

Psychobiotics

By: Lark L. Burnham, Ph.D. | Animal nutrition

What if “gut feelings” are more than wishful thinking? Some very interesting research is being conducted that is investigating the microorganisms of the gut (collectively called ‘the microbiome’) and personality.

Research has already established extensive neurodevelopment throughout the lining of the gut and the presence of the largest concentration of neurotransmitters serotonin, dopamine, and GABA, in the mammalian body. It is now believed that substances secreted by gut microorganisms interact with these neurotransmitters and have direct effects on the brain.

Animal research has shown that personality traits can be transferred from one animal to another by inoculating them with the fecal material (and the resident microflora) of another animal. A timid mouse can suddenly become bold, and vice versa.

Although no one is recommending such inoculations, probiotic species have been studied for similar effects.

It has been known for several years that beneficial microorganisms can repair the damage done by stress. Now it can be said that probiotics not only protect against the effects of stress, they may change the perception of it as well.

Studies done with both animals and humans have shown that certain probiotic species have a significant effect on emotions such as anxiety and depression. This may be because these species change the hosts’ perception of the trigger stimuli, they become less reactive.

Before running out to buy probiotics, be aware that not all are created equal. Microorganisms are highly vulnerable to heat and

sunlight, be skeptical of the claims made by products bought off the shelf. The actual number of viable microorganisms consumed is more important than impressive numbers on the label. Many factors can reduce these during processing, shipment, and storage.

The most effective products will have initial CFU (colony forming units, a measure of viability) of 10⁸ or higher for each species, and those numbers should be guaranteed. *Lactobacillus* sp. have been identified as having psychobiotic properties, as well as *Bifidobacteria* sp., and *Streptococcus faecium*. These species must be shipped in an insulated container with an ice pack, and stored in the refrigerator after receipt to insure their viability.

Psychobiotics have huge implications for the livestock industry. Behaviorists and engineers are always designing handling and housing that reduces stress, but may be either too expensive or impractical for small operations. The addition of calming agents to feed can significantly reduce stress and its negative impact on health, growth rate, feed efficiency, and product (meat, milk, and fiber) quality without remodeling or buying special handling equipment.

About the Author:

Lark Burnham received a B.S. in Animal Science (1979) from Kansas State University and an M.S. in non-ruminant nutrition (1995) from Kansas State University, Manhattan, and a Ph.D. Doctorate in ruminant nutrition (2004) from Texas Tech University, Lubbock. Her special interests are comparative nutrition, the role of the micro flora in all mammals, fiber digestion, and probiotics. Lark currently works for Natur’s Way, Inc., Horton, KS which produces MSE probiotics.

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