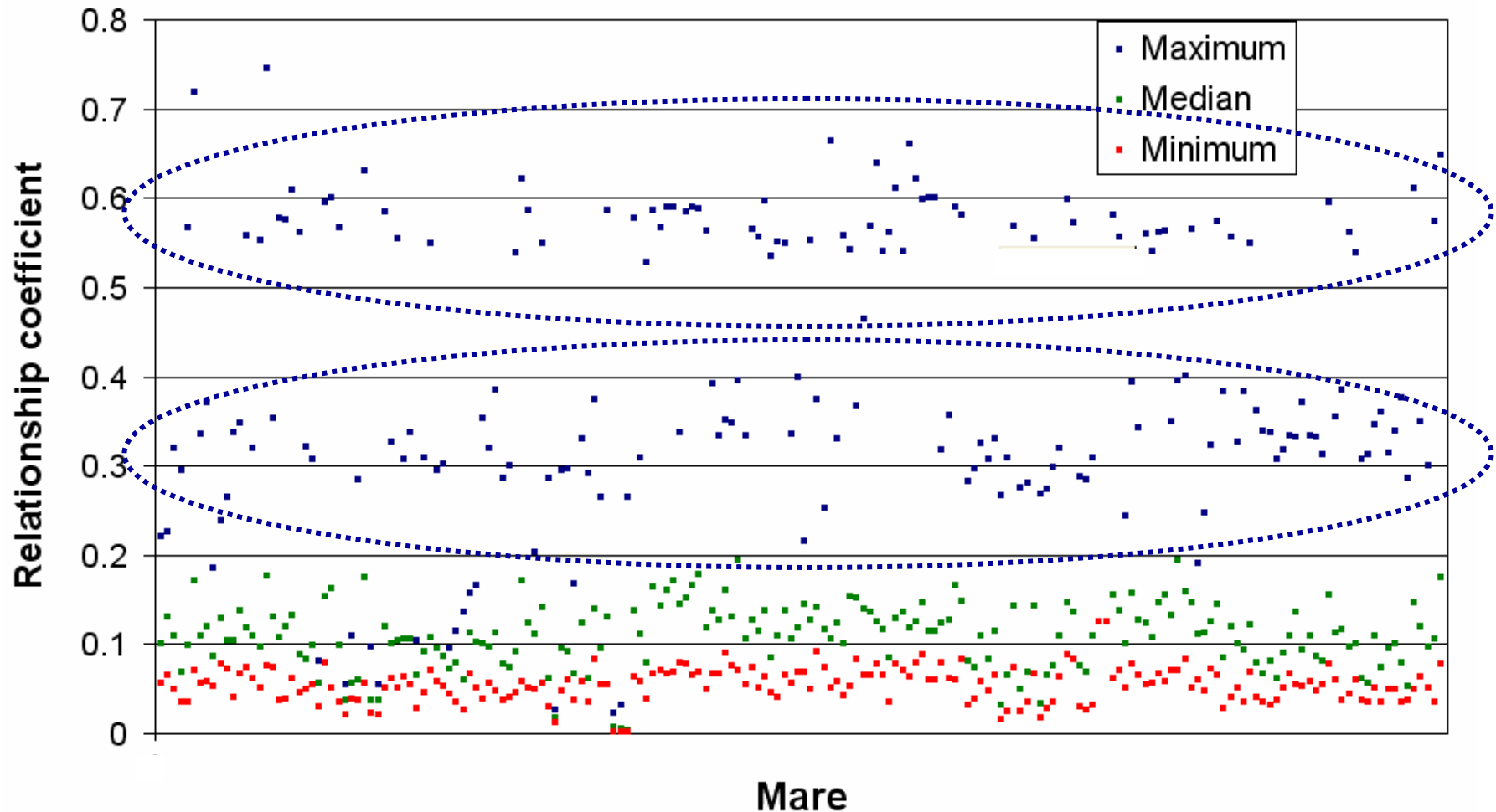


- * Own web application
 - ~ Calculation of RC – PEDIG (Boichard)
 - ~ RC quality depends on data quality and pedigree deepness
- * Calculating the relationship coefficient for each BM with all 40 stallions
- * Statistics of Relationship coefficients between males and females
- * Checking the matings for the last four years in Stud Lipica

Results – Stallions with related mares



Results – Related mares with stallions



Web application

Screenshot of a web application interface for horse management, displayed within a Firefox browser window.

Browser Address Bar: `http://127.0.0.1:8080/apex/f?p=100:17:3758160757640702::NO::P17_ANIM2,P17_ANIM2_ID,P17_`

Page Header: Središče Firefox, Najnovejše novice, KLEMEN Logout

Navigation Bar: Živali, Sorodstvo

Section: Sorodstvo

Kobile

Id/Ime: Rojstvo: Izvedi

	<u>Id</u>	<u>Ime</u>	<u>Rojdt</u>	<u>Inbreeding</u> ▼
	705002041000437	MONTEAURA XXII	15.05.2004	
	705002051000501	MONTEAURA XXIII	01.04.2005	
	705002901000030	Monteaura XXII	23.02.1990	0,06817
	705002031000369	Monteaura XXVI	24.02.2003	0,05655
	705002981000236	Monteaura XXVIII	19.03.1998	0,05270
	705002951000160	Monteaura XXVII	27.04.1995	0,04928
	705002921000088	Monteaura XXV	21.03.1992	0,03567
	705002881000985	Monteaura XX	15.05.1988	0,03158
	705002981000237	Monteaura XXIX	20.03.1998	0,03140
	705002991000272	Monteaura XXX	02.04.1999	0,02280

row(s) 1 - 10 of 11 Next ▶

Žrebci

Id/Ime: Rojstvo: Izvedi

	<u>Id</u>	<u>Ime</u>	<u>Rojdt</u>	<u>Inbreeding</u> ▲
	990	Pluto Gratosia I	17.03.1988	0,01162

1 - 1

Izbrana kobila

Monteaura XX

Koeficient sorodstva

0,28457

Izbrani žrebec

Pluto Gratosia I

Application as Support Decision System



- * Tool that supports selecting an appropriate mating partner
- * Appropriate stallion for mare
 - ~ Not related
 - ~ Accordance-harmony conformation traits
 - ~ Workability traits
- * Limiting factors:
 - ~ Data-complete, up-to-date
 - ~ Without mistakes

Results of mating with different relationship

N %	Relationship coefficient		Total
	≤ 0.125	> 0.125	
Pregnant	79% 119 65.75	65% 20 11.05	139 76.80
Not pregnant	21% 31 7.13	35% 11 6.08	42 23.20
Total	150 82.87	31 17.13	181 100.0

Conclusion

- * Use of application, as a tool for planned matings
 - ~ on average decrease the inbreeding coefficient of the offspring for a value of 0.03 to 0.06 in comparison to mares
- * Limits for using web application:
 - ~ Lack of understanding the consequences of inbreeding by breeders
 - ~ Breeders do not have enough computer know-how
- * Using all breeding stallions
 - ~ Limits: veterinarian regulations, distance
- * Long term results
 - ~ Difficulties in presenting the importance of this work to uneducated breeders



Thank you for your attention