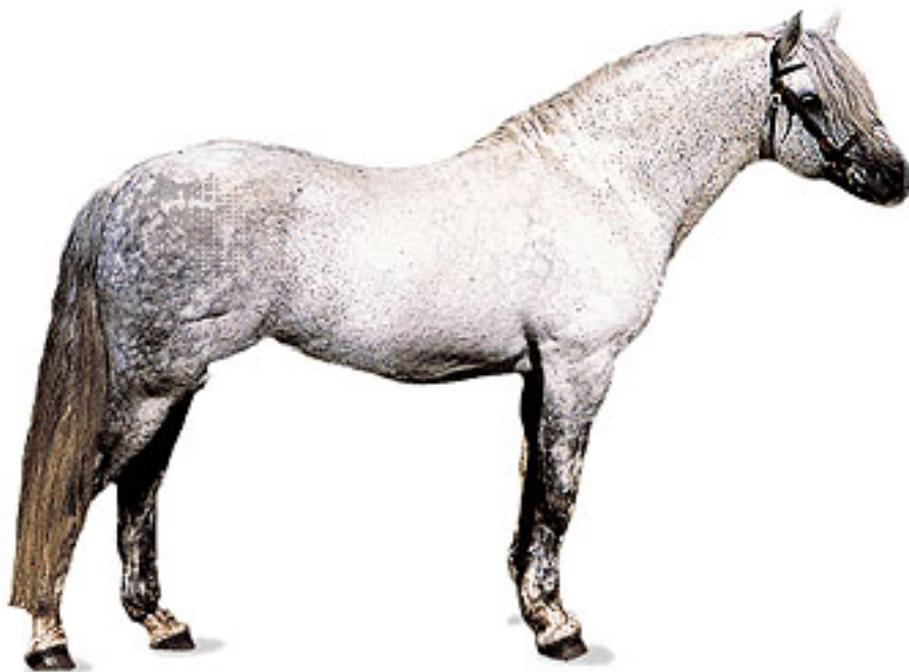


Discussion Document

Inspection, Classification and the Connemara Pony 2015



Dr Jack Murphy
October 2015

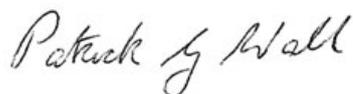
A Discussion Document presented to the Connemara Pony Breeders Society (CPBS) to assist Council and Members design, create and implement the optimal zootechnical advances for future generations of the Connemara Pony breed.

Foreword

Dear Connemara Pony Breeders

As Chair of Horse Sport Ireland (HSI), I am delighted to pen a foreword for this Discussion Document for the attention of the Connemara Breeders Pony Society (CPBS). The current CPBS President Tom Mac Lochlainn is an able successor to Andy O Donoghue and is a welcome addition to the HSI Breeding Sub Board where his analyses and contributions thus far have been significant and well received. It gives me pleasure to know that Tom and the CPBS team are intent on securing the future development of the Connemara Pony. It is really pleasing to see them work so hard for all the loyal breeders and supporters of this wonderful Irish equid. The reputation of the Connemara Pony extends all over the world and it has become one of the most iconic images associated with Ireland. This is also reflected in the fact that so many active daughter societies of the CPBS have been established overseas at this stage. There has been no better ambassador to promote Ireland and Irish equestrianism than the Connemara Pony over the decades and long may it continue to be the case. Countless numbers of adults and children have begun their careers with these wonderful pleasant tempered animals and these people keep coming back for more. Dr Jack Murphy has provided the CPBS with plenty of ammunition to examine and consider carefully when deciding upon how to plot the best way forward. As usual, Murphy's insight and intuitive analyses of the issues facing the CPBS is forthright and designed to be not only thought provoking, but it is also designed to challenge Tom Mac Lochlainn and his team to rise to the occasion. I have every confidence that the CBPS will conduct a detailed critique of all the various points raised within these pages. I urge you to reflect shrewdly and then engage in robust debate, go the extra mile and whatever the outcome, I have no doubt but that it will lead on to the long term gain of this indigenous Irish pony.

It is wonderful to know that the Connemara Pony is in such safe hands.



Prof Patrick G. Wall
Chair, Horse Sport Ireland
October 2015.

Executive Summary

The Connemara Pony is an iconic resource and national treasure. It must be maintained to the highest breed standards; protected from all forces of harm – both intrinsic and extrinsic; and developed and supported in line with zootechnical best practice.

The unique and considerable brand value should be promoted and marketed with pride on the global scale. The onus is on the custodians of this wonderful animal (individual breeders, producers, owners and studbook officers of the Connemara Pony Breeders Society [CPBS]) to ensure that these husbandry responsibilities are fully secured.

Any shortcomings in this regard reflects a dereliction of duty and is tantamount to negligent dysfunctional behaviour. The specifics of the Breed Standards should be reviewed, clearly specified, articulated accurately and concisely but remain constantly subject to appraisal in line with market demands and zootechnical norms of excellence.

CPBS officers charged with responsibility for inspection and quality control should only be awarded that privilege by demonstrating clear and unambiguous competencies to do so. All of the Inspector personnel should undergo appropriate training regularly, be capable of demonstrating proficiency and complete bi-annual competency examinations.

Any members exhibiting shortcomings in demonstrable inspection skillsets should absent themselves voluntarily from inspection panels or face permanent exclusion. Following voluntary abdication, members should only seek reappointment following the completion of appropriate duly recorded up-skilling and the necessary professional re-training.

In any event, all Inspectors should only serve a maximum of a three (3) year office and thereafter remain off-panel for a minimum of at least three years prior to a further re-appointment to office – or essentially serve as an Inspector for an absolute maximum of three years from any six consecutive calendar year timeframe.

Classification may be problematic for breeders, owners and Inspectors. Currently some 95% plus of females attain Class 1, but this is statistically and biologically improbable. Providing a lifetime classification status to an animal at 2 or 3 years of age leads to errors and in all likelihood, there is other invalidity within the current classification system.

In fact, the world of animal breeding is littered with countless examples of errors of classification. These mistakes were originally based upon predictive scores that were then never ultimately tested. Most stallions fail to live up to expectation as sires and beget progeny, the vast majority of which are not as good or talented as the sire himself.

Although studbook objectives focus on breeding better animals, the monetary value of these animals will also be influenced by supply and demand. The challenge is to breed and produce the better quality correct individual while producing the optimal numbers of them at any given time in order to maintain both market share and return on investment.

Linear Profiling provides the perfect opportunity to ‘inspect’ the inspectors. How inspectors complete LP lower beams is an extremely important and necessary validation exercise. Only by undertaking this test would the CPBS establish inspector proficiency and classification validation to build any degree of confidence in the entire system.

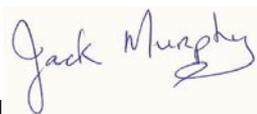
This Discussion Document will not find favour in every respect with every individual. It has been designed to require several readings in order to take on board the detail and the nuances made herein. Only when the document has been studied in the fullest detail and the content teased out and analysed in every respect should conclusions be drawn.

It will assist those who wish to develop the Connemara Pony Breed Standards; and those who wish to set out clearly defined Qualification and Selection criteria for Inspectors; and those who wish to ensure that the Classification system is operating in the correct manner; and those who wish to install confidence in the entire process and handle errors within the studbook system correctly and report truthful, accurate and reliable records.

Finally, Beethoven reportedly maintained that:

“...it is better to hit the wrong note confidently, than hit the right note unconfidently. Never be afraid to be wrong or to embarrass yourself; we are all students in this life, and there is always something more to learn.”

Similarly, the CPBS should not be afraid to push out the boundaries as they near the 100th anniversary of its foundation. Nothing ventured will always result in nothing gained!

A handwritten signature in blue ink that reads "Jack Murphy". The signature is written in a cursive style with a large, stylized 'M'.

Best Wishes to All

Table of Contents

FOREWORD	I
EXECUTIVE SUMMARY	II
TABLE OF CONTENTS	IV
LIST OF FIGURES	V
LIST OF TABLES	V
THE CONNEMARA PONY	1
Iconic Resource and National Treasure	1
1.1 Introduction	1
1.1.1 Some Early Developments	1
1.1.2 A Note on Breeding Goals	2
1.1.3 A Note on Heritability.....	2
1.1.4 A Note on Selection for Breeding	3
1.2 The Objective of this Discussion Document	3
THE INSPECTION PROCESS	4
The Requirement for Quality Control	4
2.1 Introduction	4
2.1.1 The Basis for Breeding Programmes.....	4
2.1.2 Important Traits and Measurements.....	5
2.1.3 Stallions are the Driving Force.....	6
2.1.4 Criteria for Potential Stallions.....	6
2.2 Selection and Training of Inspectors	7
CLASSIFICATION SYSTEMS	8
The Creation of Descriptive Categories	8
3.1 Introduction	8
3.1.1 Intra or within Studbook Classification.....	8
3.1.2 Stakeholder Confidence in Classification.....	9
3.1.3 The Distribution of Biological Traits	10
3.1.4 Interpreting the Normal Distribution Curve	11
3.2 Most Individuals will tend to be Average.....	11
MERITOCRACY	12
Ability and Talent versus Class Privilege	12
4.1 Introduction	12
4.1.1 Errors: False Positives and False Negatives	12
4.1.2 Least Common Error Types	13
4.1.3 Stanine or STANDARD NINE Measurement	13
4.1.4 Applying stanine metrics to the CP population	14
4.1.4.1 Mare Inspections.....	14
4.1.4.2 Colt Inspections	14
4.2 Benchmarks and Tangible Reference Materials	15

OTHER AREAS OF INTEREST	16
Always Strive to Make Improvements.....	16
5.1 Introduction	16
5.1.1 Accurate Labelling and Transparency	16
5.1.1.1 Acquire Lifetime Classification over Time.....	17
5.1.1.2 Size Matters: But Get it Right.....	18
5.1.2 Optimal Numbers and Guidance	19
5.1.2.1 Getting the Balance Right.....	19
5.1.3 New Inspection Tools: Linear Profiling	20
5.1.4 Hoof Wall Separation Disease	22
5.1.5 Blue Eyed Cream Connemara Ponies.....	22
5.2 Prepare to Move with the Times.....	23
CONCLUSION.....	24
The Final Comments	24
6.1 Introduction	24
6.2 Take home Message	24

List of Figures

Figure 1.	Schematic of the Breeding Programme Pyramid.....	5
Figure 2.	Timeform© Classification of Racehorses	10
Figure 3.	Stanines defined descriptively (with percent of scores)	13
Figure 4.	Budgerigar Breed Standard Reference Schematic.....	15

List of Tables

Table 2.	Useful Size Categories	18
----------	------------------------------	----

The Connemara Pony

Iconic Resource and National Treasure

1.1 Introduction

The historical development of the Connemara Pony under the auspices of the Connemara Pony Breeders Society (CPBS) has already been well documented. Truly, much has been written; many unique and wonderful time-related photographic images captured; and copious well-researched libraries of important records of pedigrees and pony ownerships have now been archived for posterity. Hence, the future of this iconic resource and national treasure should be secure and in safe keeping for imminent generations of stakeholders. As a consequence, there is little need at this juncture to regurgitate these recorded materials in any great order of magnitude for the purpose of this Discussion Document. It may be beneficial though to highlight that the CPBS was founded originally in December 1923. This organisation is therefore now in its tenth decade of existence – indicating that while it may have endured many challenges and vexatious issues during these almost 100 years, the CPBS has clearly stood the test of time.

1.1.1 Some Early Developments

At the outset, the societal records indicate that among the original aims and objectives was the desire to establish an immediate sense of quality control in terms of the standard or quality of the ponies entering the studbook. Details of Connemara Pony breed standards were drawn up and ‘inspections’ of animals were based upon those original standards during the spring of 1924. This work required the appointment of what were the first Inspectors of Connemara Pony breed standards. These knowledgeable and respected individuals would take on their role in a serious manner to create the basis for what has become the modern day Connemara Pony as it exists currently in the 21st century. Some measure of the seriousness of this quality control process becomes immediately apparent from the first inspection results. From the original cohort of animals presented before the inspection panel only 24% of females (60 from 249 mares) and some 14% (five from 35 stallion) were deemed to meet the breed standards of that era.

1.1.2 A Note on Breeding Goals

In general terms, the breeding goal of studbooks and most animal breeding organisations and individual breeders is essentially to upgrade and improve the 'quality of animals' produced in each subsequent generation. This process (and indeed hopefully progress) is what is described scientifically as zootechny. Zootechny is normally therefore at the root of any animal species (and plant) that has come under the care and management of human kind. Simply put, in order that zootechnical progress will ensue, it requires some method to identify superior breeding animals in any population in the first instance – this facilitates possible progress through directional selection. Routine assessment of potential future breeding stock animals tends to focus on the characteristics or biological traits of importance in the animals or the species under review. And it follows that what is perhaps best described as 'type' or 'conformation' evaluations are an integral component for assessment within any breeding plan or programme. This is immediately obvious in many commercial animal or livestock production systems including dogs, dairy cattle, pigs, sheep, beef cattle, horses and ponies. These evaluation systems are clearly aimed at retaining and promoting the use of higher quality individuals within the breeding population. An associated outcome is that this also facilitates the collection of important and valuable data so that the most useful and meaningful information becomes available to breeders over time.

1.1.3 A Note on Heritability

In simplistic terms, many if not most biological traits or characteristics are heritable. Curiously in many animal breeds, undesirable or so-called faulty traits often appear to be highly heritable! Easily understood heritability scores include milk yield and growth rate heritability in cattle. When evaluating equine animals for future use including as breeding stock, conformation assessments generate heritability values for type, basic soundness, athleticism and durability. Indeed, several studies have been published to describe the intricacies and relationships between conformation and functional activity in the equine. And then as better understanding of these relationships becomes available, these data permit even more analysis of functional conformation of the animal in order to predict future usefulness and performance scores – including as an athlete or a breeding animal.

1.1.4 A Note on Selection for Breeding

Basically, breeders have two tools at their disposal: (1a) selection and (2) mating choices. It should be immediately recognized that there is a flip side to the former and that is (1b) culling. With selection, breeders identify the animals both male and female that should be used for future breeding endeavors. With mating choices, the breeder decides which animal is bred to which animal – and as a supplementary addendum – decides for how long (number of breeding repeats) that these animals will be used together or alternated with some other permutation within the programme. The purpose of the culling tool is to remove animals from the breeding operation or at a minimum prevent them from (re)breeding and contributing to the next generation on the basis that these animals have little of substance to offer in terms of zootechnical advancement. This operation might include a decision simply not to breed an animal; a decision to follow a different role with an animal as in sport or competition; castration of an animal and/or even permanent removal of an animal via euthanasia. In this way, the quality of the selected animals can be ensured to make meaningful contribution to the breed. In short, only continual overview and optimized interventions of this nature will ultimately determine and certify breed dynamics in terms of desired direction, zootechnical development and genetic progress of the breed under scrutiny.

1.2 The Objective of this Discussion Document

The objective of this Discussion Document is to examine the issues of Inspection and Classification as they pertain to the Connemara Pony at this time. Clearly, it will be important in the first instance to appreciate the rationale for having both Inspection and Classification systems in place. However, it will be equally necessary to understand and appreciate the future role, functional capability and marketing potential of the Connemara Pony a century on from the establishment of the CPBS. Times change; market demands change; and biological entities change too. This level of analyses will require some examination of and discussion around several other peripheral factors including Connemara Pony Breed Standards; Qualification and Selection of Inspectors; Inspector Training and ongoing/future up-skilling; Data collation from Linear Profiling; Genetic Testing and other methodologies; and the probability of errors within any system.

The Inspection Process

The Requirement for Quality Control

2.1 Introduction

Quality Control (QC) has become an integral component of almost all aspects of modern day living. Indeed, it has now become the norm or what is expected in many given situations or set of circumstances involving products and services – including standards of animal breeding and production. In short, Quality Control is essentially a component of any procedure (or related sets of procedures) used to ensure that some entity (manufactured or biological) is of an acceptable standard, complies with a defined set of quality criteria and/or meets the requirements of clients and customers or in the case of the Connemara Pony – satisfies the quality requirements (in other words the breed standards) of the custodians and end users of this iconic breed. Inspections (sometimes referred to as Standard Inspection Procedures [SIPs]) are the primary method employed to check if the variables and parameters under scrutiny are compliant with the set(s) of required standards in the first instance. And while opinions on basic standards and SIPs may vary somewhat, it is however, incumbent upon the breeders, producers, owners and custodians of the Connemara Pony to ensure that there is *de facto* an appropriate level or degree of quality control in place for Connemara Pony Breed Standards.

2.1.1 The Basis for Breeding Programmes

The breeding programme model for any domesticated animal species is based upon a pyramid design. Animals selected as the population elite form the nucleus at the pinnacle of the pyramid – see Figure 1. These animals are essentially the select or best available or those that have been already improved genetically. The animals will have been carefully selected on merit with a range of characteristics of suitable calibre – in this case those that emanate from the founder animals of the Connemara Pony studbook with recorded and verified pedigrees intact. There may be a number (sometimes several) of underlying levels of animals in terms of genetic merit and while the genetic mean or average of these lower levels will

always be somewhat less, the rate of improvement over time is in principle equal to that of the superior animals – in this way continual upgrading occurs.

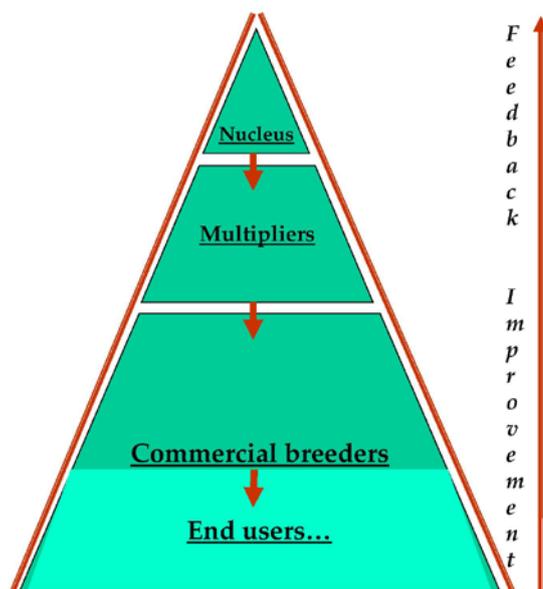


Figure 1. Schematic of the Breeding Programme Pyramid

The CPBS breeding strategists must consider two basic questions when planning and developing a GOOD animal breeding programme:

- **Question 1:** What is the BEST animal for the breed, function or discipline?
- **Question 2:** How could these animals be bred so that their progeny will be, if not the best, at least better on average than the current cohort of animals within the population?

2.1.2 Important Traits and Measurements

Only by answering both of the questions above correctly and thereafter implementing the correct decisions in a logical step-wise fashion can the CPBS breeders make the optimal progress during the coming decades. Furthermore, in attempting to answer the question on what constitutes the BEST animal for purpose, the CPBS breeders need to determine how to assess or measure the animals within the population and decide what attributes or characteristic traits are important or indeed necessary. The way in which these attributes will be measured with a good degree of accuracy is critical. Knowing what combination of traits or attributes contribute to the breed and how they should be measured is key in ensuring zootechnical excellence in terms of the CP Breed Standards.

2.1.3 Stallions are the Driving Force

In theory, all male and female ponies in the population are eligible (and allowed) to contribute to the genotypes of future generations. However, as outlined the particular breeding animals should meet careful selection criteria in order to progress to the breeding herd. Stallions are in essence the driving force within any scientific breeding programme and present the most immediate source of genetic upgrade. Ponies like Abbeyleix Owen and Carna Bobby have had enormous impact on CP breeding. Indeed they have illustrated the immediacy of upgrade within a couple of breeding generations. Conversely, it should also be noted that over-use or reliance on unsuitable stallion pony genetics could have a serious downgrading effect. Of course, every effort should be made to ensure that any such detrimental developments are avoided in order to maintain breeding population integrity for the genetic prowess of the entire Connemara Pony breed.

2.1.4 Criteria for Potential Stallions

There are a number of fundamentally important attributes that all potential stallion candidates should possess in order to comply with Breed Standards. Apart from several specific veterinary health prerequisites, Connemara Pony stallion candidates should meet the following four criteria:

1. Be in possession of a true stallion's pedigree
2. Have the CV for the specific trait(s) of interest
3. Possess and transmit the potential for upgrade
4. Be masculine with the ability to stamp progeny

Assuming that any intending stallion candidate has a stallion's pedigree, he should then have at least potential if not proven individual ability for the trait(s) of interest and/or be directly sib related to such proven performers. As there is less than total certainty associated with breeding, several ponies may easily fulfil the requirements listed in 1-2 above but subsequently prove unable to transmit any upgrade advantage. While this could have much to do with the available mare herd, any true stallion must be capable of passing on the desired genetic dowry. In some instances, this transmission will be in the form of type, pure athletic ability or as a sire of further improved stallion sons or occasionally as a dam sire – some or all of these criteria will form part of any true stallion portfolio.

2.2 Selection and Training of Inspectors

The protocols and measurements as described above can be recorded accurately during Breed or stallion inspections where the CPBS has appointed Suitably Qualified Individuals (SGIs) as inspectors. This is a hugely responsible task and the rules and regulations for inclusion in this panel of SQIs should be clearly defined without any sense of ambiguity whatsoever. Indeed, any individual charged with responsibility for inspection and quality control should only gain that privilege by demonstrating clear and unambiguous competencies to do so. In this sense, it should be a requirement that all Inspector personnel would undergo appropriate training, be capable of demonstrating proficiency and complete bi-annual assessment protocols for competency. Members exhibiting shortcomings in demonstrable inspection skillsets should absent themselves voluntarily from inspection panels and only ever seek reappointment following the completion of appropriate duly recorded up-skilling and the necessary professional re-training. The motto here must be not to simply 'expect' that individuals have the required capabilities but rather to 'inspect' each individual to confirm their suitability.

The CPBS currently has an Inspector Code of Conduct *in situ* and this should be reviewed now and subject to ongoing periodic review. Only in this way will the Code ensure that the policies and procedures that are implemented at all future inspections are up-to-date and in line with relevant documents, current best practice and zootechnical legislation. And while it is simply not feasible nor possible to anticipate every possible connotation of circumstance beforehand, all inspection officers should abide by the code in terms of ethics, moral justice and fairness when conducting the business of inspection. In particular, Conflicts of Interest or even any suggestion thereof must be avoided in order that the inspection process is seen to be objective and beyond reproach. And where any such criticism or charge is made, then the CBPS has an absolute duty of care to deal with the issue with immediacy, transparency and finality. In any event, all Inspectors should only serve a maximum of a three (3) year office and thereafter remain off-panel for a minimum of a further three years prior to possible future re-appointment to office – or essentially serve as an Inspector for an absolute maximum of three years from any six consecutive calendar year timeframe.

Classification Systems

The Creation of Descriptive Categories

3.1 Introduction

The ancient Greek Philosopher, Aristotle begun the science of classification almost two and a half centuries ago. And history now records that he is the original expert credited with the creation and division of the first descriptive categories system. While it may seem obvious today, Aristotle simply ‘classified’ what he saw as living things as either animal or plant based upon their physical appearance or ‘type’. The Romans would in due course bring yet another level of specificity and clarity by merely expanding that original system to include even more specific and definitive details. They made it possible to define what individual organism types were – in other words an entity or organism might be described as a pony while another might be an oak tree. What followed was that increasing numbers of entities or organisms were identified and subsequently classified. This in turn made in necessary to have more descriptive terms or ‘classes’ in order to divide what were quite similar organisms. So for example, it became possible to differentiate between types of trees and indeed types or breeds of ponies. With studbook classification, the goal is to separate animals firstly in terms of recognised breeds of ponies – inter-classification. Then secondly, to determine how closely each animal comes to adhering to the quality control or defined breed standard within an individual breeding herd, population or studbook – intra-classification. These increased levels of sophistication have brought about the need for various systems or studbook classification models.

3.1.1 Intra or within Studbook Classification

The current system of classification within the CP studbook allows for three (3) Classifications of candidate ponies – and it is generally well understood by most patrons. Basically in short order, Class 1 equates to animals assessed as meeting or surpassing the criteria of inspection and should therefore be representative (on average) of the better examples of the cohort; Class 2 animals are those that fall short of the criteria of inspection in some way other than a Clinical Veterinary

Examination. These animals are however, technically eligible for re-inspection and potential upgrade and finally Class 3 include those animals that are the progeny of Class 3 parents; or animals that fall well wide of the criteria and/or fail Clinical Veterinary Examination. Generally, the majority of Class 3 animals are eligible for inspection (and potential upgrade) as the vast majority of breeding animals are either Class 1 or Class 2. And uninspected candidates (in instances where their parents had not earlier been put forward for inspection but subsequently succeed in achieving Class 1 and/or Class 2 status) can ultimately come forward for inspection. In any event, current CP Studbook rules are in line with EU Zootechnical legislation and Class 3 Connemara Ponies are entitled to have their progeny registered and recorded in the relevant section (Class 3) of the studbook. One glaringly obvious shortcoming with the current system is however, in relation to the issue of oversize animals. Whilst the Studbook Rules and Breed Standards cite a maximum height allowable of 14.2hh, many animals in possession of Class 1 status plainly exceed this limit. This situation detracts from the bona fides of classification and is simply untenable in any legal sense. Allowing such unchallenged obfuscation of the rules can only lead to additional complications with associated and/or different aspects of the studbook rules and it constitutes a clear dereliction of duty by the CPBS custodians of the system.

3.1.2 Stakeholder Confidence in Classification

It must be acknowledged that Intra-classification is one of the more potentially problematic areas for breeders, owners, Inspectors and custodians of any animal breed. And there is always the associated risk that confidence in those officers that conduct inspection and classification can also waver occasionally. While this is something of a human reactive or behavioural attitude, the consequence is that Intra-classification *per se* often appears to have not only the potential to segregate the candidate animals under scrutiny into different classes, but it might also divide the stakeholder confidence in any such system too. And while the current CPBS system and EU Zootechnical legislation permits animals that do not fully meet Class 1 criteria to be retained within the breeding population, the onus is on the CPBS to ensure that the most robust and transparent system is in place, is validated via retrospective analysis and that any shortcomings are duly amended.

3.1.3 The Distribution of Biological Traits

Generally, in any population of animals, when all the individuals in the population have been scored accurately and reliably for some biological trait – (including measures of conformation; athletic ability, which could range from pure speed to stamina, or even some combination of speed and stamina to some other athletic ability) – then the distribution of scores will tend to follow what is termed a normal or bell shaped distribution. This is merely a statistical occurrence – occasionally the specific shape of the distribution curve could vary somewhat between different populations of animals depending upon the selection intensity and other factors such as the range of athletic abilities among the individual animals. All this simply means that in most cases, irrespective of the overall shape of the distribution, very few animals will be elite and a similarly small cohort will be absolutely worthless while the majority of individuals will tend to aggregate or feature somewhere close to the average score for the trait. The Thoroughbred (TB) racing industry provides a very simple and easy to understand example of this ‘averaging’ phenomenon in terms of racing ability. Following each horse’s track performance the authorities can easily produce a straightforward rating (or classification) system for horses in training. Other systems could include predicted values from pedigree or genetic data. The TB ratings system highlights this average aggregation trend very well – see Figure 2.

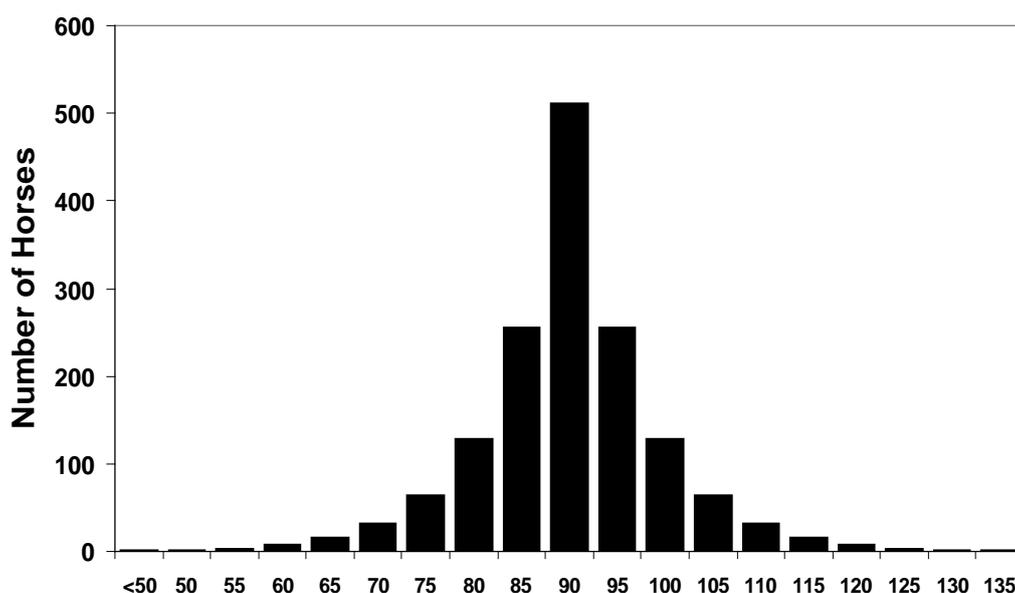


Figure 2. Timeform© Classification of Racehorses

3.1.4 Interpreting the Normal Distribution Curve

It should be immediately obvious from Figure 2 above that all the horses have received a rating that ranges from below 50lbs (essentially those that fail to achieve any rating because of non-appearance on the racetrack) and animals that score just 50lbs and above to the very elite animals that are rated at 135lbs – these higher rated individuals are essentially the best racehorses at the upper end of the scale. Among others, this type of system allows the race handicapper to allocate appropriate weights to horses in certain races in order to give poorer performers an equal chance of competing. Equally, owners of lesser rated horses would not race their animals against those rated at the top of the scale on a level weights basis – it would be a plain waste of entry fees. This then is typically what the breeder has to contend with in terms of most horses tending to be average. While this illustrated example is for racing ability, almost all biological measures (for example anatomical traits such as weight, height and size) tend to present in a similar distribution manner. This also includes most if not all other forms of athletic ability such as jumping prowess – simply put, most individuals tend to perform at or close to the average ability or mid-point of the population at large.

3.2 Most Individuals will tend to be Average

More importantly, what should now be also equally obvious from Figure 2 is that the average (or mean rating) is 90lbs and the vast bulk of horses lie close to this score – typically between 80 and 100lbs. This fact is a well-recognised scientific phenomenon and it has both telling and serious connotations for the Connemara Pony Studbook. Currently, the trend following inspection and classification of Connemara Pony candidates is that some 95% plus of females are rated Class 1. This scenario is simply mathematically and statistically unbelievable and known to be biologically improbable. In other words, either the current classification system or the allocation of inspection scores or some combination of the two together is unsound and producing factually incorrect classification outcomes. The most obvious evidence (not open to any degree of misinterpretation) as has already been identified (section 3.1.1) is that of individuals exceeding the height limits as laid down – the onus lies with the CPBS to remedy these errors. Again any failure by the CPBS to address these issues constitutes a dereliction of duty.

Meritocracy

Ability and Talent versus Class Privilege

4.1 Introduction

Awarding the highest classification status available to any stallion is basically an imprimatur that the individual is deemed highly suitable for the mares within the studbook. And such approval standings essentially declares that these individuals offer mare owners the high-value biological qualities and attributes that they require for their mares for breeding. Clearly, this is extremely difficult to guarantee with absolute accuracy at the best of times. Even more so where the assessment is based upon essentially predictive values at a time when (mostly) the stallion candidates are young as yet unproven individuals in terms of progeny, which is the one absolute test of a sire. This is the kernel of the challenge facing inspectors and the classification systems. And in the end, true recognition or a truly accurate reliable reflection of measurement should and must be ultimately based upon proven ability and talent rather than just some form of class privilege.

4.1.1 Errors: False Positives and False Negatives

The world of animal breeding is littered with countless examples of errors of classification. These mistakes were originally based upon predictive scores that were then never ultimately tested. Basically, these errors come in two types: False Positives and False Negatives – referred to statistically as Type 1 and Type 2 Errors. In terms of stallion approval or classification status, a Type 1 or a False Positive outcome is where a stallion is Approved or rated very highly and subsequently proves to be a failure – perhaps as an athlete – but more importantly at stud as a sire. In general, these are the more common errors as any objective analysis will demonstrate that the vast majority of stallions fail to live up to expectation as sires. In essence the position is where the vast majority of stallions merely beget progeny, the vast majority of which are not as good or talented as the stallion himself – this is so in the case of almost all biological traits involved. In the end, these errors tend to prove self-limiting as breeders rightfully will eventually reject failed sires even in the face of aggressive promotion campaigns.

4.1.2 Least Common Error Types

The less common error is the Type 2 Error or False Negative version – where a stallion candidate fails to gain approval or elite classification upon initial inspection but should have done so and/or succeeds to prove himself as a successful (athletic) sire of high quality progeny afterwards. These type of errors are less common because of the fact that most stallion candidates fail anyway and it is generally easier to rule out the obviously less likely to succeed candidates via inspection in the first instance. However, these are potentially serious errors if and where the correct outcome fails to materialise and the horse is lost to the breeding programme. Once again, purely basing the decision of awarding the candidate permanent or lifetime classification status on just one inspection is a limitation and of dubious value. Lifetime classification actually requires a greater level of proof that the status is the correct measure of ability and talent. In essence, it becomes clearly obvious that only longitudinal inspection regimes could ever deliver the most accurate assessment with absolute certainty. Again, this is yet another issue that the CPBS must come to terms with at this time. Including progeny assessment as part of stallion (and mare) inspections is the only way to validate or prove inspection integrity and classification accuracy.

4.1.3 Stanine or STANDARD NINE Measurement

Stanine (STANDARD NINE) is a method of scaling test scores on a nine-point standard scale with a mean of five and a standard deviation of two. This method is based upon a nine-point scale used for normalized test scores, where 1-3 are below average, 4-6 are average, and 7-9 are above average – essentially each stanine is one step in the nine-point scale of standard scores – see Figure 3.

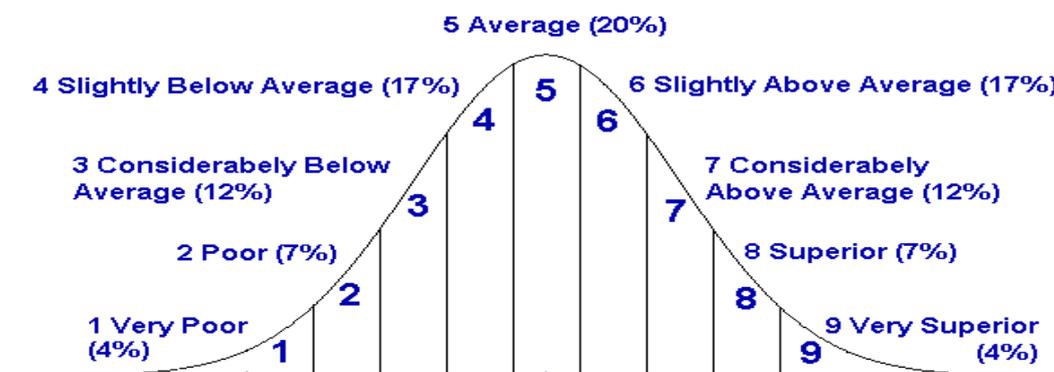


Figure 3. Stanines defined descriptively (with percent of scores)

4.1.4 Applying stanine metrics to the CP population

The CPBS should move to consider applying a stanine methodology to the inspection and classification systems in order to clearly profile the population of future generations of Connemara ponies. Such an approach would assist each and every breeder determine, rank or ‘see’ immediately where every individual pony fits into the population overall and/or conforms to the stated Breed Standards.

4.1.4.1 Mare Inspections

Reference to Figure 3 above reveals that some 54% of individuals are likely to be average – essentially a combination of stanines 4, 5 and 6 – which are truly average or either slightly below or slightly above. Clearly, female individuals that fall within these parameters and those above – stanine 7: considerably above average (12%); stanine 8: superior (7%) and stanine 9: (4%) – should all be actively considered as potentially zootechny eligible for breeding and competition or other activity subject to ratification. In theory therefore, the largest sample of potentially suitable breeding females will amount to some 77% of the individual female animal in the population. And many of those would fail to live up to expectation in reality when measured against stringent Breed Standards or detailed benchmark quality control criteria. Clearly, this situation falls well short of the 95% of females currently gaining Class 1.

4.1.4.2 Colt Inspections

Zootechny requires that breeding stallions should be generally superior to the population average in terms of genetic dowry, physical and athletic prowess and ability to upgrade the overall quality of the breed. Figure 3 above clearly indicates that some 11% at most of the entire males in the population [animals within stanine 8: superior (7%) and stanine 9: very superior (4%)] might actually possess these capabilities. While there is merit in occasionally using a lesser genetic resource (for example in order to keep specific lines extant or access some specific trait) the reality is that only a small number of animals should actually be considered for this role. As previously outlined above, absolute success can only be confirmed following ongoing or longitudinal assessment as the only complete certainty in animal breeding stems from factual results of long run outcomes.

4.2 Benchmarks and Tangible Reference Materials

As it approaches the 100th anniversary of its foundation, the CPBS should now move to define and produce modern photographic, schematic and video materials to set down standardised CP breed Benchmarks and Tangible Reference Materials. For example, contemporary illustrations of this type of reference materials are used by the French Selle Français studbook. Similarly, the Dutch KWPN make their own versions of extremely useful inspection and educational videos available online. Even the Budgerigar Society has a definitive Breed Standard or Benchmark reference to assist judges and breeding enthusiasts – see Figure 4. These type of materials provide clear and unambiguous explanations of measurement in matters of type, conformation, size, movement and athleticism parameters. The time has come for the CPBS to produce in-house bespoke reference systems along similar lines to serve as clear unequivocal Benchmarks to underpin both inspection and classification validation. Furthermore, Benchmarks and Tangible Reference Materials of this nature would prove extremely helpful to breeders in order to identify strengths and weaknesses in their breeding and/or competition animals. Using high calibre materials such as these new methods would instil greater quality control, transparency and stakeholder confidence.

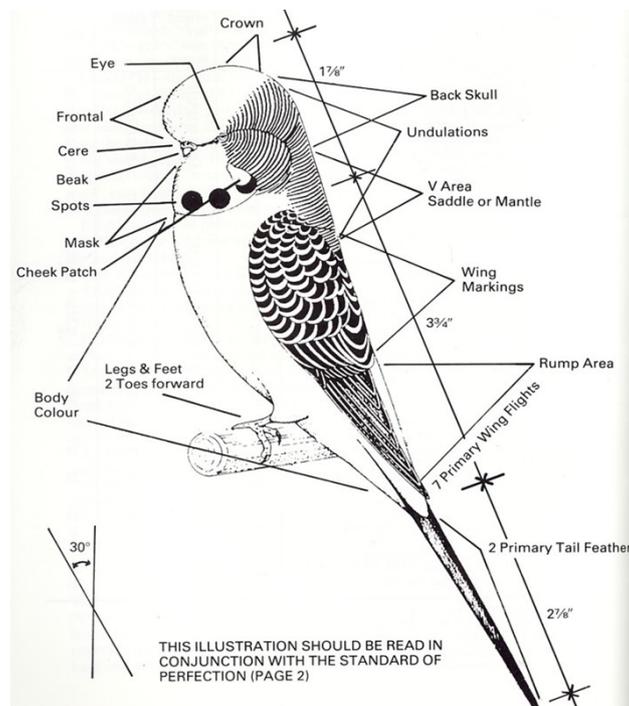


Figure 4. Budgerigar Breed Standard Reference Schematic

Other Areas of Interest

Always Strive to Make Improvements

5.1 Introduction

It was Einstein who maintained that problems cannot be solved by the same thinking as that that was used to create the problems at the outset. Altering or making changes to thinking always has its challenges and it is extremely difficult to control change *per se*. Moreover it is also extremely difficult for any organisation to plan, budget-for, schedule and ‘absolutely ensure’ successful continuous improvement initiatives reach their ultimate targets and achieve the result on time. But change can be guided (most effectively) by involving the people affected by the change into the design of the change in the first place. This is the challenge now facing the CPBS. Only by involving the thinking of the people (or the vast majority of the people) affected by impending changes will it be possible to make the desired progress. The stakeholders involved will tend to be innovators: easiest to work with – and early adopters: to be inspired and motivated – the majority: who need to be shown how to participate – and finally the laggards: important to listen to but then they should be left alone. Striving for change in relation to the Connemara Pony is probably not going to be easy, but the CPBS must adopt the attitude that while not easy the change will be worth it.

5.1.1 Accurate Labelling and Transparency

CPBS Inspection and Classification should be about totally accurate labelling and completely transparent and dependable information for the integrity of the studbook. All Connemara ponies are initially designated that breed status first on the basis of their pedigree – this is a good thing in that records are available. There is little doubt but that some of the older historical records that trace pedigree lineages and descent may have contained some errors – but in reality this is the case in all animal breeds. However, with the advent of blood typing and more recently DNA typing, these errors should be eliminated except in the rarest of circumstances. Now that all ponies have confirmed lineages (and even if there is some suspicion of historical errors involved occasionally) it is incumbent on the

custodians of the breed to identify the various families that contribute to the breed. This should be completed on the basis of both sire lines and mare or matrilineal lines of interest. As is the case in most man managed breeds, some lines will proliferate, some will endure and some will wane and unfortunately some will become extinct. Many would argue that those animals that are essentially ‘good enough’ are those that endure and proliferate while only the least important lines will wane and/or become extinct over time. However, there are many other reasons why such outcomes might materialise and the CBPS would do well to investigate how best to manage this overall balance. It would be a sad day to lose old once established lines where more optimal management of the resource might alter that balance – the simple truth is that once lost, it cannot return. Of course, the search must always go on to create new lines of excellence. Clear labelling of these breeding lines should be an ongoing piece of work to bring the issues closer to the attention of breeders. Workshops to discuss these strategies (transparent mechanisms) are required in order to advise all interested parties on the best ways to deal with this type of useful conservation management.

5.1.1.1 Acquire Lifetime Classification over Time

Acquiring what is essentially Lifetime Classification as an immature two or three year old animal is at best presumptive and hopeful but in reality it is more likely to be totally inappropriate and wrong. For the Connemara Pony, Lifetime Classification status should be ‘earned’ and in all probability not certified until each individual is at least 10 years old. It is of course absolutely in order to conduct provisional or preliminary inspection at two or three years (as is currently the situation) and award provisional or temporary classification at that stage. However, the temporary classification certificate should remain under review until such time as all the contributing factors can be included in the final analysis. The two contributing factors that are required to complete the matrix are (1) breeding prowess and contribution to the herd and (2) athletic or performance measures against peers in competition – be it showing, dressage, driving, eventing, jumping or other measure. This would be a C change for the CPBS and it would require careful development – but it is not at all impossible and there are multiple examples in other equine studbooks as to how it should be structured.

5.1.1.2 Size Matters: But Get it Right

The CPBS will need to address the issue of size or height categories for the pony. The current system that permits obviously over-height animals to avail of a classification status that is in part based upon a height limit or restriction is simply untenable and makes a mockery of labelling and transparency. This will present a huge challenge to the CPBS as many ponies have been bred and fed to grow beyond the original breed standard height limit. Whatever about the height limit, if the pony is a Connemara Pony in the first instance – then that is the factual position. Where the pony grows beyond the height limit, this cannot remove or deny its lineage but rather the height must be recorded accurately and truthfully. The range of sizes in the modern day pony has expanded and it might be prudent to devise a better and more accurate system to label this phenomenon in a more transparent way. Whatever about altering the conditions of various competitions and classes as in 12.2hh, 13.2hh or 14.2hh – be these showing, riding club or other sports, each pony should be identified correctly. One suggestion is to consider using size categories of S, M, L, XL and XXL (see Table 2) for the studbook to cater for the range of ponies currently – and such a system could be expanded in either direction further in the need arose. Obviously there is a demand for different size animals in sport and breeding in order to meet the requirements of all people – be that for leisure, sport or breeding. As such it now way past the time to improve the classification process independently of the requirement to make height an element of it – so simply based upon physical attributes or what the pony is and does (type and athletic qualities) and then simply add the correct height label. Perhaps the one place that will be impacted significantly from a historical and cultural sense by correcting the height labelling issue is at the main show event in Cliften. However, the CPBS need to grapple this situation and deal with it expeditiously. It might mean restructuring show schedules in order to cater for all entries – but it also offers the possibility of developing both age and size classes (much like the RDS age and weight showing classes) with winners all meeting in a Championship Final. The future beckons.

Table 2. Useful Size Categories

Under 12.2hh	Over 12.2hh up to 13.2hh	Over 13.2hh up to 14.2hh	Over 14.2hh up to 15.2hh	Over 15.2hh
S	M	L	XL	XXL

5.1.2 Optimal Numbers and Guidance

Another important piece of work that the CPBS must take responsibility for is data capture in relation to production aspects of the CP breed. For example, having a detailed knowledge of the market or demand for ponies on an annual basis is a very important measurement to be aware of and monitor carefully. The CBPS should develop the capability to offer guidance on quality control, breed standard and zootechny in relation to breeding better ponies. However, it is equally important that the CBPS could provide some guidance in relation to 'quantity control' in terms of accurate and realistic supply and demand metrics. Breeders and producers need to be aware of these data so that they have an informed view of the market place and the effect that it is likely to have on their enterprises. While the studbook objective is set to focus on breeding better ponies, the monetary value of these animals will also be influenced by supply and demand. The challenge for all parties involved is to breed and produce the better pony (as in higher quality correct individuals) but also to attempt to produce the optimal numbers of ponies at any given time to maintain both market share and return on investment.

5.1.2.1 Getting the Balance Right

Underproduction (too few ponies) within the system might result in some quick gains and better prices initially. However, it is equally likely to result in a loss of quality generally as attempts to make up any shortfall quickly may encourage the usage of lesser quality animals into the breeding herd. On the other hand, overproduction (even where the standard is acceptable) is likely to lead to a reduction in monetary value (price) in the immediate term. However, when managed correctly it can provide the platform to maintain the standard of pony or even give opportunity to upgrade the average merit generally via increased selection pressure. The optimal number balance is an important feature to keep under observation and it is an important 'selling' aspect of supplying the marketplace with the desired pony quantity and quality as required. Generally, a small surplus will result in the best overall and long term balance – prices although never totally maximised will remain stable and strong and the quality of the animal can be maintained and even further improved via stronger selection.

5.1.3 New Inspection Tools: Linear Profiling

Linear Profiling (LP) has evolved from earlier iterations that were originally referred to as Linear Scoring (LS). These inspection tools have been used in assessing several animal breeds (particularly cattle) for more than three decades. As is the case with any tool or device in the hands of various tradesmen, the results will be very reliant on the ability and experience of the user to know how to operate the equipment. A cut-throat razor in the hands of a skilled barber could result in a magnificent grooming experience but the same equipment in the hands of a less experienced or awkward handler could leave a trail of destruction in its wake. LS was used to assess beef weanlings for different traits of economic importance to the farmer. Traits such as loin development, width and height at wither or locomotion measures were each assigned a score. Traits ‘scoring’ has occurred in several different cattle breeds by individuals trained to do so. LS and later LP was introduced into the equine world in 1989 in Holland and has been employed subsequently in different formats across a number of sport horse studbooks. Several scientific studies have been published in the academic literature as to the success or otherwise of using LP as part of horse inspections.

Briefly, the LP sheet lists various traits of conformation, movement, and athletic ability. A range of descriptive terms that represent the extremes for these traits (for example, uphill and downhill or long and short) accompany each trait under assessment. Typically, the method employs nine (9) tick-boxes (some use 7) to show the degree of variance between the two extremes. Inspectors tick one of the nine boxes to indicate the degree to which the specific trait is obvious in the animal under inspection. Generally, the central three boxes show the trait as it appears in the average horse of the population. Or they could be calibrated as a desired reference or benchmark – and it would be important to establish these parameters at the outset. In any event, left of centre tick-boxes would indicate for example, uphill and conversely right sided tick-boxes would indicate downhill when describing the conformation trait along a continuum. Again, it would be important to know the variation within or extent of the reference continuum. It may be necessary to include additional comment boxes in order to note or describe unusual faults or some abnormality not often encountered in the animals.

Every mare or stallion owner would then receive a copy of the completed LP sheet. Many owners would be well aware of both the strong and/or less strong traits in each of their animals. However, the independent ‘expert’ evaluation of the animals is designed to provide clearer and more defined descriptions of all an animal’s traits. In theory and practice this should allow a mare owner to select the most suitable stallion mating in order to compliment or compensate specific traits in any breeding mare. Likewise, all data from completed score sheets can be easily entered into a studbook database, where every animal is linked to both sire and dam and other siblings including extended pedigree relations. From here, it would be anticipated that useful ‘images’ of what stallions transmit to their offspring would emerge in time as the data are analysed and also define the extent of the transmission. This information would facilitate the calculation of genetic breeding values for each stallion (and mare) to assist breeders in selecting most suitable stallions for each of their mares depending on their breeding ambitions.

The linear profiles on the form (or lower beam) is important for the determination of the scientific breeding values. And long term, these data will reflect the breed development over time within the population. However, the owner tends to focus on the upper beam scores – because these are the scores that typically determine the studbook classification bestowed upon the animal. There are also two very different but potentially extremely important short-term benefits associated with LP. Clearly, the requirement to profile multiple traits in such finite detail is of enormous assistance when attempting to test and validate any inspection and classification systems. While not strictly cumulative, the sum of the LP lower beam parts must be in line with the upper beam classification scores. In other words there should be an obvious congruence between the qualitative and quantitative values attributed to the animal – if not authenticity is totally suspect. Secondly, the LP provides the perfect opportunity to ‘inspect’ the inspectors. There is a sense that some inspectors would prefer to avoid any such scrutiny. However, analyses of how inspectors complete lower beam portions of the LP is an extremely important and necessary validation exercise. Remember the barber and cut-throat razor? Only by undertaking such a test would the CPBS establish inspector proficiency to build any degree of confidence in the entire system.

5.1.4 Hoof Wall Separation Disease

A condition referred to (previously) as Hoof Wall Separation Syndrome (HWSS), now Hoof Wall Separation Disease (HWSD) occurs in the Connemara Pony breed. This is a genetic disease affecting young ponies causing separation and breaking of the dorsal hoof wall and severe HWSD cases lead to debilitating lameness. Weatherbys Ireland have an inexpensive simple test available to screen animals for their genetic status in relation to the disease. The mode of inheritance is well understood and only animals with two copies of the gene mutation exhibit clinical disease signs. Carriers remain clinically normal although they have one copy of the gene and are therefore potential reservoirs of the undesirable genetic mutation. The Weatherbys test based upon a hair sample will determine if ponies are normal or carriers of one or two copies of the HSWD mutation. In a totally transparent breeding operation, it is clearly in the interest of all breeders to know the genetic status of their breeding stock to optimise their mating choices. The CPBS should move to take proactive steps and encourage mare owners to screen all mares to determine HWSD status. More immediately however, the CPBS should incorporate screening of stallions as an integral part of all future inspections. Indeed, the HWSD status of all new stallions should be published as part of the inspection results. Furthermore, Stallion Masters currently standing older sires should be encouraged to conduct voluntary private HWSD screening.

5.1.5 Blue Eyed Cream Connemara Ponies

The majority of Connemara Pony enthusiasts will be aware of the phenomenon that is the Blue Eyed Cream (BEC) pony. In the past, these animals were often seen as undesirable and of a lesser monetary value. However, many BEC ponies have proven themselves as successful competition animals and no empirical evidence exists to suggest that vision in the BEC is negatively affected. Irrespective of fashion, CPBS inspection systems and classification should not denigrate these individuals as lesser specimens but simply record the phenomenon as it exists. Similar to the genetic testing for HWSD above, there is also another simple and inexpensive genetic test screening for BEC available from Weatherbys at this point in time. Intending breeders should have access to this information about prospective mating choice stallions in order that they might avoid or indeed

select for BEC progeny if they so choose to do. Therefore, in the interest of full knowledge being made available and transparency within the studbook, this information should become mandatory for stallions used for breeding. In future, the CPBS should require Weatherbys Certificates detailing BEC status of CP stallions so that all breeders can make their own most informed mating decisions.

5.2 Prepare to Move with the Times

In any sphere, purists being well grounded in tradition have immediate access to a wonderful thing in all the associated customs and practices. The CPBS would certainly appear to enjoy this comfort. However, each and every individual and organisation must prepare to move with the times – so for example, this will require how they choose to change their marketing policy, their product range and/or their overall strategy such that these improvements will keep them up to date and on top. The Connemara Pony has many things going for it that marketers the world over could only ever dream about. For example: it has a magical and recorded history that makes for wonderful research; as a physical specimen it is immediately recognisable and discernable from other pony breeds; it has a global brand value appreciation; it has a global reputation as a wonderful pony for children and adults alike to enjoy in leisure, sport and competition; it is an indigenous and native Irish breed; it is renowned for its trainability; it enjoys rare breed status; it contributes enormously to the Irish tourist industry and it is a National Treasure. It is not anticipated that this Discussion Document will find favour in every respect with every individual on first reading – nor would it be the desired result if it did! Instead, this document has been designed to require several readings in order to take on board the nuances of the points made herein. Only when the document has been studied in the fullest detail and the content teased out and analysed in every respect should conclusions be drawn. The CPBS is set to have a new-look Council *in situ* in the not so distant future and this may bring with it different values and even a different focus. Only then can or should major decisions be made in terms of future policy implementation. In any event, initiative is doing the right thing without being told what or how to do it!

Conclusion

The Final Comments

6.1 Introduction

The purpose of this Discussion Document was set out in section 1.2 (Objectives). It is designed to ignite intelligent debate and critical analyses on issues ranging from Inspection and Classification to the rationale for having this type of quality control mechanism *in situ*. The point has been made throughout this document that almost 100 years have passed since the birth of the CPBS and it is incumbent on all parties to recognise that times change; market demands change; and biological entities change too – remaining fixed in historical tradition or simply standing still is no longer a viable option. The time has come where no stone should be left unturned in the pursuit of excellence in attempting to nurture and develop the Connemara Pony Breed Standards; setting out clearly defined Qualification and Selection criteria for Inspectors; installing the most appropriate Inspector Training and up-skilling and training schedules; understanding the roles and benefits of Data collation and the nuances of Linear Profiling, Genetic Testing and other methodologies; handling errors within the studbook system correctly and being obliged to report only truthful, accurate and reliable records.

6.2 Take home Message

The evolution of animals (and of course humans, too) has had a long history. It has not always been the strongest, nor the most intelligent that have survived but those most responsive to change – clearly the undisputable evidence is that those that learned to collaborate and improvise most effectively are those that have prevailed. One of the CPBS Honorary Secretaries with the newly formed society in 1912, Mr Michael O Malley declared that he had...

... *“his heart set on the improvement of the breed”*...

Unquestionably now, all Good People should come together to collaborate; and improvise effectively; and ensure that the legacy begun by O Malley not only prevails, but that the central tenet of improvement is continually updated for the benefit of the Iconic Resource and National Treasure that is the Connemara Pony.