

Chapter 2

The Benefits of the Soil Food Web

Lecture 12 - Weeds & Succession Part 2

One of the biggest problems in agriculture....

- Weeds grow rapidly, makes lots of seeds
- The seeds disperse wide and far
- Pretty soon, there are more weeds than crop.
- Why do the weeds win?

Consider the natural world..... Why aren't weeds taking over old growth forest, or healthy pastures?

Why do weeds only win sometimes?

The Chemical World.....

Weeds

- In the 1990's, herbicide companies talked to growers to find out what people considered weeds.
- Basically, they came up with “any plant out of place” is a weed.
- At sometime or another, therefore, all plants will be weeds.
- This is not a useful definition.

What is a useful definition of a weed?

Can Soil Biology Deal with Weeds?

- If weeds are early succession plants, a food web that is only bacterial-dominated, with few of the other component groups of organisms should select **for** the weeds.
- High concentrations of nitrate should help weeds to win in competition with other plants.
- By improving the food web, weeds should be selected **against**, crops will do better than the weeds, and people will learn that herbicides aren't necessary.

Example of Weed Suppression Using Biology

Onion Farm, Moorville, Tasmania

- Three BioComplete™ Liquid applications have been made to date. 2 x prior to seeding and 1 x post seeding.
- This “herbicide” (BioComplete™ Liquid) used prior to germination greatly reduced weed pressure on paddock 12, when compared with conventional paddock 7

“I am very excited about the progress to date and very impressed with the dedication that the SFI crew show towards their client.” Ian Smith, Owner

Weed Pressure Comparison

Paddock 7: Conventional Method



Paddock 12: Soil Foodweb Approach



Root Length Comparison

Paddock 7: Conventional Method



Paddock 12: Soil Foodweb Approach



Note the difference in soil texture.

Overall view of paddock 12 - low weed pressure



Weed Pressure Comparison

Paddock 12: The last spray run was deliberately left untreated



Flowerfield Enterprises, Kalamazoo, MI

Summer, 2008:

**Can't find the crop where
herbicides were used**

**No weeds following
BioComplete™ Liquid
application**

www.wormwoman.com



A Healthy Food Web Will:

- Make nutrients Available at rates plants require (eliminate fertilizer) leading to flavor and nutrition for animals and humans
- Retain Nutrients (stop run-off, leaching)
- Suppress Disease (competition, inhibition, consumption; no more pesticides!)
- Build Soil Structure (reduce water use, increase water holding capacity, increase rooting depth, create aerobic conditions)
- Decompose Toxins
- Suppress weeds – no more need for herbicides