

## **Equine Metabolic Support Product Detail Sheet**

### **Indications for use:**

- Changes in insulin levels
- Seasonal pasture sensitivities
- Immune system challenges
- Excessive weight or fatty deposits

### **Individual Ingredients:**

- **Licorice Root** – There is some evidence that licorice root can help maintain glucose homeostasis as well as pituitary hormone homeostasis. (Swanston-Flatt 1989) This is the only ingredient which may directly impact the underlying pituitary imbalance.
- **Cinnamon** – There is some evidence that components of cinnamon can modulate glucose homeostasis. (Huss 2002, Reddy 2004, Dragland 2003, Shobana 2000, Berrio 1992, Broadhurst 2000, Imparl-Radosevich 1998, Jarvill-Taylor 2001, Kar 2003, Kreydiyyeh 2000, Lee 2002, Onderoglu 1999) The rationale for ingredients addressing blood glucose levels is that they are an important consequence of the disease. By maintaining normal glucose levels, it may be possible to bring other endocrine signals back to normal.
- **Chili powder (Cayenne)** – As with cinnamon, there is increasing evidence that chili powder can help maintain normal glucose levels. The mechanism is unclear. Ahuja KD et al. (2006) suggest that regular consumption of chili may attenuate postprandial hyperinsulinemia. (Shobana 2000, Broadhurst 2000)
- **Green Tea Extract** – Contains catechins/polyphenols that work in a similar fashion as the flavonoids. Additionally, they have a strong antioxidant capacity and directly influence a number of inflammatory pathways.
- **Chromium** – Supports insulin action in such a way that it potentiates insulin's actions. (Anderson 2000, Bahijri 2002, Balk 2007, Hoeger 1998, Jovanovic 1999, Kleefstra et al. 2007, Khan 1990) It combines with several other components to make the glucose tolerance factor.
- **Vanadium** – Can mimic insulin's actions. It is possible that by slowing glucose metabolism, improving blood glucose levels, and mimicking insulin's actions, circulating levels in a horse with metabolic challenges may be reduced. (Vanadium 1999, Sakurai 2002, Shafirir 2001, Shao 2000, Shechter 1990, Shechter 1993, Srivastava 2000, Thompson 2004)
- **Buckwheat flour** – Buckwheat seed and juice contains a variety of flavonoids including rutin. Flavonoids are found primarily conjugated to sugar molecules. In this form there is some evidence that they can compete with other sugars for uptake into the body. This might effectively slow the absorption of sugar and lessen the postprandial glucose surge. This would lessen the concomitant insulin

spike. In addition, rutin has been implicated in the maintenance of capillary integrity and, along with the other flavonoids, acts as an antioxidant. (Boyle et al. 2000, Mathiesen 1974, Riabokon et al. 2000, Ihme et al. 1996, Ortolani et al. 2000, Mayer et al. 2001)

- **Carrot powder** – Added as a base/carrier. It also contributes a small amount of carotenoids.

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