



 3BarBio  
THE AGBIO CDMO

# 3BarBio *enables* further adoption of biologicals

TRADITIONAL SUPPLY CHAIN



Results in high microbe

**DIE OFF**

3BARBIO CDMO

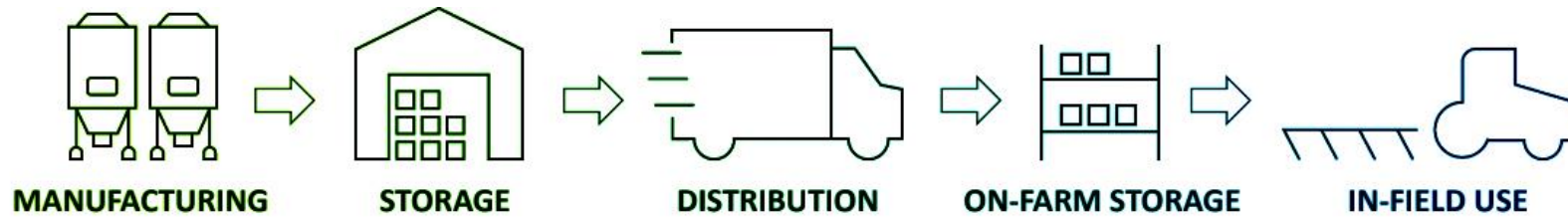


Innovations & technologies keep microbes

**ALIVE + VIABLE**

# Microbe Journey Problem

Commercial microbes lose viability before application

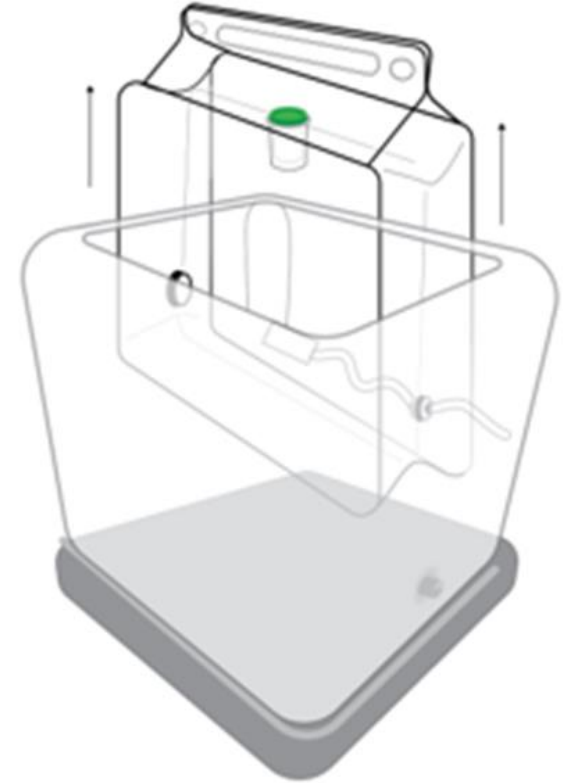
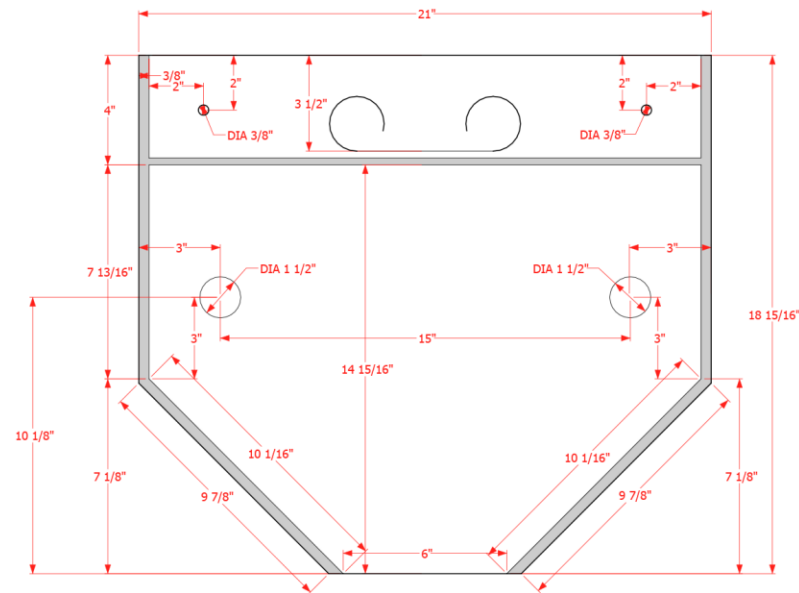
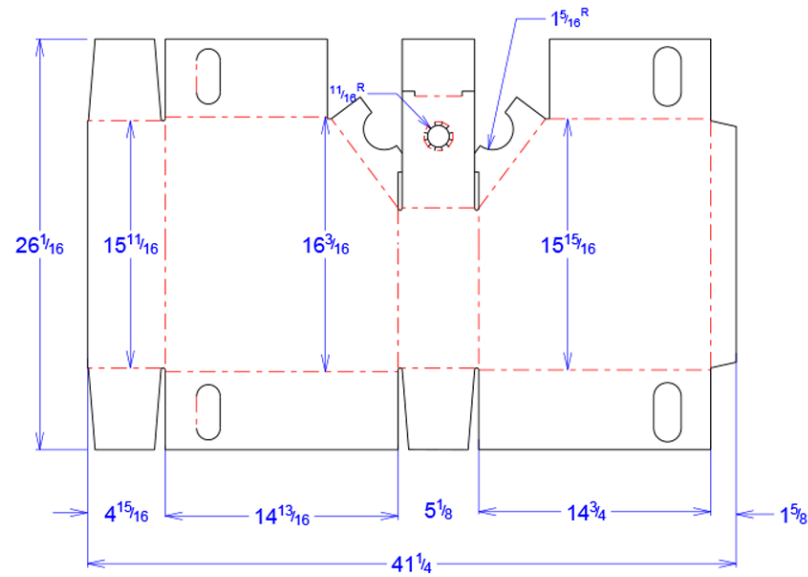
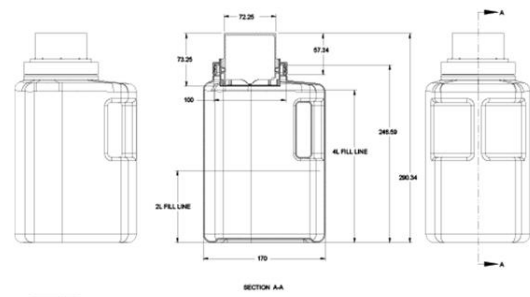
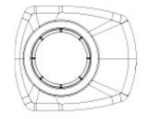


DECREASE IN PRODUCT VIABILITY OVER TIME



INDUSTRY SOLUTIONS ARE INADEQUATE:

- Expiration Dates
- Inconsistent Results
- Exclusive Bacillus

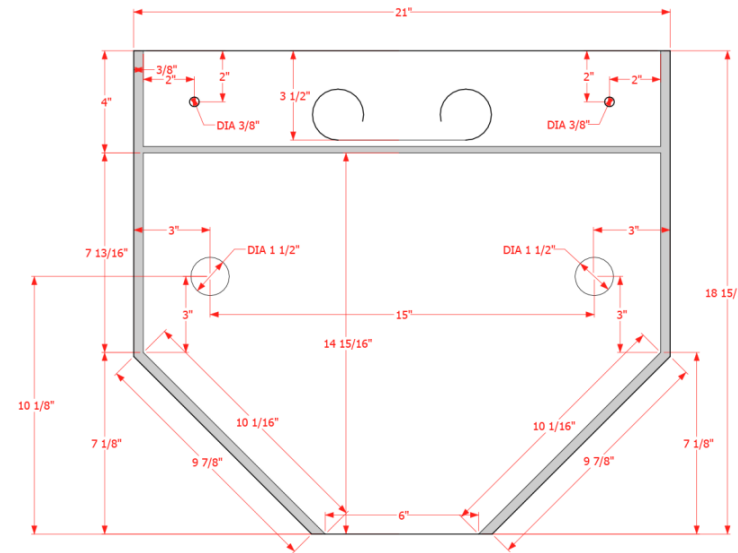


# INVIGORATE® FLEX PACK



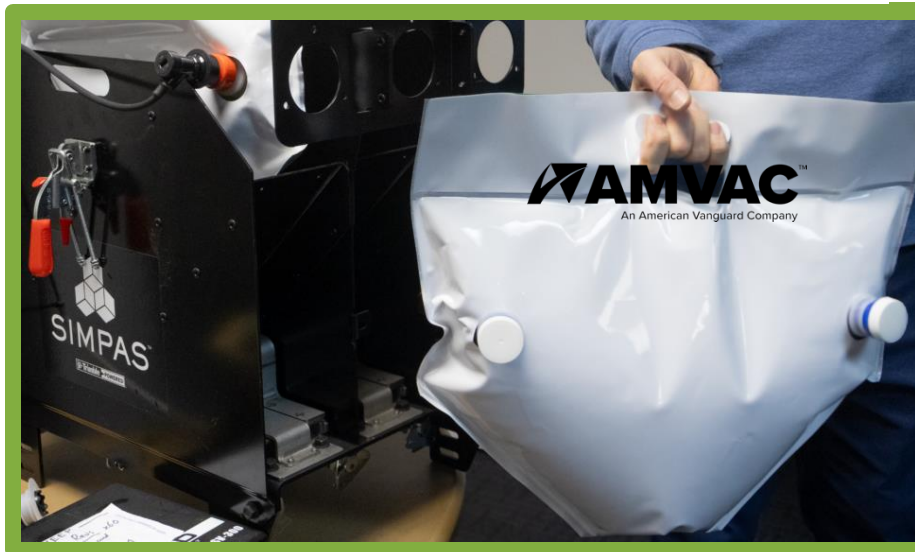
## CUSTOMER NEED

- Maintain liquid microbe viability in SIMPAS
- Durable, disposable package
- Package must empty completely



## ACTION

- Custom bag-in-bag package development
- Fluid dynamics study
- Compatibility with SIMPAS



## RESULT

- Bag-in-bag solution compatible with SIMPAS
- Viable microbes at application
- Commercialization in less than 1 year

# AZOROOT™



## CUSTOMER NEED

- Economical way to deliver fresh microbes
- Microbes must be kept viable prior to application
- Shelf life was limited in the current form and previous attempts were not commercializable



## ACTION

- Adapted proprietary bag-in-box package
- Grows microbes in package just prior to application
- Testing to ensure microbes were protected



## RESULT

- First-ever live-activated root growth microbe system for turfgrass & ornamentals
- 3BarBio's design keeps dormant bacteria protected
- Design ensures microbe viability and efficacy; activation just prior to application



# BIO-CAPSULE



## CUSTOMER NEED

- Long term exposure of microbes to seed lubricant causes degradation
- Keep microbes viable until application
- Allow mixing of microbes and carrier just before application



## ACTION

- Two-stage package
- Keeps microbes and dry lubricant carrier separate
- Allows for mixing in one package by the end user



## RESULT

- Microbes are viable at application
- No wasted product
- Increased adoption & 300% increase in sales in year 1



# BIO-CAPSULE



# A CASE STUDY | INDIGO AG

## CLIPS™

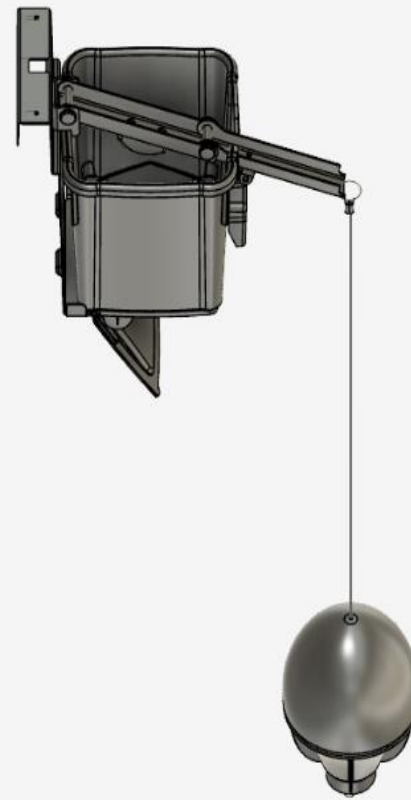


### CUSTOMER NEED

Ensure microbes remain active and effective from production to application.

#### Address Planting Window and On-Seed Stability

Implement a hands-free, automated system for applying flowable powder biological seed treatments to bulk seed box containers



### ACTION

**Microbes** are safeguarded within the Bio-Pod container, preserving viability  
CLIPS™ device securely holds the Bio-Pod on the seed box, ensuring effortless application

**Automated activation** triggered by the natural force of seed flow

Dispersal system coats seeds as they transfer to the planter, ensuring consistent coverage



### RESULT

**Optimized Microbial Viability**

**Effortless Hands-Free Application:**

activation Maximizes the potential of biological seed treatments, improving efficiency and ROI





**WHAT MICROBE DELIVERY PROBLEM  
CAN WE SOLVE FOR YOUR COMPANY?**



3BarBio Team



Biomanufacturing Team