

Analysis of the reproductive performance of Labradors with working certificates

**Agnieszka Boruta[#], Barbara Bagińska,
Anna Kurek, Danuta Dzierżanowska-Góryń**

Warsaw University of Life Sciences, Faculty of Animal Sciences,
Department of Animal Breeding and Production
ul. Ciszewskiego 8, 02-786 Warszawa; [#]e-mail: agnieszka_boruta@sggw.pl

The aim of the study was to analyse the results of mating of female Labrador retrievers from show lines with show-line males with working certificates. The research material consisted of breeding results from the Sodalis FCI kennel from 2005-2011, which included 26 litters from eight bitches. Sires with working certificates were used in seven matings. The number of puppies born, the number of stillborn or euthanized puppies, the number of puppies reared, and the ratio of puppies reared to puppies born were analysed. On average 0.44 more puppies were born and 0.68 more were reared in litters from show-line sires with working certificates. The percentages of retained placentas and of stillborn puppies and puppies requiring euthanasia were higher in litters from show-line sires without working certificates. The differences were not confirmed statistically.

KEY WORDS: dog / Labrador retriever / reproduction / working dog

The Labrador retriever is a very active dog with a strong build [10], so it should not be too heavy or too thickset. Due to its gentle temperament, intelligence, obedience, and playfulness, it is one of the breeds most often chosen as a family pet [8]. Owing to its excellent sense of smell, undying enthusiasm for working with people, and willingness to work in water, Labradors are frequently chosen as hunting dogs, and they do outstanding tracking work in various uniformed services. Specialists looking for a working Labrador place special emphasis on the dog's performance traits. Each breeder decides on specific requirements and attempts to apply well thought-out breeding strategies. These are devised by setting breeding goals, gathering the necessary information, carefully planning mating, and evaluating the offspring. In this manner genetic progress is achieved. In this case, conformation is not the main selection criterion in dog breeding, and therefore the population within a breed may diverge into show lines and working lines. The breeding goal in show lines is to obtain dogs that are as close as possible to the

ideal for the breed, described by the kennel club in the breed standard. Show line dogs may undergo performance tests for which they can obtain a working certificate. Both show lines and working lines are evaluated at dog shows.

Breeding of working lines focuses on improving traits associated with the work of a given breed. Monika Marchwicka and Cezary Marchwicki were the first to import male Labradors from purebred working lines to Poland and mate them with suitably selected females from show lines. It was with their 'Herbu Kruk' hunting dogs that breeding of working Labradors began in Poland.

Due to the high popularity of the breed (377 litters born in 2015 [4]), there has been a proliferation of dogs that deviate phenotypically and behaviourally from the breed standard adopted by the Fédération Cynologique Internationale – FCI (current FCI standard no. 122, published on 13 October 2010 [10]), and they are kept in conditions that do not meet their natural behavioural needs. This has led to an increase in incidents of people being bitten by Labradors kept as companion dogs [1, 3, 5].

There is still disagreement in kennel circles regarding mating of dogs from show lines and working lines within a breed. According to many cynologists, this can have a negative effect on both the conformation and the working performance of the dogs. Crossing of two different lines can also have a positive effect, e.g. on reproductive performance. This discussion should be based on analysis of specific breeding results, but unfortunately breeding data are not made public.

A study was carried out to analyse the reproductive results of mating of female Labrador retrievers from show lines with show line males with working certificates.

Material and methods

Comparison of the effects of mating of show lines and working lines of Labradors were based on breeding results obtained at the Sodalis FCI kennel in 2005–2011. Data from 26 litters from eight bitches were analysed. In the case of seven litters, the puppies were sired by dogs from show lines with working certificates (Tables 1 and 2).

Statistical analysis of the data was performed using SPSS 23.0 statistics software. The Mann–Whitney test for two independent groups was used to determine the differences between litters from sires with and without working certificates for all variables.

Results and discussion

Analysis of the material showed that mating of females from show lines with show line males with working certificates did not produce negative reproductive effects. On average, more puppies were born and reared in litters whose sires had working certificates, but this advantage was not statistically significant. In litters from show line sires without working

certificates, more puppies were stillborn or had to be euthanized, and more retained placentas were noted (retained placentas may have causes associated with the dam) – Tables 1 and 2. These differences were also not statistically significant.

Table 1

Matings and breeding results of Labrador retrievers in the Sodalis FCI kennel in 2005-2011 (breeder's own information)

Female	Male	Litter	Number of puppies			Number of retained placentas
			born	stillborn or euthanized	reared	
W/CU	W	A	7	1	6	1
W/CU	W	B	8	1	7	0
W/CU	W	C	9	0	9	0
W/CU	W	E	6	0	6	0
W/CU	W	G	7	0	7	1
W/CU	W	I	6	1	5	1
W/CU	W	M	8	1	7	4
W	W	H	5	2	3	0
W	W	L	6	1	5	1
W	W	O	6	2	4	1
W/CU	W	D	8	1	7	0
W/CU	W/CU	F	9	3	6	1
W/CU	W	J	8	1	7	0
W/CU	W/CU	N	10	0	10	0
W/CU	W	U	11	2	9	1
W/CU	W	Y	10	3	7	0
W	W/CU	K	7	0	7	0
W	W/CU	P	9	0	9	3
W		T	7	0	7	0
W	W/CU	W	8	1	7	2
W	W	S	6	0	6	0
W	W	B1	9	3	6	2
W/CU*		R	5	1	4	0
W/CU*	W/CU	A1	8	1	7	2
W*	W	Z	9	1	8	2
W*	W/CU	X	4	1	3	0
	litters from sires with working certificates					

W – show line; CU – working certificate

*Bitch sired by a dog with a working certificate

Reproductive traits are influenced by many factors (besides the sire), but the data provided only allowed us to analyse the number of puppies born, the number of stillborn puppies, the number of puppies reared, the number of retained placentas, and the ratio of puppies reared to puppies born (Table 2). There were no statistically significant differences for the groups with and without working certificates.

Table 2

Comparison of breeding results of Labrador retrievers in the Sodalis FCI kennel in 2005-2011, depending on the whether the sire had a working certificate

Variable	Working certificate	N	Mean	Standard error of the mean
Number of puppies born P=0.427	yes	7	7.86	0.74
	no	19	7.42	0.38
Number of stillborn puppies P=0.497	yes	7	0.86	0.40
	no	19	1.11	0.21
Number of reared puppies P=0.395	yes	7	7.00	0.85
	no	19	6.32	0.37
Number of retained placentas P=0.461	yes	7	1.14	0.46
	no	19	0.74	0.24
Ratio of puppies reared to puppies born (%) P=0.534	yes	7	88.1	5.0
	no	19	85.1	2.8

In the period analysed, caesarean sections were performed at the Sodalis FCI kennel in only two cases (out of 169 puppies born). This is indicative of the good condition of the pregnant dogs and appropriate veterinary support during pregnancy and parturition [6]. Moon et al. [7], in an analysis of births of dogs in the United States and Canada, found that Labradors are one of the breeds in which caesarean sections are most common (like the Golden Retriever, Yorkshire Terrier, and English and French Bulldog).

Dogs are used for various purposes (companionship and work), and for this reason breeders' goals are very diverse. Breeders who dream of a dog that is 'best in show' at a prestigious dog show have different breeding strategies than those who wish to obtain working dogs (sport, rescue, animal-assisted therapy, etc.). However, the reference point for every kennel should be the breed standard, which describes the dog's build, and also takes into account its use, in accordance with the predispositions of the breed.

We should not expect that only perfect puppies will be born from parents with ideal conformation, or that only outstanding workers will be obtained from working dogs. Puppies can be completely unlike their parents in terms of both conformation and predisposition for working. When choosing the ideal puppy in terms of conformation, we should be guided by the knowledge of an experienced breeder, and predisposition for working should be confirmed by tests carried out by competent individuals who are emotionally uninvolved.

How dogs change is decided not only by breeders but also by those who purchase puppies, as they influence the demand for dogs on the market. High popularity of a breed leads to the appearance of individuals in the population that deviate from the breed standard in terms of both conformation and behaviour. The breed standard of the Labrador describes it as a gentle, devoted, friendly and obedient friend that easily adjusts to its surroundings, with no signs of aggression or anxiety [10]. However, a study carried out in Belgium [1] found that Labradors were third among breeds of dogs that had bitten children (16.7%), after German Shepherds (51.9%) and Rottweilers (20.4%). Furthermore, a Canadian study [3] found that Labradors were second (6.6%) among dogs that had bitten members of the household, after mixed breeds (41.9%).

Irrespective of the breeding goal, every breeder should take into account the dogs' quality of life (e.g. health, reproductive potential, physical fitness, tolerance for various foods, and communication skills) and their ability to function easily in society, while maintaining the breed type [9].

The Labrador is a retriever which, according to FCI, is subject to working trials. Any deviations from the FCI standard should be treated as flaws and assessed by judges according to their degree and impact on the health, fitness, and well-being of the dog and its ability to perform the work for which it was intended [10]. Only animals meeting the requirements of the Polish Kennel Club Regulations for Breeding of Pure-bred Dogs were accepted for breeding at the Sodalis FCI kennel [9].

A healthy dog that is willing and able to work is the pride of every breeder. At the Sodalis FCI kennel, out of 38 reared litters as many as 103 dogs have been used as working dogs (Table 3). Three of eight females analysed in this study have a working certificate. The breeder admits that puppies with the best predisposition for work were born to females that did not have a working certificate.

To devise a breeding strategy, breeders obtain information from the evaluation of single individuals, which consists of an assessment of breeding suitability, purebred dog shows, and working trials. Work trials demonstrate the dog's functionality. A complete picture of its value is provided by an assessment of breeding suitability, which describes the dog's health condition and temperament and the value of its pedigree [2].

Table 3
Use of dogs from the Sodalis FCI kennel in 2005-2015 (breeder's information)

Use	Number of dogs
Customs Service	2
Guide dog	8
Search and rescue group	3
Hunting	54
Animal Assisted Interventions (including dog therapy)	32
Sport	4
TOTAL	103

The breeding results presented here and the experience of the breeders at the Labrador Sodalis FCI kennel indicate that there are no adverse effects of mating females from show lines with males that have a working certificate. In litters from show line sires with working certificates, on average 0.44 more puppies were born and 0.68 more puppies were reared. Higher percentages of retained placentas and of stillborn or euthanized puppies were found in litters from sires of show lines without working certificates.

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