| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 12.0 | 44% | -83 | 10.3 | 51% | -63 | -14% | 15% | 19.73 |
| **Community Structure** | 12.0 | 58% | | 10.3 | 56% | | -14.3% | -4.0% | |
| **Respiration** | 85.5 | 70% | | 64.4 | 60% | | -24.7% | -10.3% | |
| **Environmental Stressors** | | 38% | | | 37% | | | -1.5% | |
| **Carbon** | 141.1 | 49% | | 138.3 | 45% | | -2.0% | -4.1% | |
| **Nitrogen** | 132.1 | 43% | 4.40 | 150.4 | 51% | 4.85 | 13.8% | 8.0% | 10.2% |
| **Phosphorus** | 38.6 | 65% | 0.35 | 28.3 | 63% | 0.39 | -26.5% | -1.9% | 11.4% |
| **Potassium** | 76.7 | 30% | 3.28 | 95.5 | 34% | 4.29 | 24.5% | 4.1% | 30.8% |
| **Sulfur** | 7.1 | 48% | 0.23 | 6.4 | 37% | 0.25 | -9.6% | -10.5% | 8.7% |
| **Calcium** | 715.3 | 10% | 0.68 | 788.7 | 43% | 0.74 | 10.3% | 32.5% | 8.8% |
| **Iron** | 88.2 | 80% | 4090.37 | 66.5 | 73% | 3044.80 | -24.6% | -6.7% | -25.6% |
| **Zinc** | 0.7 | | 40.20 | 0.7 | | 42.56 | -4.0% | | 5.9% |
| **Manganese** | 2.1 | | 152.47 | 2.0 | | 66.11 | -4.8% | | -56.6% |
| **Magnesium** | 147.3 | | 0.24 | 139.3 | | 0.25 | -5.4% | | 4.2% |
| **Sodium** | 7.8 | | 0.01 | 8.1 | | 0.01 | 3.9% | | 0.0% |
| **Copper** | 0.5 | | 15.58 | 0.5 | | 17.31 | -7.1% | | 11.1% |
| **Aluminum** | 150.0 | | 1599.74 | 149.2 | | 1502.80 | -0.6% | | -6.1% |
| **Molybdenum** | | | 1.62 | | | 2.49 | | | 53.7% |
| **Boron** | | | 12.39 | | | 10.54 | | | -14.9% |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 12.0 | 44% | -83 | 10.3 | 51% | -63 | -14% | 15% | 19.73 |
| **Community Structure** | 12.0 | 58% | | 10.3 | 56% | | -14.3% | -4.0% | |
| Number of Genera | | 2774.0 | | | 3139.7 | | | 13.2% | |
| Diversity | | 4.0% | | | 72.0% | | | 1700.0% | |
| Evenness | | 2.0% | | | 22.0% | | | 1000.0% | |
| Mycorrhizae Abundance | | 27% | | | 5% | | | -22.3% | |
| Plant Stress Adaptation | | 72% | | | 70% | | | -1.3% | |
| Fungal to Bacterial Ratio | | | | | | | | | |
| Ectomycorrhizal to Arbuscular Ratio | | | | | | | | | |
| 1:1 Soil pH | 6.1 | | | 6.3 | | | 3.8% | | |
| Soil Health Calculation | 12.0 | | | 10.3 | | | -14.3% | | |
| Organic Matter | 3.5 | | | 3.5 | | | 0.0% | | |
| 1:1 Soluble Salt | 0.5 | | | 0.6 | | | 15.1% | | |
| Organic C:N | 11.0 | | | 12.8 | | | 16.3% | | |
| **Respiration** | 85.5 | 70% | | 64.4 | 60% | | -24.7% | -10.3% | |
| High Oxygen Environment | | 70% | | | 60% | | | -10.3% | |
| CO2-C | 85.5 | | | 64.4 | | | -24.7% | | |
| **Environmental Stressors** | | 38% | | | 37% | | | -1.5% | |
| Anoxic Environment | | 38% | | | 37% | | | -1.5% | |
| **Carbon** | 141.1 | 49% | | 138.3 | 45% | | -2.0% | -4.1% | |
| CO2-C | 85.5 | | | 64.4 | | | -24.7% | | |
| Organic Matter | 3.5 | | | 3.5 | | | 0.0% | | |
| Carbon Fixation | | 33% | | | 25% | | | -8.3% | |
| Organic Carbon Breakdown | | 39% | | | 53% | | | 14.6% | |
| Methanogenesis | | 25% | | | 43% | | | 18.7% | |
| H2O Total Organic C | 141.1 | | | 138.3 | | | -2.0% | | |
| % MAC | 59.8 | | | 47.1 | | | -21.2% | | |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 12.0 | 44% | -83 | 10.3 | 51% | -63 | -14% | 15% | 19.73 |
| **Nitrogen** | 132.1 | 43% | 4.40 | 150.4 | 51% | 4.85 | 13.8% | 8.0% | 10.2% |
| Nitrogen Fixation | | 58% | | | 36% | | | -22.1% | |
| Nodulating Bacteria | | 53% | | | 43% | | | -10.6% | |
| Organic Nitrogen Breakdown | | 66% | | | 69% | | | 3.6% | |
| H3A Ammonium | 1.5 | | | 1.2 | | | -17.7% | | |
| Nitrification | | 26% | | | 39% | | | 12.4% | |
| H3A Nitrate | 40.8 | | | 50.6 | | | 24.1% | | |
| Denitrification | | 80% | | | 41% | | | -38.2% | |
| H2O Total N | 55.2 | | | 63.2 | | | 14.5% | | |
| H2O Organic N | 12.8 | | | 10.8 | | | -15.3% | | |
| H3A Inorganic Nitrogen | 42.3 | | | 51.8 | | | 22.6% | | |
| Organic N Release | 12.8 | | | 10.8 | | | -15.3% | | |
| Organic N Reserve | 0.0 | | | 0.0 | | | | | |
| Available N | 132.1 | | | 150.4 | | | 13.8% | | |
| Total Nitrogen, % N | | | 4.4 | | | 4.9 | | | 10.2% |
| **Phosphorus** | 38.6 | 65% | 0.35 | 28.3 | 63% | 0.39 | -26.5% | -1.9% | 11.4% |
| Phosphorus Solubilization | | 65% | | | 63% | | | -1.9% | |
| H3A Total Phosphorus | 16.8 | | | 12.3 | | | -26.5% | | |
| H3A Inorganic Phosphorus | 14.9 | | | 10.2 | | | -31.3% | | |
| H3A Organic Phosphorus | 1.9 | | | 2.1 | | | 11.9% | | |
| Organic P Release | 1.9 | | | 2.1 | | | 11.9% | | |
| Organic P Reserve | 0.0 | | | 0.0 | | | | | |
| Available P | 38.6 | | | 28.3 | | | -26.5% | | |
| Phosphorus, % P | | | 0.35 | | | 0.39 | | | 11.4% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 12.0 | 44% | -83 | 10.3 | 51% | -63 | -14% | 15% | 19.73 |
| **Potassium** | 76.7 | 30% | 3.28 | 95.5 | 34% | 4.29 | 24.5% | 4.1% | 30.8% |
| Potassium Solubilization | | 30% | | | 34% | | | 4.1% | |
| H3A ICAP Potassium | 63.9 | | | 79.6 | | | 24.5% | | |
| Available K | 76.7 | | | 95.5 | | | 24.5% | | |
| Potassium, % K | | | 3.28 | | | 4.29 | | | 30.8% |
| **Sulfur** | 7.1 | 48% | 0.23 | 6.4 | 37% | 0.25 | -9.6% | -10.5% | 8.7% |
| Sulfur Oxidation | | 21% | | | 26% | | | 5.5% | |
| Sulfur Reduction | | 25% | | | 51% | | | 26.5% | |
| H3A ICAP Sulfur | 7.1 | | | 6.4 | | | -9.6% | | |
| Sulfur, % S | | | 0.23 | | | 0.25 | | | 8.7% |
| **Calcium** | 715.3 | 10% | 0.68 | 788.7 | 43% | 0.74 | 10.3% | 32.5% | 8.8% |
| Calcium Transport | | 10% | | | 43% | | | 32.5% | |
| H3A ICAP Calcium | 715.3 | | | 788.7 | | | 10.3% | | |
| Calcium, % Ca | | | 0.68 | | | 0.74 | | | 8.8% |
| **Iron** | 88.2 | 80% | 4090.37 | 66.5 | 73% | 3044.80 | -24.6% | -6.7% | -25.6% |
| Iron Acquisition | | 80% | | | 73% | | | -6.7% | |
| H3A ICAP Iron | 88.2 | | | 66.5 | | | -24.6% | | |
| Iron, ppm Fe | | | 4090.37 | | | 3044.80 | | | -25.6% |
| **Zinc** | 0.7 | | 40.20 | 0.7 | | 42.56 | -4.0% | | 5.9% |
| H3A ICAP Zinc | 0.7 | | | 0.7 | | | -4.0% | | |
| Zinc, ppm Zn | | | 40.20 | | | 42.56 | | | 5.9% |
| **Manganese** | 2.1 | | 152.47 | 2.0 | | 66.11 | -4.8% | | -56.6% |
| H3A ICAP Manganese | 2.1 | | | 2.0 | | | -4.8% | | |
| Manganese, ppm Mn | | | 152.47 | | | 66.11 | | | -56.6% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 12.0 | 44% | -83 | 10.3 | 51% | -63 | -14% | 15% | 19.73 |
| **Magnesium** | 147.3 | | 0.24 | 139.3 | | 0.25 | -5.4% | | 4.2% |
| H3A ICAP Magnesium | 147.3 | | | 139.3 | | | -5.4% | | |
| Magnesium, % Mg | | | 0.24 | | | 0.25 | | | 4.2% |
| **Sodium** | 7.8 | | 0.01 | 8.1 | | 0.01 | 3.9% | | 0.0% |
| H3A ICAP Sodium | 7.8 | | | 8.1 | | | 3.9% | | |
| Sodium, % Na | | | 0.01 | | | 0.01 | | | 0.0% |
| **Copper** | 0.5 | | 15.58 | 0.5 | | 17.31 | -7.1% | | 11.1% |
| H3A ICAP Copper | 0.5 | | | 0.5 | | | -7.1% | | |
| Copper, ppm Cu | | | 15.58 | | | 17.31 | | | 11.1% |
| **Aluminum** | 150.0 | | 1599.74 | 149.2 | | 1502.80 | -0.6% | | -6.1% |
| H3A ICAP Aluminum | 150.0 | | | 149.2 | | | -0.6% | | |
| Aluminum, ppm Al | | | 1599.74 | | | 1502.80 | | | -6.1% |
| **Molybdenum** | | | 1.62 | | | 2.49 | | | 53.7% |
| Molybdenum, ppm Mo | | | 1.62 | | | 2.49 | | | 53.7% |
| **Boron** | | | 12.39 | | | 10.54 | | | -14.9% |
| Boron, ppm B | | | 12.39 | | | 10.54 | | | -14.9% |

RHIZE BIO

| Report Date: | 12/10/2025 |
|---|---|

| CUSTOMER INFORMATION | | CUSTOMER INFORMATION | |
|---|---|---|---|
| Name: | info@tntfarmingsolutions.com | Grower Name: | TNT Farming Solutions |
| Address: | 6928 S Benham Rd Versailles, IN 47042 | Field ID: | Ck 9 |
| Phone: | (574) 532-6201 | Crop Type: | Corn |
| Bill To: | TNT Farmering Solutions | Crop Variety: | Corn |

## Top 20 Bacterial Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to Treatment | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Pseudomonas | 55.07% | aerobic | Pseudomonas | 20.21% | aerobic | Pseudomonas | -63.29% | aerobic |
| Arthrobacter | 4.53% | obligate aerobic | Arthrobacter | 7.18% | obligate aerobic | Arthrobacter | 58.55% | obligate aerobic |
| Nocardioides | 2.92% | obligate aerobic | Streptomyces | 5.26% | aerobic | Nocardioides | 64.50% | obligate aerobic |
| Streptomyces | 2.67% | aerobic | Nocardioides | 4.81% | obligate aerobic | Streptomyces | 97.15% | aerobic |
| Bradyrhizobium | 2.09% | aerobic | Microbacterium | 3.12% | | Bradyrhizobium | 34.62% | aerobic |
| Rhodococcus | 1.71% | aerobic | Priestia | 2.93% | aerobic | Rhodococcus | 30.88% | aerobic |
| Microbacterium | 1.21% | aerobic | Bradyrhizobium | 2.82% | aerobic | Microbacterium | 157.42% | aerobic |
| Priestia | 1.16% | | Rhodococcus | 2.24% | aerobic | Priestia | 153.01% | |
| Paenarthrobacter | 1.12% | aerobic | Rhizobium | 1.29% | aerobic | Paenarthrobacter | 1.78% | aerobic |
| Rhizobium | 1.12% | aerobic | Paenarthrobacter | 1.14% | aerobic | Rhizobium | 15.06% | aerobic |
| Pseudarthrobacter | 0.90% | aerobic | Sphingomonas | 1.08% | facultative | Pseudarthrobacter | 15.61% | aerobic |
| Massilia | 0.82% | obligate aerobic | Pseudarthrobacter | 1.04% | aerobic | Massilia | NA | obligate aerobic |
| Mesorhizobium | 0.82% | obligate aerobic | Mycobacterium | 0.77% | | Mesorhizobium | -9.90% | obligate aerobic |
| Telluria | 0.81% | aerobic | Mesorhizobium | 0.74% | obligate aerobic | Telluria | -53.88% | aerobic |
| Enterobacter | 0.64% | aerobic | Phycicoccus | 0.72% | obligate aerobic | Enterobacter | NA | aerobic |
| Terrabacter | 0.56% | obligate aerobic | Mycolicibacterium | 0.69% | aerobic | Terrabacter | -62.60% | obligate aerobic |
| Phycicoccus | 0.55% | obligate aerobic | Kribbella | 0.67% | aerobic | Phycicoccus | 31.69% | obligate aerobic |
| Variovorax | 0.53% | aerobic | Agromyces | 0.66% | | Variovorax | 13.13% | aerobic |
| Sphingomonas | 0.47% | aerobic | Variovorax | 0.60% | aerobic | Sphingomonas | 128.49% | aerobic |
| Mycobacterium | 0.18% | | Pantoea | 0.38% | aerobic | Mycobacterium | 326.94% | |

## Top 20 Fungal Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to Treatment | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Fusarium | 0.20% | facultative | Fusarium | 0.59% | facultative | Fusarium | 195.18% | facultative |
| Alternaria | 0.13% | | Alternaria | 0.30% | | Alternaria | 139.10% | |
| Microdochium | 0.07% | aerobic | Penicillium | 0.14% | | Microdochium | 0.51% | aerobic |
| Linnemannia | 0.05% | | Mucor | 0.08% | | Linnemannia | -36.54% | |
| Mucor | 0.04% | | Cladosporium | 0.08% | | Mucor | 126.13% | |
| Diaporthe | 0.03% | | 0% | 0.07% | | Diaporthe | 27.72% | |
| Plectosphaerella | 0.03% | | Microdochium | 0.07% | aerobic | Plectosphaerella | 115.48% | |
| Penicillium | 0.03% | | Plectosphaerella | 0.06% | | Penicillium | 398.80% | |
| Mortierella | 0.03% | | Acremonium | 0.06% | | Mortierella | NA | |
| Acremonium | 0.03% | | Staphylotrichum | 0.06% | | Acremonium | 128.95% | |
| Furcasterigmium | 0.03% | | Epicoccum | 0.05% | aerobic | Furcasterigmium | 6.67% | |
| Trichoderma | 0.02% | AMF | Diaporthe | 0.04% | | Trichoderma | -1.67% | AMF |
| Cladosporium | 0.02% | | Linnemannia | 0.03% | | Cladosporium | 318.64% | |
| Colletotrichum | 0.02% | aerobic | 0% | 0.03% | aerobic | Colletotrichum | NA | aerobic |
| Aspergillus | 0.02% | | Aspergillus | 0.03% | aerobic | Aspergillus | 97.87% | |
| Spathaspora | 0.01% | | Spathaspora | 0.03% | | Spathaspora | 90.91% | |
| Mycena | 0.01% | | Furcasterigmium | 0.03% | | Mycena | NA | |
| Rhodotorula | 0.01% | | Rhodotorula | 0.03% | | Rhodotorula | 105.26% | |
| Staphylotrichum | 0.01% | | Trichoderma | 0.02% | AMF | Staphylotrichum | 569.23% | |
| Epicoccum | 0.01% | aerobic | Chaetomium | 0.02% | | Epicoccum | 562.50% | aerobic |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 19.3 | | Average Number of Abundant Pathogens Identified: 25.7 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 1 | Globisporangium ultimum | Pythium Root Rot Complex | Aspergillus fumigatus | Storage Molds |
| | Xanthomonas vasicola | Bacterial Leaf Streak | Aspergillus niger | Aspergillus Ear Rot |
| | Phoma spp. | Phoma Leaf Spot | Globisporangium ultimum | Pythium Root Rot Complex |
| | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot | Phoma spp. | Phoma Leaf Spot |
| | Fusarium sporotrichioides | Fusarium Ear Rot | Sclerospora graminicola | Graminicola Downy Mildew |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | Aspergillus versicolor | Storage Molds |
| | Cercospora spp. | Gray Leaf Spot | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot |
| | Phytopythium helicoides | Pythium Root Rot | Aspergillus candidus | Storage Molds |
| | Puccinia polysora | Southern Rust | Cladosporium cladosporioides | Cladosporium Rot |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Fusarium incarnatum | Fusarium Root And Crown Rot Complex |
| | Pratylenchus scribneri | Root Lesion Nematode | Aspergillus ochraceus | Storage Molds |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | Pythium splendens | Pythium Root Rot |
| | Waitea circinata | Rhizoctonia Ear Rot | Pythium spp | Pythium Root Rot |
| | Fusarium acuminatum | Fusarium Root And Crown Rot Complex | Pythium spp. | Seed Rots and Seedling Blights or Damping Off |
| | Fusarium acuminatum | Fusarium Root Rot | Fusarium sporotrichioides | Fusarium Ear Rot |
| | Diabrotica virgifera | Western Corn Rootworm | Cercospora zeina | Gray Leaf Spot |
| | Fusarium solani | Fusarium Root And Crown Rot Complex | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | | | Cercospora spp. | Gray Leaf Spot |
| | | | Puccinia polysora | Southern Rust |
| | | | Peronosclerospora sorghi | Sorghum Downy Mildew |
| | | | Exserohilum rostratum | Rostratum Leaf Spot |
| | | | Penicillium viridicatum | Penicillium Ear Rot |
| | | | Pratylenchus scribneri | Root Lesion Nematode |
| | | | Sarocladium strictum | Black Bundle Disease |
| | | | Meloidogyne arenaria | Root Knot Nematode |
| | | | Waitea circinata | Rhizoctonia Ear Rot |
| | | | Fusarium acuminatum | Fusarium Root And Crown Rot Complex |
| | | | Fusarium acuminatum | Fusarium Root Rot |
| | | | Septoria spp. | Septoria Leaf Blotch |
| | | | Diabrotica virgifera | Western Corn Rootworm |
| | | | Colletotrichum graminicola | Anthracnose Leaf Blight |
| | | | Bipolaris zeicola | Corn or Carbonum Leaf Spot |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

### Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 19.3 | | Average Number of Abundant Pathogens Identified: 25.7 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 2 | Globisporangium ultimum | Pythium Root Rot Complex | Aspergillus fumigatus | Storage Molds |
| | Exserohilum turcicum | Northern Corn Leaf Blight | Globisporangium ultimum | Pythium Root Rot Complex |
| | Phoma spp. | Phoma Leaf Spot | Xanthomonas vasicola | Bacterial Leaf Streak |
| | Pythium splendens | Pythium Root Rot | Exserohilum turcicum | Northern Corn Leaf Blight |
| | Pythium spp | Pythium Root Rot | Phoma spp. | Phoma Leaf Spot |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | Sclerospora graminicola | Graminicola Downy Mildew |
| | Lasiodiplodia theobromae | Black Kernel Rot | Alternaria spp. | Seed Rots and Seedling Blights or Damping Off |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | Aspergillus ochraceus | Storage Molds |
| | Globisporangium debaryanum | Pythium Root Rot Complex | Pythium splendens | Pythium Root Rot |
| | Cercospora spp. | Gray Leaf Spot | Pythium spp | Pythium Root Rot |
| | Phytopythium helicoides | Pythium Root Rot | Pythium spp. | Seed Rots and Seedling Blights or Damping Off |
| | Puccinia polysora | Southern Rust | Hoplolaimus galeatus | Lance Nematode |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Pratylenchus scribneri | Root Lesion Nematode | Globisporangium debaryanum | Pythium Root Rot Complex |
| | Sarocladium strictum | Black Bundle Disease | Puccinia polysora | Southern Rust |
| | Fusarium acuminatum | Fusarium Root And Crown Rot Complex | Peronosclerospora sorghi | Sorghum Downy Mildew |
| | Fusarium acuminatum | Fusarium Root Rot | Pratylenchus scribneri | Root Lesion Nematode |
| | Diabrotica virgifera | Western Corn Rootworm | Sarocladium strictum | Black Bundle Disease |
| | Fusarium solani | Fusarium Root And Crown Rot Complex | Meloidogyne incognita | Root Knot Nematode |
| | | | Waitea circinata | Rhizoctonia Ear Rot |
| | | | Fusarium acuminatum | Fusarium Root And Crown Rot Complex |
| | | | Fusarium acuminatum | Fusarium Root Rot |
| | | | Cladosporium spp. | Storage Molds |
| | | | Diabrotica virgifera | Western Corn Rootworm |
| | | | Bipolaris maydis | Southern Leaf Blight |
| | | | Fusarium solani | Fusarium Root And Crown Rot Complex |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT HEF 2-3-0V5 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 19.3 | | Average Number of Abundant Pathogens Identified: 25.7 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 3 | Globisporangium ultimum | Pythium Root Rot Complex | Globisporangium ultimum | Pythium Root Rot Complex |
| | Phoma spp. | Phoma Leaf Spot | Sclerospora graminicola | Graminicola Downy Mildew |
| | Aspergillus candidus | Storage Molds | Alternaria spp. | Seed Rots and Seedling Blights or Damping Off |
| | Pythium splendens | Pythium Root Rot | Aspergillus ochraceus | Storage Molds |
| | Pythium spp | Pythium Root Rot | Pythium splendens | Pythium Root Rot |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | Pythium spp | Pythium Root Rot |
| | Nigrospora oryzae | Nigrospora Ear and Cob Rot | Pythium spp. | Seed Rots and Seedling Blights or Damping Off |
| | Nigrospora spp. | Seed Rots and Seedling Blights or Damping Off | Hoplolaimus columbus | Lance Nematode |
| | Fusarium sporotrichioides | Fusarium Ear Rot | Pseudomonas syringae pv. syringae | Holcus Spot |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Cercospora zeae maydis | Gray Leaf Spot | Puccinia polysora | Southern Rust |
| | Phytopythium helicoides | Pythium Root Rot | Pratylenchus scribneri | Root Lesion Nematode |
| | Puccinia polysora | Southern Rust | Sarocladium strictum | Black Bundle Disease |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Meloidogyne arenaria | Root Knot Nematode |
| | Pratylenchus scribneri | Root Lesion Nematode | Waitea circinata | Rhizoctonia Ear Rot |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | Aureobasidium zeae | Eyespot |
| | Meloidogyne arenaria | Root Knot Nematode | Diabrotica virgifera | Western Corn Rootworm |
| | Waitea circinata | Rhizoctonia Ear Rot | Colletotrichum graminicola | Anthracnose Leaf Blight |
| | Fusarium acuminatum | Fusarium Root And Crown Rot Complex | Fusarium solani | Fusarium Root And Crown Rot Complex |
| | Fusarium acuminatum | Fusarium Root Rot | | |
| | Diabrotica virgifera | Western Corn Rootworm | | |
| | Colletotrichum graminicola | Anthracnose Leaf Blight | | |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 8.5 | 57% | 45 | 6.1 | 56% | 38 | -28% | -2% | -7.71 |
| **Community Structure** | 8.5 | 62% | | 6.1 | 55% | | -27.8% | -10.9% | |
| **Respiration** | 57.9 | 49% | | 39.9 | 38% | | -31.0% | -11.2% | |
| **Environmental Stressors** | | 47% | | | 40% | | | -6.2% | |
| **Carbon** | 92.1 | 60% | | 71.5 | 51% | | -22.4% | -8.6% | |
| **Nitrogen** | 62.1 | 60% | 3.74 | 51.5 | 55% | 4.12 | -17.1% | -5.4% | 10.0% |
| **Phosphorus** | 51.7 | 62% | 0.29 | 24.0 | 64% | 0.33 | -53.6% | 1.5% | 13.9% |
| **Potassium** | 77.6 | 49% | 2.35 | 62.4 | 47% | 2.09 | -19.7% | -2.0% | -11.1% |
| **Sulfur** | 4.0 | 41% | 0.20 | 3.7 | 48% | 0.24 | -9.3% | 7.0% | 16.4% |
| **Calcium** | 630.6 | 51% | 0.75 | 696.9 | 50% | 0.71 | 10.5% | -1.0% | -5.3% |
| **Iron** | 92.8 | 73% | 222.37 | 62.9 | 73% | 237.65 | -32.2% | -0.4% | 6.9% |
| **Zinc** | 0.9 | | 27.59 | 0.7 | | 36.11 | -25.2% | | 30.9% |
| **Manganese** | 11.1 | | 29.32 | 2.7 | | 26.46 | -76.1% | | -9.8% |
| **Magnesium** | 147.2 | | 0.45 | 129.7 | | 0.46 | -11.9% | | 1.5% |
| **Sodium** | 8.0 | | 0.02 | 6.7 | | 0.02 | -16.3% | | 0.0% |
| **Copper** | 0.4 | | 16.52 | 0.3 | | 19.53 | -12.9% | | 18.2% |
| **Aluminum** | 159.4 | | 90.11 | 135.9 | | 89.69 | -14.8% | | -0.5% |
| **Molybdenum** | | | 3.25 | | | 3.17 | | | -2.6% |
| **Boron** | | | 16.92 | | | 16.27 | | | -3.8% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 8.5 | 57% | 45 | 6.1 | 56% | 38 | -28% | -2% | -7.71 |
| **Community Structure** | 8.5 | 62% | | 6.1 | 55% | | -27.8% | -10.9% | |
| Number of Genera | | 3109.3 | | | 3156.7 | | | 1.5% | |
| Diversity | | 39.7% | | | 73.3% | | | 84.9% | |
| Evenness | | 24.7% | | | 47.7% | | | 93.2% | |
| Mycorrhizae Abundance | | 56% | | | 48% | | | -8.0% | |
| Plant Stress Adaptation | | 73% | | | 67% | | | -6.7% | |
| Fungal to Bacterial Ratio | | | | | | | | | |
| Ectomycorrhizal to Arbuscular Ratio | | | | | | | | | |
| 1:1 Soil pH | 6.5 | | | 6.8 | | | 4.6% | | |
| Soil Health Calculation | 8.5 | | | 6.1 | | | -27.8% | | |
| Organic Matter | 4.0 | | | 4.1 | | | 4.2% | | |
| 1:1 Soluble Salt | 0.3 | | | 0.3 | | | 0.0% | | |
| Organic C:N | 10.9 | | | 10.3 | | | -5.7% | | |
| **Respiration** | 57.9 | 49% | | 39.9 | 38% | | -31.0% | -11.2% | |
| High Oxygen Environment | | 49% | | | 38% | | | -11.2% | |
| CO2-C | 57.9 | | | 39.9 | | | -31.0% | | |
| **Environmental Stressors** | | 47% | | | 40% | | | -6.2% | |
| Anoxic Environment | | 47% | | | 40% | | | -6.2% | |
| **Carbon** | 92.1 | 60% | | 71.5 | 51% | | -22.4% | -8.6% | |
| CO2-C | 57.9 | | | 39.9 | | | -31.0% | | |
| Organic Matter | 4.0 | | | 4.1 | | | 4.2% | | |
| Carbon Fixation | | 59% | | | 37% | | | -22.5% | |
| Organic Carbon Breakdown | | 64% | | | 63% | | | -1.6% | |
| Methanogenesis | | 44% | | | 45% | | | 1.6% | |
| H2O Total Organic C | 92.1 | | | 71.5 | | | -22.4% | | |
| % MAC | 61.7 | | | 55.3 | | | -10.4% | | |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 8.5 | 57% | 45 | 6.1 | 56% | 38 | -28% | -2% | -7.71 |
| **Nitrogen** | 62.1 | 60% | 3.74 | 51.5 | 55% | 4.12 | -17.1% | -5.4% | 10.0% |
| Nitrogen Fixation | | 53% | | | 46% | | | -6.8% | |
| Nodulating Bacteria | | 41% | | | 40% | | | -0.3% | |
| Organic Nitrogen Breakdown | | 74% | | | 65% | | | -8.6% | |
| H3A Ammonium | 1.6 | | | 1.1 | | | -31.3% | | |
| Nitrification | | 58% | | | 52% | | | -6.2% | |
| H3A Nitrate | 15.7 | | | 13.3 | | | -15.2% | | |
| Denitrification | | 45% | | | 45% | | | 0.2% | |
| H2O Total N | 25.9 | | | 21.5 | | | -17.0% | | |
| H2O Organic N | 8.5 | | | 7.0 | | | -17.7% | | |
| H3A Inorganic Nitrogen | 17.4 | | | 14.5 | | | -16.7% | | |
| Organic N Release | 8.5 | | | 7.0 | | | -17.7% | | |
| Organic N Reserve | 0.0 | | | 0.0 | | | | | |
| Available N | 62.1 | | | 51.5 | | | -17.1% | | |
| Total Nitrogen, % N | | | 3.7 | | | 4.1 | | | 10.0% |
| **Phosphorus** | 51.7 | 62% | 0.29 | 24.0 | 64% | 0.33 | -53.6% | 1.5% | 13.9% |
| Phosphorus Solubilization | | 62% | | | 64% | | | 1.5% | |
| H3A Total Phosphorus | 22.5 | | | 10.4 | | | -53.6% | | |
| H3A Inorganic Phosphorus | 18.0 | | | 7.6 | | | -57.7% | | |
| H3A Organic Phosphorus | 4.5 | | | 2.8 | | | -37.2% | | |
| Organic P Release | 4.5 | | | 2.8 | | | -37.2% | | |
| Organic P Reserve | 0.0 | | | 0.0 | | | | | |
| Available P | 51.7 | | | 24.0 | | | -53.6% | | |
| Phosphorus, % P | | | 0.29 | | | 0.33 | | | 13.9% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 8.5 | 57% | 45 | 6.1 | 56% | 38 | -28% | -2% | -7.71 |
| **Potassium** | 77.6 | 49% | 2.35 | 62.4 | 47% | 2.09 | -19.7% | -2.0% | -11.1% |
| Potassium Solubilization | | 49% | | | 47% | | | -2.0% | |
| H3A ICAP Potassium | 64.7 | | | 52.0 | | | -19.7% | | |
| Available K | 77.6 | | | 62.4 | | | -19.7% | | |
| Potassium, % K | | | 2.35 | | | 2.09 | | | -11.1% |
| **Sulfur** | 4.0 | 41% | 0.20 | 3.7 | 48% | 0.24 | -9.3% | 7.0% | 16.4% |
| Sulfur Oxidation | | 40% | | | 42% | | | 2.4% | |
| Sulfur Reduction | | 57% | | | 45% | | | -11.6% | |
| H3A ICAP Sulfur | 4.0 | | | 3.7 | | | -9.3% | | |
| Sulfur, % S | | | 0.20 | | | 0.24 | | | 16.4% |
| **Calcium** | 630.6 | 51% | 0.75 | 696.9 | 50% | 0.71 | 10.5% | -1.0% | -5.3% |
| Calcium Transport | | 51% | | | 50% | | | -1.0% | |
| H3A ICAP Calcium | 630.6 | | | 696.9 | | | 10.5% | | |
| Calcium, % Ca | | | 0.75 | | | 0.71 | | | -5.3% |
| **Iron** | 92.8 | 73% | 222.37 | 62.9 | 73% | 237.65 | -32.2% | -0.4% | 6.9% |
| Iron Acquisition | | 73% | | | 73% | | | -0.4% | |
| H3A ICAP Iron | 92.8 | | | 62.9 | | | -32.2% | | |
| Iron, ppm Fe | | | 222.37 | | | 237.65 | | | 6.9% |
| **Zinc** | 0.9 | | 27.59 | 0.7 | | 36.11 | -25.2% | | 30.9% |
| H3A ICAP Zinc | 0.9 | | | 0.7 | | | -25.2% | | |
| Zinc, ppm Zn | | | 27.59 | | | 36.11 | | | 30.9% |
| **Manganese** | 11.1 | | 29.32 | 2.7 | | 26.46 | -76.1% | | -9.8% |
| H3A ICAP Manganese | 11.1 | | | 2.7 | | | -76.1% | | |
| Manganese, ppm Mn | | | 29.32 | | | 26.46 | | | -9.8% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 8.5 | 57% | 45 | 6.1 | 56% | 38 | -28% | -2% | -7.71 |
| **Magnesium** | 147.2 | | 0.45 | 129.7 | | 0.46 | -11.9% | | 1.5% |
| H3A ICAP Magnesium | 147.2 | | | 129.7 | | | -11.9% | | |
| Magnesium, % Mg | | | 0.45 | | | 0.46 | | | 1.5% |
| **Sodium** | 8.0 | | 0.02 | 6.7 | | 0.02 | -16.3% | | 0.0% |
| H3A ICAP Sodium | 8.0 | | | 6.7 | | | -16.3% | | |
| Sodium, % Na | | | 0.02 | | | 0.02 | | | 0.0% |
| **Copper** | 0.4 | | 16.52 | 0.3 | | 19.53 | -12.9% | | 18.2% |
| H3A ICAP Copper | 0.4 | | | 0.3 | | | -12.9% | | |
| Copper, ppm Cu | | | 16.52 | | | 19.53 | | | 18.2% |
| **Aluminum** | 159.4 | | 90.11 | 135.9 | | 89.69 | -14.8% | | -0.5% |
| H3A ICAP Aluminum | 159.4 | | | 135.9 | | | -14.8% | | |
| Aluminum, ppm Al | | | 90.11 | | | 89.69 | | | -0.5% |
| **Molybdenum** | | | 3.25 | | | 3.17 | | | -2.6% |
| Molybdenum, ppm Mo | | | 3.25 | | | 3.17 | | | -2.6% |
| **Boron** | | | 16.92 | | | 16.27 | | | -3.8% |
| Boron, ppm B | | | 16.92 | | | 16.27 | | | -3.8% |

RHIZE BIO

| Report Date: | 12/9/2025 |
|---|---|

| CUSTOMER INFORMATION | | CUSTOMER INFORMATION | |
|---|---|---|---|
| Name: | info@tntfarmingsolutions.com | Grower Name: | TNT Farming Solutions |
| Address: | TNT Farming Solutions | Field ID: | Ck 9 |
| Phone: | (574) 532-6201 | Crop Type: | Corn |
| Bill To: | TNT Farming Solutions | Crop Variety: | Corn |

## Top 20 Bacterial Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to TNT HEF 2-3-0 | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Enterobacter | 15.22% | aerobic | Streptomyces | 11.66% | aerobic | Enterobacter | -43.48% | aerobic |
| Streptomyces | 13.02% | aerobic | Enterobacter | 8.60% | aerobic | Streptomyces | -10.40% | aerobic |
| Bradyrhizobium | 4.63% | aerobic | Nocardioides | 6.34% | obligate aerobic | Bradyrhizobium | 4.81% | aerobic |
| Burkholderia | 3.93% | aerobic | Bradyrhizobium | 4.85% | aerobic | Burkholderia | -46.52% | aerobic |
| Pseudomonas | 3.78% | aerobic | Pseudomonas | 3.20% | aerobic | Pseudomonas | -15.43% | aerobic |
| Nocardioides | 3.69% | obligate aerobic | Arthrobacter | 2.69% | | Nocardioides | 71.89% | obligate aerobic |
| Priestia | 2.53% | | Burkholderia | 2.10% | aerobic | Priestia | -30.02% | |
| Arthrobacter | 2.00% | obligate aerobic | Rhizobium | 1.82% | aerobic | Arthrobacter | 34.62% | obligate aerobic |
| Rhizobium | 1.71% | aerobic | Priestia | 1.77% | obligate aerobic | Rhizobium | 6.46% | aerobic |
| Kribbella | 1.53% | obligate aerobic | Mesorhizobium | 1.68% | obligate aerobic | Kribbella | -7.43% | obligate aerobic |
| Mesorhizobium | 1.44% | obligate aerobic | Kribbella | 1.41% | obligate aerobic | Mesorhizobium | 17.22% | obligate aerobic |
| Sphingobium | 1.26% | obligate aerobic | Micromonospora | 1.27% | aerobic | Sphingobium | -72.62% | obligate aerobic |
| Microbacterium | 1.18% | aerobic | Mycolicibacterium | 1.21% | | Microbacterium | -16.21% | aerobic |
| Mycobacterium | 1.13% | aerobic | Glycomyces | 1.10% | | Mycobacterium | -51.30% | aerobic |
| Variovorax | 1.04% | aerobic | Microbacterium | 0.99% | aerobic | Variovorax | -15.21% | aerobic |
| Sphingomonas | 0.94% | aerobic | Sphingomonas | 0.97% | aerobic | Sphingomonas | 2.89% | aerobic |
| Mycolicibacterium | 0.83% | | Variovorax | 0.88% | aerobic | Mycolicibacterium | 44.89% | |
| Acinetobacter | 0.63% | aerobic | Staphylococcus | 0.88% | aerobic | Acinetobacter | NA | aerobic |
| Agrobacterium | 0.58% | aerobic | Salmonella | 0.82% | obligate aerobic | Agrobacterium | -55.50% | aerobic |
| Rhodococcus | 0.47% | aerobic | Lentzea | 0.56% | obligate aerobic | Rhodococcus | NA | aerobic |

## Top 20 Fungal Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to TNT HEF 2-3-0 | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Fusarium | 0.58% | facultative | Talaromyces | 0.39% | aerobic | Fusarium | -56.63% | facultative |
| Penicillium | 0.54% | aerobic | Penicillium | 0.37% | aerobic | Penicillium | -31.08% | aerobic |
| Talaromyces | 0.36% | aerobic | Fusarium | 0.25% | facultative | Talaromyces | 8.14% | aerobic |
| Trichoderma | 0.20% | AMF | Trichoderma | 0.20% | AMF | Trichoderma | -1.51% | AMF |
| Gigaspora | 0.11% | aerobic | Gigaspora | 0.12% | aerobic | Gigaspora | 9.79% | aerobic |
| Gongronella | 0.11% | aerobic | Alternaria | 0.07% | | Gongronella | -66.04% | aerobic |
| Alternaria | 0.08% | | Mycena | 0.06% | | Alternaria | -11.55% | |
| Pochonia | 0.05% | | Mucor | 0.05% | aerobic | Pochonia | -53.50% | |
| Staphylotrichum | 0.05% | | Colletotrichum | 0.04% | aerobic | Staphylotrichum | -16.67% | |
| Aspergillus | 0.04% | | Staphylotrichum | 0.04% | | Aspergillus | -56.25% | |
| Clonostachys | 0.04% | | Gongronella | 0.04% | aerobic | Clonostachys | -71.68% | |
| Diaporthe | 0.04% | | Metarhizium | 0.04% | | Diaporthe | -75.93% | |
| Colletotrichum | 0.03% | | Coemansia | 0.03% | | Colletotrichum | 33.00% | |
| Purpureocillium | 0.03% | | Microdochium | 0.03% | | Purpureocillium | -31.82% | |
| Furcasterigmium | 0.03% | | Pochonia | 0.02% | | Furcasterigmium | NA | |
| Rhodotorula | 0.03% | facultative | Cutaneotrichosporon | 0.02% | | Rhodotorula | -59.74% | facultative |
| Chaetomium | 0.03% | | Purpureocillium | 0.02% | | Chaetomium | NA | |
| Mycena | 0.02% | | Aspergillus | 0.02% | | Mycena | 208.33% | |
| Mucor | 0.02% | aerobic | Saitozyma | 0.02% | | Mucor | 179.63% | aerobic |
| Metarhizium | 0.01% | | Clonostachys | 0.01% | | Metarhizium | 150.00% | |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT Hi Energy V5 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 22.7 | | Average Number of Abundant Pathogens Identified: 15 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 1 | Globisporangium ultimum | Pythium Root Rot Complex | Aspergillus ochraceus | Storage Molds |
| | Meloidogyne hapla | Root Knot Nematode | Hoplolaimus columbus | Lance Nematode |
| | Phoma spp. | Phoma Leaf Spot | Cercospora zeina | Gray Leaf Spot |
| | Sclerospora graminicola | Graminicola Downy Mildew | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot | Globisporangium debaryanum | Pythium Root Rot Complex |
| | Aspergillus candidus | Storage Molds | Sarocladium strictum | Black Bundle Disease |
| | Cladosporium cladosporioides | Cladosporium Rot | Globisporangium irregulare | Pythium Root Rot Complex |
| | Pythium splendens | Pythium Root Rot | Diabrotica virgifera | Western Corn Rootworm |
| | Pythium spp | Pythium Root Rot | | |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | | |
| | Lasiodiplodia theobromae | Black Kernel Rot | | |
| | Hoplolaimus columbus | Lance Nematode | | |
| | Fusarium sporotrichioides | Fusarium Ear Rot | | |
| | Cercospora zeina | Gray Leaf Spot | | |
| | Pseudomonas syringae pv. syringae | Holcus Spot | | |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | | |
| | Globisporangium debaryanum | Pythium Root Rot Complex | | |
| | Puccinia polysora | Southern Rust | | |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | | |
| | Pratylenchus scribneri | Root Lesion Nematode | | |
| | Sarocladium strictum | Black Bundle Disease | | |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | | |
| | Meloidogyne arenaria | Root Knot Nematode | | |
| | Waitea circinata | Rhizoctonia Ear Rot | | |
| | Cladosporium spp. | Storage Molds | | |
| | Septoria spp. | Septoria Leaf Blotch | | |
| | Diabrotica virgifera | Western Corn Rootworm | | |
| | Fusarium solani | Fusarium Root And Crown Rot Complex | | |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT HEF 2-3-0 V5 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 22.7 | | Average Number of Abundant Pathogens Identified: 15 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 2 | Globisporangium ultimum | Pythium Root Rot Complex | Globisporangium ultimum | Pythium Root Rot Complex |
| | Exserohilum turcicum | Northern Corn Leaf Blight | Exserohilum turcicum | Northern Corn Leaf Blight |
| | Phoma spp. | Phoma Leaf Spot | Phoma spp. | Phoma Leaf Spot |
| | Penicillium oxalicum | Penicillium Ear Rot | Penicillium oxalicum | Penicillium Ear Rot |
| | Penicillium spp. | Penicillium Ear Rot | Penicillium spp. | Penicillium Ear Rot |
| | Penicillium oxalicum | Seedling Blight | Penicillium oxalicum | Seedling Blight |
| | Sclerospora graminicola | Graminicola Downy Mildew | Sclerospora graminicola | Graminicola Downy Mildew |
| | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot | Aspergillus candidus | Storage Molds |
| | Aspergillus candidus | Storage Molds | Aspergillus ochraceus | Storage Molds |
| | Aspergillus ochraceus | Storage Molds | Pythium splendens | Pythium Root Rot |
| | Pythium splendens | Pythium Root Rot | Pythium spp | Pythium Root Rot |
| | Pythium spp | Pythium Root Rot | Pythium spp. | Seed Rots and Seedling Blights or Damping Off |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | Lasiodiplodia theobromae | Black Kernel Rot |
| | Phyllachora maydis | Tar Spot | Hoplolaimus columbus | Lance Nematode |
| | Hoplolaimus columbus | Lance Nematode | Pseudomonas syringae pv. syringae | Holcus Spot |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | Puccinia polysora | Southern Rust |
| | Globisporangium debaryanum | Pythium Root Rot Complex | Pratylenchus scribneri | Root Lesion Nematode |
| | Phytopythium helicoides | Pythium Root Rot | Robbsia andropogonis | Bacterial Stripe and Leaf Spot |
| | Puccinia polysora | Southern Rust | Meloidogyne arenaria | Root Knot Nematode |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Waitea circinata | Rhizoctonia Ear Rot |
| | Pratylenchus scribneri | Root Lesion Nematode | Globisporangium irregulare | Pythium Root Rot Complex |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | Cladosporium spp. | Storage Molds |
| | Meloidogyne arenaria | Root Knot Nematode | Diabrotica virgifera | Western Corn Rootworm |
| | Waitea circinata | Rhizoctonia Ear Rot | Fusarium solani | Fusarium Root And Crown Rot Complex |
| | Globisporangium irregulare | Pythium Root Rot Complex | | |
| | Cladosporium spp. | Storage Molds | | |
| | Diabrotica virgifera | Western Corn Rootworm | | |
| | Colletotrichum graminicola | Anthracnose Leaf Blight | | |
| | Bipolaris maydis | Southern Leaf Blight | | |
| | Fusarium solani | Fusarium Root And Crown Rot Complex | | |
| Replicate 3 | Phoma spp. | Phoma Leaf Spot | Globisporangium ultimum | Pythium Root Rot Complex |
| | Sclerospora graminicola | Graminicola Downy Mildew | Sclerospora graminicola | Graminicola Downy Mildew |
| | Alternaria spp. | Seed Rots and Seedling Blights or Damping Off | Aspergillus candidus | Storage Molds |
| | Hoplolaimus columbus | Lance Nematode | Alternaria spp. | Seed Rots and Seedling Blights or Damping Off |
| | Pratylenchus scribneri | Root Lesion Nematode | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Sarocladium strictum | Black Bundle Disease | Cercospora spp. | Gray Leaf Spot |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | Puccinia polysora | Southern Rust |
| | Meloidogyne arenaria | Root Knot Nematode | Peronosclerospora sorghi | Sorghum Downy Mildew |
| | Waitea circinata | Rhizoctonia Ear Rot | Pratylenchus scribneri | Root Lesion Nematode |
| | Diabrotica virgifera | Western Corn Rootworm | Meloidogyne arenaria | Root Knot Nematode |
| | | | Waitea circinata | Rhizoctonia Ear Rot |
| | | | Diabrotica virgifera | Western Corn Rootworm |
| | | | Fusarium solani | Fusarium Root And Crown Rot Complex |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 6.7 | 53% | 46 | 10.1 | 55% | 49 | 51% | 3% | 2.52 |
| **Community Structure** | 6.7 | 61% | | 10.1 | 59% | | 51.3% | -3.3% | |
| **Respiration** | 19.4 | 67% | | 46.6 | 57% | | 139.6% | -9.6% | |
| **Environmental Stressors** | | 39% | | | 52% | | | 12.6% | |
| **Carbon** | 173.5 | 56% | | 215.8 | 48% | | 24.4% | -7.8% | |
| **Nitrogen** | 34.1 | 58% | 2.86 | 46.3 | 60% | 3.28 | 36.0% | 2.3% | 14.6% |
| **Phosphorus** | 34.7 | 78% | 0.27 | 31.9 | 76% | 0.35 | -8.2% | -2.4% | 28.4% |
| **Potassium** | 53.7 | 51% | 2.39 | 71.5 | 47% | 2.33 | 33.1% | -4.2% | -2.5% |
| **Sulfur** | 6.7 | 49% | 0.17 | 5.0 | 46% | 0.20 | -26.0% | -3.0% | 15.7% |
| **Calcium** | 660.4 | 23% | 0.85 | 743.1 | 33% | 0.65 | 12.5% | 10.9% | -23.5% |
| **Iron** | 78.1 | 79% | 134.07 | 72.6 | 80% | 204.33 | -7.1% | 0.7% | 52.4% |
| **Zinc** | 0.8 | | 21.08 | 0.6 | | 26.89 | -22.1% | | 27.6% |
| **Manganese** | 4.3 | | 28.54 | 3.9 | | 28.78 | -8.9% | | 0.8% |
| **Magnesium** | 132.5 | | 0.38 | 154.0 | | 0.28 | 16.3% | | -27.0% |
| **Sodium** | 9.2 | | 0.03 | 8.0 | | 0.02 | -13.4% | | -12.5% |
| **Copper** | 0.4 | | 10.57 | 0.4 | | 12.71 | -7.2% | | 20.2% |
| **Aluminum** | 147.9 | | 43.61 | 138.5 | | 57.85 | -6.3% | | 32.6% |
| **Molybdenum** | | | 3.11 | | | 4.60 | | | 47.9% |
| **Boron** | | | 20.29 | | | 20.41 | | | 0.6% |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 6.7 | 53% | 46 | 10.1 | 55% | 49 | 51% | 3% | 2.52 |
| **Community Structure** | 6.7 | 61% | | 10.1 | 59% | | 51.3% | -3.3% | |
| Number of Genera | | 2552.7 | | | 2854.0 | | | 11.8% | |
| Diversity | | 3.3% | | | 49.7% | | | 1390.0% | |
| Evenness | | 1.3% | | | 19.7% | | | 1375.0% | |
| Mycorrhizae Abundance | | 70% | | | 54% | | | -16.3% | |
| Plant Stress Adaptation | | 72% | | | 70% | | | -1.2% | |
| Fungal to Bacterial Ratio | | | | | | | | | |
| Ectomycorrhizal to Arbuscular Ratio | | | | | | | | | |
| 1:1 Soil pH | 6.6 | | | 7.0 | | | 6.6% | | |
| Soil Health Calculation | 6.7 | | | 10.1 | | | 51.3% | | |
| Organic Matter | 3.2 | | | 3.6 | | | 10.3% | | |
| 1:1 Soluble Salt | 0.2 | | | 0.2 | | | -3.2% | | |
| Organic C:N | 14.0 | | | 12.9 | | | -7.3% | | |
| **Respiration** | 19.4 | 67% | | 46.6 | 57% | | 139.6% | -9.6% | |
| High Oxygen Environment | | 67% | | | 57% | | | -9.6% | |
| CO2-C | 19.4 | | | 46.6 | | | 139.6% | | |
| **Environmental Stressors** | | 39% | | | 52% | | | 12.6% | |
| Anoxic Environment | | 39% | | | 52% | | | 12.6% | |
| **Carbon** | 173.5 | 56% | | 215.8 | 48% | | 24.4% | -7.8% | |
| CO2-C | 19.4 | | | 46.6 | | | 139.6% | | |
| Organic Matter | 3.2 | | | 3.6 | | | 10.3% | | |
| Carbon Fixation | | 27% | | | 30% | | | 2.5% | |
| Organic Carbon Breakdown | | 62% | | | 55% | | | -7.0% | |
| Methanogenesis | | 21% | | | 40% | | | 19.0% | |
| H2O Total Organic C | 173.5 | | | 215.8 | | | 24.4% | | |
| % MAC | 11.2 | | | 20.1 | | | 79.7% | | |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 6.7 | 53% | 46 | 10.1 | 55% | 49 | 51% | 3% | 2.52 |
| **Nitrogen** | 34.1 | 58% | 2.86 | 46.3 | 60% | 3.28 | 36.0% | 2.3% | 14.6% |
| Nitrogen Fixation | | 54% | | | 59% | | | 5.0% | |
| Nodulating Bacteria | | 49% | | | 46% | | | -3.6% | |
| Organic Nitrogen Breakdown | | 89% | | | 78% | | | -10.9% | |
| H3A Ammonium | 1.1 | | | 1.0 | | | -2.5% | | |
| Nitrification | | 27% | | | 39% | | | 11.5% | |
| H3A Nitrate | 7.6 | | | 8.2 | | | 8.1% | | |
| Denitrification | | 39% | | | 35% | | | -3.4% | |
| H2O Total N | 21.0 | | | 25.9 | | | 23.5% | | |
| H2O Organic N | 12.4 | | | 16.7 | | | 34.4% | | |
| H3A Inorganic Nitrogen | 8.6 | | | 9.2 | | | 6.8% | | |
| Organic N Release | 5.6 | | | 10.1 | | | 81.3% | | |
| Organic N Reserve | 6.9 | | | 6.6 | | | -3.7% | | |
| Available N | 34.1 | | | 46.3 | | | 36.0% | | |
| Total Nitrogen, % N | | | 2.9 | | | 3.3 | | | 14.6% |
| **Phosphorus** | 34.7 | 78% | 0.27 | 31.9 | 76% | 0.35 | -8.2% | -2.4% | 28.4% |
| Phosphorus Solubilization | | 78% | | | 76% | | | -2.4% | |
| H3A Total Phosphorus | 17.5 | | | 15.4 | | | -11.6% | | |
| H3A Inorganic Phosphorus | 13.9 | | | 11.8 | | | -15.7% | | |
| H3A Organic Phosphorus | 3.5 | | | 3.7 | | | 4.7% | | |
| Organic P Release | 1.2 | | | 2.1 | | | 81.4% | | |
| Organic P Reserve | 2.4 | | | 1.6 | | | -33.4% | | |
| Available P | 34.7 | | | 31.9 | | | -8.2% | | |
| Phosphorus, % P | | | 0.27 | | | 0.35 | | | 28.4% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 6.7 | 53% | 46 | 10.1 | 55% | 49 | 51% | 3% | 2.52 |
| **Potassium** | 53.7 | 51% | 2.39 | 71.5 | 47% | 2.33 | 33.1% | -4.2% | -2.5% |
| Potassium Solubilization | | 51% | | | 47% | | | -4.2% | |
| H3A ICAP Potassium | 44.7 | | | 59.5 | | | 33.1% | | |
| Available K | 53.7 | | | 71.5 | | | 33.1% | | |
| Potassium, % K | | | 2.39 | | | 2.33 | | | -2.5% |
| **Sulfur** | 6.7 | 49% | 0.17 | 5.0 | 46% | 0.20 | -26.0% | -3.0% | 15.7% |
| Sulfur Oxidation | | 25% | | | 31% | | | 6.4% | |
| Sulfur Reduction | | 27% | | | 40% | | | 12.4% | |
| H3A ICAP Sulfur | 6.7 | | | 5.0 | | | -26.0% | | |
| Sulfur, % S | | | 0.17 | | | 0.20 | | | 15.7% |
| **Calcium** | 660.4 | 23% | 0.85 | 743.1 | 33% | 0.65 | 12.5% | 10.9% | -23.5% |
| Calcium Transport | | 23% | | | 33% | | | 10.9% | |
| H3A ICAP Calcium | 660.4 | | | 743.1 | | | 12.5% | | |
| Calcium, % Ca | | | 0.85 | | | 0.65 | | | -23.5% |
| **Iron** | 78.1 | 79% | 134.07 | 72.6 | 80% | 204.33 | -7.1% | 0.7% | 52.4% |
| Iron Acquisition | | 79% | | | 80% | | | 0.7% | |
| H3A ICAP Iron | 78.1 | | | 72.6 | | | -7.1% | | |
| Iron, ppm Fe | | | 134.07 | | | 204.33 | | | 52.4% |
| **Zinc** | 0.8 | | 21.08 | 0.6 | | 26.89 | -22.1% | | 27.6% |
| H3A ICAP Zinc | 0.8 | | | 0.6 | | | -22.1% | | |
| Zinc, ppm Zn | | | 21.08 | | | 26.89 | | | 27.6% |
| **Manganese** | 4.3 | | 28.54 | 3.9 | | 28.78 | -8.9% | | 0.8% |
| H3A ICAP Manganese | 4.3 | | | 3.9 | | | -8.9% | | |
| Manganese, ppm Mn | | | 28.54 | | | 28.78 | | | 0.8% |

Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

| CUSTOMER INFORMATION | | | |
|---|---|---|---|
| **Name:** | TNT Farming Solutions | **Bill To:** | TNT Farming Solutions |
| **Email** | info@tntfarmingsolutions.com | **Phone** | (574) 532-6201 |

## Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

| Sample Type | Untreated | | | TNT HEF 2-3-0 | | | % Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Haney | Rhize | Tissue | Haney | Rhize | Tissue | Haney | Rhize | Tissue |
| **Health Overview** | 6.7 | 53% | 46 | 10.1 | 55% | 49 | 51% | 3% | 2.52 |
| **Magnesium** | 132.5 | | 0.38 | 154.0 | | 0.28 | 16.3% | | -27.0% |
| H3A ICAP Magnesium | 132.5 | | | 154.0 | | | 16.3% | | |
| Magnesium, % Mg | | | 0.38 | | | 0.28 | | | -27.0% |
| **Sodium** | 9.2 | | 0.03 | 8.0 | | 0.02 | -13.4% | | -12.5% |
| H3A ICAP Sodium | 9.2 | | | 8.0 | | | -13.4% | | |
| Sodium, % Na | | | 0.03 | | | 0.02 | | | -12.5% |
| **Copper** | 0.4 | | 10.57 | 0.4 | | 12.71 | -7.2% | | 20.2% |
| H3A ICAP Copper | 0.4 | | | 0.4 | | | -7.2% | | |
| Copper, ppm Cu | | | 10.57 | | | 12.71 | | | 20.2% |
| **Aluminum** | 147.9 | | 43.61 | 138.5 | | 57.85 | -6.3% | | 32.6% |
| H3A ICAP Aluminum | 147.9 | | | 138.5 | | | -6.3% | | |
| Aluminum, ppm Al | | | 43.61 | | | 57.85 | | | 32.6% |
| **Molybdenum** | | | 3.11 | | | 4.60 | | | 47.9% |
| Molybdenum, ppm Mo | | | 3.11 | | | 4.60 | | | 47.9% |
| **Boron** | | | 20.29 | | | 20.41 | | | 0.6% |
| Boron, ppm B | | | 20.29 | | | 20.41 | | | 0.6% |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

RHIZE BIO

| Report Date: | 12/10/2025 |
|---|---|

| CUSTOMER INFORMATION | | CUSTOMER INFORMATION | |
|---|---|---|---|
| Name: | info@tntfarmingsolutions.com | Grower Name: | TNT Farming Solutions |
| Address: | 6928 S Benham Rd Versailles, IN 47042 | Field ID | Ck 9 |
| Phone: | (574) 532-6201 | Crop Type: | Corn |
| Bill To: | TNT Farming Solutions | Crop Variety: | Corn |

## Top 20 Bacterial Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to TNT HEF 2-3-0 | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Enterobacter | 13.42% | aerobic | Pseudomonas | 13.55% | aerobic | Enterobacter | -34.48% | aerobic |
| Priestia | 10.50% | | Enterobacter | 8.79% | aerobic | Priestia | -44.08% | |
| Pseudomonas | 10.30% | aerobic | Priestia | 5.87% | | Pseudomonas | 31.52% | aerobic |
| Streptomyces | 5.84% | aerobic | Streptomyces | 5.78% | aerobic | Streptomyces | -0.98% | aerobic |
| Burkholderia | 4.10% | aerobic | Nocardioides | 2.93% | obligate aerobic | Burkholderia | -77.42% | aerobic |
| Agrobacterium | 3.48% | aerobic | Bradyrhizobium | 2.45% | aerobic | Agrobacterium | -36.70% | aerobic |
| Sphingobium | 3.09% | obligate aerobic | Agrobacterium | 2.20% | aerobic | Sphingobium | -64.29% | obligate aerobic |
| Nocardioides | 2.95% | obligate aerobic | Arthrobacter | 2.16% | aerobic | Nocardioides | -0.84% | obligate aerobic |
| Rhizobium | 2.92% | aerobic | Acinetobacter | 1.76% | aerobic | Rhizobium | -55.76% | aerobic |
| Acinetobacter | 2.11% | aerobic | Microbacterium | 1.58% | aerobic | Acinetobacter | -16.62% | aerobic |
| Bradyrhizobium | 1.89% | aerobic | Microvirga | 1.36% | aerobic | Bradyrhizobium | 29.42% | aerobic |
| Microbacterium | 1.69% | aerobic | Rhizobium | 1.29% | aerobic | Microbacterium | -6.53% | aerobic |
| Serratia | 1.49% | aerobic | Variovorax | 1.25% | aerobic | Serratia | -61.59% | aerobic |
| Variovorax | 1.27% | aerobic | Mycobacterium | 1.20% | aerobic | Variovorax | -2.02% | aerobic |
| Stenotrophomonas | 1.25% | aerobic | Sphingobium | 1.10% | obligate aerobic | Stenotrophomonas | NA | aerobic |
| Arthrobacter | 1.19% | aerobic | Kribbella | 1.03% | aerobic | Arthrobacter | 82.30% | aerobic |
| Pantoea | 0.96% | obligate aerobic | Glycomyces | 0.97% | aerobic | Pantoea | -47.31% | obligate aerobic |
| Ensifer | 0.84% | aerobic | Burkholderia | 0.93% | aerobic | Ensifer | -38.33% | aerobic |
| Mesorhizobium | 0.77% | obligate aerobic | Mesorhizobium | 0.68% | obligate aerobic | Mesorhizobium | -12.55% | obligate aerobic |
| Sphingomonas | 0.58% | aerobic | Mycolicibacterium | 0.63% | obligate aerobic | Sphingomonas | -51.83% | aerobic |

## Top 20 Fungal Genera

AE = Aerobic AN = Anaerobic OA = Obligate Aerobic ON = Obligate Anaerobic F = Facultative MA = Microaerophilic ECM = Ecyomycorrhizal Fungi AMF = Arbuscular Mycorrhizal Fungi

| Untreated | | | TNT HEF 2-3-0 | | | Response to TNT HEF 2-3-0 | | |
|---|---|---|---|---|---|---|---|---|
| Genera | Abundance | Metabolism | Genera | Abundance | Metabolism | Genera | Change in Abundance | Metabolism |
| Penicillium | 0.44% | aerobic | Talaromyces | 0.19% | aerobic | Penicillium | -86.24% | aerobic |
| Talaromyces | 0.25% | aerobic | Alternaria | 0.15% | facultative | Talaromyces | -21.40% | aerobic |
| Fusarium | 0.20% | | Penicillium | 0.06% | aerobic | Fusarium | -78.42% | |
| Gongronella | 0.12% | | Aspergillus | 0.05% | aerobic | Gongronella | -61.25% | |
| Rhizopus | 0.07% | | Gongronella | 0.05% | | Rhizopus | -88.57% | |
| Alternaria | 0.06% | facultative | Fusarium | 0.04% | | Alternaria | 138.74% | facultative |
| Mucor | 0.04% | | Cutaneotrichosporon | 0.04% | aerobic | Mucor | -88.33% | |
| Trichoderma | 0.04% | | Cladosporium | 0.03% | aerobic | Trichoderma | -85.71% | |
| Aspergillus | 0.03% | aerobic | Puccinia | 0.03% | AMF | Aspergillus | 113.33% | aerobic |
| Epicoccum | 0.02% | AMF | Staphylotrichum | 0.03% | | Epicoccum | -1.82% | AMF |
| Puccinia | 0.02% | | Podila | 0.02% | | Puccinia | 72.34% | |
| Colletotrichum | 0.02% | | Botryosphaeria | 0.02% | | Colletotrichum | 13.04% | |
| Cladosporium | 0.01% | aerobic | Furcasterigmium | 0.02% | | Cladosporium | 147.50% | aerobic |
| Furcasterigmium | 0.01% | | Pochonia | 0.02% | aerobic | Furcasterigmium | 75.68% | |
| Rhodotorula | 0.01% | facultative | Epicoccum | 0.02% | | Rhodotorula | 50.00% | facultative |
| Mycena | 0.01% | | Colletotrichum | 0.02% | ECM | Mycena | -47.06% | |
| Botryosphaeria | 0.01% | ECM | Rhodotorula | 0.02% | facultative | Botryosphaeria | 140.74% | ECM |
| Chaetomium | 0.01% | aerobic | Moesziomyces | 0.01% | | Chaetomium | 0.00% | aerobic |
| Diaporthe | 0.01% | NA | Clonostachys | 0.01% | | Diaporthe | -40.00% | NA |
| Cantharellus | 0.01% | NA | Chaetomium | 0.01% | aerobic | Cantharellus | -14.29% | NA |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 19 | | Average Number of Abundant Pathogens Identified: 13.3 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 1 | Globisporangium ultimum | Pythium Root Rot Complex | Globisporangium ultimum | Pythium Root Rot Complex |
| | Pythium splendens | Pythium Root Rot | Xanthomonas vasicola | Bacterial Leaf Streak |
| | Pythium spp | Pythium Root Rot | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | Aspergillus candidus | Storage Molds |
| | Lasiodiplodia theobromae | Black Kernel Rot | Lasiodiplodia theobromae | Black Kernel Rot |
| | Hoplolaimus columbus | Lance Nematode | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Pseudomonas syringae pv. syringae | Holcus Spot | Cercospora spp. | Gray Leaf Spot |
| | Puccinia polysora | Southern Rust | Puccinia polysora | Southern Rust |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Peronosclerospora sorghi | Sorghum Downy Mildew |
| | Pratylenchus scribneri | Root Lesion Nematode | Pratylenchus scribneri | Root Lesion Nematode |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | Robbsia andropogonis | Bacterial Stripe and Leaf Spot |
| | Meloidogyne arenaria | Root Knot Nematode | Waitea circinata | Rhizoctonia Ear Rot |
| | Diabrotica virgifera | Western Corn Rootworm | Diabrotica virgifera | Western Corn Rootworm |
| | | | Fusarium solani | Fusarium Root And Crown Rot Complex |
| Replicate 2 | Globisporangium ultimum | Pythium Root Rot Complex | Globisporangium ultimum | Pythium Root Rot Complex |
| | Exserohilum turcicum | Northern Corn Leaf Blight | Phoma spp. | Phoma Leaf Spot |
| | Phoma spp. | Phoma Leaf Spot | Sclerospora graminicola | Graminicola Downy Mildew |
| | Aspergillus candidus | Storage Molds | Aspergillus candidus | Storage Molds |
| | Fusarium equiseti | Deoxynivalenol and other Trichothecenes | Hoplolaimus columbus | Lance Nematode |
| | Fusarium equiseti | Fusarium Root And Crown Rot Complex | Pseudomonas syringae pv. syringae | Holcus Spot |
| | Pythium splendens | Pythium Root Rot | Cercospora spp. | Gray Leaf Spot |
| | Pythium spp | Pythium Root Rot | Puccinia polysora | Southern Rust |
| | Pythium spp. | Seed Rots and Seedling Blights or Damping Off | Peronosclerospora sorghi | Sorghum Downy Mildew |
| | Hoplolaimus columbus | Lance Nematode | Pratylenchus scribneri | Root Lesion Nematode |
| | Pseudomonas syringae pv. syringae | Holcus Spot | Waitea circinata | Rhizoctonia Ear Rot |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | Globisporangium irregulare | Pythium Root Rot Complex |
| | Globisporangium debaryanum | Pythium Root Rot Complex | Cladosporium spp. | Storage Molds |
| | Puccinia polysora | Southern Rust | Septoria spp. | Septoria Leaf Blotch |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | Diabrotica virgifera | Western Corn Rootworm |
| | Pratylenchus scribneri | Root Lesion Nematode | Colletotrichum graminicola | Anthracnose Leaf Blight |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | | |
| | Meloidogyne arenaria | Root Knot Nematode | | |
| | Waitea circinata | Rhizoctonia Ear Rot | | |
| | Diabrotica virgifera | Western Corn Rootworm | | |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com

# Roots to Shoots Summary Report- TNT HEF 2-3-0 V8 Corn

## Pathogen Screening

| | Untreated | | TNT HEF 2-3-0 | |
|---|---|---|---|---|
| | Average Number of Abundant Pathogens Identified: 19 | | Average Number of Abundant Pathogens Identified: 13.3 | |
| | Pathogen Species | Disease Common Name | Pathogen Species | Disease Common Name |
| Replicate 3 | Globisporangium ultimum | Pythium Root Rot | Aspergillus candidus | Storage Molds |
| | Xanthomonas vasicola | Bacterial Leaf Streak | Cladosporium cladosporioides | Cladosporium Rot |
| | Exserohilum turcicum | Northern Corn Leaf Blight | Hoplolaimus columbus | Lance Nematode |
| | Phoma spp. | Phoma Leaf Spot | Pseudomonas syringae pv. syringae | Holcus Spot |
| | Sclerospora graminicola | Graminicola Downy Mildew | Globisporangium paroecandrum | Pythium Root Rot Complex |
| | Stenocarpella maydis | Diplodia Ear Rot and Stalk Rot | Puccinia polysora | Southern Rust |
| | Aspergillus candidus | Storage Molds | Pratylenchus scribneri | Root Lesion Nematode |
| | Fusarium equiseti | Fusarium Root Rot Complex | Waitea circinata | Rhizoctonia Ear Rot |
| | Fusarium equiseti | Fusarium Root Rot Complex | Cladosporium spp. | Storage Molds |
| | Aspergillus ochraceus | Storage Molds | Diabrotica virgifera | Western Corn Rootworm |
| | Pythium spp. | Damping Off | | |
| | Pythium spp. | Damping Off | | |
| | Pythium spp. | Damping Off | | |
| | Lasiodiplodia theobromae | Black Kernel Rot | | |
| | Globisporangium paroecandrum | Pythium Root Rot Complex | | |
| | Cercospora spp. | Gray Leaf Spot | | |
| | Puccinia polysora | Southern Rust | | |
| | Peronosclerospora sorghi | Sorghum Downy Mildew | | |
| | Pratylenchus spp. | Root Lesion Nematode | | |
| | Robbsia andropogonis | Bacterial Stripe and Leaf Spot | | |
| | Meloidogyne arenaria | Root Knot Nematode | | |
| | Waitea circinata | Rhizoctonia Ear Rot | | |
| | Septoria spp. | Septoria Leaf Blotch | | |
| | Diabrotica virgifera | Western Corn Rootworm | | |



Contact RhizeBio:
Phone: 919-351-2038
Email: support@rhizebio.com