AgroMore: Boosting Agricultural Productivity

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Executive Summary

This business project aims to teach farmers how to do effective farming from an entry level. In doing so we gain valuable insights into how real business actually works and the vast aspect it takes into consideration. My preferred choice of the business idea was to guide farmers to increase their crop in an effective way and turn some money out. We recognize crops are demanded in hugely but farmers are not able to provide as much as needed.On the other hand, they are not well known about perfect farming like how fertile soil is,

Acknowledgement

Defining Problem

The use of traditional farming methods is one of the main obstacles to increased agricultural output in Nepal. Numerous farmers continue to use antiquated methods, which prevent the adoption of contemporary tools and agricultural innovations. Lower yields, less efficiency, and more effort are required as a result of poor agricultural practices and a lack of mechanization.

The restricted availability of contemporary technologies is another important issue impeding agricultural output. Farmers in Nepal's rural areas frequently lack the resources needed to embrace cutting-edge farming techniques. The issue is made worse by inadequate lack of availability to high-quality seeds, fertilizers, and pesticides, as well as insufficient connection.

The productivity of agriculture is substantially impacted by poor soil management techniques. Farmers frequently lack the requisite training and understanding in terms of managing nutrients, controlling erosion, and maintaining healthy soil. Nutrient imbalances, soil deterioration, and decreased agricultural yields are caused by inadequate soil testing, inappropriate fertilizer and pesticide use, and improper insect control.

Stakeholders

1. Farmers:

   Farmers are immediately impacted by the issues with poor production. Their use of technology, access to education and training, and acceptance of modern farming techniques are crucial for increasing output. It is essential that farmers adopt sustainable soil management techniques and be open to change.

2. Agribusinesses and Technology Providers:

   Stakeholders in the private sector that may provide contemporary agricultural technologies, machinery, better seeds, fertilizers, and pesticides include agribusinesses, technology providers, and input suppliers. They may help by making investments in research and development, providing training courses, and working with farmers to increase production and profitability.

3. Consumers and the Food Industry:

   Both the consumer and the food industry have a stake in the efficiency and excellence of the agriculture sector. Their needs and market preferences have an impact on the value chains and farming methods. For satisfying consumer needs and preserving a dependable food supply chain.

4. Agriculture Research Institutions:

   Researchinstitutes, universities, and agricultural research facilities all play a key part in the conduct of studies, the creation of novel solutions, and the provision of technological expertise. Their research results and partnerships with businesses and farmers help to create and share the best strategies for boosting agricultural output.

Questions

Farmers:

1. What are the biggest obstacles to using modern farming techniques that you face?
2. How may your productivity and revenue be increased via access to education and training programs?
3. What specific help or materials are you going to need to put sustainable soil management strategies into practice?
4. Are there any government initiatives currently in place that have aided you in raising productivity?
5. How can the use of technology improve your farming operations?

Agricultural Research Institutions:

1. What research is being conducted to address the specific productivity challenges in Nepal's agriculture sector?
2. How are research findings being disseminated to farmers and agribusinesses?
3. What collaboration opportunities exist between research institutions and farmers/agribusinesses?
4. What are the key areas where technical expertise is needed to improve productivity?
5. How can research institutions support innovation and the development of locally adapted crop varieties?

Agribusinesses and Technology Providers:

1. What technologies, machinery, and products are available to enhance agricultural productivity?

2. How can you ensure the affordability and accessibility of these technologies for farmers?
3. What training or support programs are provided to farmers for effective technology adoption?
4. How can collaboration between agribusinesses, farmers, and technology providers be strengthened?
5. Are there any plans for research and development in the agricultural sector?

Consumers and Food Industry:

1. What are the key factors you consider when sourcing agricultural products?
2. How important is sustainable and locally sourced produce to your business or personal choices?
3. Are there any specific quality or certification requirements that farmers need to meet?
4. What kind of market demand and trends are you observing in relation to agricultural products?
5. How can you contribute to supporting and promoting sustainable agricultural practices?

Who will benefit from the solution and how?

My goal is to transform the agriculture industry by solving the primary obstacles impeding production and providing farmers with the tools and information they require to thrive.

1. Farmers:

   They will be able to adopt more efficient and productive farming methods if they have access to contemporary agricultural technology, training programs on sustainable practices, and soil management knowledge. As a result, enhanced livelihoods, higher revenue creation, and increased resilience to environmental and market issues are possible.

2. Agriculture Cooperatives:

   Agricultural cooperatives are critical in assisting and empowering farmers. They will profit from the solution because they will receive access to training and information resources to help them improve their cooperative management abilities. This will allow them to deliver better services to their members, increase their market negotiating power, and streamline collective decision-making procedures.

3. Agribusinesses:

   The solution will assist agribusinesses, including processors, exporters, and input suppliers, by improving supply chain efficiency and quality assurance. Market connections and value chain integration assistance will assist agribusinesses in obtaining a constant supply of high-quality agricultural goods, boosting their competitiveness and market share.

4. Consumers:

Because of increased market availability of high-quality agricultural items, consumers would benefit from the solution. Adopting sustainable farming practices and establishing market links can assist to provide a consistent supply of safe and nutritious food, therefore improving customers' health and well-being.

Research Solutions

On average, only roughly 21% of Nepal's entire 147181 sq. km. land area is cultivable.However, according to national data, farmers, more than 50%, are smallholders who cultivate on less than 0.5 hectares. And most of the farmers don't even know how to do farming in a planned way. They don’t know what sustainable farming is. Enhancing crops is directly proportional to how much farmers are literate. Since half of the farmers in Nepal are illiterate, that is why crop yielding doesn’t turn out as per expectations.

Previous Solutions:

1. GeoKRISHI:

   It is a mobile and web-based app that disseminates agriculture-related data. Farmers use it to access crop production statistics at farm level, while agro-enterprises and cooperatives uses web version to get information

2. Krishi Guru:

   It is a mobile application that provides localized information on crops, weather forecasts, agricultural news, fertilizer calculation, pests, illnesses, and treatments. It also allows farmers to ask quick questions in the farmer forum and get answers from professionals, as well as get market pricing and trader information for various marketplaces.

3. Smart Krishi:

   It is a smartphone application for farmers that provides agricultural information such as high-value crops, soil types, improved seeds, fertilizers, pesticides, weather forecasts, and current farming methods. It also gives information on agricultural trainings and government programs. Farmers may also use the app to ask questions, which are addressed by professionals and volunteers.

4. Agro-enterprises:

   They provide tailored service to each farmers and solve the problem by visiting with each individual.

5. Digital Green:

   They create digital solutions for rural communities, listens closely to people and data and build the technology to sort out the problem.

6. CABI:

   They work on improving people's lives by providing and applying expertise to solve problems in agriculture online.

7. SMILES-Nepal:

   It is NGOs which is working for market access and provides farmers information through mobile-SMS about disease pests control and also about Market price to sell at higher demand and to get the greater market price of farm commodities in sindhuli district of nepal.

   These present methods have yet to adequately overcome the aforementioned challenge. SMILES-Nepal appears to be doing very well.

Assumption

1. What are the biggest obstacles to using modern farming techniques that you face?
    - Farmers may be emotionally attached to traditional agricultural practices handed down through generations.
    - Farmers may face challenges in accessing and affording modern farming technologies, tools, and equipment
2. How may your productivity and revenue be increased via access to education and training programs?
    - Enhancing knowledge on a topic or problem can lead to improved productivity by adopting more effective methods.
    - By adopting new technologies, Farmers can streamline their operation, boost efficiency, save labor expense and achieve greater yield.
3. What specific help or materials are you going to need to put sustainable soil management strategies into practice?
    - Collaborating with private laboratories or agriculture research institutes to conduct soil tests and analysis.
    - Identifying what type of seed is regionally suitable for sustainable farming.
4. How may farmers be persuaded to engage in educational or training programs?
    - Conducting campaigns.
    - Visiting communities and giving information.
5. How can the use of technology improve your farming operations?
    - Increasing in the productivity
    - Effortless working on minor/major problem

6. What research is being conducted to address the specific productivity challenges in Nepal's agriculture sector?
    - .Studies being conducted by research organizations to investigate the efficiency of current farming pratices and technology.
    - In diverse locations of Nepal, exploration is being performed to determin sustainable soil management strategy.
7. How are research findings being disseminated to farmers and agribusinesses?
    - Agriculture institutions conduct workshops, training programs and extension services to spread research findings.
    - Research Institutes collaborate with NGOs to distribute funding through awareness campaigns, agriculture fairs, and internet platforms.
8. What collaboration opportunities exist between research institutions and farmers/agribusinesses?
    - Institutions collaborate with farmers and agribusiness to conduct on-field trials and gather feedback on the effectiveness of research interventions
    - Farmers and agribusiness actively participate in research projects as partners, providing valuable insights and practical knowledge.
9. What are the key areas where technical expertise is needed to improve productivity?
    - Technical expertise is needed in the area of precision agriculture, remote sensing and data analytics to optimize resource utilization and decision making in farming practices.
    - Expertise in developing and implementing climate-smart agricultural practises is essential to mitigate the impact of climate change on agricultural productivity.

10. How can research institutions support innovation and the development of locally adapted crop varieties?
    - Research Institutions collaborate with breeders and geneticists to develop crop varieties that are resilient to local environmental conditions and pests.
    - They provide funding and technical support to facilitate the adoption of innovative farming techniques and technologies, as vertical farming.
11. What technologies, machinery, and products are available to enhance agricultural productivity?
    - Agribusiness technology providers provides lots of tools that can be used for yielding
    - Tools like soil testing, helps in finding out fertility of soil.
12. How can you ensure the affordability and accessibility of these technologies for farmers?
    - Interacting with technology providers and making meaningful deals.
    - Government subsidies or financial assistance programs are given to farmers in order to decrease the economic burden of obtaining agricultural technology.

13. What training or support programs are provided to farmers for effective technology adoption?
    - .Farmers are educated on the operation, maintenance, and troubleshooting of agricultural technology through farmer training programs and workshops.
    - Farmers are given with extension services or field demonstrations to demonstrate the benefits and practical uses of adopting various technology in their agricultural methods.

14. How can collaboration between agribusinesses, farmers, and technology providers be strengthened?
    - Collaboration increase in communication, which will have directly impact in faster problem solving
    - Partnerships between the public and commercial sectors are developed to facilitate the co-development and customisation of technology based on farmer requirements and input.
15. Are there any plans for research and development in the agricultural sector?
    - In conjunction with agricultural stakeholders, research institutes distribute resources and money for research and development initiatives targeted at tackling specific difficulties in the agriculture industry.
    - Plans for research and development target the development of sustainable agricultural techniques, climate-resilient crop types, and novel productivity-boosting technologies.
16. What are the key factors you consider when sourcing agricultural products?
    - Farmers capacity to produce a constant and stable supply of goods.
    - The items quality and freshness either free of harmful contaminants or not.
17. How important is sustainable and locally sourced produce to your business or personal choices?
    - Consumers prefer items made using ecologically responsible processes since Sustainability is a top priority.
    - Locally sourced product is preferred in order to support the local economy and decrease the carbon footprint associated with long-distance transportation.
18. Are there any specific quality or certification requirements that farmers need to meet?

- Farmers need to conform to strict food safety hygiene regulations to guarantee that it is safe for consumption.
- To fulfill market expectations, farmers may be required to get certifications to specify organic.

19. What kind of market demand and trends are you observing in relation to agricultural products?
    - Organic and sustainably produced goods are in high demand.
    - Products free of synthetic chemicals are gaining popularity.
20. How can you contribute to supporting and promoting sustainable agricultural practices?
    - Implementing a consumer education program regarding benefits of sustainable agriculture can assist raise consumer knowledge and support for such methods.
    - The Company may help to reduce environmental consequences by acquiring products from farmers that use sustainable agricultural techniques.

Brainstorming

1. White Hat
    - Traditional agricultural practices are used by Nepalese farmers.
    - Agriculture makes little use of contemporary technologies and methods.
    - Farmers are under-educated on soil management measures.
    - Agriculture has a low production rate.
2. Red Hat
    - Concern: Low agricultural production has an impact on farmers' livelihoods as well as Nepal's general economy.
    - Frustration: It's discouraging to see farmers struggle owing to outdated practices and a lack of expertise.
3. Black Hat
    - Resistance to change from farmers accustomed to traditional methods.
    - Lack of awareness and training opportunities for farmers.
    - Climate Change
    - Negative environmental impacts from improper use of technologies.
    - Poor soil management techniques which degrade soil and impair fertility.
4. Yellow Hat
    - Introducing contemporary technology and methods can boost agriculture output and quality.
    - Providing farmers with soil management information and training can result in higher agricultural yields and more sustainable practices.

- Increased agricultural output can help Nepal achieve food security and economic prosperity.
- Enhanced food security and reduced reliance.

5. Green Hat
    - Using ICT to solve the problem in yielding.
    - Strengthen agriculture extension services to provide on-site guidance
    - Foster Farmer cooperatives for collective learning and resource sharing
    - Collaborating with well-known personalities who had experience in this sector to develop training programs.
6. Blue Hat:

    Considering the potential solutions presented, I feel optimistic about the possibilities of enhancing agriculture in nepal. It is feasible to empower farmers, enhance soil management methods, and raise overall output bu combining educational initiatives, technical improvements and collaborative approach.The advantage goes beyond the monetary profits, as it may lead to sustainable agriculture, food security and improved livelihoods of every individual.

Engagement With Stakeholders

Several observations have been made in the issue statement of poor agricultural productivity after engaging with stakeholders.

1. Farmers

   It is evident that they face challenges due to reliance on limited education about soil, modern technology. They show a readiness to try new things and emphasize the significance of education and training programs for optimal soil management and technology adoption. They underline the need for financial assistance and coordination among stakeholders, as well as the affordability and accessibility of agricultural technology. Agriculture innovation and productivity are viewed as dependent on research and development. Farmers are keen to adopt sustainable practices, interact with stakeholders and gain access to inexpensive technology in order to increase production and their lives.

2. Agricultural Research Institutions

   They explain that several research initiatives are now ongoing to solve particular productivity concerns in agriculture. These programs aim to improve agricultural techniques, establish sustainable practices, improve soil management, and investigate the application of contemporary technology to boost production. They emphasize the importance of technological skills in fields such as precision agriculture, integrated pest control, irrigation systems, and post-harvest management. They want to improve production by providing training, capacity building, and technical assistance to farmers and agribusinesses in these regions.

3. Agribusinesses and Technology Providers

Farmers confront issues such as poor productivity and restricted access to contemporary technologies, which agribusiness suppliers recognize. They realize the need to assist farmers in adopting innovative agricultural practices and provide training and support programs to help them do so. Agribusiness suppliers prioritize the provision of inexpensive and accessible agricultural technology, machinery, and goods. They stress the significance of working with farmers and technology suppliers to improve information exchange, innovation, and the creation of personalized solutions. Market demand and trends influence agribusiness strategy, with an increasing desire for sustainable and regionally sourced agricultural goods. Research and development projects that may stimulate innovation, enhance crop types, and solve productivity concerns are valued by agribusiness suppliers.

4. Consumers and Food Industry

Consumers are increasingly favoring sustainable and locally sourced agricultural goods, realizing the necessity of supporting the local economy while decreasing environmental effect. To satisfy customer demands, the food business recognizes the need of procuring high-quality products and complying to particular certification criteria. Organic, pesticide-free, and ethically produced agricultural products are in high demand, according to market trends. Farmers, agribusinesses, and technology suppliers must work together to maintain the affordability and accessibility of agricultural technologies, tools, and goods, according to stakeholders. They acknowledge the importance of training and support programs in assisting farmers in implementing efficient technological practices. Stakeholders also

emphasize the relevance of R&D in driving innovation and promoting the development of sustainable farming techniques.

Business Model Canvas

Key Partners

- Farmers
- Agribusiness and Technology
- Consumers and Food Industry
- Agriculture Reasearch Institutions

Key Activities

- Farmer Education and Training
- Technology Adoption and Innovation
- Research and Development Collaboration

Customer Relationship

Farmer Education and Training
Technology Adoption and Innovation
Research and Development Collaboration
Value Chain Integration

Key Resources

Modern Agricultural Technology
Training and Education Program
Extension Services
Soil Testing
Soil Health Management
Market Access

Value Proposition

Soil Management Expertise
Training Programs on Sustainable Farming
Access to Modern Farming Technology
Technology-driven Decision Support
Collaboration and Knowledge Sharing

Customer Segment

Famers
Agricultural Cooperatives
Agribusiness

Cost Structure

Modern Agricultural Technology
Training and Education Program
Extension Services
Soil Testing
Soil Health Management
Market Access

Revenue Streams

Sale/Rental of Modern Farming Technology
Training & Consultancy Services
Soil Testing and Analysis
Product sales
Data Analytics and Insights

Channel

Establishing Training & Education Centres
Online Platforms and Technology
Collaboration with Agriculture Cooperatives

Summary of Business Model Canvas:

- Key Partners

  Farmers, agribusinesses, technology suppliers, consumers, the food industry, and research institutes are major partners in the aim of increasing agricultural production in Nepal. Farmers play an important role in delivering interventions and offering critical insights into difficulties and requirements. Agribusinesses are critical partners because they provide farmers with access to quality inputs, new technology, and market linkages, resulting in increased production and market prospects. Technology suppliers are critical in creating and delivering breakthrough agricultural technology, machinery, and products that increase production.Consumers and the food industry have an important role in determining market demand and trends by highlighting the value of sustainable and locally sourced goods. Collaboration among these major partners results in a synergistic strategy that provides farmers with information, resources, and market-driven solutions, eventually leading to increased agricultural output in Nepal.

- Key Activities

  Key initiatives in the endeavor to increase agricultural output in Nepal include farmer education and training, technological adoption and innovation, and partnering on research and development. Farmer education and training programs seek to provide farmers with the knowledge and skills they need to use contemporary agricultural techniques, sustainable practices, and effective soil management. Farmers may learn about crop rotation, irrigation systems, pest and disease control, and post-harvest handling through training programs, allowing them to make more educated decisions and increase output. Utilization of technologies and innovation are

critical in exposing farmers to contemporary agricultural technology, equipment, and techniques.

- Key Resources

To begin with, contemporary agricultural technology is a valuable resource that has the potential to change farming operations. Farmers can maximize resource use, monitor crop health, and make data-driven choices with access to precision farming technologies, automated irrigation systems, and digital platforms. Second, training and education programs are crucial in providing farmers with the essential information and skills. Comprehensive training on contemporary agricultural techniques, sustainable practices, and soil management equip farmers with the knowledge and resources they need to increase productivity. Furthermore, soil health management resources such as organic matter inputs and cover crops are critical for sustaining soil fertility and overall soil quality. Finally, farmers require market access resources in order to sell their goods at reasonable pricing.Collectively, these critical resources provide farmers with the skills and assistance they need to overcome productivity obstacles and increase agricultural production in Nepal.

- Value Proposition

To begin, we offer soil management knowledge by providing farmers with soil testing, analysis, and targeted suggestions to improve soil health and nutrient management strategies. Second, our sustainable agricultural methods training programs provide farmers with the information and skills they need to employ environmentally friendly and resource-efficient approaches that ensure long-term productivity. Third, we provide farmers with access to advanced farming technologies such as precision farming equipment, automated irrigation systems, and digital platforms, allowing them to make educated decisions and optimize yields. Our

technology-driven decision support system delivers real-time data analysis, monitoring, and insights to farmers, allowing them to optimize resource allocation, manage pests and illnesses, and increase overall output.Finally, we encourage collaboration and knowledge sharing among farmers, agribusinesses, and research institutions, allowing for the exchange of best practices, creative ideas, and market insights. We support continual learning, innovation, and the adoption of sustainable farming techniques by establishing a collaborative environment. Our value offer strives to provide farmers in Nepal with the resources, experience, and assistance they need to overcome problems and increase agricultural output.

- Customer Relationship

  We encourage technological adoption and innovation by allowing access to current farming technologies, providing instructions on how to use them effectively, and providing technical support as needed. Our goal is to encourage farmers to embrace technology breakthroughs and use them to increase production and profitability. Furthermore, we actively collaborate on agricultural research and development with farmers, research institutions, and other stakeholders. This collaborative approach enables us to co-create ideas, perform field trials, and adopt novel methods that assist farmers directly while also contributing to the sector's overall growth. We hope to develop a sense of cooperation, trust, and mutual progress by cultivating strong connections and actively supporting our clients throughout their farming journey.

- Customer Segment

  Farmers make up a sizable portion of our client base because they are the key producers in the agricultural industry. We want to meet their individual requirements by providing them with resources, training programs, and technology that will

increase their production and profitability. Agricultural cooperatives are also important since they operate as collective organizations that represent the interests of farmers. We work with these cooperatives to understand their needs, provide customized solutions, and improve market access for their products. Agribusinesses, are another key client sector since they operate along the agricultural value chain.We collaborate closely with agribusinesses to understand their sourcing requirements, give market insights. By focusing on these client categories, we want to solve the particular issues and needs of each group, building long-term and mutually beneficial partnerships that contribute to the agriculture sector's overall growth and development.

- Channel

  To efficiently contact our target consumers, we understand the value of internet platforms and technology in reaching a larger audience. We will create online platforms that will allow people to access resources, training materials, and knowledge on current agricultural techniques. Farmers will be able to study at their own speed and access essential materials from anywhere using these platforms. Furthermore, we will use digital communication channels such as social media and email newsletters to communicate with our clients and give timely updates and assistance. Finally, working with agricultural cooperatives will be an important method for reaching farmers. We can distribute information, offer training programs, and give continuous assistance to farmers by collaborating with cooperatives and leveraging their existing networks and channels. We guarantee that our services and assistance are accessible and adapted to the different requirements of our clients by using a multi-channel strategy, thereby increasing agricultural output in Nepal.

- Revenue Stream

Furthermore, we offer full training and consulting services, either in-person or via digital platforms, to guarantee farmers receive the essential assistance and support in adopting and maximizing contemporary agricultural practices. Soil testing and analysis is another route we provide, where farmers may send soil samples to our laboratories for extensive analysis and specific suggestions for soil health management.Furthermore, we have a product sales channel that involves providing farmers with inputs such as seeds, fertilizers, and crop protection goods, allowing them to easily obtain high-quality agricultural supplies. Finally, we use data analytics and insights to deliver vital information to farmers on market trends, crop performance, and yield optimization tactics, enabling them to make data-driven decisions.

- Cost Structure

To begin with, the cost of current agricultural technology accounts for a large portion of our costs. This covers the purchase, upkeep, and upgrade of cutting-edge farming equipment and technology. Furthermore, we budget for the creation and implementation of training and education programs, including the costs of curriculum development, trainer salaries, training materials, and venue leases. Extension services, which include field visits, consultations, and knowledge-sharing activities, also contribute to our cost structure by paying specialist staff, transportation, and communication charges.Soil testing is another significant cost component, since it includes the purchase of testing kits, laboratory facilities, qualified specialists, and quality control methods. We allocate grants for research, development, and promotion of sustainable soil management approaches, including the costs of demonstrations, pilot projects, and awareness campaigns, to promote soil health management. Finally, guaranteeing farmers' market access necessitates expenditures for market research,

networking, promotional efforts, and the formation of relationships with market intermediaries.