



Session	Start-ups/SMEs looking for Finance: Pre-seed/Angel/Seed
Title	A Biodegradable Antifreeze Spray for Affordable Crop Frost Protection
Company	CryoBio, Inc.
Speaker	Murli Manohar
TRL	TRL 4 - 7
Keywords feedstock (max 2)	Glucose
Keywords technology (max 2)	Precizion Fermentation
Keywords End-Product (max 2)	Polypeptide/ proteins
Abstract:	
Frost is a "silent killer" that destroys up to 3% of global crops annually, a figure expected to rise to 5% by the end of the next decade due to erratic climate patterns. This leads to \$50 billion in annual economic losses and massive food waste. In frost-prone regions in Europe, individual farmers can lose 90-100% of a season's harvest in a single night. Frost prevention methods have not improved since the 1980s. Current equipment-based methods—such as heaters, blankets, and large fans—are inefficient and expensive, with installation costs ranging from \$3,000 to \$10,000 per hectare and nightly operating costs between \$1250 and \$2,500. These methods are affordable for only 5% of impacted farmers and typically offset only 20-30% of frost damage. Other repurposed solutions, including microbes and biostimulants, have also proven largely ineffective. CryoBio has developed a first-of-its-kind formulation based on natural biomolecules that prevents internal and external freezing at the molecular level. CryoBio Tech offers: - Efficacy: 8°C of protection—the highest in the industry—compared to the 1–3°C provided by current methods. - Affordability: Costs \$50 per hectare at scale. - Convenience: Simply need to be sprayed before an anticipated frost using standard farm equipment. By mitigating frost and food waste, our technology supports the reduction of 1Gt of CO2 emissions. Beyond frost protection, CryoBio has significant applications in food freezing and cold transport.	