

APPENDIX II

[BREEDING] PROGRAMME OF IMPROVEMENT OF THE HISPANO-ARAB HORSE

This document is the 'Anexo II - Programa Mejora del Caballo Hispano Árabe' of the Spanish Royal Decree 2129/2008, published in the Bulletin of Spain (BOE) on 26/12/2008. It was translated into English on 22/05/2020 by The British Association for the Purebred Spanish Horse Ltd, at the request of DEFRA, to form part of the BAPSH Ltd 'Application for Approval of the Hispano-Arab Breeding Program' for the UK. If there are any inconsistencies between this document and the original Spanish document, it is the original document that is correct.

The following Improvement Programme has been put together according to the directives established in [Spanish] Order APA/1018/2003 of 23rd April, through which are established the basic requirements for the Improvement Programmes and the performance controls for the genetic evaluation of pure bred horses; and the Real Decreto (Spanish Royal Decree) 2129/2008, 26th December, through which is established the national Programme of conservation, improvement and promotion of livestock breeds.

The following organisational bodies will participate in the carrying out and supervision of the Improvement Programme:

- The General Management/Head Office of Production and Agricultural Markets, of the Ministry of Agriculture, Food and the Environment (MAGRAMA) as in charge of the approval and supervision of the Improvement Programme.
- The administrative body of the Stud Book of the Breed which will act as representative of the breeders of animals of this breed assigned to the Improvement Programme, contributing the genealogical information necessary to deal with the studies set out in this report. [The Hispano-Arab Mother Studbook administrative body since 2008 is the Union Española de Ganaderos de Pura Raza Hispano-Árabe (UEGHÁ)]
- The Investigation Group AGR-218 of the University of Cordoba 'Improvement and Conservation of the Genetic Resources of Domestic Animals' as the Official Centre of Animal Genetics responsible for the Technical Direction of the Improvement Programme and the genetic evaluation of the examples/specimens.

Just as the Real Decreto 2129/2008 established in its article 22.2, the participation of the breeders in this Improvement Programme will be obligatory for all the breeders who belong to the Breeders' Association as far as the competent authorities arrange, in dealing with a native breed in danger of extinction. In the same way, the Improvement Programme for the Hispano-Arab Breed will be fed into by those horses that take part in whatever type of performance tests are organised by the Breeders' Association, even though their owners are not integrated into the Association.

Pure Bred Hispano-Arab breeders, that request an evaluation of Basic Approval [Apto] for Breeding for the horses they own, will be assigned to the Improvement Programme as a collaborative farm, having to comply with all its extension of rules that are controlled in compliance with RD 2129/2008. The General Management of Production and Agricultural Markets will have at their disposal the list of the collaborating farms participating in the Improvement Programme, facilitated by the administrative body of the Stud Book. This list could be subject to eventual modifications suggested by said administrative body, through circumstances of health and animal husbandry, with the aim of guaranteeing compliance with the objectives established in this Programme.

In this Improvement Programme are set out the objectives of the improvement, the criteria of selection, the testing of performance and the genetic evaluation that will permit the different categories of breeding animals to be established:

Young Recommended Reproducer, Calificado Reproducer, Major Recommended (Improving) Reproducer, and Elite Reproducer. In the same way, the stages or phases of the Programme are specified, detailing in each one of these the phenotypical controls, the correction factors, the methodology for calculating the genetic value and the minimum reliability required for each one of the established categories.

1. Introduction

The Hispano-Arab breed is included in the official catalogue of Spanish livestock in the category of 'Native Breed in danger of extinction'.

We opened this introduction with the foregoing precision in order to justify the presence in the proposal of connotations clearly orientated towards achieving a genetic progression of the breed in accordance with the objectives raised by the breeders through the Breeders' Association, but without forgetting other aspects concerning the conservation of genetic diversity of the population.

2. Objectives and Selection Criteria

The Breeders' Association has as a general objective of the breeding and selection of the Hispano-Arab Horse, the improvement of its morphology, within what is established by the prototype of the breed, its conformation, as a saddle horse suitable for sporting purposes, and the functional aptitudes in harmony with the qualities of temperament, (attitude and behaviour), that assist its handling in training and allow it to stand out in those disciplines for which it is selected.

This general objective can be concentrated into a series of specific objectives:

2a.1. **Improvement of Conformation and Basic Paces:** Obtaining animals with some determined morphological characteristics (conformation-functionality) and of movements (walk, trot and canter) that encourage an indirect improvement, always within the established racial prototype.

- Criterion 1: Rating/grading of conformation
- Criterion 2: Rating of movement in Walk
- Criterion 3: Rating of movement in Trot
- Criterion 4: Rating of movement in Canter

2a.2. **Improvement of Functionality:** Obtaining horses with functional aptitudes that will enable them to stand out in the sporting competitions in which they take part, which given the versatility of this breed would principally be for the disciplines of **Doma Vaquera, Cattle Work (Acoso y Derribo), Eventing, Endurance, Dressage and Carriage Driving**, at an international as well as a national level.

- Criterion 1: Rating of the conformation for Doma Vaquera
- Criterion 2: Rating of the attitude/behaviour for Doma Vaquera.
- Criterion 3: Measurement of physiological characters for sport (heartbeats per minute etc.)
- Criterion 4: Results obtained in PSCJ and Official Tests in the different equestrian disciplines in which they take part.

2a.3. **Improvement in Attitude or Behaviour:** Obtaining horses with a temperament suitable as much for basic training as for the sporting competitions in which it takes part, those previously indicated, at an international as well as at a national level.

- Criterion 1: Rating of the early attitude/behaviour in young animals.

2a.4. **Improvement in Health in hereditary characteristics:** Obtaining healthy animals, which do not possess hereditary defects that could cause defects transmittable to their offspring.

- Criterion 1: Absence of hereditarily transmitted anomalies
- Criterion 2: Absence of any anomalies to do with reproduction

2a.5. **Conservation of Genetic Variation:** Selection of animals, maintaining at all times genetic variation, minimising the level of in-breeding and family relationships in the population, with the aim of guaranteeing the conservation and the progress of the breed.

- Criterion 1: Individual Coefficient of blood relationship

for the attainment of each one of these objectives, the selection will take into account the following aspects, previously numbered, and developed in the following form:

2b.1. **Conformation-functionality and basic paces** – starting with the performance controls carried out in the **Selection Tests for Young Horses, the Tests for Breeding Approval [Basic Grading and Calificado Grading], and Morphological Competitions**. Then proceeding on to the

evaluation of conformational characteristics and the basic paces, (walk, trot and canter), of interest in the population for being related to the functional performance of the animals in the tests, with the objective of carrying out an indirect selection of their performance.

Collecting this type of information will allow for, in a periodic form, a review of the racial prototype established for this Breed.

2b.2. **Functional Aptitudes** – Derived from the results obtained from the animals in the sporting tests of performance control: The MAGRAMA Selection Tests for Young Horses, the Tests for Breeding Approval [Basic Grading and Calificado Grading], the Ridden Functionality Test and official sporting competitions of the Real Federacion de Hipica Española and/or autonomous federations, that provide data commensurate with the Selection Scheme for this Breed and are a safe tool and objective for the measurement of this criteria. Initially the discipline of Doma Vaquera will be included, but this Programme is left open to the inclusion of new disciplines, provided that the numbers of animals participating in them are sufficient.

2b.3. **Attitude: temperament and behaviour** – based on the information gathered together in the performance controls carried out in the Tests for Breeding Approval [Basic Grading and Calificado Grading] and the Selection Tests for Young Horses in Doma Vaquera (initially). The attitude of the specimens will be determined by means of the evaluation of temperament, behaviour, obedience, manageability and response to the rider's aids, these being qualities of great interest in this Breed due to their relationship with the functional performance of the animals in competition.

2b.4. **Health and Genetics** – it will be possible to take steps towards the control of illness or undesirable characteristics in the population due to natural heredity. Principally morphological defects or those related to functional aptitude, with the objective of being able to establish the hereditary prototype that allows its control and elimination from the actual population. Given that it is deemed necessary, when it is considered that an animal is susceptible to demonstrating certain defects of a hereditary nature, it could be submitted to genetic analysis by means of cytogenetic molecular studies or a heredity test, according to the nature of the problem detected.

2b.5. **Genealogy** - of vital importance in the breeds with reduced numbers, such as the one in question, now that it is possible to estimate the genetic variability, control the average level of inbreeding in the population and the percentage of average blood relationship between the individual breeding animals subscribed to the Improvement Programme and, more specifically, with the animals who act as connectors. The genealogical analysis will permit the carrying out of complimentary studies that contribute to the genetic characterisation of the Pure Bred Hispano-Arab Horse as they are the determination of the foundation specimens and their genetic contribution to the Breed, the evolution of the equivalent number of founders and ancestors, the calculation of a genetic conservation index, the analysis of the genetic lines and the control of the transmission of hereditary defects. The genealogical data should have maximum reliability and to this end it depends on a paternity test routinely carried out on all animals, from molecular analyses in Reference Laboratories. Genetic information is also indispensable in order to generate the inverse matrix necessary in the determining of the breeding values of the animals in the genetic evaluation, conservation and selection process.

2b.6. **Environmental** - there will be complimentary controls, carried out in those tests in which the environmental factor and management condition the results of the specimens taking part in the test, serving as correctional factors in the genetic evaluations.

3 Performance Testing

The use of a combination of the information derived from the performance testing and the genealogical registers will allow for the genetic evaluation of breeding animals of this Breed to be carried out. For this, the systematic collection of the information generated by the genealogical controls, tests for the evaluation of conformation-functionality and basic movements in the Selection Tests for Young Horses (PSCJ) and official sporting competitions in which Pure Bred Hispano-Arab take part will be necessary.

3.1 Genealogical Data:

All the information related to the genealogy of the animals will be obtained from the data collected together in the

Pure Bred Hispano-Arab Stud Book, managed by the Breeders' Association. This Association will be in charge of carrying out the processes that ensure the safe receipt of the information carried out at least once a year, preferably in the months of January and February.

3.2 Conformation-Functionality and Basic Movements Data

The evaluation of the conformation-functionality of the animals and their basic movements will be carried out in the Evaluation Tests for Breeding Animals (Basic Grading and Calificado Grading) and Morphology Competitions that will be given the denomination of Morpho-Functional Performance Testing for Purebred Hispano-Arab Horses. This information will also be collected together in the PSCJ (Young Horse Tests) of Doma Vaquera, this breeders' association being in charge of the organisation and distribution of these tests together with the morpho-functional. At the beginning of the year the Calendar of Morpho-Functional Performance Testing for Purebred Hispano-Arab Horses and the Doma Vaquera Young Horse Series will be distributed, giving the venue and the date for each one of these. To the extent that this is possible, it will be the aim to coincide with this type of testing: breeding evaluation, morphological competitions and PSCJ de Doma Vaquera, in a form that will optimise the resources and maximise the amount of performance testing for the animals.

All animals (male and female) inscribed in the Stud Book for this breed will be able to participate, with an age range from one year upwards for the Morphological Competitions, from three years upwards for the Breeding Evaluation (Basic Grading) and from four years upwards for the PSCJ de Doma Vaquera and other official sporting competitions. In this Performance Testing information is to be collected with reference to:

- **Identification of the Animal:** Information will be collected for the correct identification of the animals as shown in the Equine Identification Document, as laid down by the Real Decreto 1701/2011, 18th November, through which is established a system of identification and registration of animals of the equine species. Moreover, this will be complemented by the information available in the Stud Book and by whatever other relevant information that assures a perfect connection between all the data bases used in the different performance testing carried out within this Improvement Programme.
- **Basic Zoometric Measures:** Measures should be chosen according to the individual characteristics of the breed and the anatomical characteristics of special interest, and for their correlation with the functional characteristics for which it is selected.
- **Lineal Morphological Qualification:** this will be the methodology used in the genetic evaluation of the conformation-functionality of the animals for what will be necessary to develop this methodology in a manner specific to the Purebred Hispano-Arab Horse, according to the analysis of its morphological and functional characteristics. Until this qualification system is put in place, and with this being independent, it will be possible to use the morphological information available by means of the qualification system by points to complement the information generated by the performance testing.
- **Evaluation of Basic Movements** of the three basic paces walk, trot and canter. The testing of the horses will be carried out in hand, but in the future it may be demanded that there is ridden presentation of the horses three years old or older for their Basic Grading and of horses of four years or older in the Morphological Competitions. These tests will be carried out by means of the evaluations made by the judges-assessors who will have been created with the objective of possessing homogenous evaluation criteria. In the future it will be possible to complement these evaluations by applying more objective techniques, that should be made ready in a manner specific to this Breed, (videos, the use of Equimetrix analysis, analysis of the composition of muscular fibres, cardio-respiratory studies etc.).
- **Evaluation of character and temperament:** as this deals with matter of a subjective nature it will be necessary to design a behavioural test that will allow for the evolution of methodology by technical specialists.
- **Detection of Defects** - defects in the participating specimens of morphological type, physiological or of movement will be collected from the performance testing.
- **Environmental** - there will be controls in which the environmental and handling factors will influence the results of the test.

3.3 Results of participation in Functionality Tests.

3.3.1 Control of Functional Testing for the discipline of Doma Vaquera.

The evaluation of functional aptitude for Doma Vaquera will be carried out by means of the information compiled in the PSCJ (Young Horse Tests) of this discipline co-ordinated by the Breeders' Association according to the General Organisation Rules of the PSCJ approved by the General Management of Production and Agricultural Markets (DPMA) of the Ministry of Agriculture, Food and the Environment (MAGRAMA). In the same way, information from the Evaluation of Calificado Breeding Stock, the ridden Functionality Test and the officially recognised Doma Vaquera competitions in which Purebred Hispano-Arab horses are taking part will also be collected. For this, the available information must be collected and computerized in relation to:

- **Details of the animal:**
 - Identification
 - External factors: previous stress, training level, rider details, (name, weight and sporting level).
 - Classification obtained in the test, expressed in placings.
 - Final marking, collected in points.
 - Partial markings received, expressed in points
 - Other notable data

- **Details of the Competition**
 - Venue and Date
 - Category
 - Total number of participants
 - Environmental information: season of the year, temperature, humidity, type and condition of the arena etc.
 - Judges, Assessors

The collection of competition information will be done by means of the use of forms/sheets specially designed for performance testing in this equestrian discipline, that will ensure the correct collection of all the necessary data for later genetic evaluation.

In order for the genetic evaluation to be precise in every detail, it will be necessary that all the characters collected in the different performances controls in the PSCJ de Doma Vaquera conform to the normal distribution. So it may be essential to carry out a series of previous mathematical conversions, (logarithms, square root, weightings etc.). that would change the function of the variable that it is working with.

Initially, the Improvement Programme for the Purebred Hispano-Arab Horse will only include as functional selection criteria the aptitudes of the animals for Doma Vaquera, given that it is the discipline in which the greatest number of horses of this Breed take part. However, in the future it will be possible to incorporate the functional aptitude for other disciplines such as Eventing, Endurance or Dressage, always given that the number of participating animals is sufficient.

4. Genetic Evaluation

The genetic evaluation of the animals will be based on the mixed models of BLUP, (Best Linear Unbiased Predictor), by way of the application of different modalities of the animal model, in which are considered all the known family relationships between the participants in the different performance tests and the results obtained from them. This evaluation methodology could be substituted by other more advanced ones once these have been tested and set up for the Breed.

The evaluation of the animals will be complemented by the calculation of specific synthetic indices for each one of the proposed functional qualities, applying the most appropriate deliberation for each case about the characters of interest for each purpose. This aspect will be the object of investigation on the part of our group, in so far as the information generated permits.

All the participants in the Performance Testing established in the Improvement Programme for Purebred Hispano-Arab Horses will be evaluated annually based on their own results and that of all the genetically related individuals, being able to obtain the genetic categories of Young Recommended, Calificado, Major Recommended (Improving) and Elite for each one of the disciplines or aptitudes evaluated, always given that sufficient and adequate information is prepared for that.

4.1 **Genetic Evaluation for 'Young Recommended Reproducers'.**

All the specimens of 4, 5 and 6 years of age inscribed in the Stud Book that participate in the tests for Performance Testing established in the Improvement Programme for Purebred Hispano-Arab Horses shall be evaluated annually based on their own results, in what will be denominated Individual Genetic Assessment.

From the results generated in the performance testing, together with the genetic data, an Individual Genetic Assessment will be carried out. Those animals with a genetic value above the lintel established by the character or aptitude concerning this breed, will be considered to be Young Recommended Purebred Hispano-Arab Reproducers. The horses should demonstrate the health and reproductive status established by the Breeders' Association according to the rulings in force. This category will be in force during 4, 5 and 6 years of age, being lost on reaching the age of seven.

With the objective of securing rapid genetic progression of the breed, the reproductive use of this group of animals will be encouraged, for which a list will be created, after being approved by MAGRAMA, to be distributed by the Breeders' Association amongst the breeders subscribed to the Improvement Programme, the inclusion of animals on this list in the Catalogue of Breeding Stock being possible.

4.1.1. **Young Recommended Reproducer for Conformation-Functional and Basic Movements**

The genetic evaluation of the conformation-functionality will be carried out on the basis of information compiled in the Morpho-Functional Performance Testing for Purebred Hispano-Arab Horses and PSCJ de Doma Vaquera, where the phenotypical evaluation of the conformation should be carried out by means of a standardised system of marking together with the application of a methodology of Lineal Morphological Qualification which will progressively be put in place, and the evaluation of the aptitude for the basic movements by the application of a standardised system of marking.

The genetic evaluation model will be designed according to the estimated significance level for each one of the environmental factors collected in the corresponding performance testing.

With the breeding values obtained, through the application of the BLUP (animal model) methodology for the different variables included in the genetic evaluation of the conformation-functionality and the basic movements, an individual multi-character index will be estimated that will be called the **Individual Index for Conformation-Functionality and Basic Movements**.

All the animals that obtain a genetic value above the lintel established for this index in the breed will obtain the category of **'Young Recommended Reproducer for Conformation-Functionality and Basic Movements'**.

4.1.2. **Young Recommended Reproducer for Doma Vaquera**

The genetic evaluation of the functional aptitude for Doma Vaquera will be carried out from the sporting results obtained by the animals through their participation in the Doma Vaquera competitions, there already being Selection Tests for Young Horses and other official tests for this discipline.

The correction factors that should be included in the genetic evaluation model will be designed according to the significance level statistically estimated.

The values obtained for each one of the variables studied, (walk, trot, canter, attitude/behaviour, sporting potential, placings, final markings, partial markings etc.), through the genetic evaluation of the horses, (with the application of the BLUP animal model methodology), will be weighted in the **Individual Performance Index for Doma Vaquera**. All the individuals above the established lintel for this index in the breed, will be considered **'Young Recommended Breeding Stock for Doma Vaquera'**.

4.2. **Calificado Reproducer**

Those horses that, from 7 years upwards, have obtained a genetic index above the lintel established for the character or aptitude typical of this breed, they should overcome any tests organised by the Breeders Association in which are evaluated morphological qualities, and those of conformation, functionality, biomechanics and locomotion, evaluating the movements in the three basic paces: walk, trot and canter, and behavioural aptitude as well as reproductive and health characteristics, in accordance with the procedure established by the Breeders' Association. All this data can be complemented with locomotion parameters through physiological analysis and biochemical analysis by means of technical videographics.

4.3. **Genetic Evaluation for 'Major Recommended (Improving) Reproducer'**

The combination of the different Individual Performance Tests, carried out within the framework of the existing Improvement Programme together with the genealogical information that allows for the establishment of blood relationships between the participating animals, (ancestors, collaterals and descendants), will permit the genetic evaluation of Purebred Hispano-Arab Breeding Stock.

From the genetic evaluation of the different characters established in each category a multi-character Genetic Index in which will be weighted each one of the included genetic values. Breeding Stock with a genetic index above the lintel established for this index in the breed and with a reliability that assures an effective improvement of the breed and that never should go lower than a reliability (rap2) of 0.7, will be considered as Major Recommended (Improving) Reproducers. Moreover, they must comply with the health and reproductive requirements established by the Breeders' Association, according to the rulings in force.

These horses should be included in the Breeding Stock Catalogue, with the objective of facilitating a rapid progression of the Breed.

4.3.1. **Major Recommended (Improving) Reproducer for Conformation-Functionality and Basic Movements**

All the animals that after the individual genetic evaluation and through offspring obtain a Genetic Index for conformation-Functionality and Basic Movements above the lintel established for this index in the breed, with a reliability (rap2) equal or above 70%, shall be considered '**Major Recommended (Improving) Breeding Stock for Conformation-Functionality and Basic Movements**'.

4.3.2. **Major Recommended (Improving) Reproducer for Doma Vaquera**

Based as much on the individual results as on those obtained by all the animals genetically related in the performance testing for Doma Vaquera, a **Genetic Index for Doma Vaquera (IG Doma Vaquera)** will be estimated. All the animals above the established lintel established for this index in the breed with a reliability (rap2) greater or equal to 70% will be considered as 'Major Recommended (Improving) Reproducers for Doma Vaquera'.

4.4 **Elite Reproducers**

The category of **Elite Reproducer** will be based on the results obtained by the horses and their offspring and/or collaterals in the Genetic Evaluation tests to which they have been submitted.

In this way, the only horses able to opt for this category will be those inscribed in the Definitive Register of the Hispano-Arab Stud Book, of seven or more years of age, that have obtained the category of Major Recommended (Improving) Reproducer in one of the established categories in the existing Improvement Programme, and moreover, that they – or their descendants – have stood out through sporting merit and/or in official tests established by the Breeders Association. In addition they should comply with the health and reproductive requirements established by the Breeders' Association, according to the rulings in force.

5. **Phases of the Improvement Programme**

The selection diagram defines the strategies for use of the genetically evaluated specimens, taking into account the risk factors of the population, its complex population structure and its functional versatility, all this being directed towards the maximum spread of genetic progression obtained without disregarding the maintaining of the genetic variability of this small population.

The diagram is constructed only using animals inscribed in the Stud Book, and that comply with the requirements established by the Improvement Programme with regard to the Performance Testing defined in it. All the specimens taking part in said tests will form part of the Improvement Programme for the Breed.

The Improvement Programme for the Purebred Hispano-Arab Horse is structured, as is established in [Spanish] Order APA/1018/2003, 23rd April, in five different phases, which are described as follows:

FIRST PHASE. GENETIC EVALUATION: BIRTH REGISTER

In this first phase of the Improvement Programme the identification and description of all the foals born each year will be carried out that will later be passed on for inscription in the Birth Register of the Stud Book for Purebred Hispano-Arab Horses, in accordance with the ruling specified in the Stud Book. It will be obligatory to carry out a relationship test by means of molecular testing of DNA, before definitive registration, to ensure the validity of the genealogical data on which the genetic evaluations proposed in the present Improvement Programme are based.

Once inscribed in the Birth Register according to the regulatory directions of the functioning of the Stud Book, the foals will be submitted to performance testing on the part of the assessors and their monitoring during their first three

years, making early observations on the conformation-functionality and basic movements of the specimens through the officially organised morphological-functionality competitions.

Running parallel to this will be testing for possible hereditarily transmittable defects and/or illnesses in the breed, eliminating from the selection process the animals carrying harmful or disease causing characteristics, those with congenital abnormalities or transmittable chromosomal changes. These studies could be complemented, if it is deemed necessary, by means of specific analysis.

SECOND PHASE. GENETIC EVALUATION: DEFINITIVE REGISTER

To access the Definitive Register of the Hispano-Arab Stud Book, the horses on the Birth Register will have to successfully pass – from 3 years of age – the Evaluation of Basic Aptitude for Breeding Stock established in the Zootechnical Rules in force for this Breed, being inscribed in the Definitive Register as Approved (Apto) Horses. By means of the information in the Stud Book a genealogical analysis of the animals and the genetic structure of the population will be carried out, in which it will be possible to determine:

The average level of inbreeding of the population

The individual percentage of blood relationship

The level of family relationship between the breeding stock

The genetic influence of the most emblematic animals

The gene flow between the animals participating in the Performance Testing

The equivalent number of ancestors and foundation stock

The Genetic Conservation Index

The inheritance model of illnesses and/or defects of a genetic nature

The connection system between Studs and Performance Testing

All this information, combined with the molecular data available of the animals, obtained from carrying out relationship testing, will be incorporated in the Improvement Testing for its use in establishing objective criteria that favours the genetic management of this population in an indigenous breed in danger of extinction. In terms of the Improvement Programme for this Breed it will be possible to adopt the measures deemed necessary in order to ensure the maintaining of genetic variation in the population and the control of the levels of blood relationships, avoiding the loss of productive forces and characters in the breed.

THIRD PHASE. PERFORMANCE TESTING & INDIVIDUAL GENETIC EVALUATION: YOUNG RECOMMENDED AND CALIFICADO BREEDING STOCK

During this third phase of the Improvement Programme, performance testing for conformation-functionality, basic movements, behavioural characteristics and the functional aptitude for Doma Vaquera will be carried out, through the Evaluation Tests for Breeding Stock (Basic Grading and Calificado), the Morphological Competitions, Selection Tests for Young Horses for Doma Vaquera and officially recognised Doma Vaquera Competitions.

After the genetic-statistic processing of the results generated, genetic evaluation of all the individuals will be carried out with the BLUP animal model, together with all the available family results, in that way determining the '**Young Recommended Reproducers**' for each one of the established categories, and '**Calificado Reproducers**', always given that it has a genetic value above the average of the population, according to what is established in this Improvement Programme.

The relationship between Young Recommended Reproducers and Calificado Reproducers will be sent by the Investigation Group AGR-218 to the Breeders Association, and once approved by MAGRAMA it will be in charge of its distribution between all the breeders inscribed in the Improvement Programme, with the objective of promoting the reproductive activities of these animals in order to achieve a more rapid genetic progression in the breed. In the same way, this information will be collected in the Breeding Stock Catalogue of the Breed with the objective of the early use of these by the breeders, in that way helping to quickly increment the number of descendants, contributing to facilitate the obtaining of the categories of Major Recommended (Improving) and Elite Breeding Stock.

FOURTH PHASE. GENETIC EVALUATION FOR THE OFFSPRING: MAJOR RECOMMENDED AND ELITE BREEDING STOCK

In this phase the genetic evaluation of all the individuals with performance testing including their own and that of their offspring, (using the family relationship matrix), will be carried out with the BLUP animal model with the objective of determining those animals that are able to be assigned to the different categories of **'Improving Breeding Stock'**.

Major Recommended Reproducer for Conformation-functionality and Basic Movements. Animals with a genetic index above the established lintel for this index in the breed and a reliability greater than 70%.

Major Recommended Reproducer for Doma Vaquera. Animals with a genetic index for Dressage above the established lintel for this index in the breed and a minimum reliability of 70%.

The official list of the 'Major Recommended Reproducer' horses will be gathered together in the Breeding Stock Catalogue and should include:

Genetic Information

Average phenotypical information of the animals registered participation in the different performance testing.

The value obtained for the genetic index for the conformation-functionality and basic movements.

The value obtained for the genetic index for Doma Vaquera.

The genetic value obtained for each one of the variables included in the calculation of the different genetic indices presented.

The number of offspring in testing.

Those Major Recommended Reproducers in the category of conformation-functionality and basic movements or Doma Vaquera, of seven years of age and above, inscribed in the Definitive Register of the HA Stud Book, and that they and their offspring have in addition stood out for sporting merit and/or official tests established by the Breeders Association will be catalogued as **'Elite Reproducers'**.

The Elite horses will appear listed in the Catalogue of Breeding Stock, where all the information describing the Major Recommended Reproducers will be included, adding:

The principal results achieved by the horse in sporting competitions and/or official tests.

The principal results achieved by their offspring in sporting competitions and/or official tests.

FIFTH PHASE. CATALOGUE OF BREEDING STOCK:

After the genetic evaluation, the Breeders Association will periodically publish a Catalogue of Breeding stock in which all the animals will be included, male and female, that have obtained the categories of Young Recommended Reproducer, Calificado, Major Recommended (Improving) Reproducer, and Elite, according to the criteria explained in the preceding phases.

The objective of this Catalogue of Breeding Stock is the dissemination and promotion of each one of the genetic categories described in the Improvement Programme. Also included in this catalogue will be the group of horses who have reached the category of 'Young Recommended Reproducer', with the objective of encouraging their reproductive use to achieve more rapid genetic progress to contribute to the reduction of the generational interval in the breed. Similarly, the early use of the 'Young Recommended Reproducer' horses as breeding stock by the breeders will help to speed up the number of descendants contributing to facilitate the subsequent obtaining of the category of 'Major Recommended Reproducer' and/or 'Elite Reproducer', once that the descendants are submitted to the performance testing established in this Improvement Programme.

Those animals that have obtained one of the categories considered in the Improvement Programme, will remain listed in the Equine Identification Document [Passport] and on the data base of the Hispano-Arab Stud Book.

In the same way, to assure the correct diffusion of genetic improvement to the entire population of Purebred Hispano-Arab horses, other activities have been developed that are included in the Improvement Diffusion Programme [Breeding Programme] specifically designed for the Purebred Hispano-Arab Horse, and which was approved by MAGRAMA by the decision of the Director General of Agricultural Resources and Breeders on the 5th of April 2010, conforming to article 30 of Real Decreto 2129/2008.

6. Diagram-Summary of the Improvement Programme for the Purebred Hispano-Arab Horse

SELECTION DIAGRAM FOR THE PUREBRED HISPANO-ARAB HORSE

