Technical Data Sheet

Aspergillus oryzae

Microbial Inoculant for Composting & Soil Fertility

Aspergillus oryzae is a spore-forming beneficial soil fungus used as a microbial inoculant and biostimulant to enhance nutrient availability, organic matter breakdown, and microbial balance in the rhizosphere. This plant growth-promoting fungus (PGPF) produces high levels of hydrolytic enzymes that accelerate lignin and cellulose degradation, making it a key agent for composting, nutrient cycling, and soil fertility improvement.

Used across diverse cropping systems, A. oryzae improves nitrogen availability, solubilizes phosphate and potassium, and enhances plant resilience under abiotic stress. Its compatibility with organic farming systems and microbial consortia makes it an effective soil probiotic and component of regenerative agriculture.

- Decomposes organic matter through production of cellulases, proteases, and lipases
- Supports nitrogen mineralization and nutrient mobilization, including phosphorus and micronutrients
- Acts as a phosphate- and potassium-solubilizing fungus via organic acid secretion
- Enhances drought and salinity tolerance by improving antioxidant response and root zone adaptation
- Accelerates composting by promoting breakdown of crop residues and manure
- Enhances feed fermentation and digestibility for silage and livestock rations

Technical Data

Concentration (CFU/g):
- 10 billion (1.0×10^{10}) CFU/g dry powder
- Custom concentrations available upon request

Particle Size (Mesh):
- Passes through 100 mesh sieve

Packaging Options:
- 22 lb (10 kg) pails
- 44 lb (20 kg) pails
- 340 lb (155 kg) drums
- Smaller custom packaging available on request

Shelf-life:
- 18 months at room temperature
- 24 months refrigerated

Storage Recommendations:
- Store in a cool, dry location away from direct sunlight.
- Reseal container tightly after each use.

Application Rates

Soil Application (Drip, Drench, or Fertigation)

Dosage:

- 250 to 500 grams per acre (600 to 1,200 grams per hectare)

Frequency:

- Apply during early root establishment or transplanting
- Reapply every 2–4 weeks, depending on crop cycle and stress pressure

Application Method:

- Dissolve thoroughly in water (ensure enough dilution volume to fully saturate the root zone)
- Use an agitation tank or manual stirring to maintain microbial suspension
- Apply through drip irrigation lines, micro-sprayers, or fertigation systems, positioning flow as close to the root zone as possible
- Flush the system after application to prevent clogging or residue buildup
- Do not tank mix with herbicides, fungicides, bactericides, or chemical pesticides

In-Furrow

Dosage:

- 100 to 250 grams per acre (250 to 600 grams per hectare)

Frequency:

- Apply once at planting to target root initiation and early growth stages

Application Method:

- Dissolve microbial powder thoroughly in water
- Apply directly into the seed furrow or planting trench at seeding time
- If using irrigation systems for delivery, ensure solution contacts the root zone
- Maintain agitation to prevent settling

When tank-mixing with fertilizers:

- Dilute fertilizer fully in water first before adding microbes
- Do not mix with herbicides, fungicides, bactericides, or pesticides

Composting or Organic Matter Amendment

Dosage:

- 30 to 80 g per ton of compost, organic substrate, or potting mix. Higher rates may be used for difficult-to-degrade materials or highly competitive compost environments.

Frequency:

- Single application before use or at the beginning of composting/soil blending

Application Method:

- For composting, first dissolve powder in water. Then spray piles and turn to evenly distribute product through the piles/windrows.
- For organic matter amendment, evenly mix the dry microbial powder into the growing media during turning or mixing