

Block 2 - PPC1 Hearing

Evidence of Shane Croft

Submitter 74050

Overview

- Brief Background
- Four Contaminants
- Cultivation
- Options
- Know your Why

Background

- South Island
- DairyNZ – 9 Years
- Independent Consultant – 15 years
- Overseas Lessons
- New Focus since 2011 - Soils

Four Contaminants

- Nitrogen – NRP's, Is it really the KEY issue?
 - Forms of Nitrogen usage
 - Sulphate of Ammonia – German Flood
 - Plants uptake Inorganic N
 - No Synthetic Nitrogen vs Biological Ecosystem?
 - Do they result in poor water quality
 - Jena Experiment – Germany
 - Rodale Institute – USA

Four Contaminants

- Phosphate – This is the KEY
 - Soil Tests – Olsen P (Alkaline) vs Bray P2 (Acidic)
 - Phosphate Usage – Indoctrination
 - Phosphate Recommended Levels

Four Contaminants

- Sediment – This is the KEY
- Cultivation
- Grazing Management
 - Residual Grazing Mass
 - Root Mass post grazing >50% removal
 - Sediment loss
- Rainfall – 32 – 80Km/Hour

Four Contaminants

- E.Coli – What is being measured?

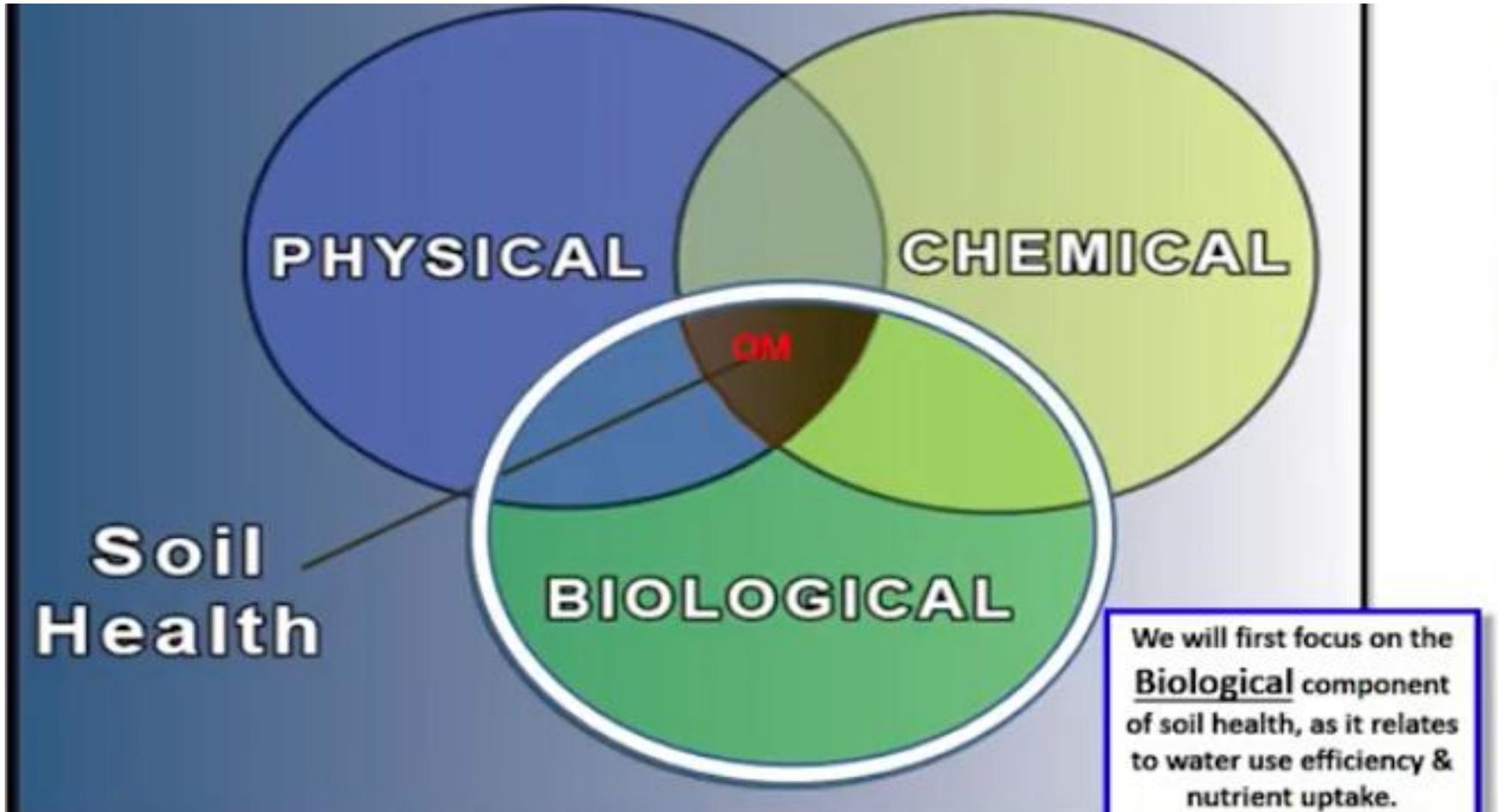
Cultivation & Set Back

- Need to Change Thinking
- No Till and Covers – No Set back

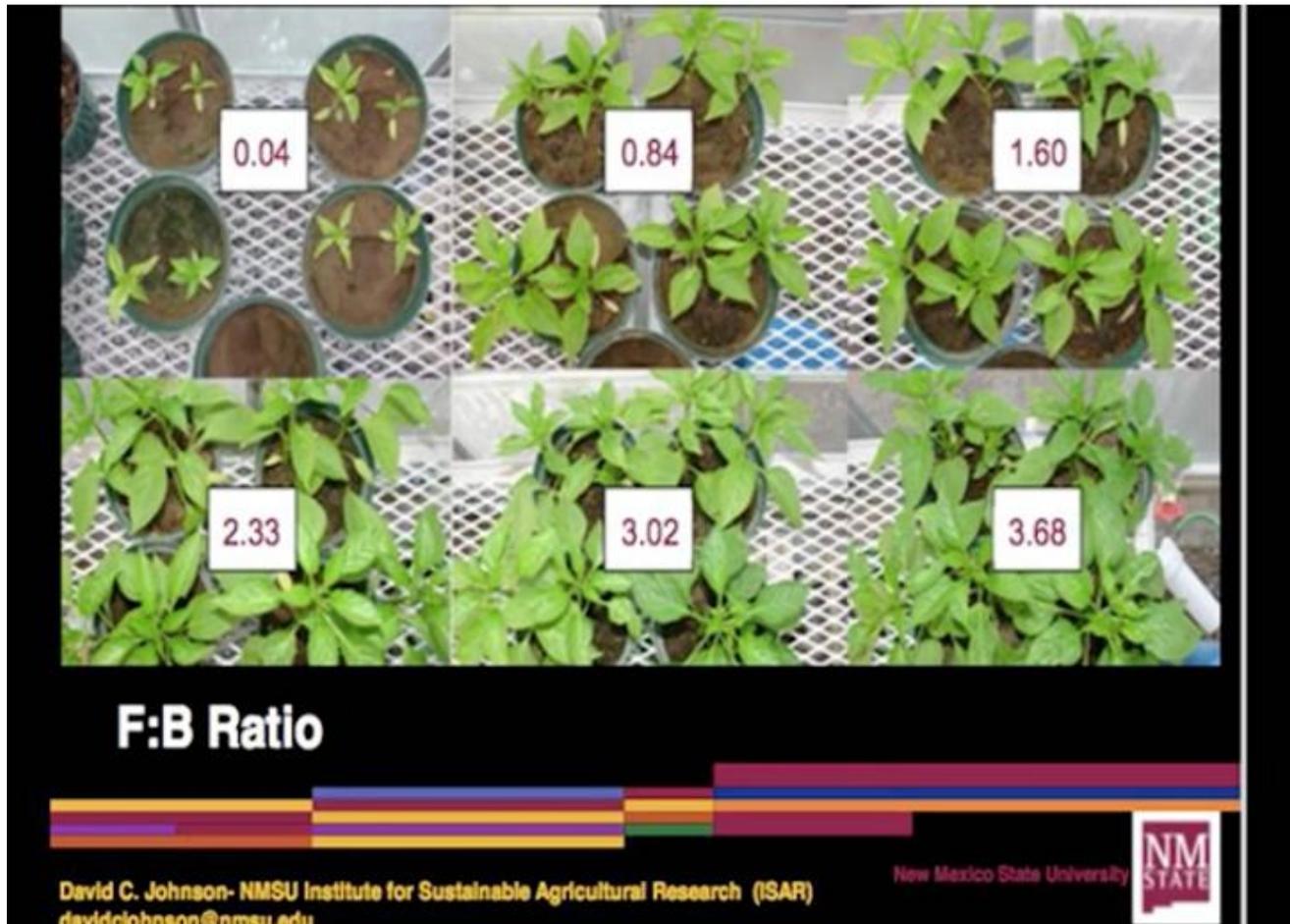
Options

- Trying to hold on – Tack it on
- We need to Mimic Nature – Biomimicry
 - What does Nature Do?
 - Its about life
- Its All About Carbon
 - Soil Cycle
 - Water Cycle
 - Nutrient Cycle
 - They are ALL linked

Options



Options



Options

Fields outside the project area: Typical no-till field without cover crops and diversity: Small detritusphere other spheres diminished. Notice the color and horizontal compaction.



Fields inside the project area: Ecological farming- no-till with diverse covers (less than 2 years): Notice all 5 well defined spheres present, dark humic color and increased earthworms populations.



Options

2006 Burleigh Co. ND

Cover Crop Demonstration Plots



Options

Turnip July 31



Options

Oilseed Radish July 31



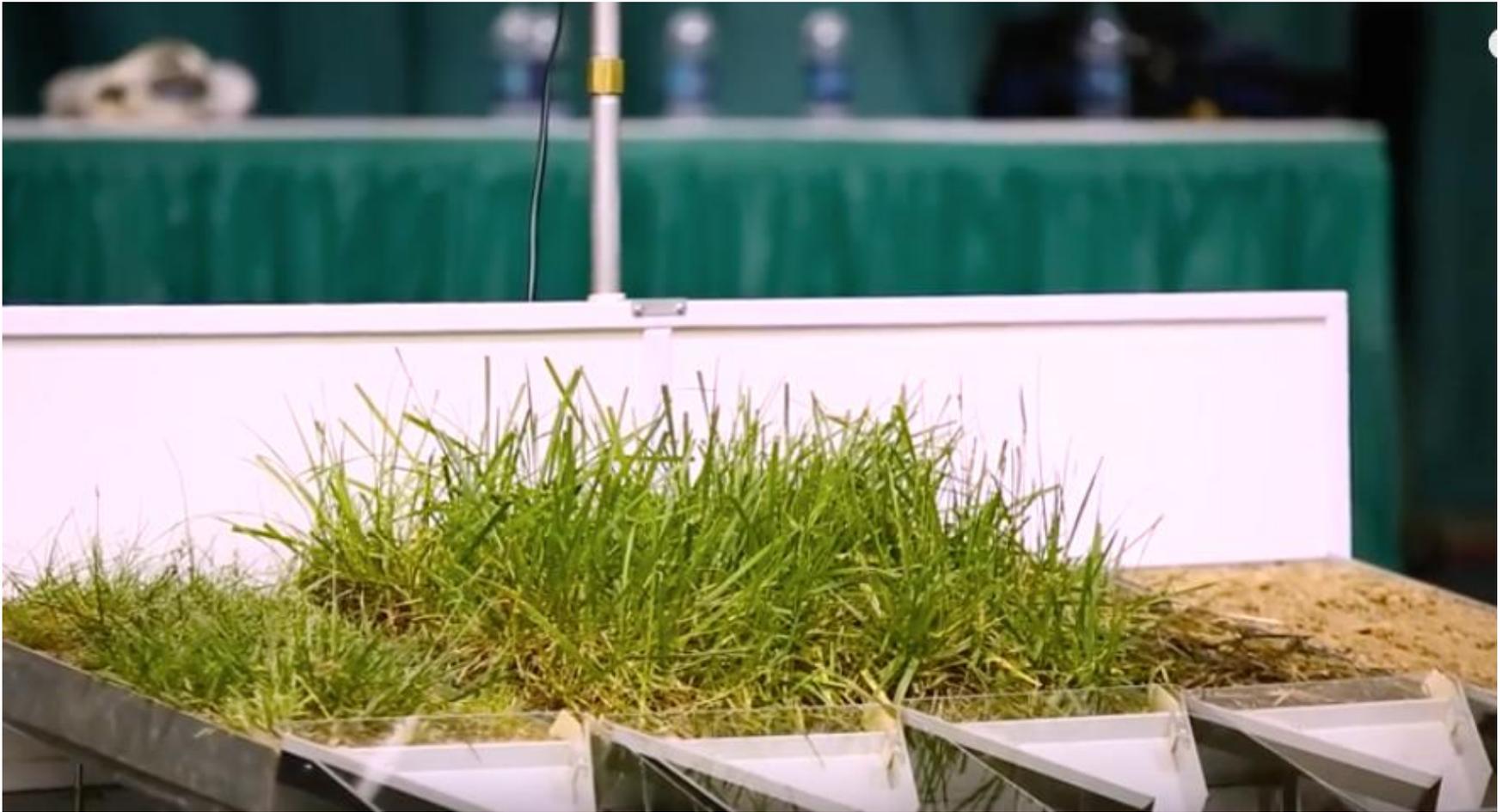
Options



Options – Jena Experiment



Options



Options – 2min 15sec



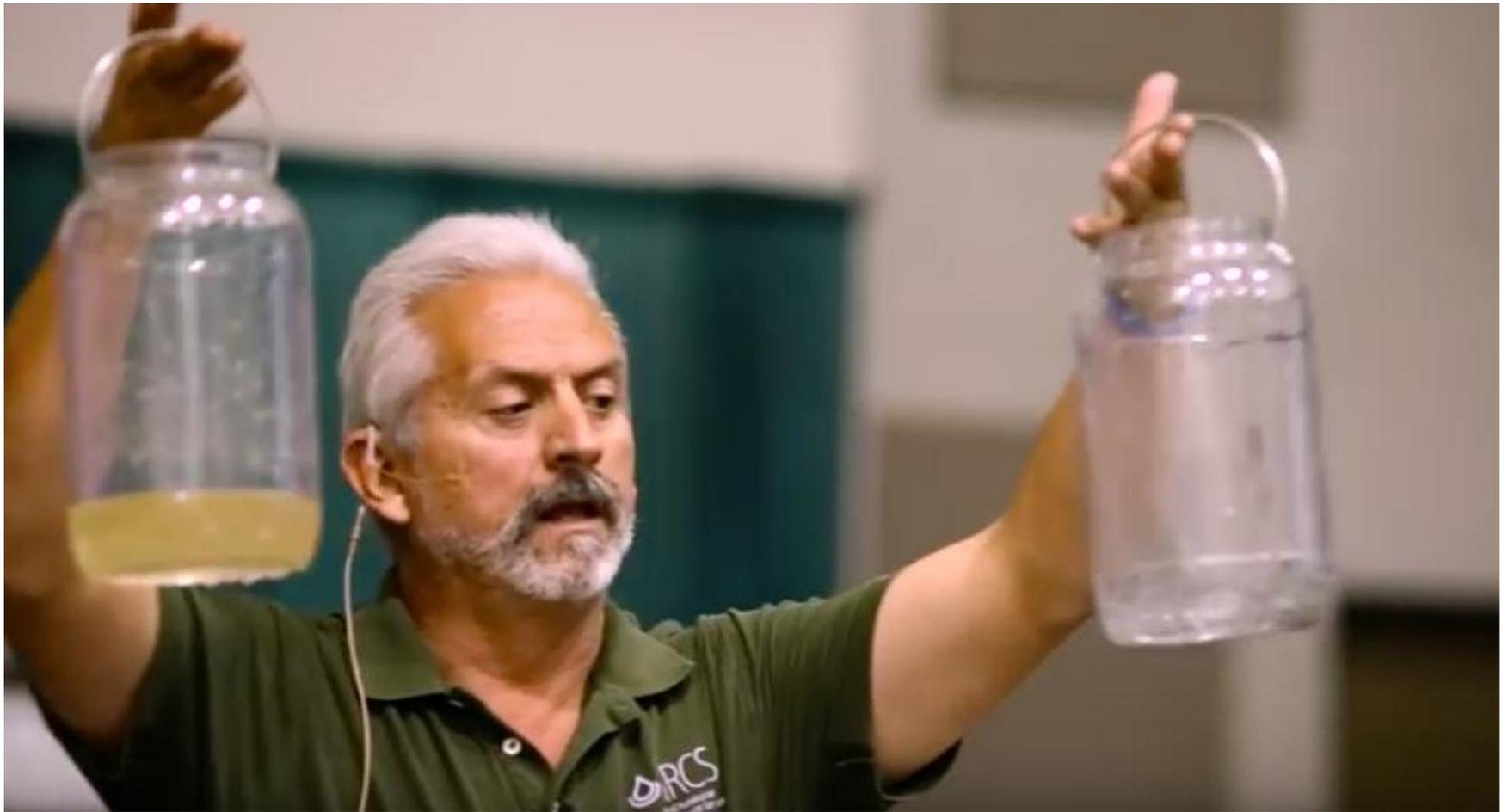
Options - Cultivation



Options – No Till



Options – Integrated Grazing



Options – Conventional Grazing



Options - Cultivation



Options



Options



My WHY

- Without truly knowing “My Why” and it becoming personal, I will never make the change in anything that I do.
- Quote “ A man convinced against his will, is of the same opinion still”
- Quote “ If you want to make small changes, change how you do things. When you want to make major changes, change how you see things” Don Campbell