



Agri Startup

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Mr Aruneswar MGB from Tamil Nadu is a B.Sc (Hons) Agriculture graduate from Lovely Professional University. He is the Founder of Grow Your Farms an AgriTech Startup, based in Tiruchirapalli, Tamil Nadu and an Incubatee of MANAGE CIA, Hyderabad. Grow Your Farms is a new age AgriTech Startup Providing Research based scientific advisory to farmers, FPOs, FPC, Farmer Cooperatives, etc, along with integrating both backward and forward linkages in order to bring down the production costs and bring up more return on investment in synergy with both farm economy and environment. He is of the opinion that sustainability and development are the need of the decade to ensure better and safe future for the agriculture sector and the farmers. Sustainable agriculture is an holistic approach to solve the major existing problems in agriculture and allied sectors. He talks about the scenario of farming in India and how farmers can be turned from mere producers to entrepreneurs.

Conventional farming practices make soil infertile, and unfortunately our farmers are habituated to conventional farming. As far as agriculture is concerned, soil gets the first priority. Over a period of time, it has been found that conventional farming is not good for soil and made agriculture as contributor for almost 18% of greenhouse gas emission. Thus the sector while being more vulnerable to climate change threats it is also an one of largest contributor for climate change. When we (his AgriTech Startup team) met farmers, we found that they lack knowledge and skills on good and better agricultural practices which restricts the scale of business and the opportunity of conserving soil biodiversity. There is a widespread lack of extensional services especially to small and marginal farmers. They neither have access to financial support from formal institutions like banks nor have sufficient backup with them. So they are forced to borrow from moneylenders, pay huge interest, and get into debt burden. It requires lot of effort and external support to change this scenario.

About 86% of the farming community comprises of small and marginal farmers. They lack investments and so cannot scale further. Consumers also loosed their trust on conventionally grown produce due to its quality and contamination. Thus, there is huge demand for healthy produce. But the farmers are forced to accept whatever is available in the fertiliser shop or neighbouring farmers. The seeding materials they use are more prone to pest and disease.

There is need to ensure access to quality agriculture inputs to support farmers in adapting to conservation agriculture. Farmers don't have access to market as well. They are forced to sell the produce in the field itself, though the government is taking some steps to curb it. The research institutions across the country somehow address the problems of small and marginal farmers. But it is only the medium and big farmers who are capable of getting easy access to these institutions and get benefited.

Small and Marginal farmers are unable to overcome the risk and vulnerability due to their lack of capacity to address them, to deal with them. During certain periods, the prices



of the agriculture produce either soars up or drops terribly. This is mainly due to the absence of market linked production and extension and their inability to overcome natural calamities such as heavy rainfall, cyclone, or drought. They are unable to overcome such risks, and so they are becoming highly susceptible to it. In Grow Your Farms we help the farmers in market linkage with our market intelligence system and efficient supply chain.

The status of small and marginal farmers are very simple to describe – lack of investment, low level of technology use, lower productivity, lesser output, and less income. These factors have converted the farmers into nonviable producers over a period of time.

We(His AgriTech Startup) in India are focusing on bringing sustainability, productivity & profitability in agriculture by turning farmers from mere producers to successful entrepreneurs. An entrepreneur is one who knows how to get things done, what to do, ready to take risks, and capable of overcoming risks by knowing market needs. Farmer is also an business man we need to remember that, so we need to bring entrepreneur type of upgrade among farming community in order to bring any considerable growth and development. But majority of farmers do not aware of changing market demand or consumer needs. They become vulnerable as they do not know what to do, what to apply, and how to overcome the risks. Agricultural Extension and Advisory Services can act as catalyst to transform the Indian Agriculture by turning farmers from mere producers to entrepreneurs.

When making small holdings economically viable and environmentally sustainable there is a huge challenge in it, and there exists a huge opportunity for agriculture extension functionaries, agronomists and entrepreneurs to take this challenge as mission and achieve better growth and development. So our scientists, academicians, and institutions are working to combat the existing problems of the farmers. Many innovations have come, and it is continuing. But situations have not improved much. Our agriculture GDP contribution is still below 18%, and 22

to 30% of population is under poverty. Productivity is nowhere compared to developed and neighbouring developing countries. The problem is the poverty and inability of the farmers to deal with the increasing challenges.

Studies suggest that the growth in agriculture rejuvenation helps in decline of poverty faster. Our measurement of poverty is only economic conditions – average income, and consumption. 2/3rd of the small and marginal farmers are poor on the basis of multi dimensional poverty. Why Poverty exists? Poverty doesn't exist because there aren't enough resources and wealth in the world. Poverty exists because of the inability of the poor to command over the resources that they need not to be poor, not to go hungry, not to have enough income. These small and marginal farmers are poor because of the absence of livelihood capitals.

To eradicate poverty and scale agriculture as a successful sector, it is necessary to work more on farm assets, capitals, labours, and transfers. It has been recognised that financial capital alone is not enough to elevate the poor from poverty. People's capacity to address poverty is linked to capital and labour. We

CHALLENGES IN CONVERTING THE FARMERS FROM BEING PRODUCERS TO SUCCESSFUL ENTREPRENEURS.

- Optimize benefits through effective and efficient marketing of surplus generated through increased production.
- Changing mindset of farmers on organic or conservation agriculture. They think it gives less yield and so uneconomical. It is not so. There are many farmers who practice organic cultivation and earn more than conventional farmers. Studies show that over a period of time, organic agriculture or conservation agriculture increases the yield of land and productivity of soil.
- Big challenge is to integrate small land holders with agriculture market. The lack of enough infrastructure and knowledge are the main barriers.

can clearly see and feel poverty when we visit marginal farmers and farm labourers, this is what needs to be changed and addressed. There are cash transfer and social assistance programs in our country, such as Kisan Credit Card, and Mahatma Gandhi National Rural Employment Guarantee Scheme, pension for elderly and vulnerable people, and midday meal scheme. This shows our policies in dealing with poverty is still on economic basis. But we need to address all the 5 types of capitals which I have listed to eradicate poverty. Now the country is seeing growth of Startup Ecosystem with the massive support by government institutions and favourable policies, the startups have the potential to come up with better solutions to address these problems. FPOs are good concept towards ensuring livelihood capitals.

If we ensure livelihood capitals, small and marginal farmers who are in poverty can be upgraded to lead a very good life. We need better mechanism to address poverty and scale their growth and development. We have to find out different means to solve these problems and challenges in a better way. When we think of how we can turn a farmer from being a producer to successful entrepreneur, agricultural extension can play a key role.

Agricultural Extension and Advisory Services are central to transforming the smallholder farmers from unproductive producers to successful entrepreneurs. The extension and advisories are needed because small holder farmers suffer from food insecurity, they are vulner-



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able to global and local challenges, have inability to overcome risks and vulnerability, and there is lack of adaption of agriculture innovations due to lack of funds. There is dearth of information and advisories. Agricultural Extension and Advisory Services have the potential to address these issues by integrating different stakeholders. We(his team) noticed that farmers are in need of advice and ready to adapt to good agriculture practices (GAPs), but they face the lack of Agricultural Extension and Advisory Services at their doorstep which otherwise would help to increase productivity of farm and their adaption to sustainable agricultural practices, organic or conservation agriculture depending on the farm.

There are a few points to consider on how extension and advisory services can help in overall development in agriculture.

The Agricultural Extension and Advisory Services induce innovations and make the farmer adapt to ever increasing local and global challenges. New technologies and concepts of conservation agriculture are introduced to farmers thereby reforming them. As strengthening the human capital the agricultural extension can build the capacities of the farmers by training them to experiment and adapt GAPs and right technologies with their field. They can help address their existing prob-



lems and scale the business. The agricultural extension and advisory services help them to think and act beyond agriculture. It is required in agriculture allied activities too. Agriculture cannot flourish all alone. If a farmer wants to practice organic cultivation, he needs to have at least a few cows and poultry to make the farm sustainable and independent of high cost external inputs, thereby reducing the production cost. The extension services also induce entrepreneurship among farmers and rural youths through market linked extension. They can identify innovative and progressive farmers and help them further improve their adaption of better technology and techniques, and make their success a model that helps to encourage other farmers. They will be brought into group and good agriculture practices can be introduced and link them to potential markets.

The Agricultural Extension and Advisory Services help in promoting the use of information and communication technology (ICT) which have a great scope and can reform agriculture of India. With urban consumers expecting transparency and trust of the produce

is increasing, Block chain can enable the consumer to know where the produce is coming from, thus builds trust among the farmers and consumers. So ICT can be promising technology as seen in the last few years with so many start-ups coming up. But as of now it is possible only for a big farmer. Agricultural Extension and Advisory Services helps the farmers and farming systems being climate smart. Innovations are needed to mitigate climate change impacts in farming.

Why to shift from conventional to conservation agriculture?

Shift to conservation agriculture is not just to address the climate change or global warming but also to address poverty and scale agriculture as a successful enterprise. The consequences of conventional agriculture are:

It leads to soil erosion, makes soil infertile, and pollutes the biodiversity. The whole eco system is destroyed, as the soil loses its natural production capacity and the production cost goes up. So we need to adapt to the sustainable conservation agriculture to change this unsustainable system. Farmers are showing inclination towards the change. The practices of conservation agriculture include no tillage or reduced tillage, crop rotation, cover crops, integrated disease and pest management, better use of technology, and innovation. Conservation agriculture can be a way forward in mitigating the existing problems of agriculture as a sector in the country. Conservation agriculture protects the soil, farm eco system, and it is sustainable. It is sustainable because it ensures overall improvement in a continuous cycle of process. Whereas conventional practices shows reverse trend and is not sustainable. By no means there will be low output with conservation agriculture.

Over a period of time, it tends to increase the productivity and yield. It reduces the production cost by half over the years. There are a few issues

FIVE LIVELIHOOD CAPITALS:

- **Financial:** Financial capital deals with the access to finance, credit or from formal institutions or government, such as banks or cooperative societies which would help to scale the business and improve the capacity to generate income for the farmers.
- **Human:** Human capital deals with educating the farmers to help them make use of the resources better. Those who are better educated, trained and skilled are better able to make use of other capitals including finance.
- **Social:** Social capital deals with grouping the people to share values to address common goals. Government, farmers producer organisation, self-help groups, and farmer cooperatives should provide techniques to eradicate poverty.
- **Physical:** Physical capital deals with infrastructure like building warehouses, transport, and other facilities that require lot of private investment, interventions of entrepreneurs, and government support.
- **Natural:** Natural capital deals with different features of the environment that would impact the nature of farming. For example Indo-Gangetic Plains are more prone to flood which causes problems to that region farmers.



in the initial phase, such as the conversion period which can differ from 1 to 3 years, during which there farmer need little investment and inputs. For this also government has a few schemes to benefit and encourage the farmers. The scheme called Paramparagat Krishi Vikas Yojna (PKVY) helps the farmers in getting the organic certification and during the conversion period the scheme gives financial assistance and training to the farmers. They also help in marketing their organic produce across the globe.

Conservation Agriculture also can help India to achieve Sustainable Development Goals (SDGs). We have plans about achieving 17 Sustainable Development Goals through agriculture. When we talk about turning farmer to a successful entrepreneur it helps to address Sustainable Development as well. Because the efforts to achieve one goal will help us to achieve another goal. For example in the goal no.1 the efforts to reduce poverty is also helps to achieve goal no. 8 which is decent work and economic growth and goal 10 which is reducing inequalities. It also achieves zero hunger the goal no.2. Thus we can achieve sustainable development goals by achieving various heights in agriculture.

We have a huge investment potential in agriculture sector and it can contribute to above 25% of GDP. So the reversal of Climate change mitigation, poverty eradication, food and nutrition security, reducing global warming lie in the hands of farmers. Dramatic changes are happening across the globe due to globalisation, liberalisation, and rapid urbanisation. Farmers want to inten-

sify existing patterns of production and diversify the farm enterprises. The tech savvy farmers are more ready to accept and adapt to the changes. We have to use this opportunity to scale the business to raise the living standards of the poor and vulnerable farmers. Agricultural extension and advisory services, and entrepreneurs can play a pivotal role in achieving this mission. We just need to identify the issues according to local environment, needs of farmers, their intention in farming, and suggest changes accordingly.

Conventional agriculture is not satisfying when compared to conservation agriculture, why it is not satisfying for the farmers?

The main defect in conventional practices is over tilling of the land and improper application of chemicals. It is unsustainable. Soil is degraded and loses its fertility. It is the top layer of the soil which sets the basis for the humus. The health of the soil lies in the humus, where microbes present in the soil. In conventional farming the microbes get eroded and run off through water with soil when there is heavy rains. One cm of soil takes one thousand years to get rejuvenated. This makes conventional agriculture highly unsustainable.

When you say climate smart agriculture, conservation agriculture, and zero budget agriculture, it means a lot of technology. Can you use the smart technology in conservation agriculture?

Right now in India, modern technology such as technology enabled precision farming is not affordable to small and marginal farmers, but it is slowly improving. A few years ago, a start-up started offering services to big farmers who had 25 acres of land, and now has come down to medium farmers that they can able to afford. So we hope this will extend to small and marginal farmers in near future.

Our AgriTech Startup Grow Your Farms is also working in mission to make technological adoption at grassroot levels even in the small and marginal farmers can afford. In conservation agriculture, big machineries need not to be used. It is a soil based approach of farming. It allows usage of chemicals in nutrient and pest management but in an

integrated manner. We need to use the mineral fertilisers and synthetic pesticides only if needed or when we are unable to control. Sustainable Agriculture doesn't necessary need to have lot of modern technological devices in it, it is just about being sustainable in synergy with both economy and environment.

Thus, conservation agriculture is adaptable even by small holder farmers. Farmer can further bear the benefits of conservation agriculture by growing cover crops between one season to another where there is a gap of 2 to 3 months. When the farmer adapts to cover crop, it creates a microclimatic conditions which helps to conserve the soil microorganisms. The conservation agriculture reduces the production cost, by almost more than half when compared to conventional agriculture. So it can be game changer for a small and marginal farmer. In Grow Your Farms we are bringing sustainable agriculture to the fields of farmers with the help of technology and extension mechanism.

Agriculture being the most vulnerable sector to climate change impacts, the sector can take this as challenge and convert this into opportunity by adapting to sustainable agriculture practices by which it can solve the various other long lasting problems along with mitigating climate change.

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