

2017 Japanese Indigo Trial

Nick Tomasini with Vibrant Valley Farm

Indigo or 'Polygonum tinctorium'

An herbaceous subtropical annual

Grown & processed for fabric & textile dyeing

- **Improved** beneficial fungal biomass significantly
- **Decreased** excessive bacterial biomass
- **Reduced** weed pressure in treatment groups
- **Improved** crop vigor & dye quality in treatment groups

Challenges



February 2017



April 2017

- **Compacted** -- *anaerobic soil conditions*
- **Extreme bacterial biomass** -- *~23,000 ug/g of soil*
- **Inadequate cultivation equipment** -- *shallow tillage only*
- **Four month duration** -- *prefer six months to 1 year*
- **Elevated application rates** -- *agricultural lime in Trt1 & Trt2*

Indigo transplanted April 19, 2017

- **Treatment Group 1 (Trt1):** *biology + fertility inputs*
- **Treatment Group 2 (Trt2):** *biology + fertility inputs*
- **Control Group:** *fertility inputs only*

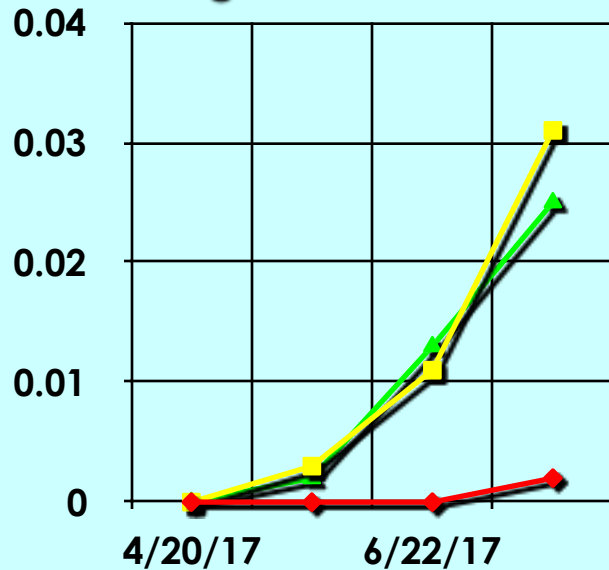
Used Good Organism Biomass

Rocky Mountain Worm Compost & homemade compost

- **2 compost tea applications** -- *foliar*
- **4 compost extract applications** -- *drench*
- **1 protozoan infusion application** -- *drench*
- **20 lbs top-dressing** -- *Trt2 only*

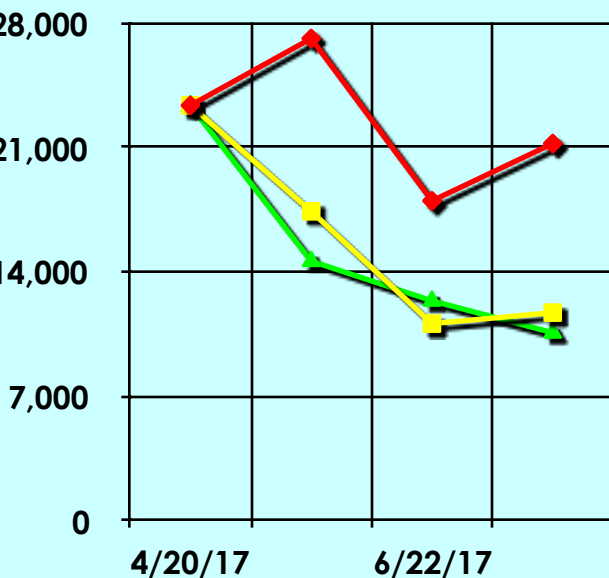


Fungi : Bacteria Ratio

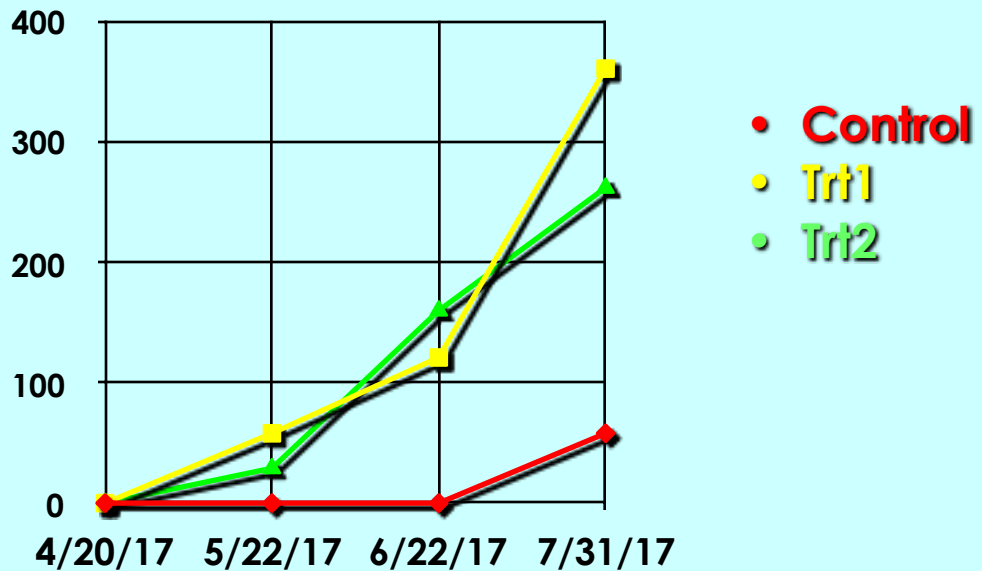


- **Increased Beneficial fungal biomass**
-- above minimum recommended levels (250 ug/g) in Trt1 & Trt2
- **Reduced excessive bacterial biomass**
-- reduced by 50% in Trt1 & Trt2
- **Improved F:B significantly in Trt1 & Trt2**
-- further reduction of bacterial biomass anticipated beyond this four month trial
- **Additional improvements to protozoa & nematode populations** observed by harvest in Trt1 & Trt2

Bacterial Biomass (ug/g)



Beneficial Fungal Biomass (ug/g)





- Trt1 & Trt2 exhibited **increased** crop vigor over the Control
- Density and vigor of weeds **decreased** in Trt1 & Trt2
- Trt1 & Trt2 initial dye quality assessment contained less green pigmentation & **darker** blue profile
- Farmer saved seeds from Trt1 & Trt2 re-growth in October -- **increased** vigor and maturity

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