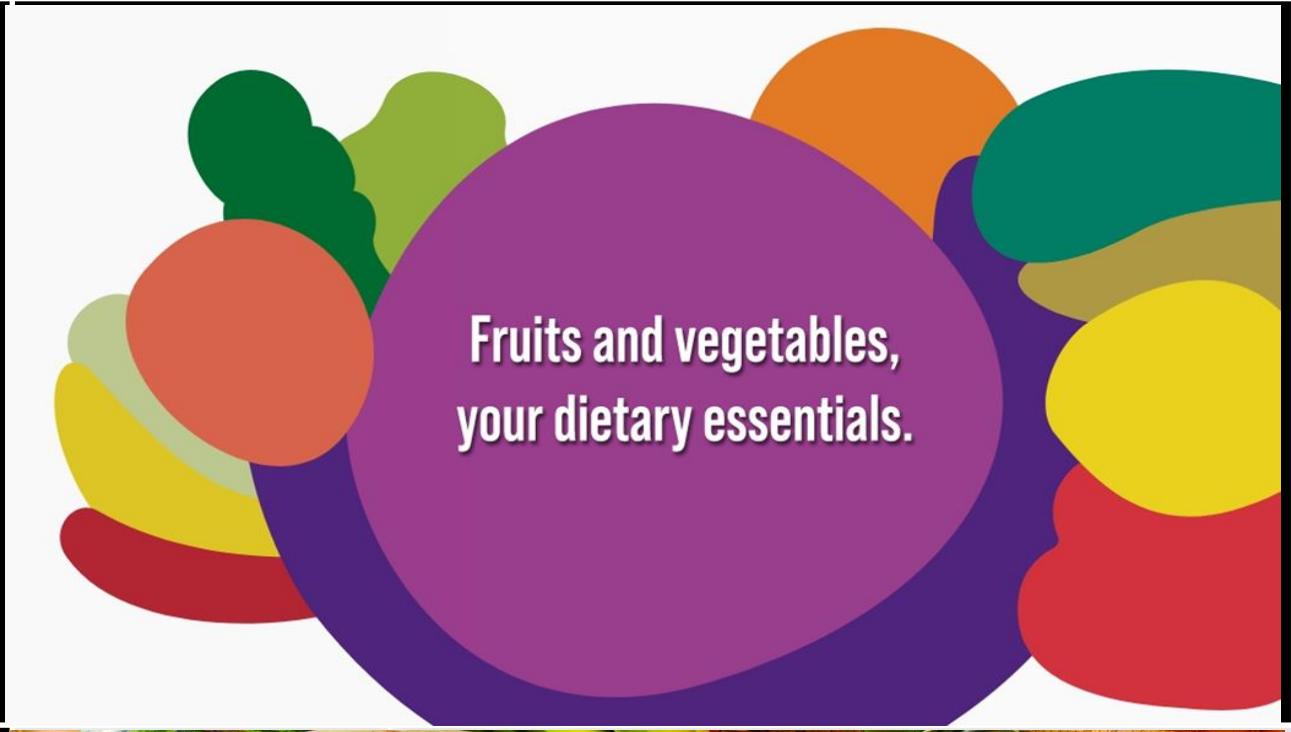
FRUVETECH

Freshness Intact

Pitch for National Startup Awards 2022 – Jury Round



Dr. Jagadis Gupta Kapuganti PhD (Wuerzburg) *MCF* (Oxford)
Scientist V
BIRAC-BIG Innovator (FITT, IIT Delhi)
National Institute of Plant Genome Research
Aruna Asaf Ali Marg, New Delhi-110067
Email: jgk@nipgr.ac.in
Tel: 91-11-26735111; Mobile: 9899526383

www.fruvetech.com

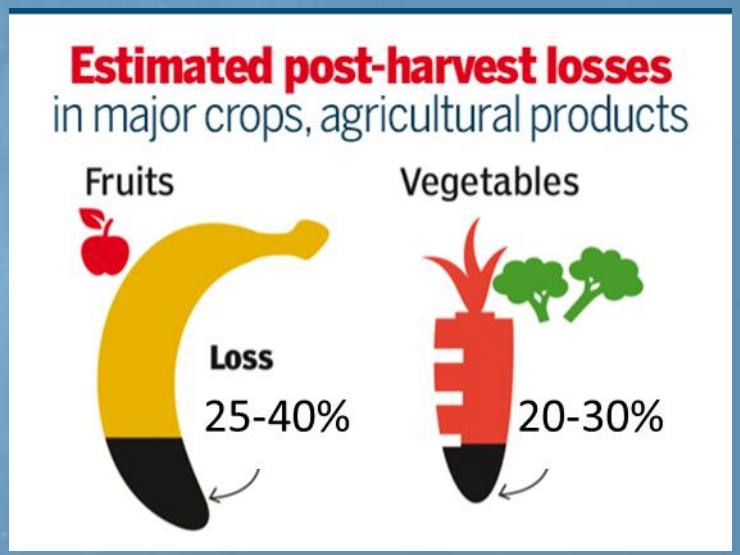
Problem and Need

Fruits and vegetables are most perishable

India is producing 265 million tons of fruits and second in the world

India is losing Rs 2 lakh crore worth of fruits and vegetables per year

Farmers are losing lot of income



Loss of produce in supply chain

Opportunity

The present innovation is based on formulation a device to enhance the shelf life of fruits using an innovative idea

The formulation and device is usable and adaptable for an efficient storage and transportation

Currently lack of appropriate technologies in market to delay fruit Ripening

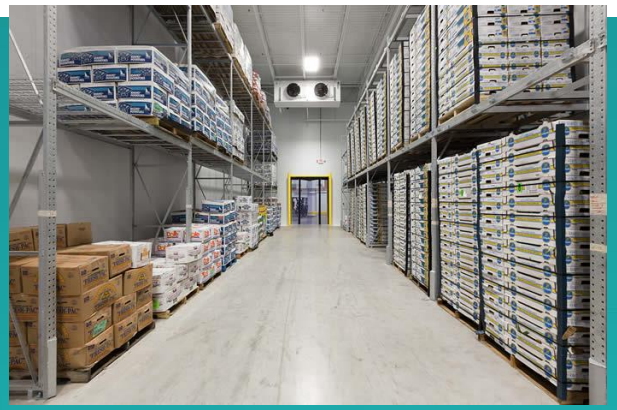
We need farmer Friendly Technology

High level of public benefit and commercial value

Technology that can confer enhanced nutritional value

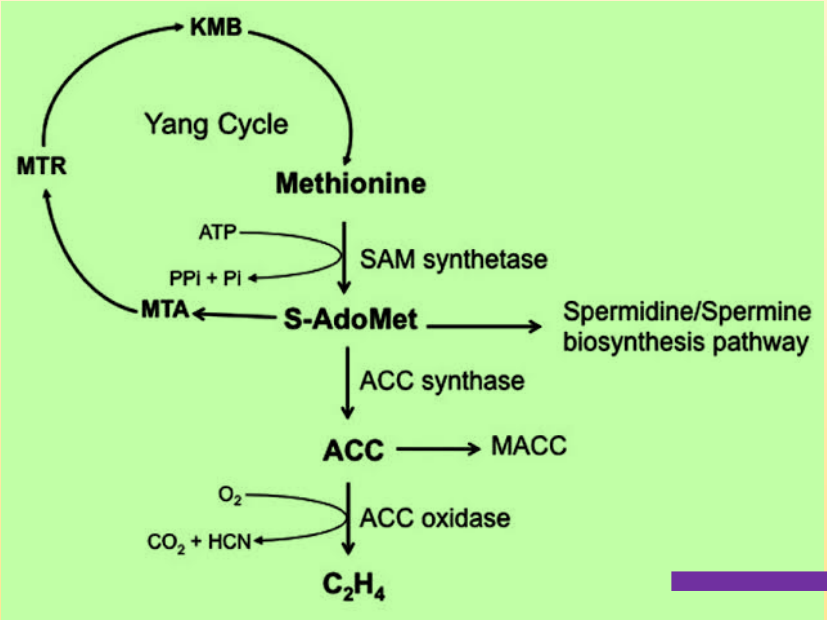
Huge Market Demand for these type of technologies at the level of farmers, customers and market

Market requirement and public acceptance for non-toxic/environment friendly



Concept of our technology

Ethylene, a gaseous plant hormone is involved directly in the regulation of the ripening process of fruits



Altering ethylene biosynthesis can be used as an important means to delay the natural ripening process

Development of various devices for enhancing shelf-life of fruits

Control Treatment

Control Treatment

This new energy efficient, innovative and cheap device developed by NIPGR can address the problem of postharvest losses in India

Advanced system using solar energy

Advanced system using solar energy for circulation

Control Treatment

Startup
Fruvetech Pvt Ltd

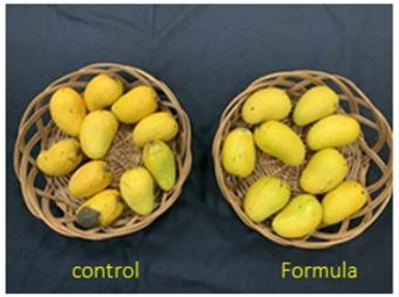
- Device for general consumers
- Large for farmers
- Device for stores
- Transport
- Large storage facilities

The concept is based on an idea of inducing nitrite dependent nitric oxide production endogenously from leaves to counteract ethylene production

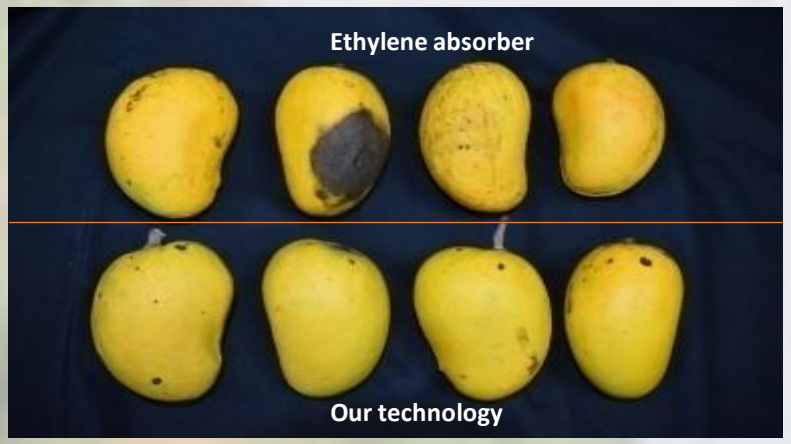
BIOTECHNOLOGY INDUSTRY RESEARCH ASSISTANCE COUNCIL
A Government of India Enterprise
DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT OF INDIA

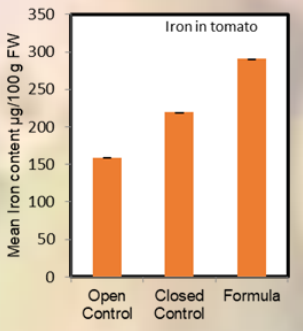
Dr Jagadis Gupta Kapuganti Scientist, NIPGR

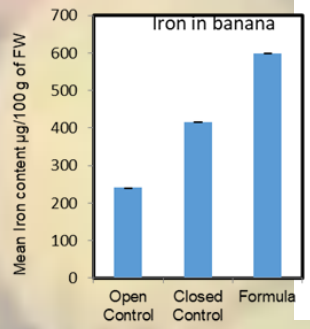
Our technology can work on various fruits and vegetables

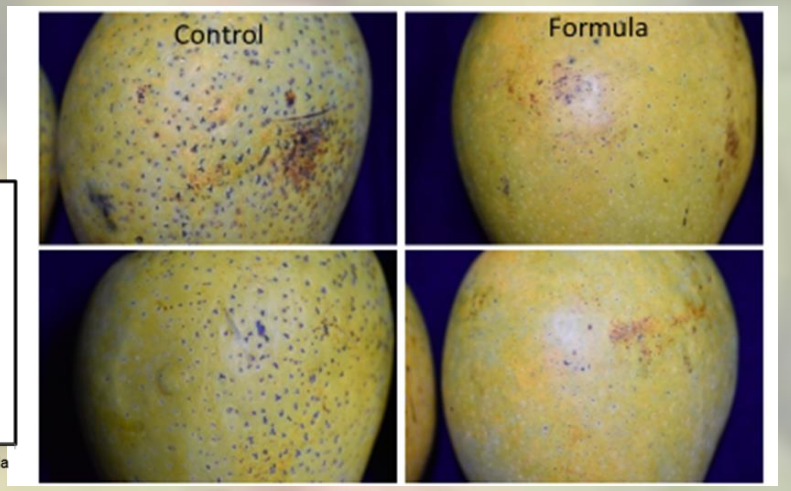


Our technology is DIFFERENT and much more effective than ethylene absorber



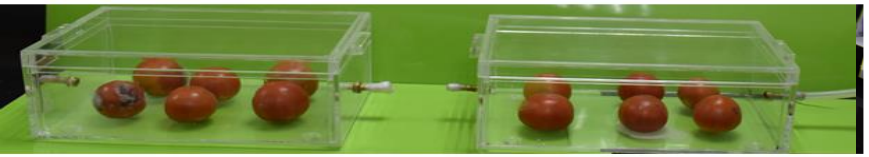






Day 0

Day 5



Day 10

Day 15

Day 9

-Formula

+ formula

Formula

Control

Newly designed Blackbox being deploye in reefer trucks

Technology can also help in enhancement of shelf-life of vegetables

+Formula -Formula

+Formula -Formula

+Formula -Formula

-Formula +Formula

Testing of devices at fruit-shop revealed that this device can effectively enhance shelf-life hence can be better and cheaper option for fruit vendors to use

Novel gel based formulation

Conrtol Formula

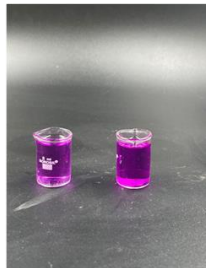
3 weeks

Control Formula

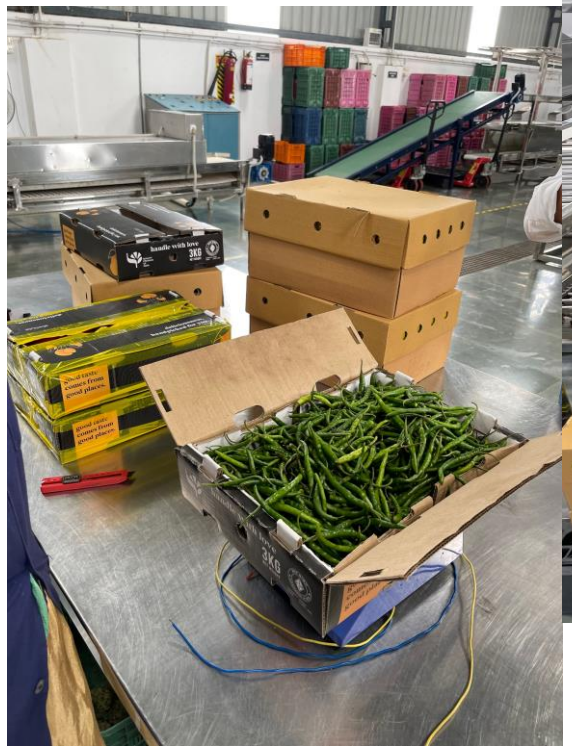
2 weeks

Control Formula

2 weeks



Industrial based supply chain entry



Performed trails
In Azadpur fruit markets
And storage godowns

Novelty

First technology to delay repining process using natural phenomena
First technology without use of refrigeration

This approach can also reduce spoilage of fruits by the microorganisms

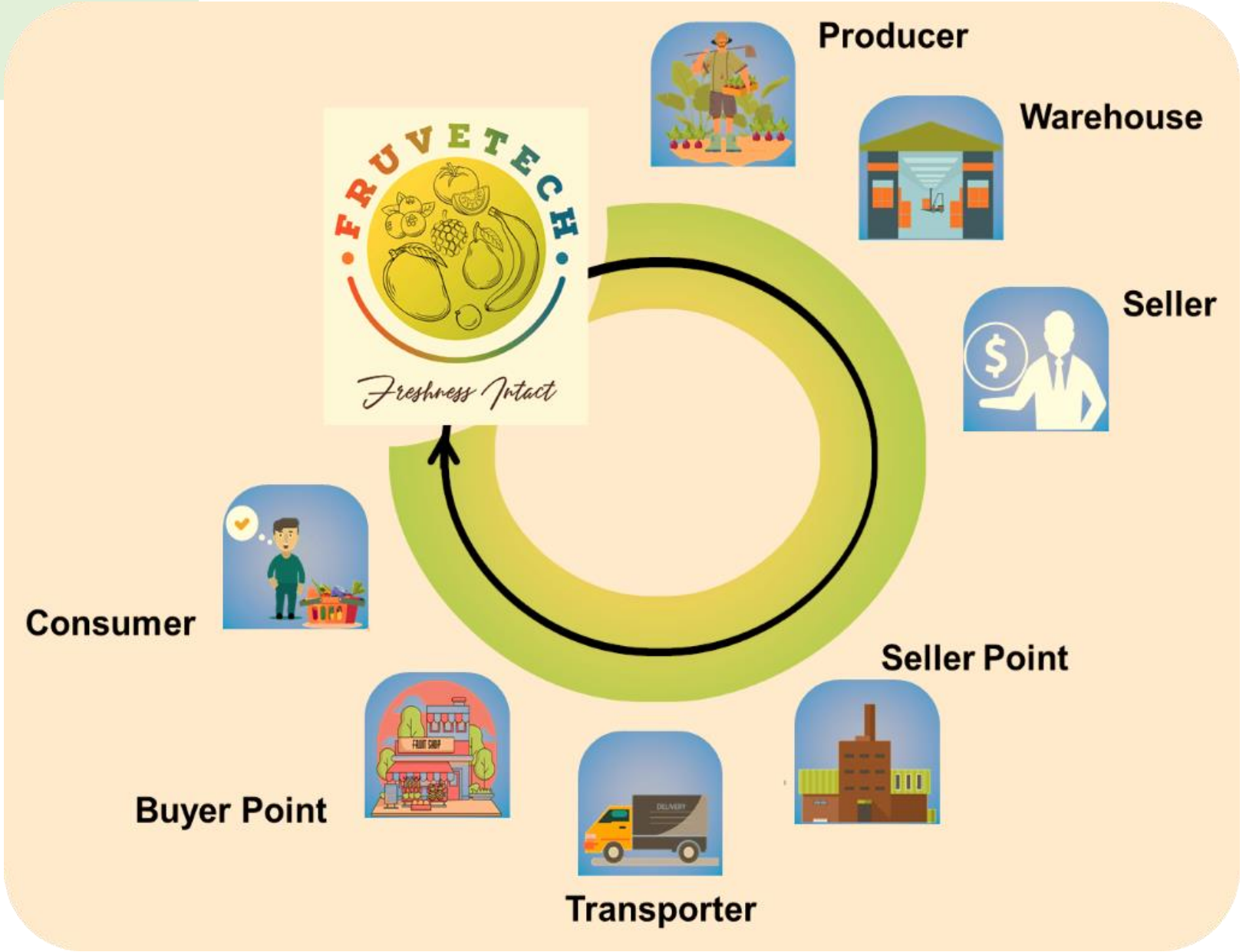
This is the first technology based on a inhibition of metabolic process of ethylene production

This phenomena can play in keeping Iron and vitamin content intact

No gene modifications

Device can be customised!!

Feasibility



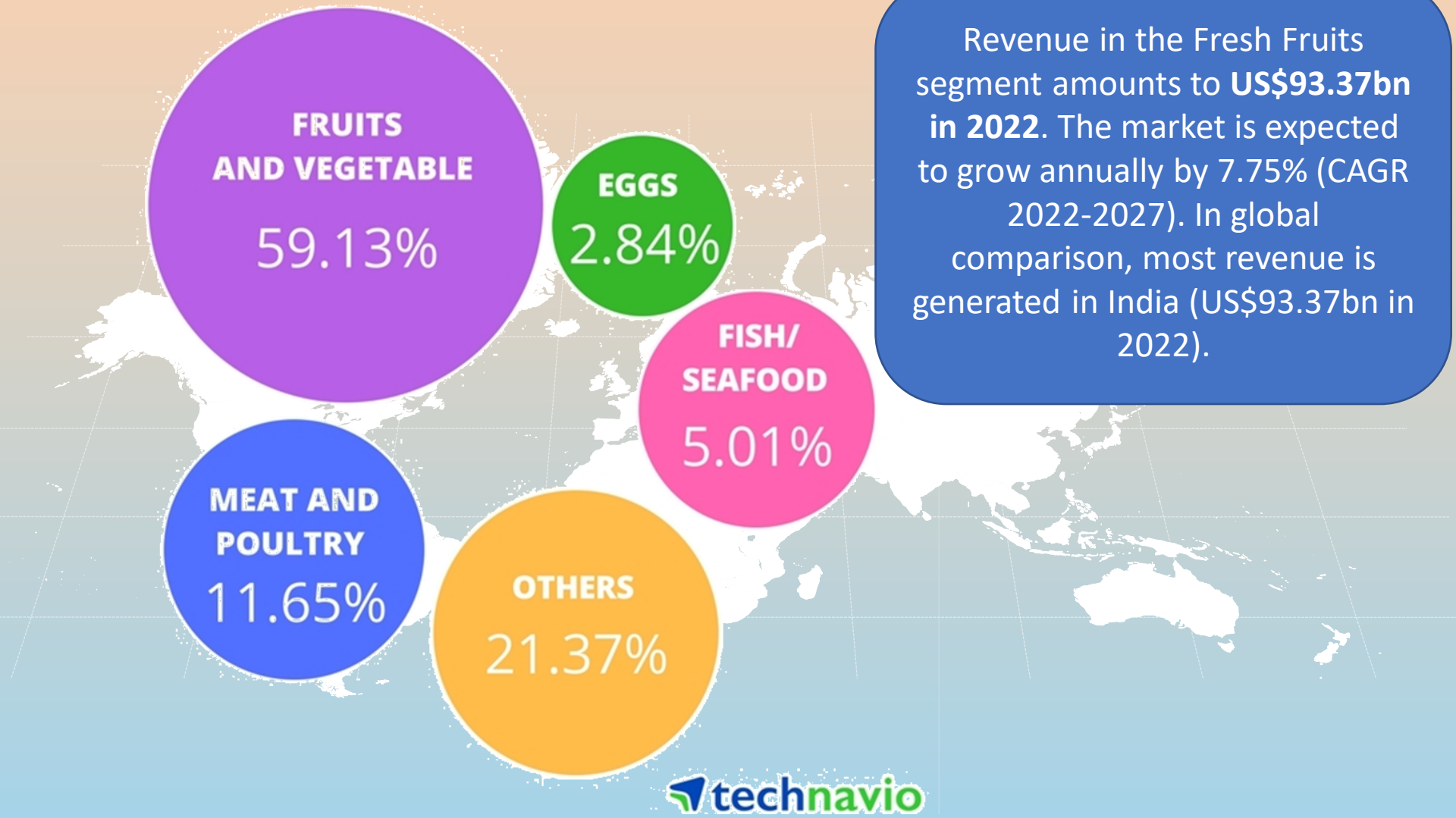
Competitive Landscape

Technology	Available Technologies		
Our technology	STIXFRESH STICKER	FRUIT FRIEND	BLUAPPLE
8 patents filed	WO2019108241A1 WIPO (PCT)	EP1657998B1	D610667
Make in India	Malaysian company	USA	USA
Based on inhibition of ethylene production	Based on Absorbing Ethylene gas	Based on Absorbing Ethylene gas	Based on Absorbing Ethylene gas
Hypoxia induced Nitric oxide from natural leaves	Sodium chloride and beeswax	Silicone Storage Balls	Ethylene absorbing chemical compound
Applicable for large scale	Applicable for large scale	Not applicable for large scale	Not applicable for large scale
Large scale and households	Household	Household	Household
Improves nutritional quality	No effect on nutritional quality	No effect on nutritional quality	No effect on nutritional quality
Very Cheap, 1 Rs per kg fruits	High expensive Rs 50-perfruit	Highly Expensive $20 per pack	Highly Expensive $ 36 per pack
Natural	Natural	Partially natural	Partially natural
 Formula and device			

9 National and International patents

	Inventors	Title of patent	Patent numbers
PCT Patents			
1.	**Gupta KJ**	System for delaying ripening of agriculture produce	2020 PCT **WO2020183491** (Published)
2.	**Gupta KJ**, Bulle M, Kumari A (2020)	Method for extending shelf-life of agriculture produce	2020 **PCT/IN2020/050219**
Indian Patents			
1.	**Gupta KJ**	System for delaying ripening of agriculture produces	2020 IPA No: **202011010183**
2.	**Gupta KJ**, Bulle M, Kumari A	Method for extending shelf-life of agriculture produce	2020 IPA No **20191100942**
International patents			
1.	**Gupta KJ**, Bulle M, Kumari A	Method for extending shelf-life of agricultural produce	USA Application No: **17/282,862**
2.	**Gupta KJ**, Bulle M, Kumari A	Method for extending shelf-life of agricultural produce	Europe **20715966.6**
3.	**Gupta KJ**	System for delaying for delaying ripening of Agriculture Produce	2021 European Patent 20729235.0
4.	**Gupta KJ**	System for delaying for delaying ripening of Agriculture Produce	2021 USPTO **17/622,569**

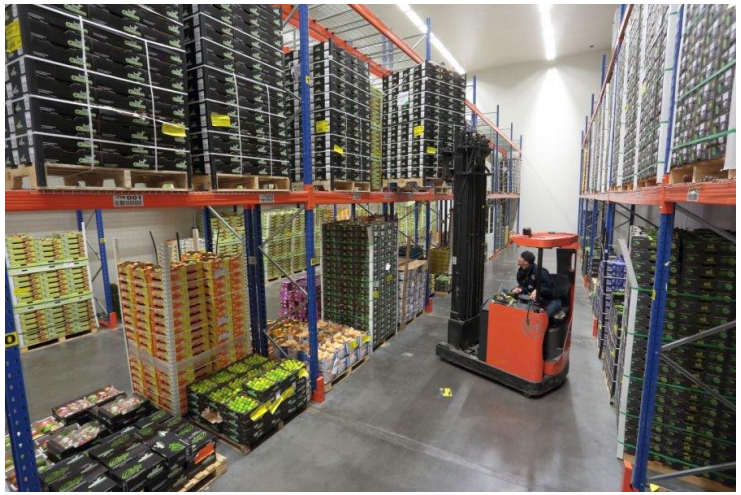
Market size



Revenue in the Fresh Fruits segment amounts to **US$93.37bn in 2022**. The market is expected to grow annually by 7.75% (CAGR 2022-2027). In global comparison, most revenue is generated in India (US$93.37bn in 2022).

technavio

Business Model



Direct manufacture and supply

Current funding

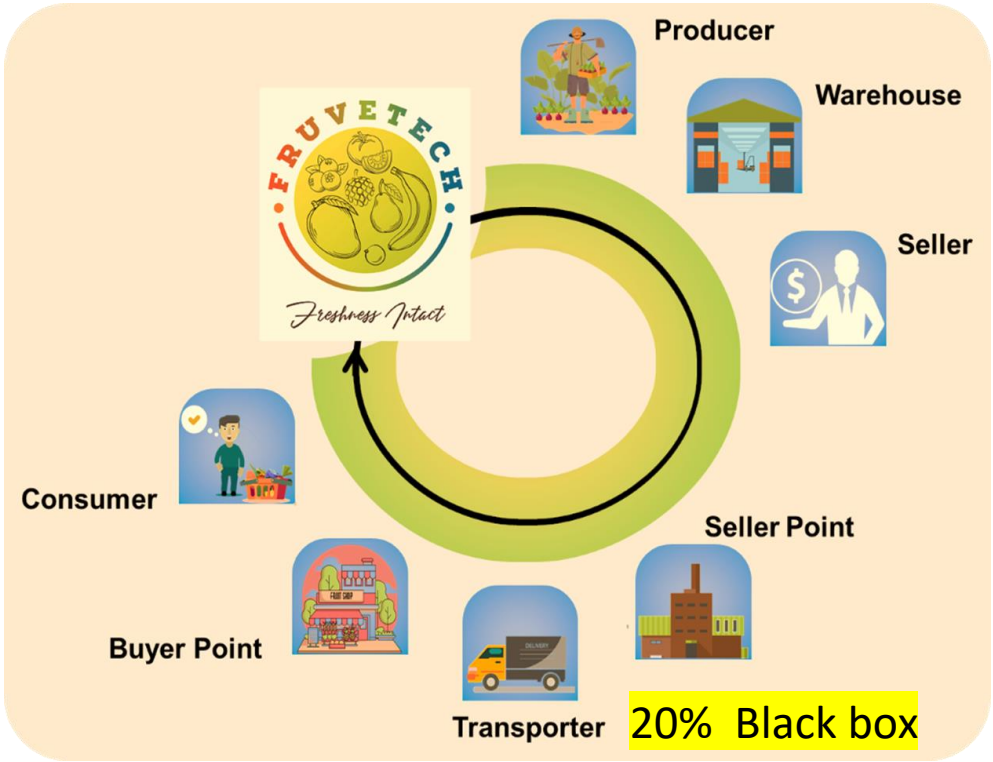
10% retail

BIRAC-BIG grant 50 Lakhs

Shree PVF grant 50 Lakhs

30% Black box

20% Farmer centric production boxes and formula



20% Black box

10% Direct production

Current revenue 7.5 lakhs

Projected 2023-2024 8-10 Crore

Projected till 2027- 40-50 Crore

Our team

Team & Advisors

Dr Jagadis Gupta Kapuganti
Scientist V and Group Leader
BIG Innovator
Expert in Plant nitric oxide research

Dr Vithal Lakkineni
Technology analysist
IPR officer, Govt patent agent

Ms Aprajita Kumari
Experience in plant metabolic profiling

absolute
Agriculture. Reimagined

Advisors

Dr Ramesh V Sonti FNASc, FASc, FNAAS, FNA
Dean IISER, Tirupathi
Expert in plant pathology, secondary metabolism

Dr Aravind Kumar
Expert in vegetable physiology

Dr Ishu Singhal
Medic Tech Pvt Ltd

Absolute foods

FITT

FITT Team

Farmer awareness program

Guava and custard apple farmer association participated in awareness program

Awareness program to banana farmers and support to protect their produce via Sree PVF foundation


CONTROL
TREATMENT


KOMAVATHI VENKATESWARA FOUNDATION

Presented at BIRAC expo as one of the important startups in Agri sector

Liked
by Dr.L.K.Pandey

anil gupta @anilgb · 6d

Just met dr @DrJagadisNIPGR @NIPGRsocial to greatly appreciate his technology fr increasing shelf life of fruits by 10-15 days at rs 1 per day; thanks @BIRAC_2012 What a wonderful tech @RenuSwarup @rajesh_gokhale @DrJitendraSingh

5 14 109

Achievements
(National/International)

Outlook KRISHI

Home » Formula To Stall Ripening, Add Shelf Life Without Refrigeration?

Formula To Stall Ripening, Add Shelf Life Without Refrigeration?

This technology may offer safer, user-friendly, and cost-effective storage and transport for fruits and vegetables.

Roshini Muthukumar — September 9, 2021

Scientist's Low Cost Innovation Extends Shelf-Life of Fruits & Veggies up to 10 Days

Jagadis Gupta Kapungati, a scientist at the National Institute of Plant Genome Research has innovated a 'shelf life enhancer' for fruits and vegetables to prevent rotting and wastage.

GaonConnection
YOUR CONNECTION WITH RURAL INDIA

Home | Reportage | Positive Stories | By Invitation | The Slow Interview | Gaon Connection Survey

An innovative device that enhances the shelf life of fruits and vegetables, and promises to boost farmers' income

A new energy efficient and cheap device developed by Indian scientists can address the problem of postharvest losses in India. This device increases the shelf life of fruits and vegetables, and unlike the cold storage units that are affected by power cuts, this new device can function on solar energy.

Indian research team aims to add shelf life without refrigeration

Fresh Plaza

One of 75 startups selected at BIRAC expo 2022

the better india

दूरदर्शन
सत्यम् शिवम् सुन्दरम्
किसान

Startup India recognized

सामान्य लोक विलक्षण कामं

नवाकाळ

शास्त्रज्ञाचे कमी खर्चातील नावीन्यपूर्ण उपकरण फळे आणि भाज्यांचे 'शेल्फ-लाइफ' १० दिवसांपर्यंत वाढवते..

One of 75 start-ups pitched at BIRAC Expo 2022

Doordarshan Kisan Broadcasted my innovation on fruit shelf-life enhancer in Navbharat ka Naya Kisan program National wide

दूरदर्शन
सत्यम् शिवम् सुन्दरम्

Trade Marks granted

IFFCO
पूर्णतः सहकारी स्वामित्व
Wholly owned by Cooperatives

अमृतं गमय
SREE PADMAVATHI VENKATESWARA FOUNDATION

Safely of technology certified by NABL accredited laboratory

SIGMA TEST & RESEARCH CENTRE

absolute

Video Links

Contact Dr Jagadis Gupta Kapuganti
Founder Fruvetech Pvt Ltd.
jgk@nipgr.ac.in
fruvetech@gmail.com
Mobile:9899526383