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Ministry of Agriculture
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Agri-Startups: Seeding the Ideas

Rashtriya Krishi Vikas Yojana (RKVY)

Remunerative Approaches for Agriculture and Allied
Sector Rejuvenation (RAFTAAR)

Agripreneurship Orientation Programme (AOP) - Cohort 1



Centre for Innovation and Agripreneurship (CIA)
(A Centre of Excellence in Agribusiness Incubation and
Knowledge Partner of RKVY-RAFTAAR)

National Institute of Agricultural Extension
Management (MANAGE), Hyderabad, India

About the Publication

Agri Startups highlighted in this publication participated in the Agripreneurship Orientation Programme (AOP) and were a part of the two-month residential training programme conducted at MANAGE, Hyderabad, under the RKVY-RAFTAAR scheme of the Ministry of Agriculture & Farmers' Welfare (MoA & FW), Government of India.

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Startups and Agri-Tech companies are an integral part of sustainable food systems and value-chains, contributing to poverty alleviation in rural areas. Apart from ushering economic benefits—such as employment and income generation agripreneurs also have the ability to create positive social transformation, such as gender and youth empowerment. Agripreneurs are risk takers as well as disruptors of the agri-industry, who will create employment, spur economic development, promote gender-equality goals, and safeguard valuable natural resources.

The agricultural production in India is quite low compared to several other countries. Therefore, it becomes critical to train the unemployed agricultural graduates and others in agri-business management and also provide them access to finance through incubation programmes to enhance their own agri-business and agricultural income.

Business incubators worldwide are bolstering breakthrough ideas, emerging industries, and entrepreneurs with requisite technical and financial services and support. To reinvigorate and cater to the needs of agribusiness promotion, the Government of India launched a re-modelled Rashtriya Krishi Vikas Yojana—Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR)scheme under the Ministry of Agriculture and Farmers' Welfare (MoA&FW). RKVY-RAFTAAR fosters and strengthens agribusiness incubation by unearthing innovations and technologies for venture creation in agriculture.

This Coffee Table Book on Agripreneurship Orientation Programme (AOP) captures the efforts and experiments of various agripreneurs and agri-startups across India in enhancing agricultural output through innovative practices and methods, thus contributing to the overall growth of the agricultural industry and the Indian economy.

(G. Jayalakshmi)



Dr. Saravanan Raj

Director (Agricultural Extension), MANAGE &
Chief Executive Officer, MANAGE-CIA

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This Coffee Table Book showcases the successful contributions of several agri startups and agripreneurs through their innovations in the agribusiness field, which has made a significant impact on the agribusiness startup community, in particular, and on the agricultural industry, in general. A few of the innovations highlighted in this publication include a hygienic, eco-friendly and biodegradable flexible brush, cloud computing based technology to make the marketing of agricultural produce easier for farmers; coconut flour as a healthy product; silage to overcome fodder scarcity round the year; online vegetable purchasing platform offering chemical-free vegetables; usage of local wasteland or barren land to grow non-edible vegetable oil crops; aloe vera based beauty, health and wellness products; innovative solutions to control the perishability of fruits and vegetables; and a blend of non-chemical and organic agri-inputs that increase productivity and protection of the crops.

I hope these Agri startups and agripreneurs will make it successful through their innovative ideas and solutions, with the support of MANAGE and other startup ecosystem partners and stakeholders.

(Saravanan Raj)

Content

01 Smart Technology in Agriculture
for Increased Yield
Pg. 04

02 Hygienic, Eco-friendly and
Affordable Flexi Datun
Pg. 05

03 Blend of Vedic Cropping Knowledge
and Modern Scientific Enrichments
Pg. 06

04 Cloud Computing for
Agriculture Produce Marketing
Pg. 08

05 Coconut Flour for a Healthy Life
Pg. 10

06 No Fodder Scarcity with Silage
Pg. 12

07 Ready-to-Cook Organic
Vegetables
Pg. 14

08 Chemical-free Vegetables
Online
Pg. 16

09 An Attempt Towards Improving
Environmental Conditions
Pg. 18

10 Consultancy Services to
Horticulture Businesses
Pg. 20

11 Aloe Vera for Beauty, Health
and Wellness
Pg. 22

12 Extended Shelf-life of Fruits
and Vegetables
Pg. 24

01. Smart Technology in Agriculture for Increased Yield

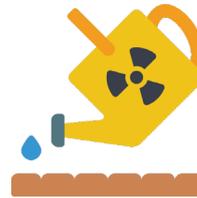
To fill gaps in the existing knapsack spray pump used in agriculture, this startup has developed a Smart Spray pump with sensors and a microcontroller to auto calibrate and adjust nozzle flow according to pesticide used, age and type of crop.

This innovation is reliable, efficient, durable, and can meet a variety of requirements in agriculture; hence very useful for farmers.

Usage of this can reduce the overall amount of pesticide generally sprayed and increase the yield of the crop.



Efficient



**Low amount of
pesticides**



Increased yield



Mr. Gurinder Singh Sidhu (Sidhu) hails from Punjab and is an electronics and technology enthusiast. Due to his interest in agricultural sector, Sidhu completed the training programme at American Society of Agronomy (ASA) and is now a Certified Crop Advisor.

Sidhu later developed this smart tool for the benefit of farmers. He aspires to start a R&D lab in the near future for integration of smart tech and Internet of Things (IoT) electronics into daily use farm equipment and instruments.

02. Hygienic, Eco-friendly and Affordable Flexi Datun

Flexi Datun is going to be first-of-its-kind, corn starch paper-fused flexible brush for people of all age groups, who brush their teeth. It is flexible, hygienic, affordable, eco-friendly, and reduces excess wastage of brush (normally 1-1.5 inches of datun is sufficient).

Flexi datun is a unique solution to clean naturally as the product is bio-degradable and eco-friendly.

This startup aims to provide employment opportunities to people in tribal areas.



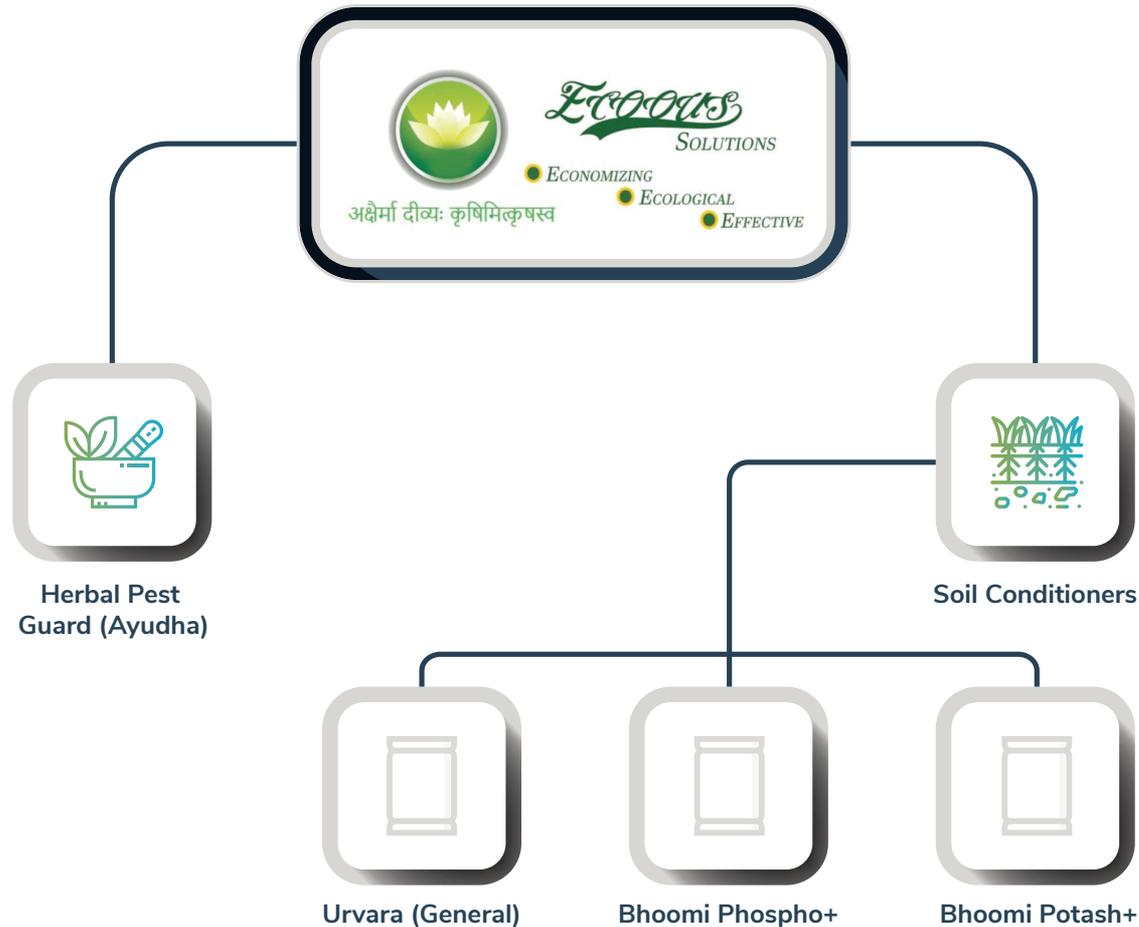
Mr. Shailendra Rakhecha (Rakhecha) is the founder of Flexi Datun and hails from Kolkata. After graduation, he worked for many organisations. He has up to 10 years of experience in handling manufacturing, sales and marketing.

With the experience he gained over the years, Rakhecha wanted to start his own enterprise. He came up with Flexi Datun idea, which won 'Original Startup Ideas Award' in General Category from ITC Sonar, Kolkata, in 2018.

Rakhecha enrolled in the Agripreneurship Orientation Programme (AOP), conducted by MANAGE, to get support for converting his idea into reality. Through this initiative, he aspires to create employment opportunities in rural and tribal areas and facilitate revenue generation through his project.



03. Blend of Vedic Cropping Knowledge and Modern Scientific Enrichments



Ecoous Solutions has developed two types of products, which are non-chemical and based on organic agri-inputs aimed at increasing productivity and protection of the crop.

The products reflect the perfect combination of age-old cropping knowledge with modern agricultural science and technology.

They are made up of completely organic bio-mass, primarily from locally available raw materials, selected herbs and aquatic weeds, etc., e.g., animal dung, agri-wastes, crop residues, food wastes, banana stem, etc.



Ecoous Solutions was founded by Dr. Anjali Prasad (Prasad) and Mr. Swayambhu Ghosh (Ghosh), who researched and created two types of agri-input products.

Prasad hails from Darjeeling, West Bengal, and has research experience in Pest Management, Ecological Crop Management, and validation of new tools on the field.

Ghosh hails from Kolkata, West Bengal, and has research experience in Soil Nutrient Management and Bio-fertilizers, and Integrated Nutrient Management.

They have completed UpGrad-Startup India Learning Programme and have been selected at ideation stage for orientation programme under RKVY-RAFTAAR scheme of Ministry of Agriculture and Farmers' Welfare, Government of India.

Prasad and Ghosh aspire to become one of the reliable and biggest non-chemical agri-input producers. In the near future, they want to make Ecoous as the therapist of every kind of cultivation related problems and will focus more on localised and indigenous solutions. They want to come up with native microbial bio-fertiliser, bio-pesticide in next phase, after which they have also planned to provide organic nutritious fish feed, animal feed, plant growth promoter, biochar, humic acid-fulvic acid, bio-stimulant, etc.

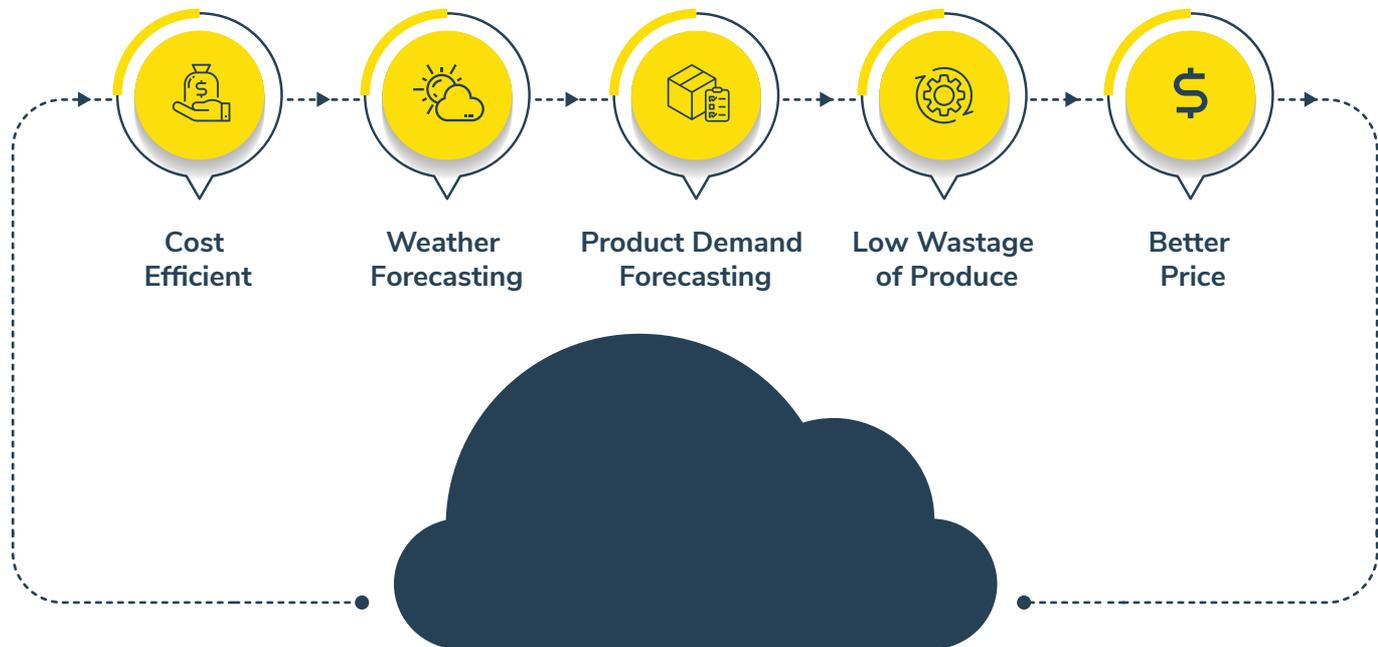


04. Cloud Computing for Agriculture Produce Marketing

This startup's main objective is to use cloud computing-based technology and make the process of marketing the agricultural produce easy and timely for farmers, so that they get a better price for their produce.

Cloud computing can help the farmer in crop maintenance, cost reduction, and faster data analytics in a cost-efficient manner.

When this technology reaches farmers systematically, it can support them by forecasting the weather and the yield demand in a scientific manner.

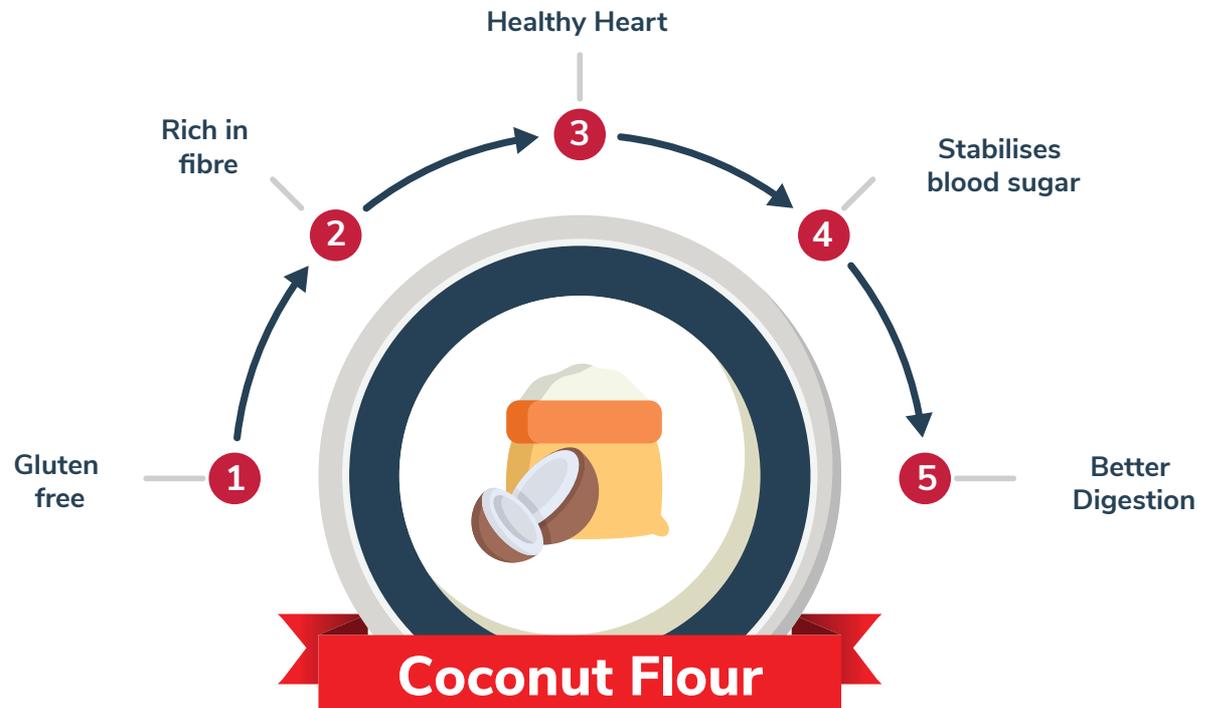


05. Coconut Flour for a Healthy Life

This startup wants to introduce coconut flour as a product, which is unique and not widely recognised. Coconut flour has up to 72.25% of dietary fibre and is gluten free.

Coconut flour is also rich in Medium Chain Triglycerides (MCTs), which promotes better and easy digestion. It helps in stabilising blood sugar, and aids in healthy heart.

A unique process has been developed, which ideally suppresses the domination of coconut taste. It also has water holding and swelling capacity at its best.





Ms. Monica. R (Monica), is a post-graduate (PG) in Organic Chemistry from Puducherry. At a very young age, Monica developed an interest in entrepreneurship and to pursue this passion, she took up a leading role in the Entrepreneurship Cell (E-Cell) in her university, through which she organised and participated in many events related to entrepreneurship. For her efforts, she was awarded the best E-Cell award from Entrepreneurship Development Institute of India (EDII), After her PG, she joined IDBI in insurance sector and gained some work experience from it.

Monica was involved in institutional-level Entrepreneurship Development Programme (EDP), where she oriented students and guided them towards entrepreneurship. This experience drove her towards her entrepreneurial journey. Coming from a science background, she chose this (coconut flour) idea to start her journey.

Monica wants to focus, ideate and do research and come up with more products that are beneficial to consumers.

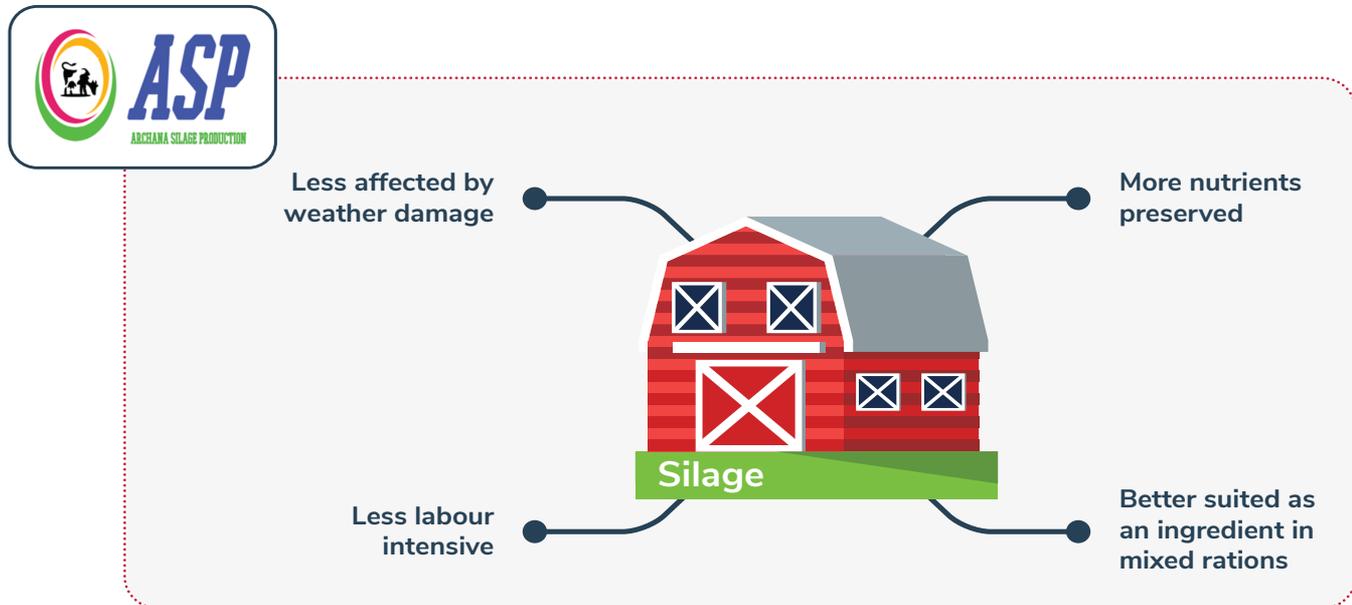


06. No Fodder Scarcity with Silage

Archana Silage Production (ASP) wants to develop silage as a remedy to overcome the fodder scarcity throughout the year. Silage is high-moisture stored fodder that can be fed to cattle, sheep and other ruminants (cud-chewing animals) or be used as a bio-fuel feedstock for anaerobic digesters.

It is fermented and stored in a process called ensilage or silaging, and is usually made from grass crops, which include maize, sorghum, and cereals.

This allows the farmers to generate income by selling their grass crops (barley, maize, sorghum, etc.) which will later be used in preparing silage.



Mr. M. Prathap Kumar (Kumar) hails from a family whose livelihood is agriculture. Coming from such background, his thoughts were always focused on the betterment of farmers. He aims to support the agricultural sector in the country and has come up with silage as a solution for its fodder scarcity problem. For this, Kumar visited various units where silage is being made and interacted with producers and collected valuable information. Only then, he firmly decided to move forward in the same activity and has established a silage unit in his village. He underwent two months training at MANAGE, Hyderabad.

Kumar aspires to extend his innovative ideas as an entrepreneur in agricultural sector, thus, supporting farmers and contributing to the development of agriculture and its allied sectors in India. In the near future, he wants to expand his startup geographically by spreading to new areas.

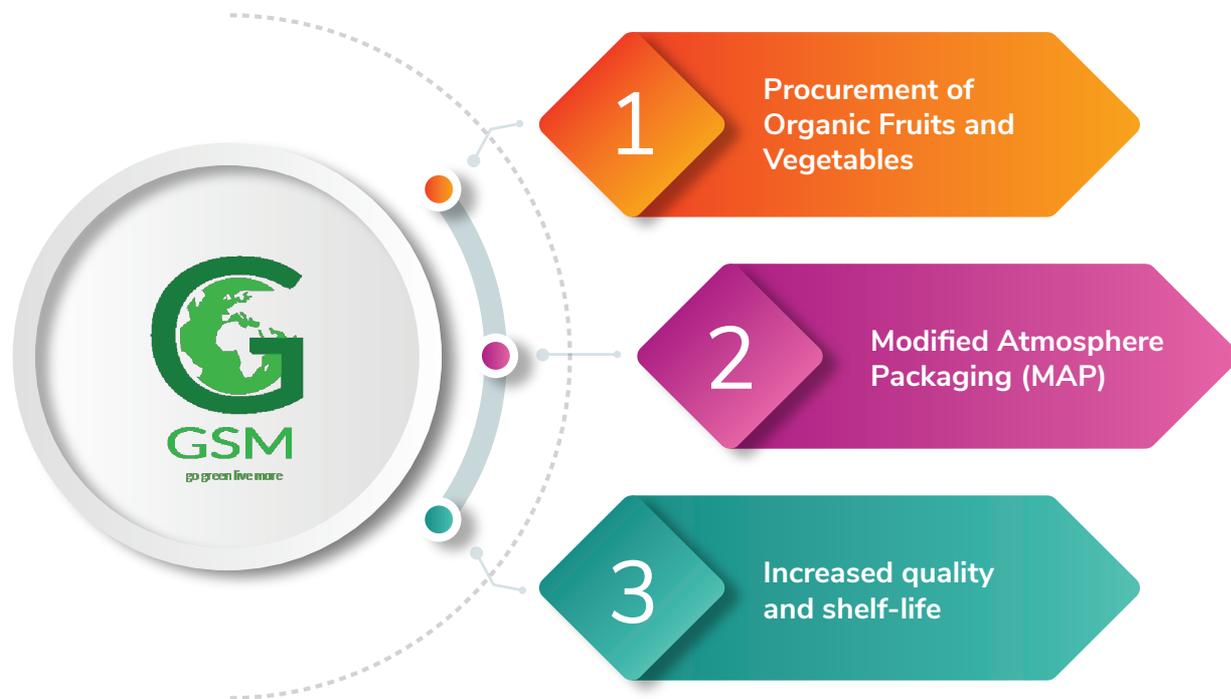


07. Ready-to-Cook Organic Vegetables

GSM provides organic food of exceptional quality to all households. The organic vegetables are cut and packed and are ready-to-cook.

This is an online vegetable shop and was set up in 2017. This uses a chemical-free method and is a first-of-its-kind being used to increase its quality and shelf life.

Modified Atmosphere Packaging (MAP) technology is used to process and pack the cut vegetables in order to increase its shelf-life.





Mr. Shurya Rajendran (Shurya) hails from Tamil Nadu and his family is involved in agriculture. Being brought up in a village, Shurya has an understanding of agriculture and its operations. He graduated in biotechnology and excelled in college. He received a prize for participating in “Soil-less Organic Agricultural System” contest conducted by The Indian Science Congress Association (ISCA). During the orientation programme, conducted by the Department of Biotechnology, Ministry of Science and Technology, Government of India, Shurya participated and got approval to get involved with fold scope project. He has also been honoured with the Best E-Cell CEO award by Government of Tamil Nadu and Government of India.

Shurya set up this online market place in 2017. Through this online platform, he wishes to bring about a revolution in delivering organic food of exceptional quality to all households. He leads the overall strategic direction of vegetables shop online and monitors the day-to-day activities of the entire business vertical.

He aspires to expand his business activities to other states as well.



08. Chemical-free Vegetables Online

WhiteSoil is an online vegetable purchasing platform that provides chemical-free vegetables according to personalised nutritional intake data of an individual.

This startup offers chemical-free branded vegetables to customers' doorstep at an affordable price. One can instantly trace the farmer and the movement of the product by scanning the QR code on the product.

WhiteSoil has a value chain management innovation to tackle the productivity and profitability issues of farmers by implementing Climate-Smart Agriculture model in vegetables.





Mr. Sourabh Choudhury (Choudhury) is from Koraput, border region of Odisha State. At the age of 19, Choudhury established WhiteSoil Pvt. Ltd., to address the problems of farmers. WhiteSoil Pvt. Ltd., is a recognised startup in Odisha. The company trains farmers on organic farming practices. He has won several awards at state and national level competitions in this regard. He was also awarded a cash prize of Rs. 50,000 by IIM Calcutta Innovation Park. This startup won the Srusti state-level inter college B-plan competition.

WhiteSoil is trying to establish an organic bond between rural producers and distant urban consumers. Here, customers can have a long drive with their family and visit farmers on weekends. This startup chiefly focusses on marginal farmers residing at the Bottom of Pyramid (BoP). Bringing positive changes to improve their livelihoods is at the heart of their work. Due to small landholdings and increasing cost of production in agriculture, farmers have insufficient income. In addition to that, their present intensive farming practice is also unsustainable in the long-run. Exploitation by multiple intermediaries (taking away a lion's share of the profit) is aggravating their economic conditions.

WhiteSoil aspires to support farmers and become a company of preferred choice of farmers (as farmers get more profits and respect) and simultaneously provide varied experience, such as agri-tourism, to customers near their city rather than just selling vegetables like every other company.

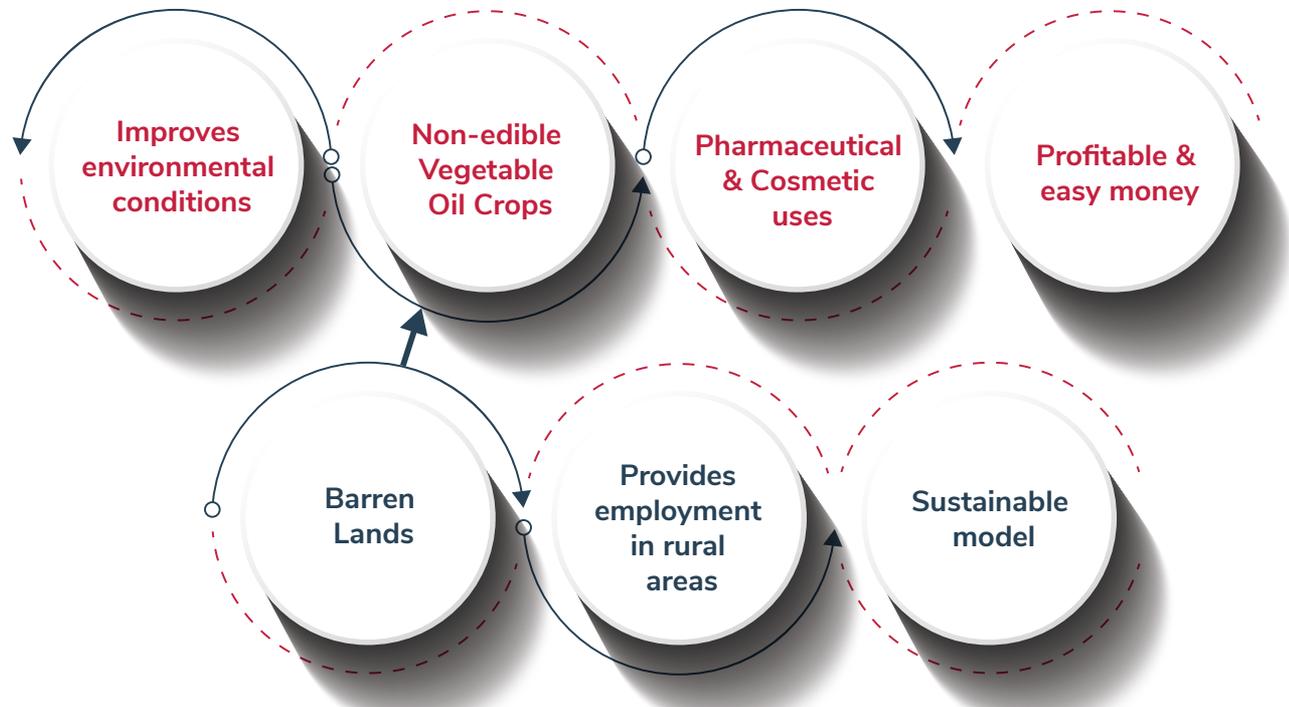


09. An Attempt Towards Improving Environmental Conditions

HARIT BHARATAM intends to use wasteland/barren land of local area to grow non-edible vegetable oil crops, such as castor bean, with the help of local Self-Help Groups (SHGs) to cultivate these oilseeds.

This startup provides employment opportunities in rural India and also improves environmental conditions of barren lands.

Various pharmaceutical and cosmetic uses of the oil and its by-products make it a much more significant and sustainable model.



Mr. Yogesh Kumar (Kumar) is a Research Fellow at Rajasthan University, Jaipur, in the area of Horticulture Extension and is currently pursuing Ph.D. on the same. He graduated from Mumbai University in the area of Nautical Sciences and excelled in academics. He participated in various seminars, agricultural festivals, conferences, etc. After knowing about Startup India, he enrolled and completed the 'Startup India Learning Program' course. As his academic background was Agriculture Sciences, he joined the two month Agripreneurship programme by MANAGE, Hyderabad.

Harit Bharatam is a conception of Kumar's desire to improve the environmental conditions of his surroundings. Through Harit Bharatam, he can improve the condition of waste/barren lands by plantations. Along with this, he also provides employment opportunities in rural India and increases the profitability of agricultural sector in India.

Kumar aspires to create awareness about environment and its conditions to everyone, particularly the rural population, and strives to protect it.

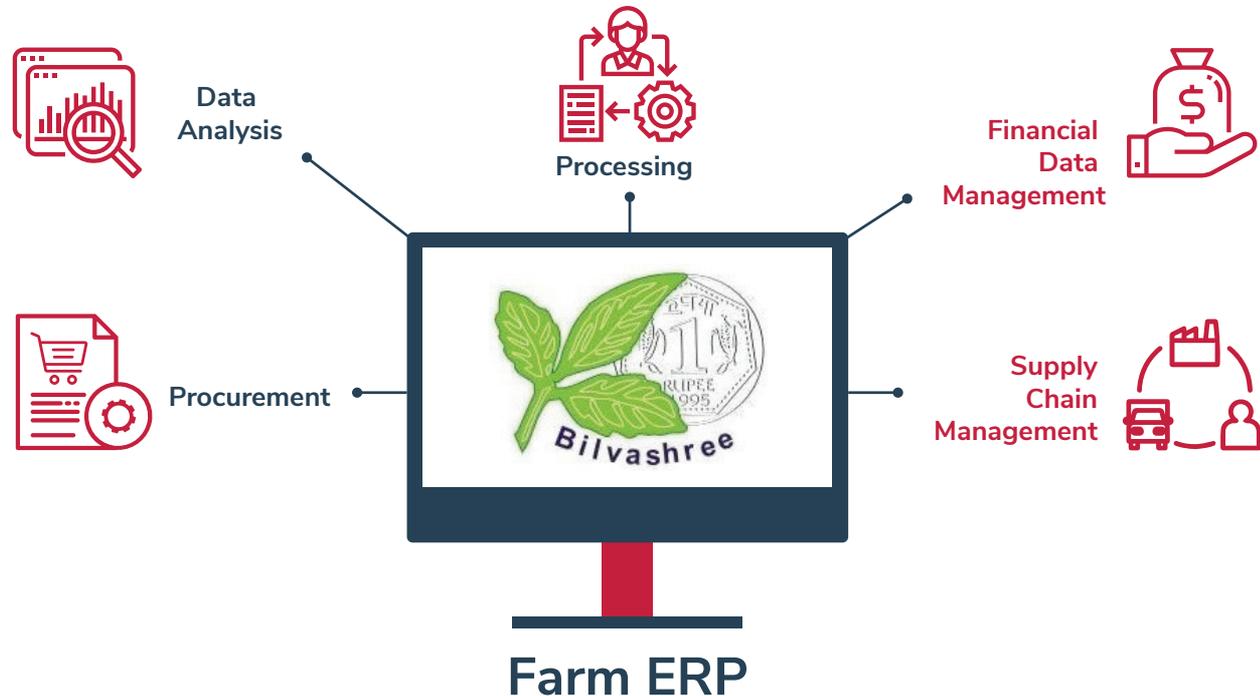


10. Consultancy Services to Horticulture Businesses

Bilvashree Horticulture Consultancy Services provides modern ICT systems and Enterprise Resource Planning (ERP) services through software and technology for farmers in distant geographies.

Farm ERP is a technology-intensive transformation of agriculture and agribusiness, and the most advanced, successful and best software platform for farm management.

This innovative model benefits farmers by providing more information on the subject area, which, in turn, leads to profitable and sustainable horti-business.





Shri. M. Shivalinga Murthy (Murthy), the founder of Bilvashree Consultancy Services, is 63 years old and has over 40 years of experience working with the agrarian sector. He started his career by graduating in Horticulture from the University of Agricultural Sciences (UAS), Bangalore. Later, he worked for organisations such as Rayalaseema Development Trust, Farmers Service Co-operative Society, and Pragathi Krishna Gramin Bank before working as a full-time freelance consultant in horticulture sector.

Since 2006, Murthy has prepared 790 DPRs (Detailed Project Reports) in horticulture and allied sectors such as Minor Irrigation (MI), Farm Mechanisation (FM), Post-Harvest Technology (PHT), and Animal Husbandry (AH). Bilvashree's services are available in six districts in Karnataka, two districts in Andhra Pradesh, and one district in Telangana, and aims to expand to other potential districts in these states. By the end of 2020, the company wants to achieve at least 200 farmer memberships and 200 acres of ERP subscriptions, thereafter, increasing 100 subscriptions annually.

Murthy has been empanelled as a Consultant in NABCONS, NABARD, Bengaluru, and aspires to promote MSMEs in horticulture sector through PHT and support of various promotional government schemes.



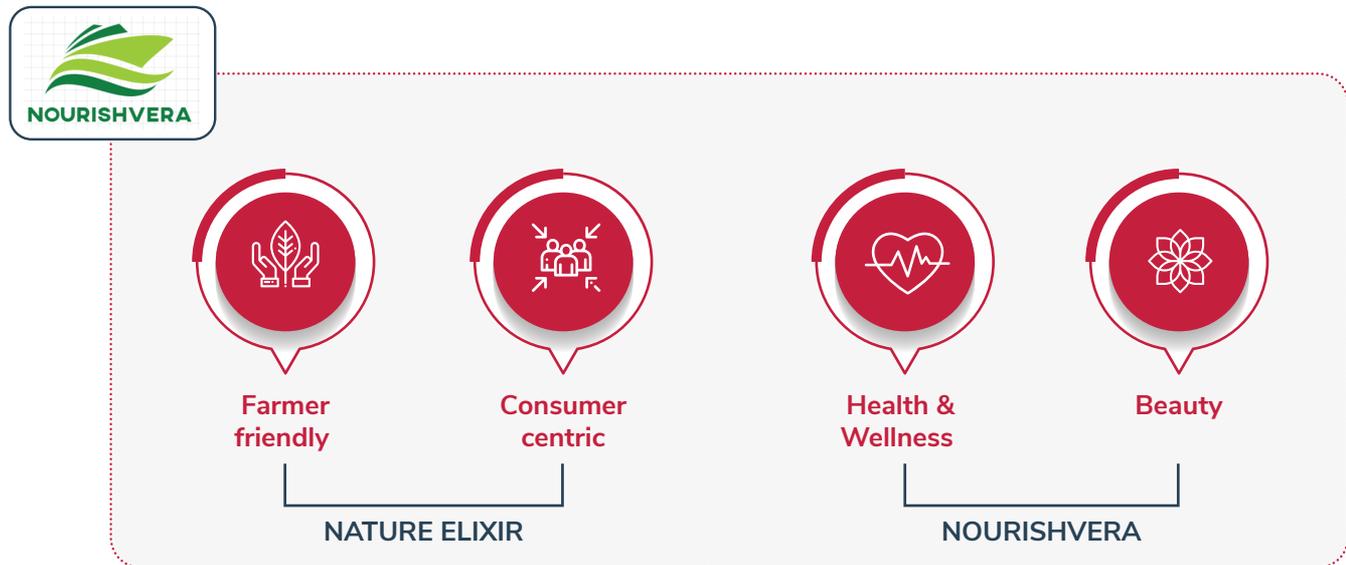
11. Aloe Vera for Beauty, Health and Wellness

Nourishvera is a component of Nature Elixir venture and develops various aloe vera-based beauty, health and wellness products.

This venture is going to introduce two major segments for consumers

- “Better for You”
- “Naturally Healthy”

Nature Elixir will procure raw materials from farmers and process them by blending it with natural ingredients without compromising on the quality of the products.





Ms. Zakia Jabeen (Jabeen) is the Founder of Nature Elixir, who hails from Jharkhand. She is a commercegraduate with Master's degree in Agribusiness Management from Aligarh Muslim University (AMU), Aligarh. She has an experience of two years working at corporate and academic institutions. She has done internship at another successful startup named 'Doctor Mushroom' and gained understanding about starting her own organisation. Her startup has completed UpGrad-Startup India Learning Program.

This venture is socially and environmentally responsible and complies with all government regulations. Jabeen intends this startup to be a farmer-friendly venture on the one hand and consumer-centric on the other. Her goal is to provide health, beauty and happiness to the consumers, at large.

The venture will soon start a range of beauty products using aloe vera gel blended with fruits and vegetables, and then introduce healthy drinks mixed with aloe vera.

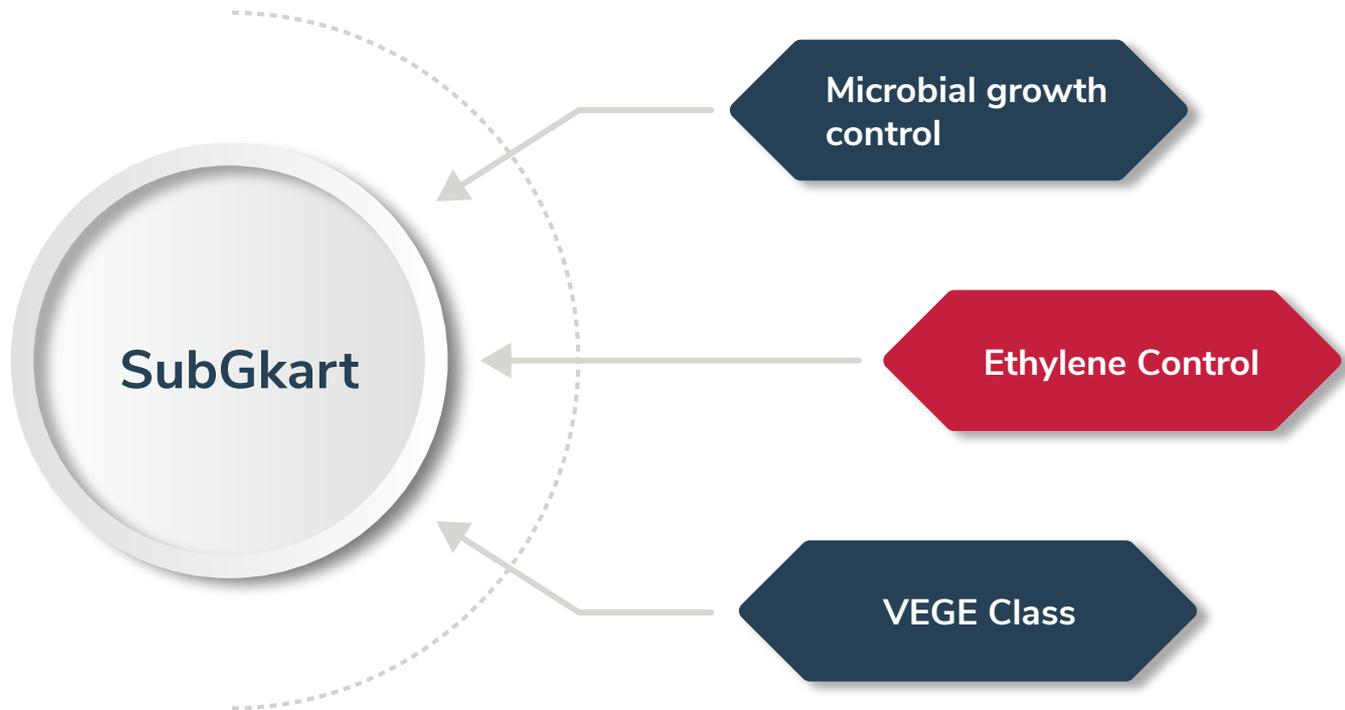


12. Extended Shelf-life of Fruits and Vegetables

SubGkart aims at controlling perishability of fruits and vegetables so that both farmers and consumers are benefitted.

By controlling the growth of microbes and eliminating ethylene produce in a natural and efficient way, SubGkart tries to increase the shelf-life of farmers' produce.

Through VEGE Classroom, a chart on 44 kinds of fruits and vegetables are provided to create awareness to farmers and procurers.





Mr. Maharshi Babu Duddupudi (Duddupudi) is from Vizag and is the Founder of SubGkart Grocery Supplies Pvt. Ltd. Though he is just in the second year of his B. Tech (Civil Engineering), he has involved himself in understanding policy-making by joining the Policy Boot Camp organised by O.P. Jindal Global University, Sonapat, Haryana. This is the start of his journey with farmers to understand their ground realities.

Agriculture sector in our country contributes to 50% of GDP and still farmers are receiving very marginal share of the profits. Duddupudi has observed that farmers from remote areas receive low price for their produce because of transportation issues. Understanding this, Duddupudi started working on the same lines and has interned at Farmers Fresh Zone, where he worked on controlling perishability of fruits and vegetables under various conditions.

In order to reduce the gap between the price paid to farmers and the cost borne by the end-consumer, Duddupudi wanted to eliminate the middlemen. Hence, he started the SubGkart Grocery store through which vegetables can be sold fresh, directly from crop to the end-consumer's home at the most reasonable price. Duddupudi wants to support farmers in maximising their value by devising more innovative methods for better storage facility.





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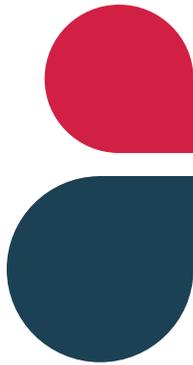
Rashtriya Krishi Vikas Yojana – Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY – RAFTAAR) was launched in 2017-18 by the Ministry of Agriculture and Farmers' Welfare (MoA&FW), Government of India, to give impetus to agriculture and allied sectors through promotion of innovation and agripreneurship by facilitation of financial aid to agribusiness incubation centres.

The objective of RKVY-RAFTAAR is to support incubation of agribusiness by tapping and harnessing the innovations and technologies for creating new ventures in agriculture.

Under regular RKVY-RAFTAAR scheme, 70% of the annual outlay is allocated among States according to the given criteria under three heads, viz., (1) Infrastructure & Assets; (2) Value-addition-linked Production Projects (Agribusiness Models); and (3) Flexi Funds.

The Innovation and agripreneurship development comes under RKVY-RAFTAAR special sub-schemes. Under this, 10% of the annual outlay is allocated for encouraging innovation and agri-entrepreneurs through skill development and financial support. It will support incubatees, incubation centres, Krishi Vigyan Kendras (KVKs), awards, etc.

To specifically cater to the needs and approaches for agribusiness promotion, the Government of India launched a remodelled RKVY-RAFTAAR in 2017-18 with an element of innovation and agripreneurship. This initiative strives to provide an impetus to promote agripreneurship and agri startups. In this process, incubation facilities and expertise already available with participating academic, technical, management and R&D institutions in the country shall be utilised on an individual or collective basis to harness their synergies.



MANAGE – Centre for Innovation and Agripreneurship (CIA)

MANAGE – Centre for Innovation and Agripreneurship (CIA) is a Centre of Excellence (CoE) in Agribusiness Incubation and Knowledge Partner for strengthening, hand-holding and demonstrating best practices to the RKVY-RAFTAAR Agri-Business Incubators (R-ABIs).

MANAGE was established in 1987, as the National Centre for Management of Agricultural Extension at Hyderabad, by the Ministry of Agriculture & Farmers Welfare, Government of India, as an autonomous Institute. In recognition of its importance and expansion of activities all over the country, its status was elevated to that of a National Institute in 1992 and re-christened to its present name, i.e., National Institute of Agricultural Extension Management. MANAGE is the Indian response to challenges of agricultural extension in a rapidly growing and diverse agriculture sector.

MANAGE strives to nourish agri-startups at every stage and reinforces its unflagging support to all such agri-startups and agripreneurs, who contribute to the betterment of the agricultural and allied sectors, and thereby contribute to the country's GDP and economic growth.

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