



## **The comparison of hoof dry content in different parities, seasons and stage of lactation**

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### **Abstract:**

There are many reasons for lameness and especially laminitis in dairy herds. These reasons mostly related to cow comfort indices, time budgeting, nutritional factors and etc.

There is a relationship between infectious causes of lameness like Digital Dermatitis or Interdigital Necrobacillosis (Phlegmon), and wetness and moisture condition of the barns and environment.

There are always doubt about the relationship between wet condition and hoof horn related diseases. There are many published data about the effect of wet condition on hoof horn in abattoir materials. These include dryness, moisture content, elasticity and other aspects of different places in hoof horn.

The object of our study was to determine dry content of hoof horn in live cows. We selected 60 dairy cows in a large and high producing dairy farm with over 3000 dairy cows in 4 different groups. Each group consisted of 15 cows.

1<sup>st</sup> lactation, 2<sup>nd</sup> lactation, 3<sup>rd</sup> lactation and 4<sup>th</sup> and over.

We began our study in winter 2014 in three different issues:

- 1) If there is any differences in dry content of hoof horn in these 4 lactational groups in fore and hind claws?
- 2) If there is any differences in dry content in fore and hind claws in four seasons of the year?
- 3) If there is any differences in dry content in fore and hind claws in different DIM?

We concluded that, the dry content of fore claws in 1<sup>st</sup> lactation dairy cows was significantly higher than the 2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> and higher.

The dry content of hind claws was higher in 1<sup>st</sup> lactation compare to the 3<sup>rd</sup> and the 2<sup>nd</sup> lactation compare to the 3<sup>rd</sup> lactation.

The results of the seasonal effect on dry content showed that the claws in both limbs are dryer in spring and summer.

We analyzed the effect of DIM on dry content of hoof claws in 6 different stages on a 60 days interval from the beginning of lactation and revealed that the dry content of claws was at the lowest level after parturition. It will go up till the end of the 4<sup>th</sup>. Stage (day 240) and then it doesn't have any significant changes.



To compare these 3 different items in a single model and rolling out the non-effective item, s, we used the GLM (general linear model multivariable) at the end of this analysis, and concluded that, the parity and seasons have the most effective role on the dry content of hoof.

So, when we are talking about the factors that can cause laminitis, we should consider the effect and the role of dry and moisture content of hoof claws. Maybe the wetness of barns makes the hoof claws more vulnerable to the environmental insults. These factors should be considered more in some critical period like after parturition or in the higher producing dairy cows especially in higher ages when they can produce more milk and are more beneficial.

**Key words:** Laminitis, Dry content, stage of lactation, seasons, parity