

# Innovations for Soil Health

26<sup>th</sup> Conference of the Working Group for Sustainability / Soil Protection

## Connecting Soil Health and Mental Health

By

Robby Gass, MSc Organic Farming

# Our connection to soil

- “Let the earth bring forth the living creature according to its kind: cattle and creeping thing and beast of the earth, each according to its kind” (Gen.1:24)
- Healthy soil – Healthy plants – Healthy animals – Healthy humans..... and back again. (Rodale Institute) .....and
- Healthy soil is a living microbial web of activity feeding plants at the rhizosphere (Lowenfels and Lewis, 2010). Similarly, microbes feed the ruminants (cattle) and also manage our digestion
- Soil and Gut Micro-biomes are the real nutrition experts, made by Creation, for life on earth.
- We all rely on the living earth web (micro-biome) to be healthy!

# Nutrition Matters

- A physician must know the soil of the patient to understand the patient – what he eats, he is - Hippocrates - 300 BC
- 10 year study by Clinical Psychologist, Julia Rucklidge, concluded proof of the dramatic role nutrition plays in mental health – Medical Journal 2013
- The “Hidden Hunger” Obesity is a worldly epidemic! 1.5 billion overweight but undernourished people due to the mono-culture, energy rich but nutrient poor, food system.– CCF, April 2018

# Why do we eat?

- Requirements for a fit body – **Physical Health**  
Minerals, Vitamins, Proteins, Starch, Roughage, Sugars and Clean Water.
- Requirements for a fit mind – **Mental Health**  
We also require diverse nutritional ingredients to produce the hormones and neurotransmitters which enable us to function in a sensibly balanced way

# Functions of Neurotransmitters

- **Mood!** Serotonin – “the sense of happiness”; regulates our mood, sexual desire and function
- **Motivation!** Dopamine – “driving force”; gives us the sense of satisfaction when we have achieved. It regulates lust, addiction and motivation.  
A lack thereof results in Parkinson’s Disease
- **Immunity!** Histamine – “makes us resistant”; an organic nitrogenous compound involved in local immune responses in gut and a neurotransmitter between brain, spinal cord and uterus  
Essential for cognitive function and calmness
- **Survival!** Adrenaline – “Flight and Fight”; produced by adrenal glands through oxygenation of dopamine in perceived threatening situations or excitement.
- **Bonding!** Oxytocin – the “cuddle chemical”; a neuro-peptide essential for sexual reproduction and bonding between mother and child during and after child birth.
- **Stress and Pain!** Endorphins – “Uppers!”; peptide hormones that inhibit pain signals to the brain. Produced by exercise, laughter and foods like peppers, vanilla and ginseng

# Foods that pick you up!

## Endorphin producers



# Gut Micro-biome

## Emerging Scientific Research

"While the connections between the micro-biome and the immune and metabolic systems are well appreciated, research into the role gut microbes play in shaping the nervous system is an exciting frontier in the biological sciences," says Sarkis K. Mazmanian, Luis B. and Nelly Soux, Professor of Microbiology.

10% to 12% Neurotransmitters are produced in the brain and 5% in the spinal cord, but 85% are produced in the gut by the millions of living microbial organisms known as the micro-biome, primarily referred to as good gut bacteria that have a symbiotic relationship with the host.

It's a GUT FEELING!

That feeling you have when you know you know what you know!

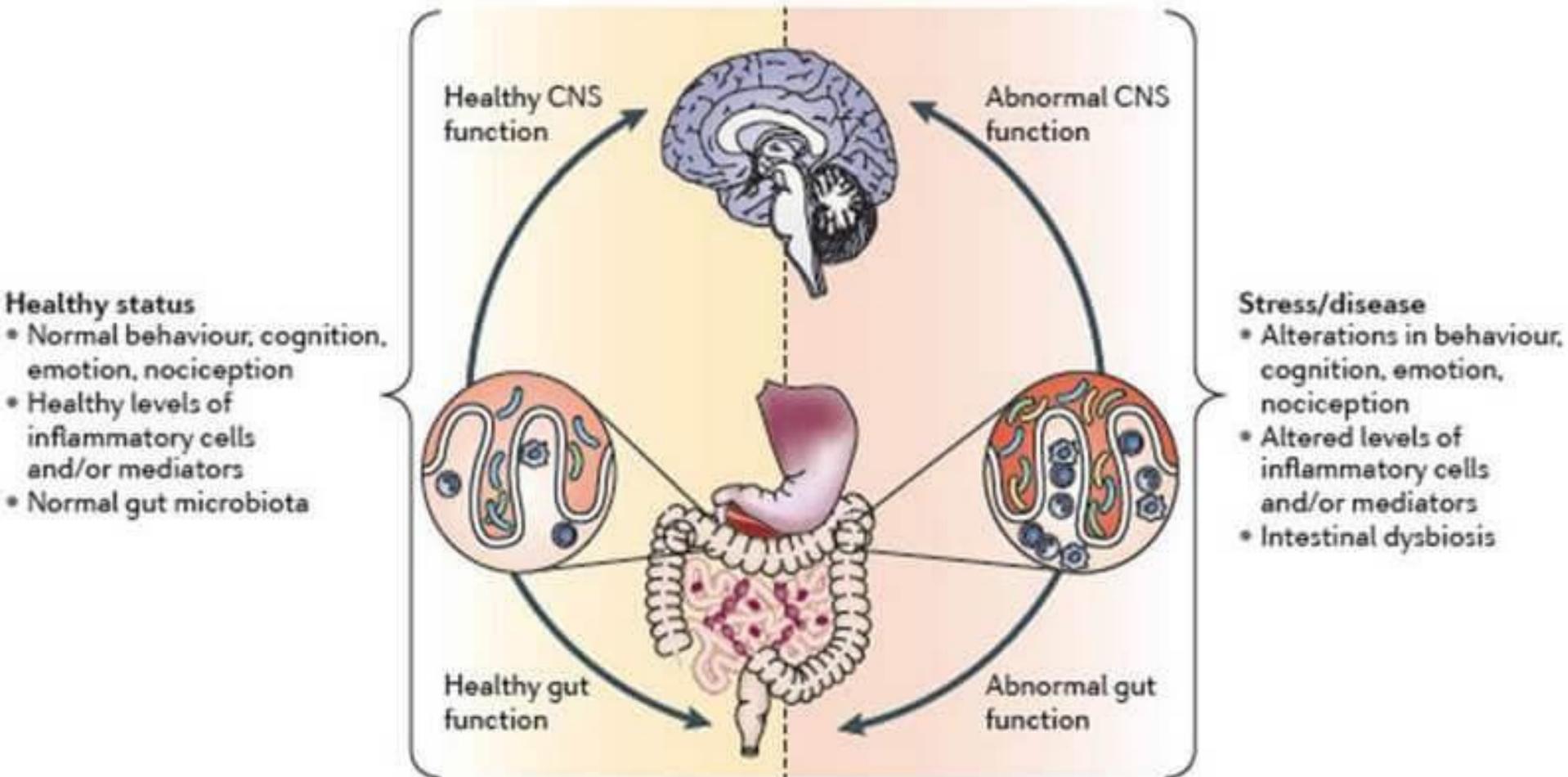
# Gut / Brain Relationship

(A summary from Dr Daniel Nuzum, USA)

- A study, published in 2017, showed there are between 7 to 9 microbes in the gut for every 1 neuron in the brain (9/1)
- There are 10 trillion bacteria in a healthy gut, and we live parasitically off their by-products
- Bad gut → bad nutrition → bad mood → depression.....WHY?
- Poor diet reduces gut biodiversity causing imbalances between good and bad bacteria – this can lead to leaky gut syndrome
- Lower gut bio-diversity also results in higher levels of addiction (often caused by bad fungi- the sugar eaters)
- Leaky gut syndrome? The gut has a thin wall with tiny fingers (villi) that filter nutrients released by good bacteria into the blood stream. Inflammation from bad bacteria or a damaged gut wall causes tiny gaps in the wall, allowing undigested food into the blood stream – this is extremely toxic !

# Gut Brain Relationship

Healthy gut = Healthy Central Nervous System



# What causes chronic digestive problems?

- Antibiotics are designed to kill living microbial organisms
- Conventional agriculture uses products like Glyphosate (Roundup) as systemic weed sprays , also often used as desiccants in cereal crops and it is a registered antibiotic which also kills soil microbes
- Prolonged consumption of systemic Glyphosate in our bread destroys our gut villi, causing leaky gut syndrome – leading to Auto Immune Diseases like ADHD, Anxiety / Depression, Autism and the growing allergy epidemic etc.
- Only the Corporate Food – Pharmaceutical – Agribusiness can benefit from this system

They have skilfully removed the “culture” from Agriculture.

# How can we fix the problem?

## Go Organic! Why?

- Organic foods are much higher in nutritional quality, have 4 times less synthetic pesticide residue and have more desirable antioxidants/ poly phenolics and less nitrogen residues and heavy metals than conventional farmed foods. Organically grown plants also produce more secondary metabolites, their natural resistance mechanism. Brandt *et al*, 2011
- Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. IFOAM
- Organic Farming puts the “culture” back into Agriculture!

# You Choose Agriculture or Agribusiness?



Working closely with the soil is truly healthy for body, mind and soul.  
Thank you for listening.

