



## RESEARCH ■ REVIEW >

# RESEARCH >

### Feeding Horses Purina® Omega Match™ Ration Balancing Horse Feed Results in Plasma Fatty Acid Profiles Similar to that of Horses on Pasture

A SUMMARY OF RESEARCH CONDUCTED AT THE PURINA ANIMAL NUTRITION CENTER EVALUATING THE EFFECT OF FEEDING PURINA® OMEGA MATCH™ BALANCER ON PLASMA FATTY ACID PROFILES IN HORSES.<sup>1,2,3</sup>

#### < INTRODUCTION >

Omega 3, 6, and 9 fatty acids are important components in horses' diets. Alpha-linolenic acid (ALA), an omega-3 fatty acid, and linoleic acid, an omega-6 fatty acid, are considered essential fatty acids for horses and must be supplied by the diet. Naturally, horses receive the omega fatty acids that they require from the pasture or forage that they consume. A recent research trial conducted by Purina Animal Nutrition evaluated the fatty acid profile of grass samples obtained from sites around the continental United States and determined that the average level of fat was 3.37% (dry matter basis).<sup>4</sup> While the overall fat level in grass is typically low, the omega-3 content of grass is comparatively high, with ALA (omega-3), accounting for approximately 47.4% of the fat. However, for reasons such as availability, sugar and starch content, or other logistical considerations (travel, performance, etc.), many horses do not have access to enough grass to provide them with optimal levels of omega fatty acids. To that end, it was our objective to develop a feed that would provide omega fatty acids to horses without access to pasture.

Purina® Omega Match™ Ration Balancing Horse Feed is a novel concept in providing omega-3 fatty acids to horses. A horse consuming 2 pounds of Purina® Omega Match™ Ration Balancer per day will receive the same amount of omega-3 fatty acids as a horse on pasture for a 4-hour period. In addition, the horse will receive all their necessary vitamins and minerals without the sugar and small amount of starch that are prevalent in pasture. The objective of these trials was to determine whether Purina® Omega Match™ Ration Balancing Horse Feed could produce a similar plasma fatty acid profile compared to horses allowed free-choice access to pasture.

#### < MATERIALS AND METHODS >

Three identical trials were completed between 2017 and 2020. In all three trials, mature American Quarter Horses (n=10 per trial; 610.5 ± 14 kg BW) were offered 2 lb per 1000 lb BW Purina Omega Match Ration Balancing Horse Feed and 2.0% BW as Timothy grass hay split into equal meals daily (AM at approximately 0700 and PM at approximately 1300) starting on day 1 of the trial.

<sup>1</sup>HR 217 - Project Gold Omega Nugget. Internal Research, PANC. 2017

<sup>2</sup>HR 292 - The effects of feeding Dr. Green on body measurements, blood values and glucose/insulin response to feeding. Internal Research, PANC. 2019

<sup>3</sup>HR 327 - The effects of feeding Omega Match on the fatty acid profile of equine plasma. Internal Research, PANC. 2020

<sup>4</sup>Evaluation of amino acid and fatty acid profile of pastures at the PANC, New York, Texas, South Carolina, Kentucky, and Colorado. Internal Research, PANC. 2018.

Baseline blood samples were obtained via jugular venipuncture from all horses prior to transition to the experimental diet (day 0), and all horses were consuming another Purina® horse feed prior to transition. Blood samples were subsequently collected on day 30 (timepoint 1) and day 60 (timepoint 2) post dietary transition. Additionally, at timepoint 2, blood samples were obtained from 10 horses at the Purina Animal Nutrition Center in Gray Summit, MO, that had free choice-access to a mixed fescue pasture. These 10 horses were also supplemented with 4 lb of Purina Strategy GX in order to meet all nutritional needs and maintain optimal BW and BCS. All samples were obtained prior to AM feeding. Samples were immediately centrifuged, and plasma collected for fatty acid analysis. Fatty acid profiles were determined via gas chromatographic-mass spectral analysis of fatty acid methyl esters. Data were analyzed using an ANOVA in SAS 9.4.

## < RESULTS >

All data are presented as averages from all three trials. Plasma omega-3 levels increased from baseline to timepoint 2 in horses consuming Purina® Omega Match™ Ration Balancer (**Figure 1**;  $P < 0.05$ ). Conversely plasma omega-6 fatty acid levels decreased from baseline to timepoint 1 and remained lower at timepoint 2 in horses consuming the experimental diet (**Figure 2**;  $P < 0.05$ ). At timepoint 2, horses consuming Purina® Omega Match™ Ration Balancing Horse Feed had similar levels of omega-3 and omega-6 fatty acids in plasma (**Figure 3**;  $P = 0.45$  and **Figure 4**;  $P = 0.37$ ) as horses on pasture.

## < IMPLICATIONS >

The objective of these trials was to determine whether feeding Purina® Omega Match™ Ration Balancing Horse Feed could produce a similar plasma fatty acid profile compared to horses allowed free-choice access to pasture. Taken together these data indicate that feeding 2 lb per 1000 lb BW of Purina® Omega Match™ Ration Balancer per day to horses produces a plasma fatty acid profile similar to that of horses consuming pasture 24 hr per day. For some horses, free-choice access to pasture may be inappropriate for medical or other issues, or simply unavailable. Purina Omega Match Ration Balancing Horse Feed provides horse owners with the ability to provide horses with optimal levels of omega-3 fatty acids in the absence of pasture.

FIGURE 1

Omega-3 levels in plasma of horses consuming Purina® Omega Match™ Ration Balancing Horse Feed.

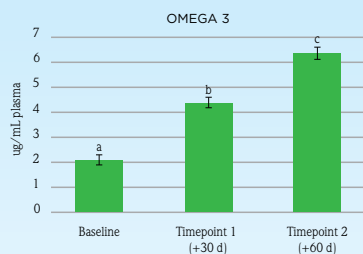


FIGURE 2

Omega-6 levels in plasma of horses consuming Purina® Omega Match™ Ration Balancing Horse Feed.

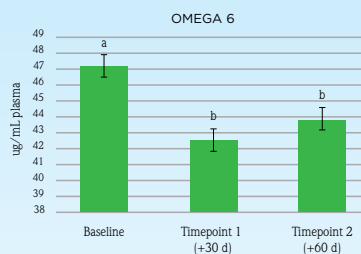


FIGURE 3

Omega-3 levels in plasma of horses consuming Purina® Omega Match™ Ration Balancing Horse Feed vs. horses on pasture.

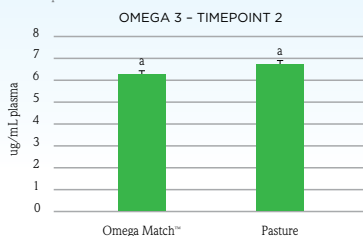
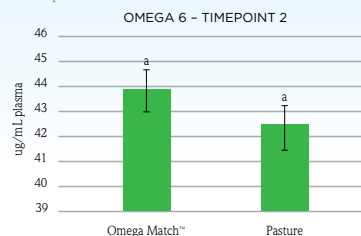


FIGURE 4

Omega-6 levels in plasma of horses consuming Purina® Omega Match™ Ration Balancing Horse Feed vs. horses on pasture.



< FOR MORE INFORMATION > Contact your local Purina representative if you would like more information about this study.