Genetics of the Irish Draught Horse Stud Book of Origin

Status Report

February 2019

Introduction

The report was requested by the Breeding Sub-Board Horse Sport Ireland to evaluate the current status of the composition and characteristics of the Irish Draught Horse stud book of origin. More specifically, the report aims to provide Irish Draught Horse Stud Book policy makers with a quantitative description of Irish Draught breeding through analyses of birth and registration data and genetic diversity.

This report was prepared by Katherine Brady, Consulting Quantitative Geneticist in conjunction with Deirdre Harty, Data Analytics Manager, Horse Sport Ireland following consultations with the Chairman and representatives of the HSI Breeding Sub-board and invited breeder representatives.

The report assesses breeding activity in the context of the breeding policy adopted for the Irish Draught Horse Stud Book in 2010 and reviewed in 2013/2014. This breeding policy aims to conserve genetic diversity within the breed whilst maintaining the quality of the breed. At the time of the policy review in 2013, the full impact of the policy changes in 2010 was only starting to be understood and the breed was greatly challenged by the poor economic climate and the resulting contraction of the horse industry. In 2013, the breeding population of Irish Draughts was reducing with fewer coverings, fewer registrations and fewer horses presenting for inspection. This report aims to provide an update and to ascertain whether the improvement in the economic climate has also improved the status of the Irish Draught Horse breed.

It is acknowledged that the breeding of Irish Draught horses is not confined to Ireland. Although this report focuses solely on breeding activities on the island of Ireland and recorded in through the Irish Horse Register, all harmonised daughter studbooks have been contacted and it is envisaged that international data will be included in the future.

A number of spreadsheets containing supporting data have also been produced for the studbook alongside this report:

- ID stallion diversity analyses 2018
    - Analysis of Class 1 stallions
    - Analysis of Class 2 stallions
    - Analysis of other stallions
    - Analysis of colts
    - Most influential ancestors
    - Most popular sire list
    - Most popular damsire list
- ID mare diversity analyses 2018
- ISH mares eligible for Grade Up register analysis 2018

Every effort has been made to ensure that all the data contained in this report have been accurately collated. The authors believe the information contained in this report to be correct, but they cannot guarantee its accuracy, in particular where it is dependent on information supplied to them, and

cannot accept liability for any loss resulting from any errors that may arise. The authors shall not be responsible for any inaccuracies therein.

2017 at a glance

834 Irish Draught foals registered in 2017

10% increase in ID foal registrations in 2017

74% of Irish Draught mares covered by Irish Draught stallions

174 Irish Draught stallions with progeny in 2017

142 Irish Draught stallions with pure-bred Irish Draught progeny in 2017

Average mean kinship values for active ID broodmares in 2017 have remained at **3.5%**

Inbreeding level for active ID broodmares in 2017 is slightly increased to **0.96%**

Only 17 rare fillies and **13** rare colts registered from 2013 to 2017

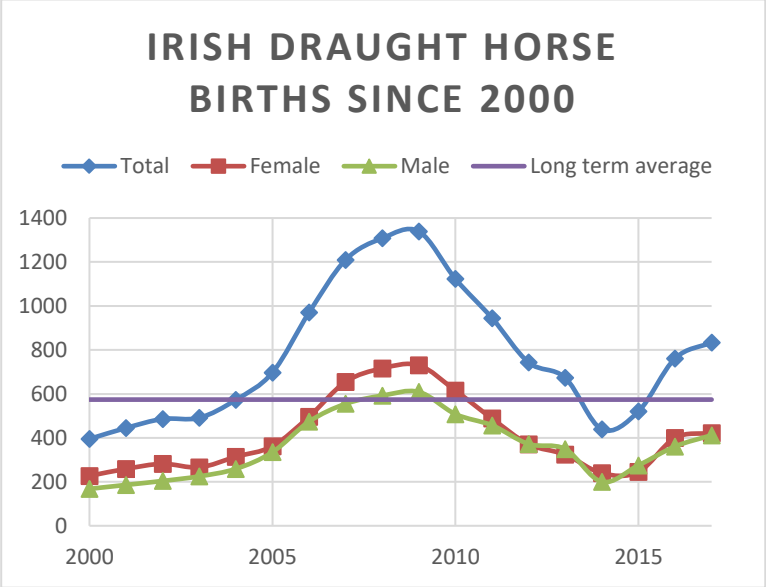
Rare bloodlines identified in Ireland in 2005 are still present but are

critically threatened

Irish Draught Horse Birth and Registration Rate

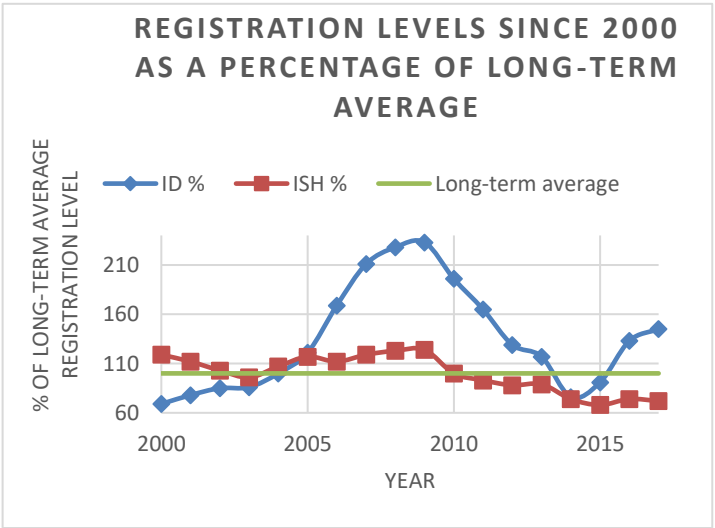
The Irish Draught Horse breed is designated as endangered by the Department of Agriculture, Food and the Marine. In 2017, 834 Irish Draught foals were registered in Ireland which is a 9.6% increase in registrations from 2016. Registration figures by year of birth and sex are shown in Appendix 1.

The long-term average number of Irish Draught Horses registered per year since 1980 is 574. Irish Draught registrations peaked for horses born in 2009 at 1,339 and were in excess of 1,000 foals for a four year period from 2007 to 2010. Due to economic circumstances, registrations dipped as low as 439 in 2014 and were below the long-term average registration level in both 2014 and 2015. Registration levels have strongly recovered from this low although the population remains small.



The registration of adult horses remains an issue facing the horse industry in Ireland including the Irish Draught breed which has approximately 15% of horses registered late compared to legal requirements and less than 10% registered at over 2 years of age. For comparison purposes, Horse Sport Ireland's Annual Report for 2016 reported that 41% of passports were issued to adult horses with 33% issued to horses registered at over 2 years of age. The number of adult Irish Draught registrations has fallen from 183 adults registered in 2013 to 72 adults registered in 2017.

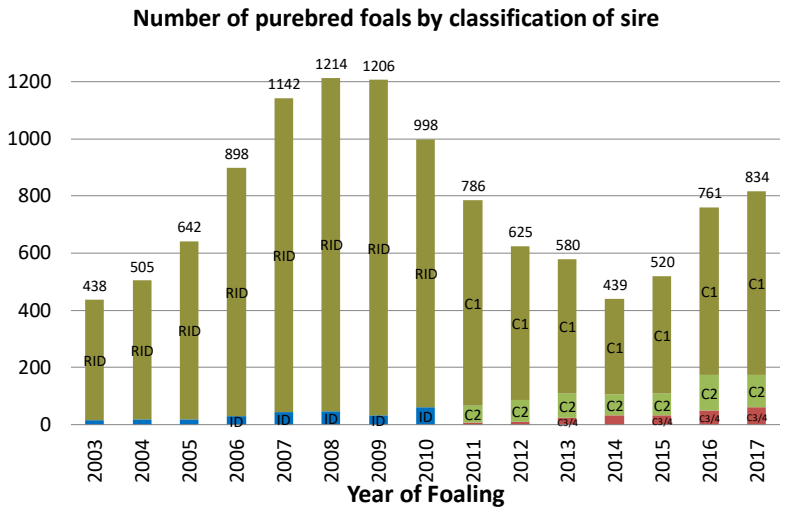
In order to assess the recovery in registration levels, numbers of horses registered per year of birth were expressed as a percentage of the long-term average registration level and compared to the corresponding figures for the Irish Sport Horse Stud Book.



The boost in registrations during the favourable economic conditions from 2004 to 2008 had a greater effect in the Irish Draught Stud Book than in the Irish Sport Horse Stud Book with peak registrations recorded in both stud books in 2009 at 233% of

average for the Irish Draught and 124% for the Irish Sport Horse. The Irish Sport Horse suffered a greater relative fall in the registrations, dropping to 68% of long-term average in 2015 compared to the low-point of 76% recorded in the Irish Draught Stud Book in 2014. The recovery has been relatively quicker for the Irish Draught Stud Book with registration levels in 2017 of 145% of long-term average whilst the Irish Sport Horse registration levels remain low at 72% of their long-term average. Increased competition from other stud books in the sport horse sphere may be having an impact on the Irish Sport Horse figures.

In the 1980s, male Irish Draught horses accounted for only 30% of registrations. This rose to 37% in the 1990s and 46% from 2000 to 2010. The relative registration rates of male to female foals has equalised in recent years with males accounting for 50% of registrations for the first time in 2012. This reflects a change in registration requirements and practices by Irish Draught breeders.



In addition, 281 non-Irish Draught foals with Irish Draught dams were registered in 2017. The cross-breeding rate for Irish Draught mares was 26%. 9% of Irish Draught mares were covered by Irish Sport Horse stallions, 9% by Thoroughbred stallions, 5% by Foreign Sport Horse breed stallions and 3% by stallions of other breeds including Connemara Pony stallions.

Table 1. Percentage of foals with Irish Draught dams by breed of sire.

ID stallions	ISH stallions	TB stallions	Foreign Sport Horse Breed stallions	Other breed stallions
74%	9%	9%	5%	3%

There has been significant increase in the breeding of uninspected stallions and mares. Of the 834 foals registered in 2017, 79% were by Class 1/RIDGB stallions, 13% were by Class 2 stallions, 1% were covered by Class 3 stallions and 6% were covered by Class 4 stallions.

63% of the 2017 crop of Irish Draught foals were out of RID/C1 dams, 9% were out of C2 dams, 25% were out of ID/Class 4 mares and 3% were out of AID/Grade Up mares. Two foals with Class 3 dams were registered in 2017.

The detailed breakdown of foal registrations by the classification of their sire and dam in 2017, 2012 and 2007 are shown in Appendix 3 with key summary statistics shown in Appendix 4. Of particular note, is the change in the percentage of foals whose sire and dam have both met inspection requirements at inspection which has fallen from 89% in 2007 to 56% in 2017. In addition, there were 517 Irish Sport Horse foals with an Irish Draught sire registered in 2017.

There were 142 sires of the 2017 Irish Draught foal crop including 88 Class 1/RIDGB stallions, 33 Class 2 stallions, 5 Class 3 stallions and 16 Class 4 stallions. 46 of the sires of 2017 foals were awarded Class 1 status since 2010 and accounted for 332 of the foals registered. In addition, 32 Irish Draught stallions sired ISH progeny whilst having no Irish Draught progeny in 2017.

The average number of Irish Draught foals per stallion was 5.9 ranging from 1 to 24 with 29 stallions registering just one Irish Draught foal.

On average, Irish Draught stallions produced a total of 46 Irish Draught foals since they started breeding. 31 of the stallions breeding in 2017 had produced five or less Irish Draught foals. 36 of the stallion breeding in 2017 had produced an Irish Draught stallion son with 20 of the stallions with a Class 1 son with an additional eight stallions having produced a Class 2 son.

The average number of Irish Draught foals per mare was 3.4 down from 3.9 in 2013 and ranged from 1 to 12. 168 (20%) of the dams foaling in 2017 had produced a RID/Class 1/Class 2 daughter, up from 16% in 2013.

39 Irish Sport Horse mares have met the criteria for acceptance into the Grade Up Register of the Irish Draught Horse Studbook in Ireland since 2010 with only 8 Grade Up mares producing 14 Irish Draught foals. Analyses carried out suggest that over 800 Irish Sport Horse meet the pedigree criteria necessary to be eligible for inspection for the Grade Up Register with approximately 200 of these known to be broodmares within the ISH breed.

The average age of the sires of the 2017 foal crop was 13 years. The average age of the dams of the 2017 foal crop was 10 years and ranged from 3 years of age to 24 years of age. 18% of dams were aged 6 years or under.

Genetic Diversity

In vivo conservation of populations in situ is the preferred conservation method worldwide (United Nations Food and Agriculture Organisation (FAO), 2007). Genetic diversity within the breed can be quantified by monitoring mean kinships and inbreeding within the breed. Inbreeding is unavoidable in breeds with small populations as common ancestors will invariably be found. Consequently, the rate of inbreeding, i.e. the change in inbreeding per generation, is a more appropriate measure of genetic diversity than the average level of inbreeding. Similarly, the level of mean kinships within the breed also tend to increase over time. In addition, the preservation of threatened ‘last in line’ stallion lines via stallion sons is also of importance to Irish Draught breeders. Genetic diversity measures use a reference population comprised of broodmares which have been actively breeding in the last 4 years and fillies up to 4 years of age.

In Ireland, the average level of inbreeding in active broodmares is 0.96% and 1.5% in fillies. This is a slight increase from 0.92% in 2013. The rate of inbreeding is approx. 0.25% per generation, well below the threshold of 1% which is advised by the FAO for highly endangered breeds in need of pure conservation breeding programmes. The rate of increase in breeding has decreased to 0.25% from 0.5% which is a significant improvement. This indicates that based on current population statistics, breeding policies are successfully maintaining genetic diversity. Table 2 presents inbreeding statistics for current stallions, active broodmares and fillies. Horses with an inbreeding coefficient of 5% and above were considered inbred in this analysis.

Table 2. Inbreeding statistics.

	Current Stallions	Active broodmares	Fillies
No. in analysis		1781	1318
Average inbreeding rate overall	0.94%	0.96%	1.5%
No. inbred (over 5%)	3	18	30
Maximum inbreeding	13.1%	12.5%	10.1%

In recognition of the changes in the genetic makeup of the breed, HSI has commissioned a new analysis of influential bloodlines. The most influential ancestors in 2001 and in 2017 are shown in Table 3 as well the dominant sires identified by breeder representatives.

Table 3. Influential ancestors.

2001	2017	Dominant sire list
King Of Diamonds (1962)	King Of Diamonds (1962)	Milestone (1957)
Ben Purple (1965)	Milestone (1957)	Pride of Shaunlara (1969)
Pride of Shaunlara (1969)	Pride of Shaunlara (1969)	King Of Diamonds (1962)
Milestone (1957)	Ben Purple (1965)	Errigal (1953)
Errigal (1953)	Mountain View (1969)	Mountain Heather (1946)
Galty Boy (1922)	Errigal (1953)	Ben Purple (1965)
Ginger Dick (1969)	Fast Silver (1991)	
Glenside (1963)	Galty Boy (1922)	
Grey Macha (1981)	Carrabawn View (1982)	
Mountain View (1969)	Glen Star (1955)	

Table 4. Most popular sires, their year of birth and no. of foals.

2001		2017	
Huntingfield Rebel (1990)	31	Mountain Diamond (2002)	24
Glidawn Diamond (1982)	22	Castlegar Fin Grove (2011)	23
Star Kingdom (1994)	22	Gortfree Hero (2002)	21
Fast Silver (1991)	16	Cappa Cassanova (2006)	21
Carrabawn View (1982)	13	Fast Silver (1991)	20
Ballinrobe Boy (1977)	12	Ceide Prince (2008)	20
Glenlara (GB) (1987)	12	Scrapman (2008)	19
Welcome Flagmount (1996)	12	Tors Gentleman Farmer (1998)	18
Merry Mate (1988)	11	Coilldarach Scirocco (2006)	18
Crosstown Dancer (1990)	10	Dunbeggan Grey Mist (2005)	16
Donovan (GB) (1991)	10	Carrickcottage Star (2007)	16
Grosvenor Lad (1990)	10		

Table 5. Most popular damsires.

2001	2017
Grey Macha (1981)	Fast Silver (1991)
Ginger Dick (1969)	Star Kingdom (1994)
Powerswood Purple (1980)	Huntingfield Rebel (1990)
Uibh Fhaili '81 (1981)	Castana (1991)
Diamond Lad (1976)	Merry Mate (1988)
Clover Hill (1973)	Crannagh Hero (1986)
Glenagyle Rebel (1986)	Coolcronan Wood (1996)
Western Light (1984)	Mountain Diamond (2002)
Carrabawn View (1982)	Crosstown Dancer (1990)
Kildalton Gold (1985)	Gurraun Zidane (1999)
King Elvis (1976)	

The average relationship of the active ID stallions to the mare population is 3.5% (unchanged from 2013) and to ID fillies is 3.5%. In the last 4 years, 2,577 Irish Draught foals have been registered in the last 4 years with only 17 fillies and 13 colts meeting the rare bloodline criteria. It is vital that this small cohort of young Irish Draught horses are prioritised within breeding policy. Current stallions considered to be of concern are shown in Appendix 5.

In the past, rare bloodline criteria targeted the rarest 5% of the breed. As the breed is essentially closed, mean kinship values increase over time. It is recommended to increase the threshold to 2.5% in order to maintain the size of the "rare" group of the population. However, breeders should note some of these "rare" fillies will trace back to some traditionally influential stallions whose impact has

reduced in recent years. For example, some outcross stallions to King of Diamonds, Pride of Shaunlara and Clover Hill have mean kinships up to 4%.

In addition, analyses of the progeny and grandprogeny of sires on the Rare Bloodline lists show that all rare bloodlines highlighted since the introduction of genetic diversity analysis in 2005 have descendants actively breeding.

In 2011, there were 5,317 Irish Draught mares and fillies registered between 4 and 20 years of age in the studbook of origin, and of these 578 met the rare bloodline criteria (11%). Of these, 2,193 had a foal in the previous 4 years with 196 meeting the rare bloodline criteria resulting in 9% of the breeding mares meeting the rare bloodline criteria.

In 2017, there were 7,034 Irish Draught mares and fillies registered between 4 and 20years of age in the studbook of origin and of these 443 met the rare bloodline criteria (6%). Of these, 1,502 had a foal in the previous 4 years with 80 meeting the rare bloodline criteria resulting in 5% of the breeding mares meeting the rare bloodline criteria. 54 of the active rare bloodline broodmares are classified as RID/Class 1/Class 2.

The first scheme to highlight rare bloodline stallions was introduced by the stud book in 2007. This scheme allowed the progeny of 12 S1 (now Class 2) Irish Draught stallions to be eligible for upgrading to RID status subject to passing inspection. Prior to this scheme, this group of stallions sired a total of 44 foals with an average of 4.4 foals per stallion. Since this scheme, this group of stallions sired a total of 175 foals with an average of 15.0 foals per stallion.

An analysis of the Irish Sport Horse population was taken to identify ISH horses with at least 3 Irish Draught grandparents. 364 ISH horses were identified.

Conclusions and Recommendations

The analyses carried out for this report demonstrate that the current breeding policy of the Irish Draught studbook has maintained overall genetic diversity within the breed whilst minimising inbreeding within the breed. However, although no bloodlines in Ireland have been lost since the first report in 2005, rare bloodlines are becoming more uncommon and are some are critically threatened. As breeding practices and outcomes continuously evolve over time, a number of developments are recommended to sustain progress in this area:

- ***Changes to the criteria for being designated as "rare"***

  The rare bloodline threshold has remained unchanged since 2005 at 2% kinship which targeted the rarest 5% of the breed. However, only 1% of foals registered from 2013 to 2017 met this criteria. As the breed is essentially closed, mean kinship values increase over time. It is recommended to increase the threshold to 2.5% which would increase the size of the "rare" group.

It was agreed that the "rare" group should be identified in future using a combination of mean kinships, outcross analysis and stallion last of line analyses and that any rare Irish Draught meeting the criteria via Thoroughbred or missing pedigree should be clearly identified as such.

Breeder feedback suggests that the publication policy for mean kinship values should be amended to reflect their 'snapshot in time' quality and better portray the dynamic nature of genetic diversity. Up until now, published kinship values stayed static at the value calculated when a foal is born. However, particularly for stallions, this value may change depending on their popularity as a sire. It is recommended that kinship values should be updated annually for each stallion.

- ***Encourage rare to rare matings***

It is recommended to amend the breeding policy to recognised the threatened status of rare bloodlines so that breeding policy for these horses would focus primarily on breed preservation.

Rare bloodline mares should be encouraged to be covered by rare stallions that have met the veterinary requirements. To encourage this, it is recommended that the studbook should financially support the covering of the ten rarest stallions to ten rare mares each year. It is further recommended that the Studbook should cover the cost of vetting of rare stallions regardless of whether they come out for inspection. In addition, registration fees could be waived for the progeny of rare to rare matings.

To assist the owners of rare mares to make breeding decisions the Studbook should provide tailored lists of rare stallions for each mare. It was noted that information of this type for owners of rare mares would be helpful as owners with rare ID mares are finding it difficult to identify suitable sires. These 'rare' to 'rare' matings are of paramount importance in terms of ensuring that rare genes are transmitted to subsequent generations.

Given the immediate nature of the threat to the rarest bloodlines, it is recommended that the use of a semen bank to freeze semen from rare stallions be investigated. In the past, although a semen bank was put in place, the cost of accessing the semen was prohibitive for mare owners. It should be investigated to see if a mechanism could be found to help owners of rare mares with these costs.

Following consultations with breeder representatives, it has been suggested that the successful Horse Sport Ireland Embryo Transfer Scheme may provide a template of a mechanism that supports key individuals within a studbook.

Appendix 1.

Total no. of Irish Draught Horses registered in Ireland by Year of Birth[1]

	Total	Female	Male	% Male	Registered Late
2017	834	422	412	49	
2016	761	400	361	47	31
2015	520	245	275	53	16
2014	439	239	200	46	24
2013	673	324	349	52	77
2012	743	371	372	50	145
2011	945	488	457	48	201
2010	1123	615	508	45	186
2009	1339	730	609	45	233
2008	1308	716	592	45	219
2007	1210	655	555	46	151
2006	970	496	474	49	136
2005	697	362	335	48	65
2004	573	314	259	45	75
2003	491	266	225	46	86
2002	486	282	204	42	109
2001	445	259	186	42	85
2000	395	227	168	43	82
Average for 1990s	494	312	182	37	
Average for 1980s	291	204	87	30	
Long term average since 1980	574	331	243	42	

[1]Figures may differ from those published in the foal book as older horse registrations are included.

Appendix 2.

Relative registration levels compared to long-term average since 1980.

	ID (No.)	ID (%)	ISH (No.)	ISH (%)
2017	834	145	4379	72
2016	761	133	4517	74
2015	520	91	4168	68
2014	439	76	4479	74
2013	673	117	5404	89
2012	743	129	5374	88
2011	945	165	5659	93
2010	1123	196	6097	100
2009	1339	233	7522	124
2008	1308	228	7521	123
2007	1210	211	7244	119
2006	970	169	6839	112
2005	697	121	7126	117
2004	573	100	6530	107
2003	491	86	5876	96
2002	486	85	6249	103
2001	445	78	6820	112
2000	395	69	7232	119
Long term average since 1980	574	100	6090	100

Appendix 3.

2017 foals by class of sire and dam

Sire Class \ Dam Class	RID	C1	C2	C3	ID[2]	AID	GU	Total
Class 1	232	205	54	1	132	12	7	643
Class 2	35	18	9	1	46	3	0	112
Class 3	2	3	3	0	3	0	0	11
Uninspected	14	5	5	0	25	1	0	50
RIDGB	6	3	3	0	5	0	1	18
Total	289	234	74	2	211	16	8	834

2012 foals by class of sire and dam

Sire Class \ Dam Class	RID	C1	C2	C3	ID[2]	AID	GU	Total
Class 1	443	64	41	1	56	34	1	640
Class 2	63	6	3	0	13	7	0	92
Class 3	3	0	0	0	1	0	0	4
Uninspected	2	0	1	0	4	0	0	7
RIDGB	0	0	0	0	0	0	0	0
Total	511	70	45	1	74	41	1	743

2007 foals by class of sire and dam

Sire Class \ Dam Class	RID	C1	C2	C3	ID[2]	AID	GU	Total
Class 1	975	4	5	3	74	97	0	1158
Class 2	26	0	0	0	10	3	0	39
Class 3	11	0	0	0	1	0	0	12
Uninspected	1	0	0	0	0	0	0	1
RIDGB	0	0	0	0	0	0	0	0
Total	1013	4	5	3	85	100	0	1210

[2] Includes pre-2010 ID mares and uninspected (Class 4) mares

Appendix 4.

Comparison of sire and dam class over time.

Year of Birth	2017	2012	2007
% foals with dams that have met inspection requirements	66	84	84
% foals with sires that have met inspection requirements	79	86	96
% foals with sire and dam that have met inspection requirements	56	73	89
% foals with inspected dams	75	90	93
% foals with inspected sires	94	99	100
% foals with uninspected dams	25	10	7
% foals with uninspected sires	6	1	0
% foals with uninspected sire and dam	3	1	0
% foals with one Class 3 parent	2	1	1
% foals with AID/GU dam	3	6	8

Appendix 5.

Genetic diversity related information for Irish Draught stallions of concern currently breeding and/or included in the 2018 stallion book are provided here including their mean kinship to the reference active broodmare and filly herd, their inbreeding coefficient, classification, year of birth, and the reason for their inclusion are given.

The vast majority of stallions with low mean kinship values (those meeting the "rare" criteria previously) represent Irish Draught bloodlines that are under represented within the breed and therefore may be under threat. Breeders may wish to take into account that for a small number of stallions, a low mean kinship can be explained by a significant amount of Thoroughbred or unrecorded ancestors instead of rare Irish Draught ancestors. This information is reflected by the publication of the number recorded Irish Draughts among a stallion's eight great-parents (3rd generation of pedigree) for each stallion. Stallions shown in italics have not bred foals in recent years and may be inactive.

Current stallions of concern.

Stallion	Mean Kinship	Inbreeding	Classification	Year	No. of Irish Draught Great-grandparents	Reason for Concern
ALLEN ROCK	1.2	0	C2	1989	5	low mean kinship
ALLYS BRIDGE	3.2	0.1	C1	1996	4	low mean kinship, threatened stallion line
BALLINEEN IT'S WILLIAM	2.2	1.8	C1	2008	7	low mean kinship
BALTYDANIEL ARTHUR	1.6	0	C4	2012	6	low mean kinship
BALTYDANIEL GOLDEN BOY	1.3	0	C4	2011	8	low mean kinship
BELLAMONT	1.4	1	C2	2003	5	low mean kinship, outcross to dominant sires, threatened stallion line
CALLOWS COMET GOLD	2.8	1.2	C2	2012	7	low mean kinship, threatened stallion line
CLEW BAY BOUNCER	2.2	0.9	C1	2005	7	low mean kinship
CLONAKILTY HERO	2	3.9	C1	1996	5	low mean kinship, outcross to dominant sires, threatened stallion line
CLONEYHEA PADDY	1.8	0.1	C1	2009	7	low mean kinship
CLONEYHEA SPELLBOUND	2.3	0.2	C1	2012	8	low mean kinship
CLOVER SKIPPY	2.1	0	C2	1995	3	low mean kinship

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Stallion	Mean Kinship	Inbreeding	Classification	Year	No. of Irish Draught Great-grandparents	Reason for Concern
COGAN MOUNTAIN	2.4	13.1	C4	2015	8	low mean kinship
COILLE MOR HILL THE SECOND	2.3	12.5	C2	2001	4	low mean kinship
COME T	2.6	0	C1	1996	5	low mean kinship
COOLCRONAN WOOD	3	0.3	C1	1996	6	low mean kinship
COOLGREEN ELM	2.3	0	C2	2003	6	low mean kinship
COOLOO CREST	2.4	0.6	C2	2004	7	low mean kinship
CROSSBOYNE GOLDEN WONDER	2.3	0.4	C2	1998	6	low mean kinship
FINTAN HIMSELF	2.7	0	C1	1994	7	low mean kinship, threatened stallion line
GLOVE ELM	2.2	0	C2	2007	6	low mean kinship
GORTLEA CLOVER	1.9	0.1	C2	1993	4	low mean kinship
HARKAWAY LIONHAWK	2.5	2.2	C1	2001	8	low mean kinship
HOLLYPARK DIAMOND	4.1	1.3	C1	2015	8	low mean kinship, threatened stallion line
HUNTINGFIELD HEATHCLIFF	2	0	C1	1993	4	low mean kinship, threatened stallion line
HUNTINGFIELD RULER	2.3	1.8	C1	2004	6	low mean kinship, threatened stallion line
HUNTINGFIELD SUNNY C	1.7	0.5	C1	2004	8	low mean kinship
KILTYBANE NALDO	2.2	0	C4	2007	7	low mean kinship
LUKE SKYWALKER	1.7	0.4	C1	1994	4	low mean kinship
MANOR PEARL	1.9	0.4	C2	1998	6	low mean kinship
MILLHOLLOW STROLLER	2.4	0.4	C1	2009	8	low mean kinship
MIZEN GOLD	1.6	0	C2	2003	5	low mean kinship, threatened stallion line
MOUNTAIN PEARL	2.5	0	C1	1989	4	low mean kinship
MURNACBEG CLOVER	2.2	0	C2	1994	4	low mean kinship
MURPHYS MAN	2.5	0.5	C2	1993	8	low mean kinship
OH GRAND MASTER	2.5	0.3	C2	2013	5	low mean kinship
PENMERRYLS RHYTHM AND BLUES	2.2	3.9	C1	1998	8	low mean kinship
RINEEN CLOVER	1.8	0	C2	1993	3	low mean kinship

Stallion	Mean Kinship	Inbreeding	Classification	Year	No. of Irish Draught Great-grandparents	Reason for Concern
SEACREST BLUE	2.4	3.2	C2	2005	7	low mean kinship
SHEANS CLOVER BOY	2.4	0.3	C4	2012	7	low mean kinship
SI GAOITHE	1.1	0.2	C4	2010	6	low mean kinship, threatened stallion line
SILVER WIND TWISTER (standing in GB)	2.1	0	C1	2008	5	low mean kinship
SONRISE GENESIS	1.5	2	C1	2008	6	low mean kinship
SPRINGPARK EASY BREEZE (standing in GB)	1.3	0	C4	1990	5	low mean kinship
TREANLAUR ROCKY	2.6	0.1	C2	2006	6	low mean kinship, threatened stallion line
TULLYCOMMON BOY	2	0.4	C2	1990	4	low mean kinship
YOUNG COOLEHANE	1.5	0	C2	2004	4	low mean kinship