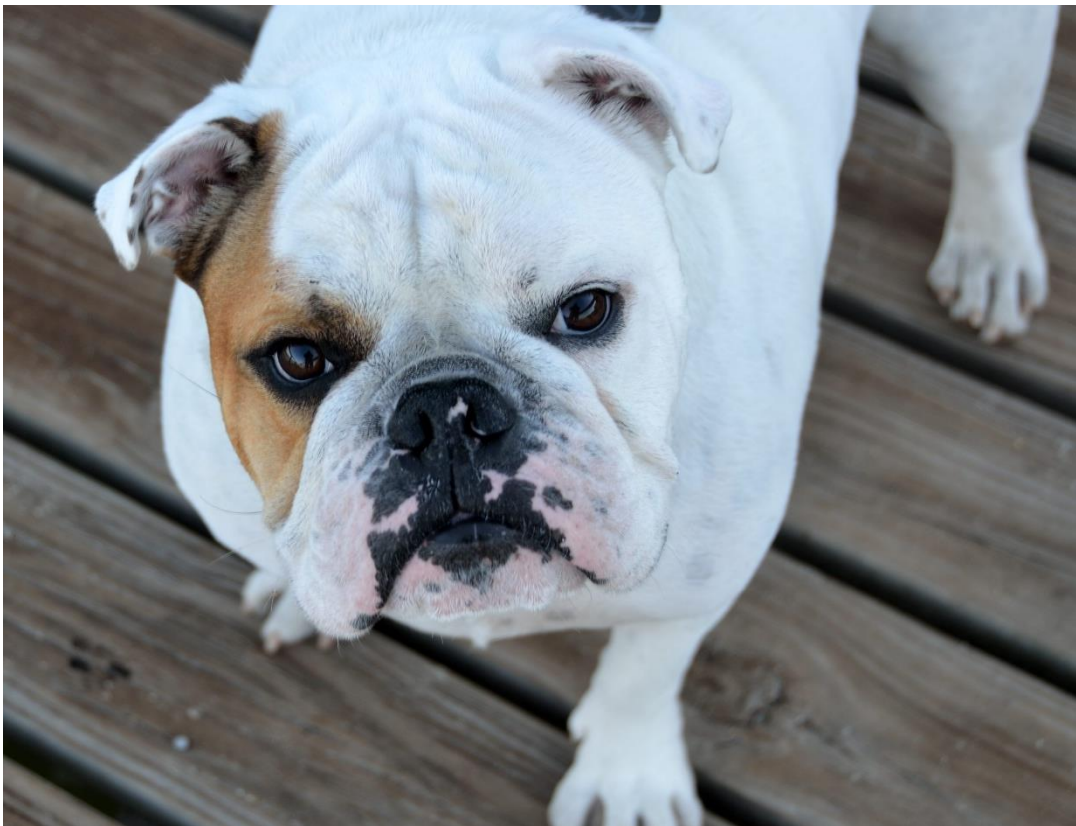


2018 Kennel Club Registration Statistics

(Breed Record Supplements AV1 – AV4)



Bulldog

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Bulldog Litter Colour Definition

Standard colour bulldog litters are defined as litters with no CNR (Colour Not Recognised by KC) puppies, parents or grandparents. The standard colours as defined by the KC are: Brindle, Brindle & White, Fawn, Fawn & White, Fawn Brindle, Fawn Brindle & White, Red, Red & White, Red Brindle, Red Brindle & White, Red Fawn, White, White & Brindle, White & Fawn, and White & Red.

Any other litters are assigned as CNR.

Corrections

For some dogs with litters registered in 2018, the information in the breed supplement is incorrect or inconsistent between sources (the paper Breed Records Supplement and the online myKC source). These are corrected in the following data.

- *Rhydycroesau White Magic* is recorded as siring a litter with *Amethyst Pink Lilly*, whelped on 28/02/18. On the myKC website, this litter was whelped by the activity register bulldog *Pugslea's Pride*.
- One bulldog bitch (*Celebrate Of Denwer-Bull*) is registered as CNR, but is actually the standard colour 'White & Red'.
- Eleven bulldogs are incorrectly registered as standard colours and should be registered as CNR (**Table 1**).

Table 1. List of bulldogs with litters in 2018 registered incorrectly as a standard colour.

Registered Name	Registered Colour	Actual Colour
<i>Causing Chaos</i>	Fawn	CNR (Lilac Tricolour)
<i>City's Custard Cream</i>	Fawn	CNR (Lilac Fawn)
<i>Cranky Ruse</i>	Red & White	CNR (Black & White)
<i>Elvis Is King</i>	Fawn	CNR (Lilac)
<i>Epic Bullyz Prime</i>	Fawn	CNR (Lilac Tricolour)
<i>Karamel May Joy UA</i>	Fawn & White	CNR (Blue & White)
<i>Kentixen Circle Of Life</i>	Brindle	CNR (Chocolate Tricolour)
<i>King Luxor</i>	Brindle	CNR (Blue Tricolour)
<i>Lilac Cream Roland At Shawhall</i>	Fawn & White	CNR (Lilac Fawn)
<i>Princess Julliet</i>	Brindle & White	CNR (Chocolate)
<i>Rezavoire's Prince Spears</i>	Red & White	CNR (Chocolate & White)

Litter Summaries

Standard Colour

1,102 standard colour bulldog litters were registered with the KC in 2018, consisting of 5,223 puppies, divided as indicated in *Table 2*.

Table 2. Standard colour bulldog litters registered in 2018.

	Q1	Q2	Q3	Q4	Total
Litters	276	282	288	256	1,102
Puppies	1,302	1,335	1,294	1,204	5,223

Most puppies from these litters were registered as 'Red & White' (67.1%). The puppy colour breakdown is shown in *Figure 1*.

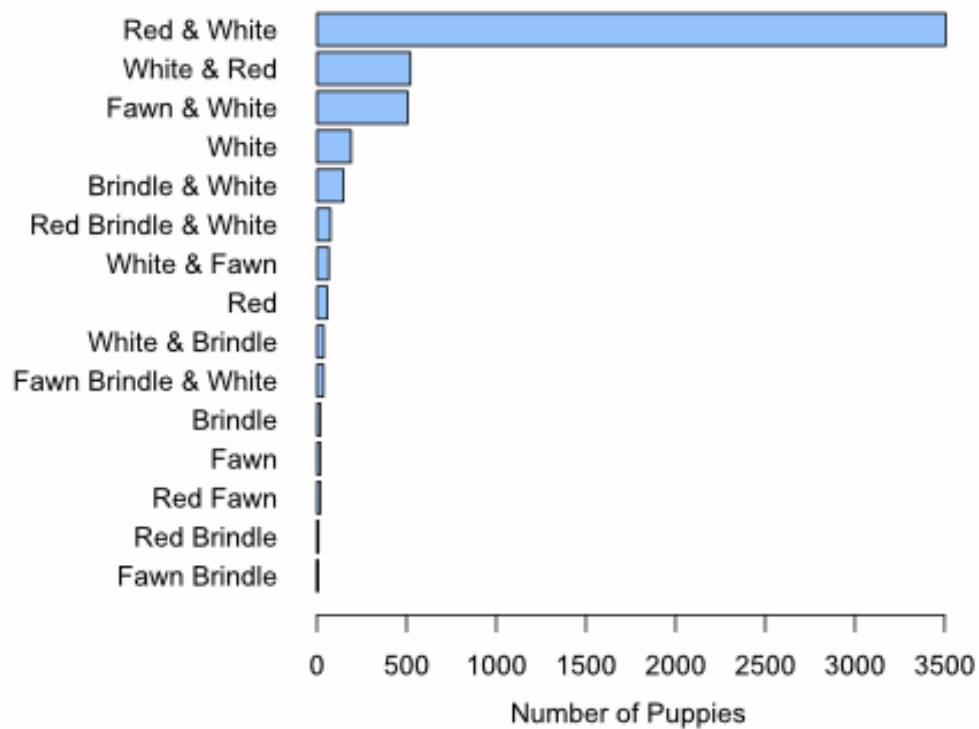


Figure 1. Colour of puppies registered in standard colour bulldog litters.

Colour Not Recognised (CNR)

1,035 CNR bulldog litters were registered with the KC in 2018, consisting of 5,223 puppies, divided as indicated in *Table 3*.

Table 3. CNR bulldog litters registered in 2018.

	Q1	Q2	Q3	Q4	Total
Litters	212	234	291	298	1,035
Puppies	1,117	1,190	1,438	1,478	5,223

Most puppies from these litters were registered as 'CNR' (59.0%). The puppy colour breakdown is shown in *Figure 2*.

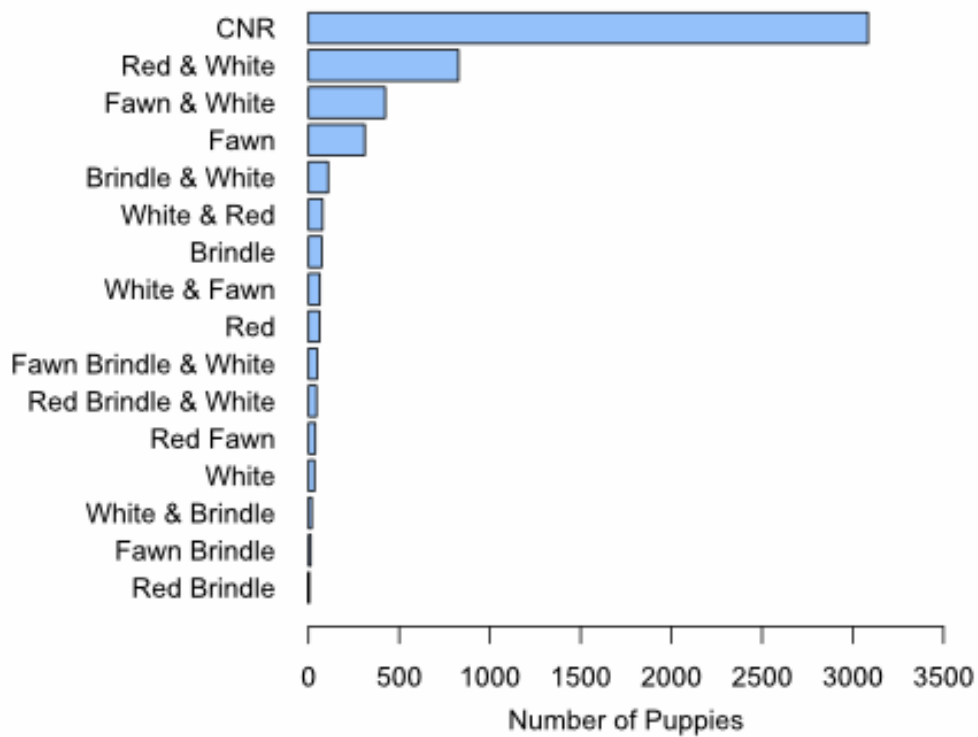


Figure 2. Colour of puppies registered in CNR bulldog litters.

Coefficient of Inbreeding (COI)

The litter coefficient of inbreeding (COI) is a measure of inbreeding, expressed as a percentage probability of the same variation being inherited from the sire and the dam. A lower percentage indicates a lower level of inbreeding. myKC calculates the COI for each dog using all available pedigree information. One consideration to be considered is that limited pedigree information affects results, as with imported dogs which only come with a three-generation pedigree, and the lack of pedigree information further in the past. The KC will not register litters produced by a father/daughter, mother/son or brother/sister mating.

Standard Colour

Figure 3 shows the distribution of COI for the standard colour bulldog litters registered in 2018. The mean COI was 10.7% and the median COI was 9.4%. This is just under the 12.5% COI which would be expected from a grandparent/grandchild or half-brother/half-sister mating. The highest recorded COI was 34.6%, and 15 litters were recorded with COI over 25% (the equivalent of a parent/child or brother/sister mating).

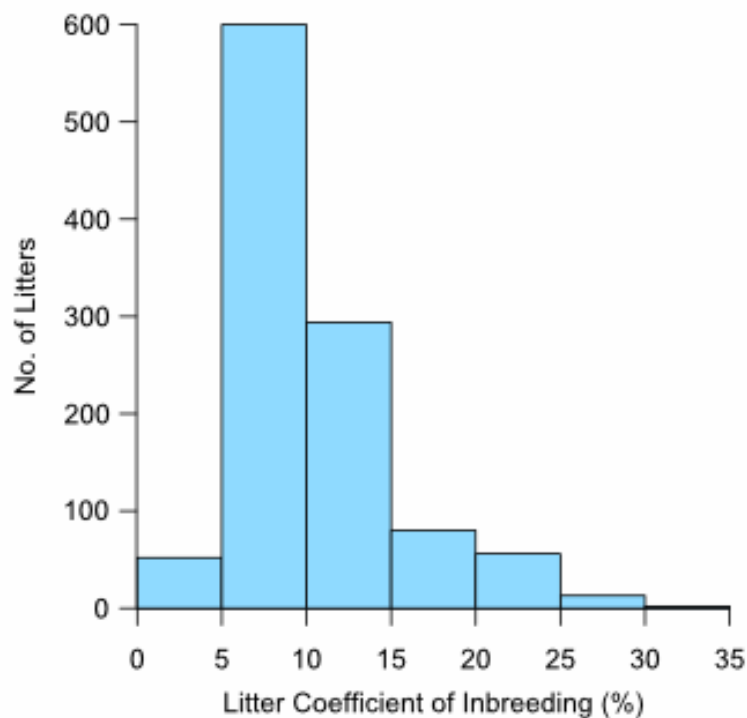


Figure 3. Histogram of the coefficient of inbreeding of standard colour bulldog litters registered in 2018.

Colour Not Recognised (CNR)

Figure 3 shows the distribution of COI for the CNR bulldog litters registered in 2018. The mean COI was 4.0% and the median COI was 2.8%. The highest recorded COI was 23.1%.

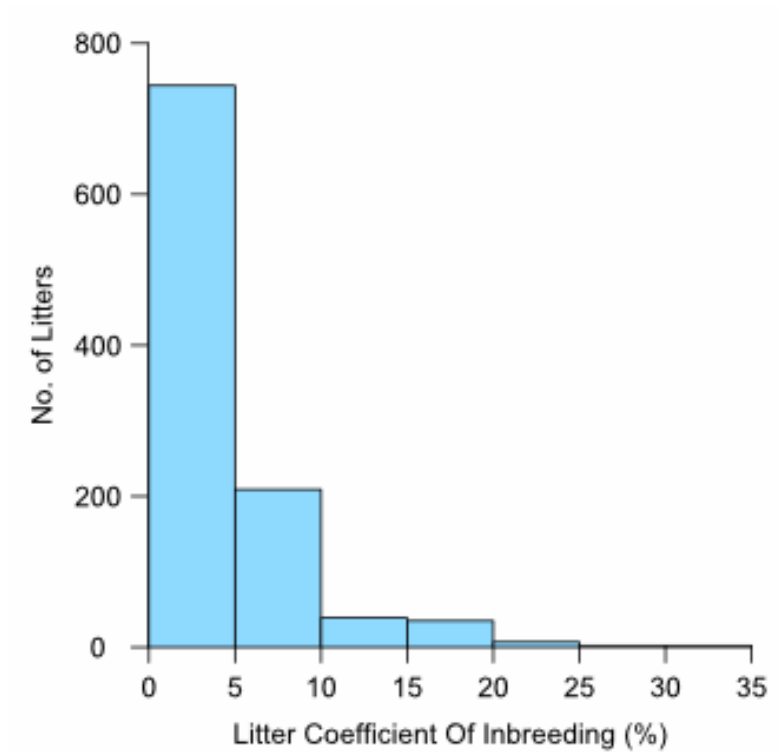


Figure 4. Histogram of the coefficient of inbreeding of CNR bulldog litters registered in 2018.

Caesarean Sections (C-Sections)

Standard Colour

The majority (63%) of registered standard colour bulldog litters were delivered by a reported Caesarean section (**Figure 5**). Of those litters where natural birth is presumed to have been attempted, 43% of litters were reported to be delivered by emergency C-Section.

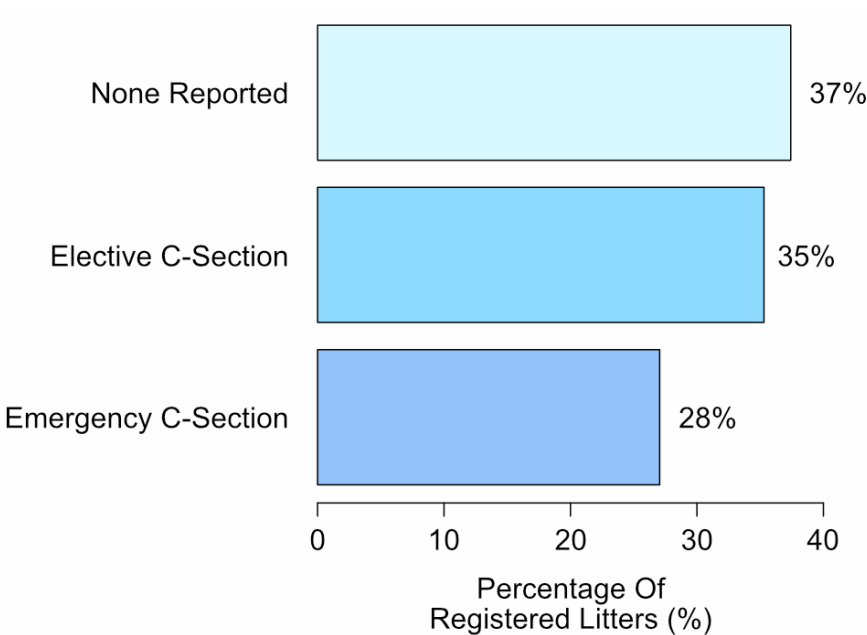


Figure 5. Reported C-section information for standard colour bulldog litters.

Colour Not Recognised (CNR)

41% of registered CNR bulldog litters were delivered by a reported Caesarean section (**Figure 6**). Of those litters where natural birth is presumed to have been attempted, 16% of litters were reported to be delivered by emergency C-Section.

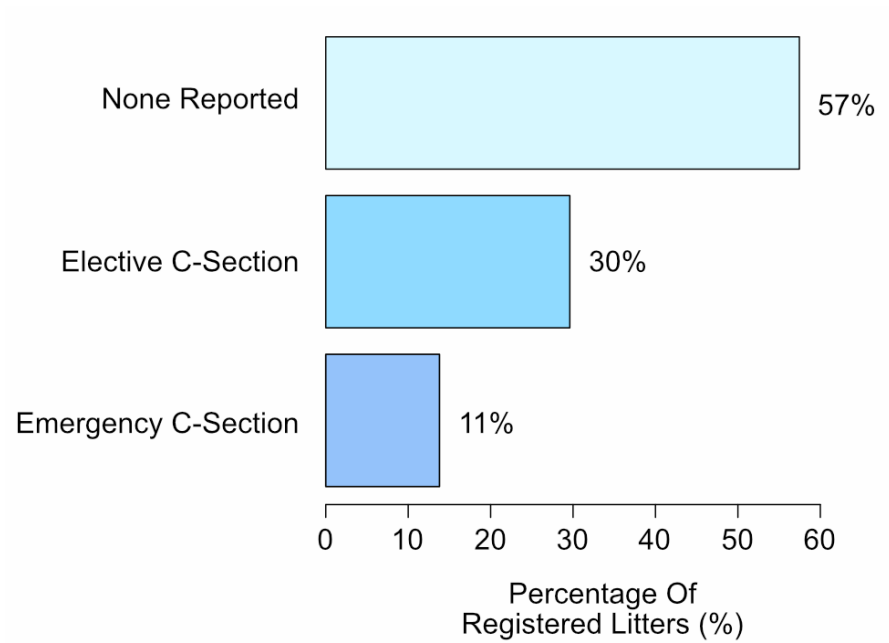


Figure 6. Reported C-section information for CNR bulldog litters.

Parents

Standard Colour

The standard colour bulldog litters were produced by 403 different sires and 1,086 different dams. 37 of the sires are imports from other countries, whilst 44 of the dams are the same. These countries consist of Belgium, Bulgaria, Croatia, Czechia, Denmark, France, Hungary, Ireland, Italy, Montenegro, Netherlands, Poland, Portugal, Romania, Russia, Serbia, Spain and the USA.

Colour Not Recognised (CNR)

The CNR bulldog litters were produced by 357 different sires and 996 different dams. 34 of the sires are imports from other countries, whilst 63 of the dams are the same. These countries consist of Belarus, Canada, Czechia, Hungary, Ireland, Italy, Lithuania, Latvia, Poland, Serbia, South Africa, Spain and the USA.

Age of Sires

Standard Colour

Figure 7 shows the distribution of the age of sires at birth of the litters. The mean age of sires at the birth of the litter is 3.58 years, whilst the median age is 3.05 years. The maximum age of sire at birth of a litter is 9.37 years, whilst the minimum is 0.79 years.

Assuming a gestation time of approximately 60 days (or 0.17 years), the predicted mean age of sires at conception of the litter is 3.41 years, whilst the median age is 2.88 years. Under the same assumption, 296 litters (27%) are predicted to have been conceived when the sire was under 2 years of age.

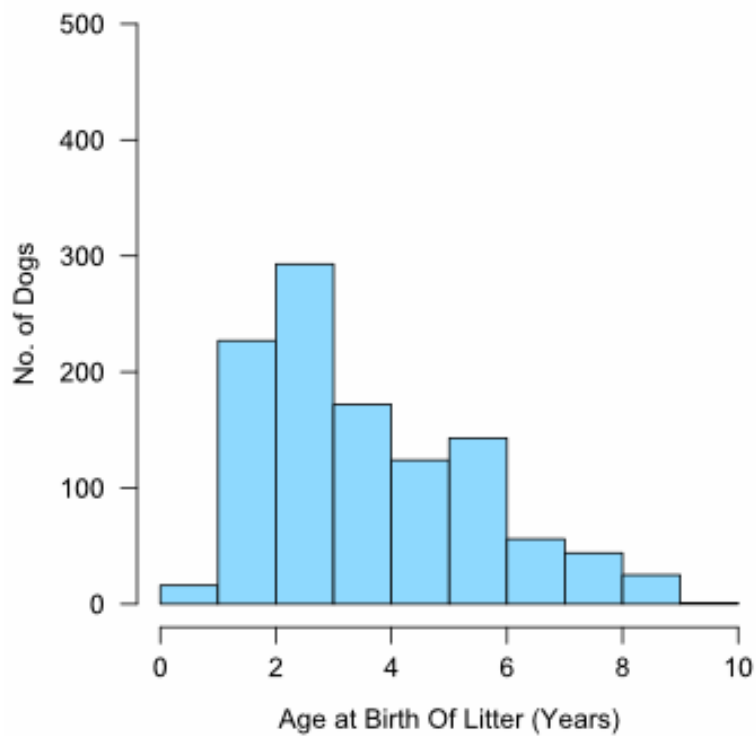


Figure 7. Age of sires at birth of standard colour litters.

Colour Not Recognised (CNR)

Figure 8 shows the distribution of the age of sires at birth of the litters. The mean age of sires at the birth of the litter is 2.19 years, whilst the median age is 1.92 years. The maximum age of sire at birth of a litter is 9.97 years, whilst the minimum is 0.51 years.

Assuming a gestation time of approximately 60 days (or 0.17 years), the predicted mean age of sires at conception of the litter is 2.02 years, whilst the median age is 1.75 years. Under the same assumption, 611 litters (59%) are predicted to have been conceived when the sire was under 2 years of age.

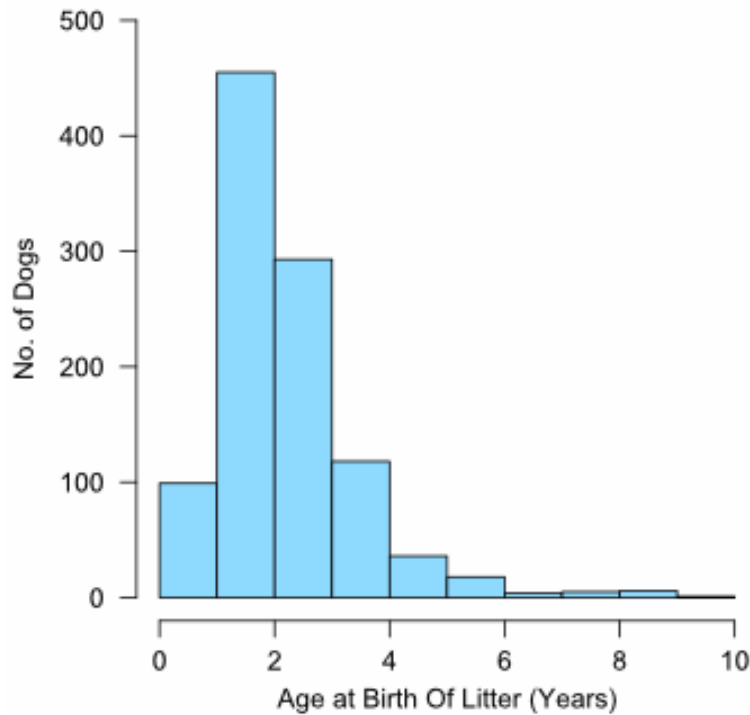


Figure 8. Age of sires at birth of CNR litters.

Age of Dams

Standard Colour

Figure 9 shows the distribution of the age of dams at birth of the litters. The mean age of dams at the birth of the litter is 2.96 years, whilst the median age is 2.76 years. The maximum age of sire at birth of a litter is 7.47 years, whilst the minimum is 1.18 years.

Assuming a gestation time of approximately 60 days (or 0.17 years), the predicted mean age of dams at conception of the litter is 2.79 years, whilst the median age is 2.59 years. Under the same assumption, 340 litters (31%) are predicted to have been conceived when the dam was under 2 years of age.

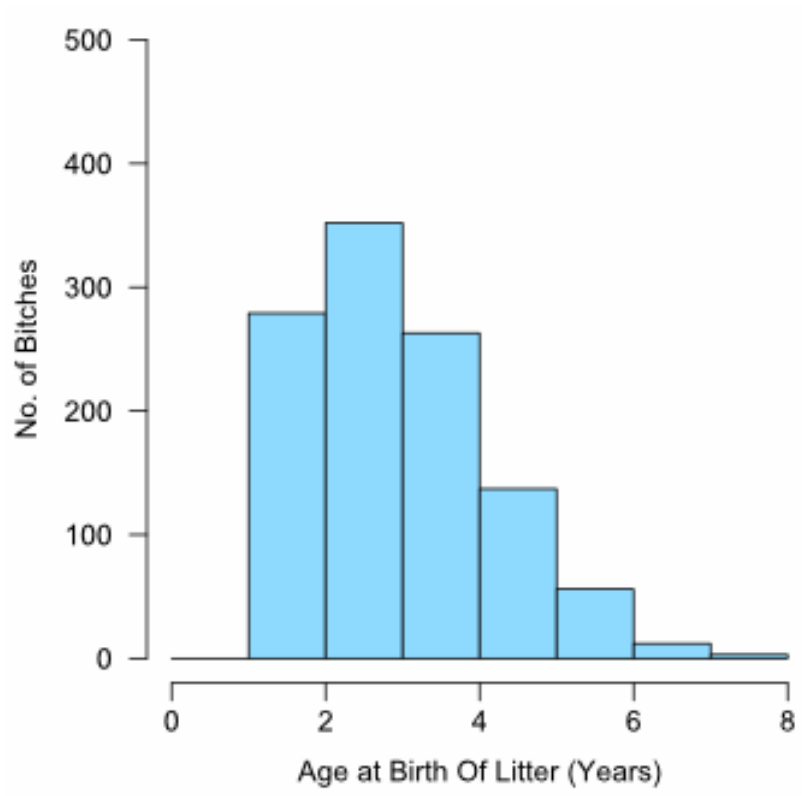


Figure 9. Age of dams at birth of CNR litters.

Colour Not Recognised (CNR)

Figure 10 shows the distribution of the age of dams at birth of the litters. The mean age of dams at the birth of the litter is 2.48 years, whilst the median age is 2.11 years. The maximum age of sire at birth of a litter is 7.78 years, whilst the minimum is 1.15 years.

Assuming a gestation time of approximately 60 days (or 0.17 years), the predicted mean age of dams at conception of the litter is 2.31 years, whilst the median age is 1.94 years. Under the same assumption, 542 litters (52%) are predicted to have been conceived when the dam was under 2 years of age.

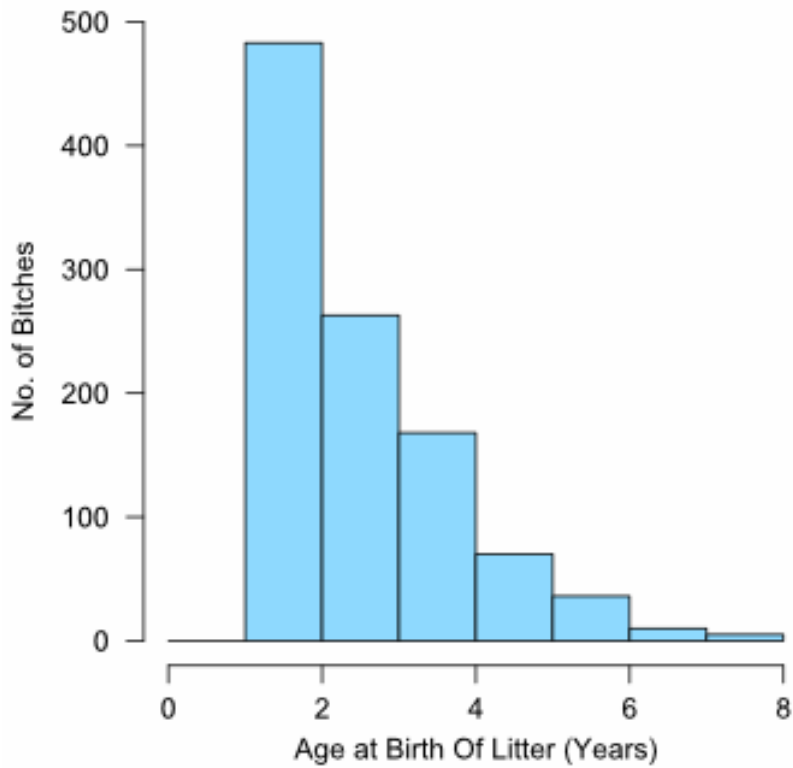


Figure 10. Age of dams at birth of CNR litters.

Popular Sires

Standard Colour

183 dogs sired more than one standard colour litters registered in 2018, whilst 16 dogs sired more than ten (*Table 4*).

Table 4. Sires with more than ten registered standard colour bulldog litters in 2018.

Name	No. Registered Litters 2018	Total Registered Litters	Breed Council Health Scheme
Sealaville He's Tyler	28	132	Silver
Lilylove Last Tango In Paris At Ragmarte	25	30	Gold
Mojaka Burugog Fflawiau For Croftthorn	25	63	Gold
Ricatori Roman King	24	61	Gold
Sealaville He's Tyson At Croftthorn	17	69	Silver
Neibull The Governor	15	21	None
Bradiebe Redmond At Neibull	14	122	None
Andlare Willy Nilly	13	53	Silver
Milasha Preacher Man Mystyle	13	46	Silver
Neibull The Player	13	28	None
Testwood Tom	12	67	None
Bokabulls Max Warrior	11	20	Silver
Cherishabull Major Minus Of Kingrock	11	23	Silver
Midlandbulls Game Changer	11	16	None
Milasha No Retreat Ocobo	11	23	Silver
Smackerjacks Don Jon	11	22	None

Colour Not Recognised (CNR)

157 dogs sired more than one CNR litters registered in 2018, whilst 12 dogs sired more than ten (*Table 5*).

Table 5. Sires with more than ten registered CNR bulldog litters in 2018.

Name	Colour (Where Known)	No. Registered Litters 2018	Total Registered Litters
Rarebullies Wonderboy	Chocolate	46	96
Rarebullies Robertos Rader		41	50
Jammie Dodger At Dezinerbullz Essex UK	Lilac Tricolour	31	61
City Geezer		24	34
Frankie's Chocko Boy At Rarebullies		21	46
Mr United Kingdom		20	29
Hollywood VII		18	40
Dictator Royalbullies	Lilac Tricolour	17	22
Citybulldogs Ace	Lilac Tricolour	14	52
Codedbullyz Foot Soldier		13	19
Davbarr Hank		11	16
Piccaso Got Lilac Magic At Epizbullyz	Lilac Tricolour	11	11

Health Testing

The Kennel Club recommends breeders should use the following health testing schemes:

- HUU (hyperuricosuria) DNA testing
- Bulldog Breed Council Health Scheme

HUU DNA Testing

Hyperuricosuria (HUU) is a disease affecting uric acid metabolism. In affected dogs, uric acid builds up and forms painful crystallised stones in the urinary tract. Correction may require surgery. A DNA test is available for the mutation causing HUU in bulldogs.

HUU is recessively inherited, meaning if at least one parent has tested clear or is hereditary clear for the HUU mutation all puppies from that litter are safe.

Standard Colour

724 (65.7%) of standard colour bulldog litters had at least one parent either tested clear or hereditary clear for HUU, meaning all puppies were non-affected. Two litters were produced from two carrier parents, putting the offspring at confirmed risk of HUU. For another 25 litters, HUU testing results were only available for one parent, who had tested as a carrier/affected. These litters were also potentially at risk for HUU, depending on the HUU status of the second parent.

Colour Not Recognised (CNR)

79 (7.6%) of CNR bulldog litters had at least one parent either tested clear or hereditary clear for HUU, meaning all puppies were non-affected. No litters were produced from two carrier parents, putting the offspring at confirmed risk of HUU. For another 12 litters, HUU testing results were only available for one parent, who had tested as a carrier/affected. These litters were also potentially at risk for HUU, depending on the HUU status of the second parent.

Bulldog Breed Council Health Scheme

The Bulldog Breed Council have developed a health scheme to promote health testing and healthier bulldogs. This scheme consists of three levels: gold, silver and bronze.

Bulldogs achieving bronze must be tested at or after 12 months (1 year) of age. Dogs are assessed by Breed Council approved vets. Bulldogs cannot achieve bronze if the vet notes: a heart abnormality; an eye condition detrimental to health; a palpable spinal abnormality; or aggression.

To achieve silver level, bulldogs must first be awarded the bronze level. Additionally, dogs must: have a clear eye examination; achieve a grade 0/1 Putnam test assessing luxating patellas; be DNA tested as clear or carrier for the HUU (hyperuricosuria) associated mutation; have a present tail which is not inverted; not have blue or green eyes; be a standard colour; and not have a Dudley (liver-coloured) nose. Additionally, male bulldogs should not be monorchid or cryptorchid – i.e. should have two correctly descended testicles.

Only dogs over 24 months (2 years) of age can be tested for and achieve the gold level. Bulldogs must have a clear result on a BVA (British Veterinary Association) or EVCO (European College of Veterinary Ophthalmologists) eye scheme examination. They must also be heart screened by a qualified auscultation approved veterinary surgeon. Both these tests must be carried out when the dog is over 2 years of age. The dog must also achieve a grade of 0 or 1 in a BOAS (Brachycephalic Obstructive Airway Syndrome) test. The official KC version of this test, developed by the BOAS team at the University of Cambridge, is known as the Respiratory Function Grading Scheme (RFG). This test result is not age restricted.

Standard Colour

Ten different gold-tested males and ten gold-tested females produced registered standard colour litters in 2018. Two litters (0.18%) were produced from two gold-tested bulldog parents (**Table 6**). 6.5% of standard colour litters registered in 2018 were produced from two parents, both tested to at least silver standard. Just under half (43.7%) of litters had at least one parent tested to some level, and 8.9% of litters had both parents achieving some level in the testing scheme.

		Dam			
		Gold (10)	Silver (82)	Bronze (28)	None (966)
Sire	Gold (10)	2	18	8	76
	Silver (68)	5	47	10	246
	Bronze (15)	1	2	5	34
	None (310)	2	13	8	625

Table 6. Bulldog Breed Council Health Scheme levels of the parents of standard colour bulldog litters registered in 2018. In brackets next to the level achieved is the number of individual dogs which have litters included in the column or row following.

Colour Not Recognised (CNR)

Due to the restrictions on coat colour for the silver requirements, CNR bulldogs can not achieve past bronze in the Bulldog Breed Council Health Scheme. This greatly restricts the likelihood of bulldogs producing CNR categorised litters being health tested.

One gold-tested male and no gold-tested females produced registered CNR litters in 2018. No litters (0%) were produced from two gold-tested bulldog parents (**Table 7**). No CNR litters registered in 2018 were produced from two parents, both tested to at least silver standard. 1.9% of litters had at least one parent tested to some level, and 0.2% of litters had both parents achieving some level in the testing scheme.

		Dam			
		Gold (0)	Silver (1)	Bronze (3)	None (991)
Sire	Gold (1)	0	0	0	1
	Silver (3)	0	0	1	4
	Bronze (4)	0	0	1	11
	None (348)	0	1	1	1015

Table 7. Bulldog Breed Council Health Scheme levels of the parents of CNR bulldog litters registered in 2018. In brackets next to the level achieved is the number of individual dogs which have litters included in the column or row following.

Additional Information

In 2019, the Respiratory Function Grading Scheme, developed by the University of Cambridge and the Kennel Club, was launched. This allows official registration of a breathing assessment with the Kennel Club. This will be important to track in the future.

In December 2018, a paper was published describing the mutation causing the screw tail in Bulldogs (as well as some other breeds)¹. A recessive mutation was identified in the DVL2 gene, which was present in two copies (homozygous) in all 33 tested bulldogs. This mutation is similar to a mutation causing the rare disease known as Robinow syndrome in humans, and was associated with vertebral malformations in the thorax, as well as in the caudal (tail) region of the spine.