

DIAGNOSTIC TOOL FOR MONITORING BACILLUS SUBTILIS BIOFERTILIZER

Smarter soil monitoring

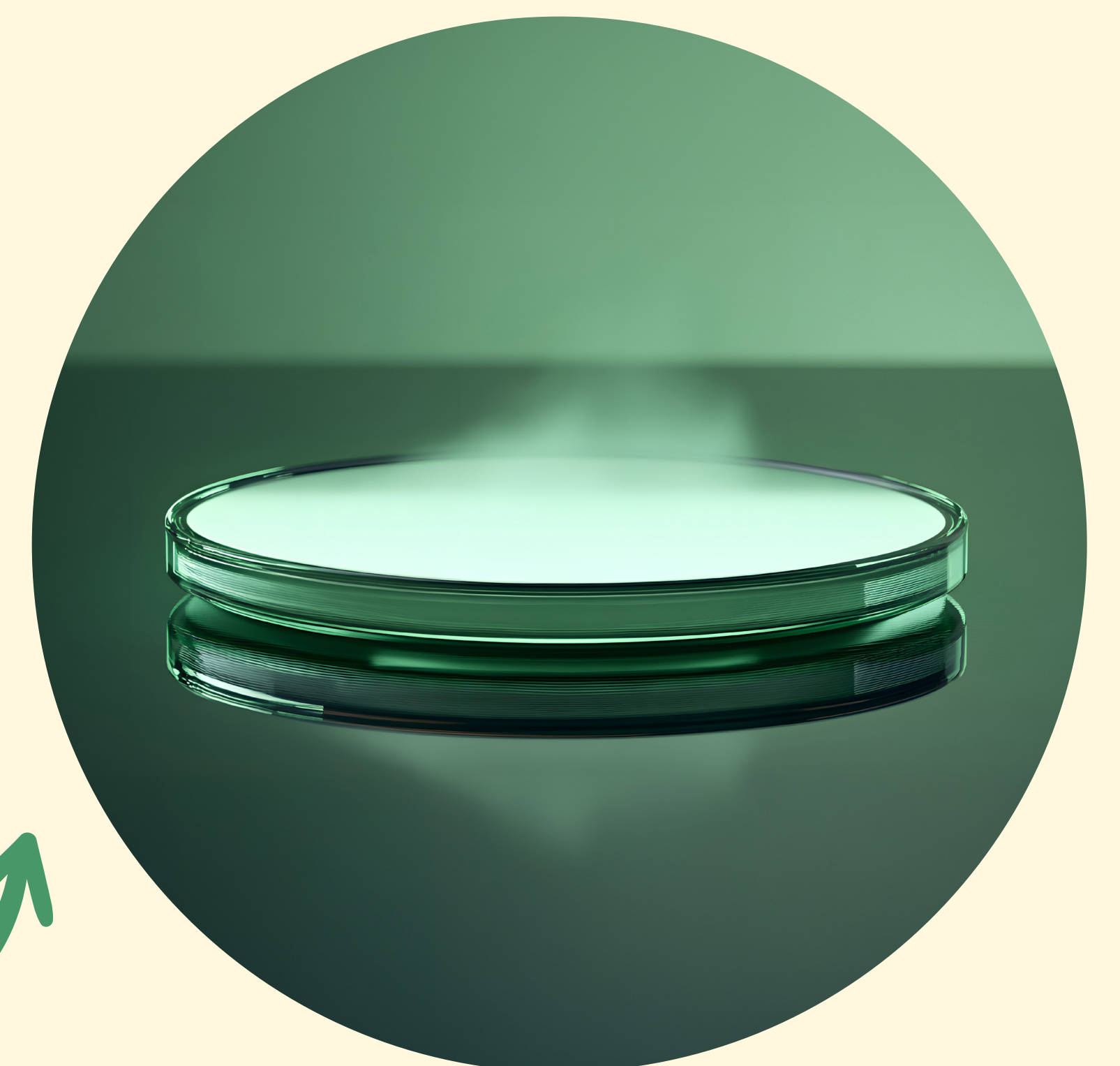
Monitoring and tracking bioinoculants in soil is key for regulation as well as for optimizing bioinoculum application, ensuring the right amount of beneficial bacteria for maximum plant growth and protection.



Bacillus subtilis (PCM/B00105) is a key component in some biofertilizers, contributing to sustainable farming practices.







Two ssDNA aptamers were developed and patented, showing high specificity and affinity for *B. subtilis* strains.



Detection performed using an acoustic wave gravimetric sensor (QCM-D) – a lab-on-chip platform in collaboration with a SME.

Benefits

-  **For farmers**
Better soil monitoring at low cost. More confidence in inoculant performance.
-  **For industries**
Stronger customer trust via verified data. Clearer proof boosts sales.
-  **For researchers**
More accurate, replicable results. Publish high-impact work using advanced tools.
-  **For policy makers**
Improved oversight of inoculation. Stronger policies from validated data.

Key outcome

This aptamer-based probe technology is a breakthrough in soil monitoring, providing fast, portable, and cost-effective solutions to detect and quantify *B. subtilis* in situ. Its DNA-free approach lowers adoption barriers by eliminating the need for costly, labor-intensive lab work, making it practical for varied agricultural environments.

