

# AN INVESTIGATION OF THOROUGHBRED GROWTH, RADIOGRAPHIC FINDINGS, SALES AND RACING PERFORMANCE

A global effort led by Kentucky Equine Research with cooperation from its partners in Kentucky, Europe, and Australia.

## BACKGROUND

A pilot study was recently conducted which investigated the growth, radiographic findings, sales and subsequent racing performance of 248 Thoroughbreds born in 2013-2017 and raised in Central Kentucky on 6 different farms. This study identified some interesting correlations between an individual's size relative to the population, notable radiographic findings, sales results, and racing performance. While it supported many of our previous theories, it also created a number of new questions.

## PHASE I GOAL

Now, we would like to increase the number of horses in the study in order to gain greater statistical power, minimizing the risk of individual farm effects from skewing the results of the pilot study, and enabling further analysis of subpopulations.

We would also like to expand the study to include data from the industries in Europe and Australia to allow for analysis of any regional differences. We hope to do this through inclusion of retrospective growth, radiographic, sales, and racing data for Thoroughbreds born between 2007 and 2017 and raised in Kentucky, Europe, and Australia.

## PHASE I REQUESTED DATA

To be included in the study, we need the following data for each individual:

- Growth Data - Complete weight and height record from birth through sale. Weights must have been measured with a scale. Only individuals that have measurements within each of the following periods should be included: (1) foal: 0-30 days of age; (2) suckling: 31-180 days; (3) weanling: 181-365 days; and (4) yearling: 366-640 days.
- Radiographic records - Radiographic reports from survey radiographs taken early in the yearling year as well as the report for pre-sale radiographs (for



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horses that were entered in an auction as a yearling). The date that the radiographs were taken should be recorded for each set.

- If there are significant findings within the radiographs, please note:
  - if the issue resolved on its own; or
  - if surgical repair was undertaken and the date and nature of the procedure; and
  - if the individual was withdrawn from a sale due to the finding.

#### **ADDITIONAL INFORMATION OF INTEREST**

- Breeding date. This will allow for the calculation of length of gestation which will have had an effect on foal birth weight.
- Notation of foals from maiden mares. This can be achieved by indicating the number of previous foals the mare has had within the foal's information in Gro-trac® (see Info tab).
- Identify foals with significant post-foaling complications
- Notation of weaning date
- Turnout and confinement protocols for:
  - January-March born foals
  - April-June born foals
- Typical feeding programs for mares foaling in:
  - January-March
  - April-June

#### **PHASE II GOAL**

For future foal crops, in addition to the above, we would like the opportunity to:

- Identify foals that have experienced confinement of 7 days or more, including the reason for confinement and the schedule taken to resume normal activity. Please consider adding this to your record-keeping.
- Learn about mare weight changes during the 3<sup>rd</sup> trimester and during lactation. Any farms that are willing to contribute to this by weighing their mares over this period are asked to contact us.

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# Growth Study Data Checklist

In order to be included in the study, we request that the following data be made available:

## Foal

- Dam
- Sire
- Date of birth
- Gender

Weight and height\* recorded during each of the following periods. Weight must be measured with a scale.

- foal: 0-30 days of age
- suckling: 31-180 days
- weanling: 181-365 days
- yearling: 366-640 days.

Radiographic records.

- Report for survey radiographs taken early in the yearling year
  - Date radiographs were taken
  - Veterinarian who reported findings

If there are significant findings within the radiographs, please note:

- if the issue resolved on its own; or
- if surgical repair was undertaken and the date and nature of the procedure; and
- if the individual was withdrawn from a sale due to the finding.
- Pre-sale radiographic report (for horses entered in an auction as a yearling)
  - Date radiographs were taken
  - Veterinarian who reported findings

\*If height is missing for a period, that is okay, as the population will be analyzed separately for weight and height. Lack of a height will remove the individual from the height dataset.

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# Growth Study Data Checklist

The following data would also be helpful, if available.

## Farm

Turnout and confinement protocols for:

- January–March born foals
- April–June born foals

Typical feeding programs for mares foaling in:

- January–March
- April–June

Weaning protocol

- How is the decision to wean made?
  - Age, weight, date, weather, or other milestone?
- How is weaning handled?
  - Gradual removal of mares from herd, all mares removed from group at once, etc.

## Mare

- Date of last cover by sire
- Maiden mare? (Y/N)

For future foal crops, we would also like to be able to:

- Weigh mare at least once a month for the last 4 months of pregnancy
- Weigh mare through lactation

## Foal

- Birthweight – weight collected after veterinary clearance within the first 24 hours after birth. Requested, but not required.
- Significant post-foaling complications?
- Weaning date

For future foal crops, we would also like to be able to:

- Identify foals that have experienced confinement of 7 days or more
- Identify the reason for confinement
- Describe the schedule taken to resume normal activity.

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