

Modeling Adoption of Innovations in Agriculture Using Successful Model

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Abstract—this paper is concerned with the development of successful model for the greenhouse growers in the Sabarkantha district of the Gujarat. The main objective of the paper is to develop the suitable model for the greenhouse growers in the district. Model illustrates that how can the grower and the supplier in the greenhouse horticulture chain gain competitive advantage through radical product and process innovation. The challenge lies in time to-market, in customer relationship, in developing new product/market combinations and in innovative entrepreneurship. In this model an innovation, potential entrepreneurial and research program is introduced. The model aims at strengthening multidisciplinary collaboration between growers, technology and research.

Keywords: Model, innovative entrepreneurship, research

I. INTRODUCTION

The greenhouse sector is generally characterized by small scale, often family run businesses in Sabarkantha district. Growers often depend on the auction system for their revenues and suppliers operate mainly independently. Horizontal and vertical collaboration throughout the value chain is limited. Relatively few growers have a clear image of what goes on in the greenhouse resulting in limited knowledge of new technologies. It is expected that in five years' time the sector will experience a lack of qualified growers. Another challenge facing the greenhouse growers is the use of (alternative) energy sources for electricity. Closely related to this aspect of negative image is the difficulty experienced by current owners of greenhouse in finding adequate succession. Another important challenge facing the greenhouse growers is unavailability of marketing facility, lack of knowledge about new greenhouse technologies, lack of storage facilities etc. Many growers realize the key to innovative entrepreneurship lies not only in knowledge of the produce they grow. They indicate that knowledge of shortening time-to-market, improved customer relationship management, developing new product/market combinations, using less (alternative) energy sources and state-of-the art production automation are just as vital to innovative entrepreneurship. The above aspects have led to develop a model. Here efforts have been made to develop a model which will help greenhouse vegetables and flowers growers of the sabarkantha district to get better and fast progress of the greenhouse farming. Model illustrates how can the grower and the supplier in the greenhouse horticulture chain gain competitive advantage through radical product and process innovation. The challenge lies in time to-market, in customer relationship, in developing new product/market combinations and in innovative entrepreneurship.

II. MATERIALS AND METHODS

The successful model was developed for greenhouse vegetables and flowers growers in the Sabarkantha district. During development of modeling all significant indicators of production, research, economic, innovative technologies, knowledge center, quality center, marketing was described. Indicators were synthesized on the basis of results of growers' opinions.

Model allows choosing the best variant from the point of view of conformity of its concept and predicted financial results to expectations of growers.

III. RESULTS AND DISCUSSION

The appropriate technology is the key to successful greenhouse cultivation. Lot of greenhouses in the study area was facing many problems due to lack of knowledge about the technology. The efforts have made to develop appropriate technology. This enables the project to come with reasonable cost.

A. Marketing

- 1) Develop event of state market for the project
- 2) Develop event of brand image of the product quality

The many growers were facing the problems of marketing. There is need to develop marketing facility for growers. The above activity is one of the most important factors for success any greenhouse. The new greenhouse products must be able to penetrate into the state market. This is possible by selecting right product mixes by maintaining consistent quality and quantity for the market. The regular supply of quality product to a given market gradually develops into brand images.

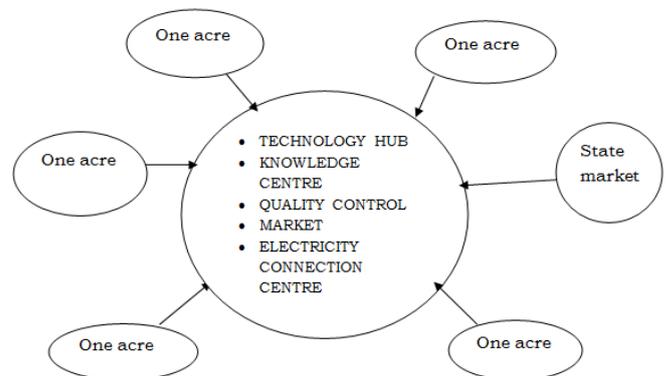


Fig. 1: A successful model for export oriented vegetables & flower growers

To produce and market vegetables and flowers we require regular inputs in the form of fertilizers, chemicals, packaging materials etc. These inputs are mainly responsible

for the production cost of the vegetables and flowers. The costing of the inputs should be well negotiated.

There is need to develop knowledge center for the growers. One knowledge center for one taluka should be required. The major cost of growers in the study area goes into infrastructure like land development, post-harvestcenter, transportation etc. Once a unit is set up, the best use of its infrastructure should be done. The small growers will be benefited by the knowledge, expertise and infrastructure development.

For a small project of one acre one may not invest on big cold store, refer-van etc. The mother unit will be training supervisors, workers and the same team can later take up the management of small greenhouse. One cold storage centre for five acre greenhouses should be needed.

To determine the strategic themes and problems in the sector, growers were interviewed to elicit key issues in the sector. The strategic topics and trends were subsequently clustered into four research themes: internal greenhouse climate management, organizational growth, knowledge of entrepreneurship, and time-to-market. The next step is to define problems and research questions related to the research themes.

Research model is developed which is visualized in Fig.2 which gives how leadership will do, organizational structure and culture influence on the innovative capacity of the greenhouse enterprise, how the grower and the supplier in the greenhouse chain can gain sustainable competitive advantage through improving their networking capabilities etc.

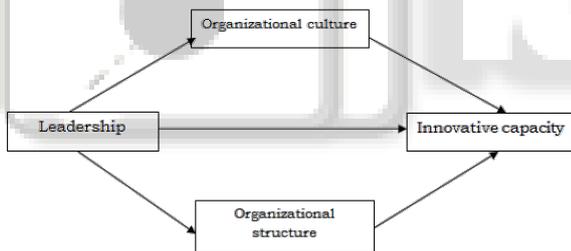


Fig. 2: Research model

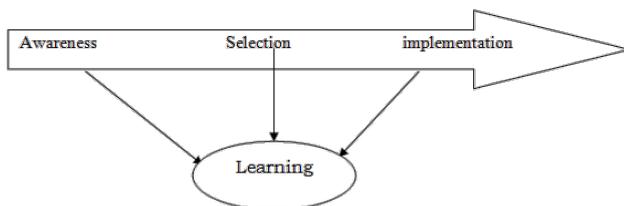


Fig. 3: Innovation management model

Innovation is seen as a continuous process supported by routines and methods that contributes to a successful process and outcome. The aim of the research is to establish whether the findings of our research and the model developed for that purpose, are equally useful within the greenhouse growers. Observations of interventions in organizational structure and / or culture are complemented with data collected from in-depth interviews based on a semi-structured questionnaire should lead to an understanding of what works and what does not.

IV. CONCLUSIONS

Successful model is developed for the greenhouse growers in the sabarkantha district which illustrates how growers can realize growth and improve innovative capabilities of the organization as well as the individual by linking economic and social sustainability. A model is beneficial to the growers and helps them make the step from vision to action and from incremental to radical innovation.

REFERENCES

- [1] Barua, P. and Sarmah, A. K. (2000). Probit model for farmer's attitude on adoption of low cost greenhouse in Assam. *Journal of the Agricultural Science Society of North-East India*, 13(2): 187-191.
- [2] Ludena, Carlos E., Mcnamara, Kevin T., Hammer, P. Allen and Foster, Kenneth A. (2003). Development of a stochastic model to evaluate plant grower's enterprise budgets. *American Agricultural Economics Association*, 27-30.x