



## SHIRE HORSE SOCIETY – 2024



### INTERNATIONAL GUIDANCE NOTES ON THE USE OF SPARKS KINSHIP TABLES

**PLEASE NOTE: MARES AND STALLIONS BASED IN EIRE ARE IN THE UK KINSHIP TABLES FOR 2024.  
PLEASE SEE THIS WEB PAGE FOR EIRE**

[Shire Horse Society of Great Britain | Sparks Breeding Programme \(shire-horse.org.uk\)](https://shire-horse.org.uk)

#### 1. INTRODUCTION

The Shire Horse Society ('the Society') has adopted SPARKS to tackle inbreeding in the Shire horse population. This is needed because inbreeding leads to loss of genetic diversity in the population. In turn, this threatens the health of individual horses and the health and sustainability of the Shire breed as a whole, because it has the following consequences:

- increased infertility
- increased foal mortality (deaths)
- increased likelihood of harmful genes accumulating in the breed
- increases risk of inherited diseases and deformities
- reduced overall fitness of the breed and resistance to diseases

A powerful way of tackling inbreeding is by managing 'Mean Kinship' through selection of mare/stallion pairings.

#### 2. WHAT IS SPARKS?

SPARKS is an advisory scheme that helps manage Mean Kinship and inbreeding. It is a computer programme that calculates Mean Kinships for every living pure-bred Shire in the Studbook, measuring how related any one Shire is to all others. SPARKS also calculates the potential inbreeding of foals resulting from specific mare/stallion pairings. Based on this analysis, SPARKS produces Kinship Tables for mares.

#### 3. WHAT ARE KINSHIP TABLES?

The Kinship Tables are a tool to help breeders manage Mean Kinship and inbreeding via their decisions on which stallions to put to which mares.

Each Kinship Table is specific to an individual mare. Note – each Table has more than one page. In every Table, the name of the mare is shown on each page, together with her date of birth, Stud Book number, Mean Kinship coefficient and Inbreeding coefficient. Based on the Mean Kinship coefficient, the mare is assigned to a Mean Kinship Band. Mares in Band A are of lowest Mean Kinship, i.e. are least related to the rest of the population, and those in Band H are the most related.

The **International Kinship Tables** are for pure-bred Shire mares that are registered in the breeding section of the Society's Stud Book as (i) alive, (ii) located in a country other than the UK & EIRE (except Russia, which is excluded), and (iii) born in or after 2004, up to and including 2022. International Kinship Tables for mares born before 2004 are available on request; see the section titled "Important Notes on Using the Kinship Tables" below for more information.

In each International Kinship Table, there is a list of pure-bred Shire stallions. These are stallions that are registered in the Society's Stud Book as (i) alive, (ii) located in a country other than the UK or EIRE (except Russia which is excluded) and (iii) Approved under the Society's inspection process.

The stallions in the Tables are stallions that are approved by the Society. **Mare owners are reminded that if a stallion is not approved, the Society will not be able to register the resulting progeny in the Breeding section of the Stud Book. For any queries, contact [info@shire-horse.org.uk](mailto:info@shire-horse.org.uk)**

**Please also note that the locations shown for stallions are not guaranteed - some stallions may be in a different location for the 2024 breeding season.**

The following information is given for each stallion: name, Stud Book number, colour, Inbreeding Coefficient, Mean Kinship coefficient, Kinship Band, **Co-ancestry Coefficient of Progeny**, Region and Location.

**The 'Co-ancestry Coefficient of Progeny' is the level of inbreeding that the resulting foal would have if the named mare is mated to the named stallion.** The lower this coefficient, the less inbred the foal would be. Co-ancestry coefficients of below 0.05 are considered acceptable, and those of 0.05 and above are not.

#### **4. HOW ARE KINSHIP TABLES USED?**

The Kinship Tables are published on the Society's website and can be downloaded free of charge. [Shire Horse Society of Great Britain | Kinship Tables International \(shire-horse.org.uk\)](http://Shire Horse Society of Great Britain | Kinship Tables International (shire-horse.org.uk))

Using SPARKS is voluntary and intended to help mare owners to select a stallion. The Tables do not relate to the physical attributes of any mares, stallions or potential foals. Breeders should continue to use their own best judgement on this. The Tables are an additional tool to add genetic health to dam/sire pairing decisions.

To help interpretation of the Kinship Tables, the potential matings between mares and stallions are ranked into four Tiers. Tier 1 represents the best genetic pairings, and Tier 4 the worst. The Tiers are "traffic light" colour coded as follows:

**TIER 1:** The mare and stallion are from the same or an adjacent Kinship Band **AND** the mating would produce a foal of lower co-ancestry coefficient than the Mean Kinship of the Mare. These matings are said to be 'SPARKS compliant' and are coloured green in the Kinship Tables. **THESE MATINGS ARE ENCOURAGED.**

**TIER 2:** The mare and stallion are from the same or an adjacent Kinship Band **BUT** the mating would result in a foal of higher co-ancestry coefficient than the Mean Kinship of the mare but still less than 0.05. These matings represent 'The Best of the Rest' and are coloured yellow in the Kinship Tables. **THESE MATINGS ARE THE PREFERRED ALTERNATIVE IF A SPARKS COMPLIANT OR 'GREEN' MATING DOES NOT EXIST OR IS NOT DESIRABLE.**

**TIER 3:** The mare and stallion are from widely differing Kinship Bands and Kinship Coefficients less than 0.05. These matings bring together genes in a way that puts less common genes at greater risk of loss. They are coloured orange in the Kinship Tables and **ARE DISCOURAGED.**

**TIER 4:** These matings, coloured red in the Kinship Tables, are highly inbred and increase the probability of deleterious genes/harmful traits being expressed in future generations as well as accelerating the loss of genetic diversity. **THESE MATINGS SHOULD BE AVOIDED.**

Please note:

- The Tiers are an assessment of the merit of pairing of two horses. They are not an endorsement or criticism of the genetic makeup or physical characteristics of either horse.

- The **traffic light colours** are shown on the names of the stallions, but do not represent the level of inbreeding of the stallions themselves. They **represent the level of inbreeding that the foal would have** if the stallion was mated with the named mare.
- For **red matings**, the red traffic light colour is highlighted on the Co-Ancestry Coefficient of Progeny figure as well as on the stallion's name. This is to help distinguish between orange and red matings, given that the two colours may look similar on some computer screens.

## 5. IMPORTANT NOTES ON USING THE KINSHIP TABLES

Kinship Tables are valid for one year only because the Shire horse population, and therefore the kinship relationships within it, change each year. The Tables are therefore updated every year. The year for which the Tables are valid is shown at the top of each one. Please use the correct Tables for the year concerned, e.g. the 2024 Tables for matings to take place in 2024.

Kinship Tables for a mares born before 2004 are available on request. Please contact the Society office with your request, quoting the mare's name and Stud Book number. Allow plenty of time because it may take three weeks for the table to be produced and sent to you.

To help breeders identify where horses are located, the International Kinship Tables identify three big Regions, named Australasia, Americas and Europe. The Australasia region is sub-divided to Australia and New Zealand. The Americas region is sub-divided into the USA, Canada and South American countries. The Europe region is sub-divided into all other countries (except UK and EIRE). The countries are called Locations. The Region and Location is shown for every mare and stallion in the Kinship Tables.

## 6. HOW TO FIND A MARE IN THE INTERNATIONAL KINSHIP TABLES

Kinship Tables are produced as 'PDF' electronic documents. The International Kinship Tables are organised into PDF documents as follows.

There is one PDF for mares in Australia and New Zealand. This includes stallions in those countries, plus stallions in other non-UK countries. The stallions that are registered in the Society's records as located in Australia and New Zealand are named first in each Kinship Table, followed by the stallions located in other countries.

For mares in all other countries (except UK & EIRE, and Russia, which is excluded), there are too many Kinship Tables to put them all in a single PDF. Therefore, these mares are organised into several PDFs, alphabetically by prefix. For example, there is a PDF for mares with prefixes beginning with the letters A and B, another PDF for mares with prefixes beginning with the letters C and D, another PDF for mares with prefixes beginning with E, F and G..... and so on through the whole alphabet.

The pdfs for each group can be downloaded from the Society's website. To find the Kinship Table for any mare:

- Go to the "SPARKS Breeding" tab on the Society website, then select "SPARKS International" from the drop-down menu, then 'Kinship tables international' in the next drop-down menu  
[Shire Horse Society of Great Britain | Kinship Tables Tnternational \(shire-horse.org.uk\)](http://shire-horse.org.uk)
- Select the download link for the PDF for the mare you want to find
- Download the PDF from the link
- You can now search the PDF for the mare. You can do this by scrolling through the PDF, but it may be easier to search as follows:

*On your keyboard, hold down the Ctrl key press the F key. You will see a search box has opened at the top of the page. Release both keys. Type the mare's Stud Book number, or her prefix and name, into the search box. If using the name, spell it exactly as it is spelt in the Stud Book, including any hyphens or apostrophes. The pdf should jump to the Kinship Table for that mare. Because Stud Book numbers are unique to individual horses, this may be the most efficient way to search. The pdf may jump to part-way through the Kinship Table you are interested in. You will need to scroll up to get to the top of the Table.*

If you need phone help on downloading and using the Kinship Tables and finding mares in them, please contact the Society's office (contact details below).

## **7. CORRECTIONS AND ANOMALIES**

The information in the Kinship Tables is only as good as the information in the Society's Stud Book, so the more up to date the Stud Book, the better. Therefore, if you see a mare in the Kinship Tables that you know has died or changed location, please notify the Society office, sending in the passport if you have it. Likewise, if you see information that is not or might not be correct about any horse, please let the office know.

## **8. CONTACT DETAILS AND HELP**

### **Shire Horse Society**

The Old Dairy, Rockingham Castle, Market Harborough, Leicestershire, LE16 8TH

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E: [info@shire-horse.org.uk](mailto:info@shire-horse.org.uk)

**Note for researchers. The data provided in the Kinship Tables are highly filtered from the SPARKS database and should not be taken as an accurate representation of the current Shire horse population. As such they are not suitable for research purposes.**

SPARKS is endorsed by the UK's Rare Breeds Survival Trust

