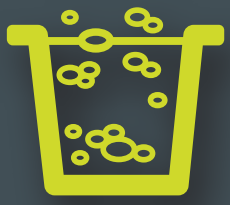
BIO-5

A SHOTGUN APPROACH
TO BIOLOGICAL INOCULANTS

STEP 1:
Bio-5 Dry



STEP 2:
Extraction

STEP 3:
Application

ABOUT BIO-5

Bio-5 is an on-farm extraction process that allows the farmer to produce their own beneficial soil microbes. Due to the sensitivity of beneficial soil microbes, microbial species diversity is difficult to achieve in packaged microbial products and often comes at a higher cost. The Bio-5 extraction process allows the producer or applicator to extract species-rich microbes which upon application proliferates the soil with diverse, high-growth, beneficial soil microbes.

No soil type or field is the same. Therefore, applying sensitive microbes with low diversity cannot ensure repeatable success. Applying a “silver bullet” microbe in the wrong soil environment can often yield a variable response. As the soil environment changes - due to moisture, pH, temperature, nutrients, etc.- different communities of microbes activate. What works in one part of your field may not work in another. The higher the diversity of microbes the greater your return on investment.

SOIL WORKS

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BIO-5 - BRINGING DIVERSITY BACK TO YOUR SOIL

HOW BIO-5 WORKS

Costly mistakes with biological products are often due to applying the wrong microbial strain in the wrong soil environment. With Bio-5 Extract and the Soil Works program, you apply **DIVERSE** and **SPECIES-RICH** microbes that can activate in most ALL soil environments.

Bio-5 Extract is the product of the Bio-5 extraction process. The Bio-5 extraction process begins with a superior-quality non-manure based compost blend, Bio-5 Dry. Simply fill the Bio-5 extractor with Bio-5 Dry, extract, and apply. **One pound of Bio-5 Dry produces 3 gallons of Bio-5 Extract.** When using the Bio-5 Extractor, Bio-5 Extract can be produced at the rate of 40 gallons per minute. Cost per gallon is under $1.

Bio-5 Extract proliferates your soil with microbial strains that activate based on the current soil environment. As the soil environment changes, you are continually building communities of diverse microbes within the soil with each application establishing microbial diversity throughout the soil profile.

Bio-5 Extract has been specifically formulated to be paired with and activated by the nutrition found in the Soil Works program. Paired together we eliminate many of the costly mistakes and pitfalls found with other biological products and programs. We are simply... making your Soil Work.

APPLICATION RATES

Best results are achieved when Bio-5 Extract is applied early in the growing season as a soil drench, pop-up starter, or foliar. The product can be also fertigated or applied via irrigation. Consult the Soil Works staff for screen size and sprayer tip recommendations.

GENERAL APPLICATION RATES

5-15 gallons Bio-5 Extract per acre per application

It is highly recommended to apply bio-stimulants along with the Bio-5 Extract. Bio-5 Extract should NOT be tank mixed with pesticides and high salt fertilizers. Please consult the product label and the Soil Works staff for recommendations.

BIO-5 DRY DIVERSITY

Microbial strains are similar to crop varieties. Within a field you desire multiple varieties for optimum yield. Similarly, the more microbial strains or diversity a product has, the better the product responds to variable soil types. DNA testing reported Bio-5 Dry to contain over 5 million strains of microbes primarily from the Actinobacteria and Proteobacteria phylums. The following are key species and strains influencing crop production.

Symbiotic N_2 Fixers	Strains
Rhizobium	270
Bradyrhizobium	96
Mesorhizobium	73
Free-Living N_2 Fixers	
Pseudomonas	118
Herbaspirillum	22
Enterbacter	14
Azospirillum	10
Azotobacter	4
Klebsiella	4
Citrobacter	3
Phosphorus Solubilizing Bacteria (PSB)	
Bacillus	276
Pseudomonas	118
Burkholderia	157
Arthrobacter	80
Rhodococcus	66
Flavobacterium	44
Aerobacter	31
Proteus	5
Phyllobacterium	5
Klebsiella	4
Delftia	4
Potassium Solubilizing Bacteria (KSB)	
Bacillus	276
Arthrobacter	80
Mesorhizobium	73
Paenibacillus	70
Enterobacter	14
Acidithiobacillus	4
Klebsiella	4

BIO-5 EXTRACT TRIALS

Bio-5 Extract was applied on organic corn at the recommended application rate during the V3 growth stage (right) vs. the control (left). The field trial was conducted in South Central Nebraska 2017.