PROSPECTS AND PROBLEMS OF AGRO FOOD PARKS (AFPs): A MULTI-DIMENSIONAL ANALYSIS

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KERALA, INDIA

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by

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(2018-11-071)

THESIS

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2020

DECLARATION

I, hereby declare that this thesis entitled **"PROSPECTS AND PROBLEMS OF AGRO FOOD PARKS (AFPs): A MULTI-DIMENSIONAL ANALYSIS"** is a bonafide record of research work done by me during the course of research and the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

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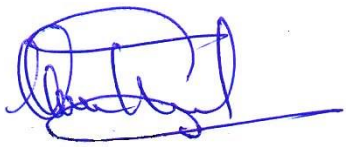
Certified that this thesis entitled **"PROSPECTS AND PROBLEMS OF AGRO FOOD PARKS (AFPs): A MULTI-DIMENSIONAL ANALYSIS"** is a record of research work done independently by Ms. Rin Rose Antony (2018-11-071) under my guidance and supervision and that it has not previously formed the basis for the award of any degree, diploma, fellowship or associateship to her.



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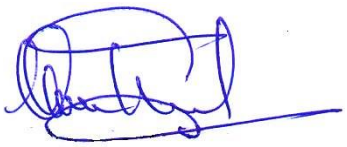

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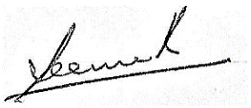

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Rin Rose Antony

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LIST OF ABBREVIATIONS AND SYMBOLS USED

%	Per cent
&	And
et al.	and co-workers/co-authors
Fig	Figure
KAU	Kerala Agricultural University
ICAR	Indian Council of Agricultural Research
No	Number
FP	Food Park
AFP	Agro Food Park
FPS	Food Park Scheme
MFPS	Mega Food Park Scheme
ACABC	Agri Clinics and Agri Business Centres
MOFPI	Ministry of Food Processing Industries
KINFRA	Kerala Industrial Infrastructure Development Corporation
KSIDC	Kerala State Industrial Development Corporation
MPEDA	Marine Products Export Development Authority

Introduction

CHAPTER I

INTRODUCTION

India is an agro based economy. Around 61.5 percent of its population depends on agriculture to make a livelihood (Census Report, 2011). Being one of the largest producer and consumer of food, India is having a great impact on both demand and supply of food products in the world (Rao, 2006). India have a large production base, giving it the potential both to feed its own population and also to become one of the largest suppliers of food to the world (MOFPI, 2014).

Food and agri business is the backbone of sustainable development with its massive economic, social and environmental footprint. The growing attention on sustainable development in recent years has prompted the Indian Government to focus its efforts on promoting the food sector on a much larger as well as integrated manner. It was in this context, a new initiative that provide an innovative direction in economic policy, the 'Food Park 'was introduced.

An Agro Food Park (AFP) refers to an agribusiness park allocated for agricultural, allied and food companies that provide common infrastructure facilities such as laboratories for testing and quality control, cold storages, warehousing facilities, and supplementary pollution control facilities (Aggarwal, 2017). Agro parks aim at increasing the sustainability by utilization of both waste as well as by-products. It also focuses on the application of innovative and upgraded technology.

Over the years, the 'Food Park Scheme' (FPS) introduced by Government of India in 1992-93 has evolved through three stages. In the first phase (1992-93 to 2007-08), the responsibility of promoting Food Parks was entrusted to the state governments. The funding for common facilities were provided by the Central government with a maximum limit of Rs. 40 million for each park. However, these industrial parks were conceptualised in a traditional mode of 'industrial estate' with neither backward nor forward linkages.

A major thrust to food processing sector was brought about through a paradigm shift in the approach towards food parks when a 'Mega Food Parks Scheme' (MFPS) was introduced in 2007-08. While the FPS focussed on the role of state governments in setting up these parks, the new scheme (MFPS) was designed to lay thrust on attracting private investment for developing modern infrastructure facilities in food processing sector. Another salient feature of the new scheme was the 'hub and spoke model' wherein the MFP comprised of collection centres, primary processing centres and a central processing centre.

It has processing units with food industry-specific common infrastructure facilities, packaging facilities, environment protection systems, quality control laboratories, testing facilities, and trade facilitating centres. This in turn is connected with primary processing centres that offer facilities such as cleaning, grading, sorting and packaging, warehouses and specialised cold storages including pre cooling and ripening chambers, mobile pre-coolers and collection vans. The Central government offers financial assistance up to a maximum of Rs. 500 million for common infrastructure and facilities for backward and forward linkages. Under the 12th Plan, in 2012, the scheme entered the third phase when a new scheme named 'Mini Food Parks' was proposed to cater the need of small states. The central government proposes to entitle the private developers of mini parks with a maximum fund of Rs. 200 million.

The construction of a Food Park will make the region a focal point of development by attracting investment and creating additional wealth, thereby contributing to economic security of the region. The establishment of the agro parks helps to bring about a significant change in attitudes of people and also provide greater economic security to both workers and investors. Linkages with stakeholders become stronger and entire communities within the region will draw benefit.

To have a deep analysis on prospects and problems of AFPs, understand the structure and functioning of the existing AFPs and its role in fostering entrepreneurship, the present study on ' Prospects and Problems of Agro Food Parks: A Multi-dimensional Analysis' becomes very important.

A detailed study has been framed with the following objectives:

1. To analyse the structure and functions of Agro Food Parks.
2. To assess the role of Agro Food Parks in fostering entrepreneurship.
3. To study the profile characteristics of agripreneurs in the Agro Food Parks.
4. To study the performance of Agro Food Parks as perceived by the agripreneurs.
5. To identify the constraints that hinder the development of Agro Food Parks.

1.1. SCOPE AND IMPORTANCE OF STUDY

India stands second in the world after China in food production. India has a total arable land area of 159.7 million hectares, thus making it the second largest in the world. In 2017-18, the contribution of food processing sector to the GDP manufacturing was around 8.33 percent (MOFPI, 2018). In spite of all these, the food processing sector in India suffers several bottlenecks which in turn leads to an estimated average wastage of about 25-30 percent of agriculture produce (Chari and Raghavan, 2012). The country lacks the availability of quality raw materials which can be processed (Mukherjee *et. al*., 2013). It is interesting to note that in India only about 7 per cent of the total perishable commodities are processed which is very low compared to other countries such as USA (65%), Philippines (78%) and China (23%).

Understanding the need to improve capacity of the food processing sector, the central government have initiated several programmes to boost the growth of food sector. One of the major initiatives by MOFPI is the Food Park scheme for developing food processing industries based on cluster approach. This helps in the establishment of common infrastructure facilities which are of international standards in the food processing sector.

However, the implementation of Food Park Scheme is not gaining required momentum in Kerala as in other states. So far no profound study has been conducted regarding the impending factors that obstructs its penetration into the society. Hence it becomes essential to make a study on Agro Food Parks in Kerala in order to propose the prospects and problems and thereby suggest possible add-on activities that can enhance its acceptance in the state.

1.2. LIMITATIONS OF THE STUDY

The study was part of M.Sc. (Ag.) programme which has inherent time bound period, limitations in resources and small sample size. The area of study was confined to only four Agro Food Parks in the state of Kerala. Personal interview with the respondents was employed for the data collection. Most of the responses were based on recall memory of the respondents. In spite of all these limitations, the researcher took every effort to make research objective, systematic and reliable.

1.3. ORGANISATION OF THE THESIS

The entire thesis is presented as five chapters. The first chapter 'introduction' explains the need, objectives, importance of the study and limitations of the research. Second chapter 'review of literature' deals with previous findings and research work in accordance to the objectives of study. Third chapter 'methodology' describes the process of investigation, method of data collection, sample size, sampling design, measurement of the dependent and independent variables and the statistical tools used. Fourth chapter 'results and discussions' explains the findings of the study along with meaningful inferences. The fifth and final chapter is 'summary' which summarises the work done, salient findings of the work done and suggestions for future areas of research. The references, abstract and appendices of the thesis are furnished at the end.

Review of literature

CHAPTER II

REVIEW OF LITERATURE

A comprehensive literature review is mandatory for any scientific research. It helps in analysing the past studies related to the present research objectives and also forms a better framework for interpretation of the results. Also an inclusive literature review enables us to come up with a well-structured thesis.

The main focus of this chapter is to present a resume of conceptual formulations pertaining to the entrepreneurial behaviour as well as performance analysis. After a thorough review of literature it was observed that very limited attempt has been made in this area. However keeping in view the major objectives of study, the related literature was reviewed and is presented under the following headings.

2.1. Concept of Agro Food Parks

2.2. Profile characteristics of the agripreneurs

2.3. Entrepreneurial behaviour of agripreneurs

2.4. Performance analysis

2.5. Stakeholder linkage analysis

2.6. Constraints faced by AFPs

2.7. Suggestions

2.1. CONCEPT OF AGRO FOOD PARKS

Agro Food Parks refers to an agriculture food system organised in a cluster approach wherein the stakeholders such as producers, processors, suppliers or marketing agencies cooperate with each other in order to produce both sustainable and quality food products (DeWilt and Dobbelaar, 2005; Smeets, 2009; Veldkamp, *et al*., 2009).

Isakhanyan (2010) in his study on 'Stakeholder analysis of agro parks' defined agro parks as groups of various businesses from different sectors, who cooperate with one another for obtaining individual and collective benefit obtained through improved ecological as well as environmental performance.

MOFPI (2014) in its annual report pointed out that Food Parks focus to develop an innovative food processing facility for the small and medium agro processing units which otherwise would find it difficult to establish because of the capital intensive nature of food processing infrastructure.

According to Spices Board India (2015), Spices Park refers to an industrial park for processing and value addition of spices wherein it offers processing facilities that is in par with the international standards.

A Food Park refers to an agri-business park allocated for agricultural, allied and food companies that provide common infrastructure facilities such as laboratories for testing and quality control, cold storages, warehousing facilities, and supplementary pollution control facilities as defined by Aggarwal (2017) in the study 'Food Parks in India: A Critical Assessment of Scenario' .

2.2. PROFILE OF THE AGRIPRENEURS

A. Independent variables

2.2.1. Age

Bhagyalaxmi *et. al*. (2003) reported that majority (66.67%) of the rural dairy entrepreneurs were in middle age category followed by young (22 .22%) and old age category (11 .11%).

Age and entrepreneurial characteristics of floriculturists where found to have a negative significant relationship as reported by Murli and Jhamtani (2003).

According to Anitha (2004) age had a positive and significant relationship with entrepreneurial behaviour of farm women in rural districts of Karnataka.

Suresh (2004) stated that 64.58 per cent of the respondents were in middle age category, whereas 17.92 per cent of the respondents belonged to young category and 17.50 per cent in old category in the study 'Entrepreneurial behaviour of milk producers in Andhra Pradesh'

Sixty five per cent of the rural entrepreneurs were in the age group of 24- 40 years followed by those belonging to the age group of 41-56 years (19.00%) and 57-73 years (16.00%) (Abdolhamid *et. al*., 2008).

Rituraj *et. al*. (2015) observed that more than forty per cent (41.66%) of the vegetable growers were young aged (18- 35 years), while 35.84 per cent belonged to middle aged category (36- 50 years) and only 22.50 per cent of farmers were old aged (above 50 years) in Jorhat district.

Age had positive significant relationship with the entrepreneurial behaviour of tomato growers under National Horticulture Mission in Dhar district as observed by Muleva *et. al*. (2019).

2.2.2. Education

Education had a negative significant relationship with entrepreneurial behaviour of farm women in rural districts of Karnataka as observed by Anitha (2004).

According to Madhuprasad *et. al.* (2008) almost cent percentage (99.99%) of the sericulture growers had formal education

Ram *et. al*. (2010) concluded that half (50.00%) of the vegetable producers were graduate and above which were followed by those with high school (24.70%), middle school (18.00%), primary school (6.70%) level of education.

Almost half (50.00%) of the women entrepreneurs were graduates with a university degree followed by those with intermediate (25.00%), matriculation (15.00%), and middle school (10.00%) as reported by Malikadas (2013).

Nagalakshmi and Sudhakar (2013) revealed that majority (48%) of agripreneurs in Dharmapuri had completed their graduation, whereas thirty two per cent completed their matriculation and twelve per cent where post graduates. Only 8.00 per cent agripreneurs were below matriculation.

Education had positive significant relationship with the entrepreneurial behaviour of tomato growers under National Horticulture Mission in Dhar district as concluded by Muleva *et. al*. (2019).

2.2.3. Experience

Experience was negatively related with the entrepreneurial behaviour of vegetable producers of Tamil Nadu as observed by Sudhakar and Tamilselvi (2007).

Mulu (2009) opined that almost half (45.00%) of the entrepreneurs had low experience (below 5 years) in agribusiness whereas 36.00 per cent had an experience

of around 6- 12 years, 14.00 per cent with 13-29 years and just 5.00 per cent with more than 29 years of experience.

Majority (45.18%) of the women entrepreneurs had 1 to 5 years of experience in their work whereas 28.00 per cent had experience of less than a year and 20.82 per cent had experience greater than 10 years. The rest 6.00 per cent of the entrepreneurs had about 6 to 10 years of service in their enterprise (Mulugeta, 2010).

According to Kumar (2012) more than eighty per cent (86.67%) of the vermicomposting entrepreneurs had medium to low experience, followed by high (13.33%) experience category.

Majority (58.33%) of the entrepreneurs had medium level of entrepreneurial experience, followed by those belonging to low (33.34%) and high (8.33%) entrepreneurial experience as reported by Usha (2012) in her study on rural micro enterprises in Guntur district.

Anandashankar and Upendranath (2014) stated that almost half (56.25 %) of the tribal sabai grass entrepreneurs had an experience of 3-6 years, followed by 28.75 per cent with an experience below 3 years. Respondents having high experience of greater than 6 years constituted only 15.00 per cent.

2.2.4. Cosmopoliteness

Patel *et. al*. (2003) observed that seventy four per cent of sugarcane growers had medium level of cosmopolitenes, whereas 14.50 and 11.50 per cent of entrepreneurs had high and low level of cosmopoliteness, respectively on analysing the entrepreneurial behaviour and communicational factors of sugarcane growers.

Nearly half (44.20%) of the farm women belonged to medium category of cosmopoliteness, followed by high (28.30%) and low (27.50%) cosmopolite group as observed by Anitha (2004).

Cosmopoliteness was found to have significant relationship with entrepreneurial behaviour of dairy farmers as reported by Choudhari (2006).

Patil (2011) stated that 56.00 per cent of dairy farmers had medium level of cosmopoliteness, whereas 33.00 and 11.00 per cent of the respondents belonged to high and low category of cosmopoliteness, respectively.

According to Rangari (2011) in the study related to entrepreneurial behaviour of women vegetable producers of Indore district almost half (58.65%) of the women vegetable growers were medium cosmopolitans.

2.2.5. Market perception

Suthan (2003) in the study 'Analysis of famers participation in the Participatory Technology Development Process' revealed that more than half (54.67%) of the respondents belonged to medium category of market perception.

Sixty per cent of the vegetable growers had medium market perception, whereas 22.00 per cent and 17.00 per cent had high level and low level of market perception, respectively as observed by Elakkia (2007) in the study 'Training needs of vegetable growers on organic farming practices in Western zone of Tamil Nadu' .

According to Jayawardhana (2007), in the study entitled 'Organic agricultural practices in coconut based homesteads in Trivandrum district', 62.00 per cent of the respondents had medium level of market perception.

Seventy three per cent of the respondents had medium level of market perception, while 16.00 and 11.00 per cent of the respondents had low level and high level of market perception, respectively as revealed by Anupama (2014).

Sasidharan (2015) in the study 'Adoption of organic farming technologies in banana and vegetable crops in Kasargod district' opined that more than eighty per cent

(82.00%) of the respondents had low market perception whereas high market perception was noticed in 18.00 per cent of the farmers.

2.2.6. Problem solving ability

According to Sundaran (2016) in the study 'Performance analysis of SHGs and SKSs on farm entrepreneurship in Thiruvananthapuram district' majority of the women respondents (75.56%) had medium problem solving ability followed by low (17.78 %) and high (6.66%) levels of problem solving ability, respectively. In the case of men, 64.45 per cent belonged to medium category of problem solving ability followed by low level (20.00%) and high level (15.55%) of problem solving ability, respectively.

Raj (2018) in the study 'Entrepreneurial behaviour of lease land vegetable growers in Thiruvananthapuram district' noticed that problem solving ability was positively and significantly related to entrepreneurial behaviour. It was also observed that most (72.50%) of the respondents were of medium problem solving ability.

2.2.7. Management orientation

Management orientation refers to the measure to which the entrepreneurs are scientifically oriented towards management that mainly comprises of planning orientation, production orientation and marketing orientation (Samantha, 1977).

According to Snehalatha (1994) almost half (51.67 %) of the rural women had medium level of management orientation whereas 38.33 per cent had high level and 10.00 per cent had low level of management orientation, respectively.

Management orientation was found to have a positive and significant effect on entrepreneurial behaviour as reported by Narmatha *et. al*. (2002) in her study on 'Entrepreneurial behaviour of livestock farm women'.

Rajaram (2002) stated that most (77.50 %) of the groundnut growers in Sangali district of Maharashtra had medium level of management orientation, whereas 22.50 per cent had high level of management orientation and hence leaving no one in low category.

Majority (71.25%) of the poultry entrepreneurs belonged to medium to high category of management orientation as observed by Chauhan and Patel (2003) after analysing their entrepreneurial uniqueness.

Nagesha (2005) revealed that majority (66.70%) of the vegetable seed producers had medium orientation towards management, followed by 19.20 per cent of the respondents having low orientation towards management and 14.20 per cent of respondents having high orientation towards management in Haveri district.

Taufiq *et.al*. (2011) in their study related to 'Entrepreneurial characteristics of agripreneurs under the scheme ACABC' reported that 60.83 per cent of the agripreneurs belonged to medium level, whereas 21.67 per cent had high and 17.50 per cent had low degree of management orientation.

2.2.8. Extension orientation

Patil *et. al*. (1999) indicated that extension contact had no significant relation with entrepreneurial behaviour of little gourd growers.

The participation of sugarcane growers in extension activities was found to have a positive association with the entrepreneurial behaviour as observed by Patel *et.* al. (2003) in the study related to entrepreneurial behaviour and communicational factors sugarcane growers.

According to Anitha (2004), majority (44.20%) of the entrepreneurs participated in extension activities at a medium level while 17.50 per cent had high and 38.30 per cent had low level of participation.

Pandeti (2005) in his study on ‘Entrepreneurial behaviour of farmers in Raichur district of Karnataka’ revealed that participation of farmers in extension activities had positive and significant association with their entrepreneurial behaviour.

Eighty five per cent of the women dairy farmers had no extension contact as reported by Sah *et. al.* (2007).

Kale (2012) noted that more than fifty per cent (55.00%) of the farm women in dairy farming had high degree of extension participation whereas 26.00 per cent of them had medium degree of participation and 19.00 per cent had low degree of participation.

2.2.9. Credit orientation

Singh (1992) stated that majority of the women entrepreneurs possessed low degree of credit orientation. This supported the findings of Shah (1985), Akhouri (1990) and Jyothiba (1990).

Credit orientation was found to have positive significant relationship with the entrepreneurial behaviour of potato farmers as reported by Prajapati and Patel (2000) in the study ‘Entrepreneurial behaviour of potato growers’.

Entrepreneurial behaviour was positively related to credit orientation of potato producers in Malwa Region of Madhya Pradesh (Choudhary, 2006).

According to Sharma (2006) credit orientation had a positive and significant association with entrepreneurial behaviour of garlic producers of agri-export zone in Madhya Pradesh.

2.2.10. Environmental orientation

Fifty four per cent of the farmers had high degree of environmental orientation as reported by Loganathan (2002) in the study entitled 'Socio economic implications of organic farming in Tamil Nadu'.

According to Sasidharan (2015) in the study 'Adoption of organic farming technologies in banana and vegetable crops in Kasargod district' majority (75%) of the farmers had high environmental orientation, whereas 25 per cent of the producers had low orientation towards environment.

Raj (2018) in the study 'Entrepreneurial behaviour of lease land vegetable growers in Thiruvananthapuram district', observed that majority (56.25%) of the farmers had medium level of environmental orientation.

2.2.11. Economic motivation

Economic motivation had positive and significant relationship with the entrepreneurial behaviour of livestock farm women (Narmatha, *et. al*., 2002).

Chauhan and Patel (2003) in the study 'Entrepreneurial uniqueness of poultry entrepreneurs' observed that nearly half (48.75%) of the entrepreneurs belonged to medium category of economic motivation, whereas 31.25 per cent had high level and 20.00 per cent had low level of economic motivation.

According to Patel (2005) most of the respondents had economic motivation of medium level which he mentioned in the study 'Peasantry Modernization in Integrated Tribal Development Project Area of Dahod district of Gujarat'.

Kale (2012) indicated that majority (71.00%) of the farm women engaged in dairy farming had medium economic motivation, followed by low (15.00%) and high (14.00%) levels of economic motivation.

Economic motivation of the tomato producers had highly significant relationship with their entrepreneurial behaviour as concluded by Muleva *et. al*. (2019) in his study on 'Entrepreneurial behaviour of tomato producers under National Horticulture Mission in Dhar district'.

2.2.12. Group cohesion

According to Ghosh (1995) in the study 'Group cohesiveness in DWCRA groups', group cohesion is defined as the capacity of the group members to emotionally relate with each other so as to effectively integrate to achieve common goals of the organisation.

Group cohesion refers to the ability of members of a group to work in unity either to achieve a common goal or to satisfy the emotional requirements of its stakeholders (Summ, 2013).

Group cohesiveness impacted positively on the entrepreneurial success of women entrepreneurs in Kaduna metropolis as reported by Abubakar and Abubakar (2016). They also pointed out that 1.00 per cent increase in group cohesion will result in 5.60 per cent increase in entrepreneurial success. This result was in accordance with the studies of Stogdill (1972) and Carron (2010).

2.2.13. Organizational climate

Veeraswamy *et. al.* (1999) noticed that majority (75%) of the respondents perceived organizational climate as facilitating, while 13.00 per cent and 12.00 per cent of the respondents perceived it has highly facilitating and least facilitating, respectively.

According to Bosco (2000), 74.00 per cent of the Agriculture Officers had medium perception of organizational climate, whereas 14.63 per cent and 12.19 per cent had high and low organizational climate perception, respectively.

More than 70.00 per cent of the Agriculture Officers in Tamil Nadu felt that medium level of organizational climate was found in their organization , whereas 16.67 % and 11.76% of respondents felt that there was low and high level of organizational climate, respectively as indicated by Vijaibabu (2005).

Masomi *et. al*. (2013) in their study 'Relationship between Organizational Climate dimensions and Corporate Entrepreneurship' observed that there was a positive and significant association between organisational climate and corporate entrepreneurship.

2.3. Entrepreneurial behaviour

Nizamudeen (1996) defined entrepreneurial behaviour as set of characteristics associated with persons who possess the drives and capabilities to initiate production, takes decision, bear risks and manage the different inputs necessary to successfully undertake the venture.

Sharma (2006) studied entrepreneurial orientation of garlic producers in terms of risk taking, feedback usage, self-confidence, hope of success, persistence, knowledgeability, manageability, innovativeness, persuasibility, and achievement motivation. All these components were found to be strongly interrelated. The mean value of entrepreneurial orientation was 165.60, which indicated that majority had medium level of entrepreneurship.

According to Rangari (2011) all the components of entrepreneurial behaviour of women vegetable growers such as risk taking, hope of success, feedback usage, self-confidence, persistence, knowledge ability, manageability, persuasibility, innovativeness and achievement motivation were strongly interrelated among themselves. The mean entrepreneurial behaviour of the respondents was 111.51, indicating that majority had medium level of entrepreneurship.

Majority (66.00%) of the agriculture and allied enterprise owners in Imphal district had medium extent of entrepreneurial behaviour whereas 18.00 per cent and 16. 00 per cent had low and high extent of entrepreneurial behaviour, respectively (Dayaram *et. al*., 2014).

58.34 per cent of the women entrepreneurs had medium entrepreneurial behaviour followed by high (15.00%) and low (12.50 %) entrepreneurial behaviour as reported by Swetha *et. al*. (2014) after analysing the 'Entrepreneurial and technological empowerment of women entrepreneurs'.

In the study entrepreneurial behaviour in organizations, DeJong *et. al.* (2015) opined that entrepreneurial behaviour is positively related with job autonomy, innovation, pro activity and risk taking ability.

2.4. Performance analysis

Kumar (1995) in the study ' Entrepreneurship in small scale sector' measured entrepreneurial progress in terms of the performance and growth of enterprise, which included several aspects like sales turnover, size of employment, production, profits, time lag for earning profits and future plans.

Organizational performance can be defined as the ability of an organization to fulfil the expectations of owners, employees and customers who comprises the three major stakeholders (Aluko, 2003).

Organizational performance can be measured by using both qualitative and quantitative variables. Quantitative performance measures include financial outlays, production, efficiency and marketing as reported by Tattichi *et. al*. (2008) in the study 'Performance measurement and management for SMEs'.

According to He *et al.* (2011) in the study 'Stakeholder Orientation and Organizational Performance in an Emerging Market' stated that the major dimensions

of performance assessment include financial performance, market performance, corporate social performance and employee performance.

Mwamuye *et. al*. (2012) in the study 'Factors influencing performance of agricultural companies in Kenya' observed negative relationship between number of board members and performance of organization. However, there was high correlation between performance targeting and employee retention in the organization.

Bartuseviciene and Sakalyte (2013) suggested two measures to assess the performance of an organization which include efficiency and effectiveness. The efficiency deal with the input output relationship but effectiveness is concerned with sales, output, value added creation and innovation.

According to Anggadwita and Mustafid (2014) in the study related to the factors that influence the performance of small and medium enterprises revealed that innovativeness, competence of human resources and sustainability had significantly positive impact on the performance of SMEs.

2.5. Linkage of AFPs with stakeholders

2.5.1. Stakeholders

Stakeholders refers to individuals or agencies who have a share in the project, who are in turn affected by the realisation of the project or who influences the decision making as well as realisation processes as defined by Brugha and Varvasovszky (2000) in their study 'Stakeholder analysis: A review'.

Heeres *et. al*. (2004) in their study related to initiatives in eco-industrial park in USA and Netherlands opined that the active participation of stakeholders in the project development process could lead to the success of the project.

According to Freeman *et. al.* (2007) the involvement of stakeholders from various sectors is crucial for the development and success of agro parks as reported in the study 'Managing for stakeholders: survival, reputation and success'.

The selective inclusion of stakeholders and giving them the opportunity to take part in the designing activities of organisation will stimulate them to reframe and develop innovative goals as well as strategies (Loorbach, 2007; Koerkamp and Bos, 2008).

2.5.2. Stakeholder linkage analysis

Stakeholder linkage analysis helps in the identification of appropriate forms of stakeholder participation (ODA, 1995).

Brugha and Varvasovszky (2000) in their study 'Stakeholder Analysis: a review' defined stakeholder linkage analysis as an approach or a tool to generate knowledge about stakeholders, to familiarise their intentions, behaviour and also to analyse their influence on decision making as well as implementation process.

Bryson *et. al.* (2002) stated that the increasingly interconnected nature of the world, technological developments, globalization, production and specialization makes the analysis of stakeholder linkage very important.

The potential stakeholders in agro parks include initiators, developers and designers, stakeholders from public sector, regional companies, financial and knowledge providing institutions, the environmental agencies, political parties and the entire community as reported by Isakhanyan (2010) in the study 'Stakeholder analysis of Agro Parks'.

2.6. Constraints experienced by AFPs

Rao (2006) in its report on 'Agro- industrial park: Experience from India' stated that many constraints are associated with the establishment and implementation of agro industries. It includes inadequate infrastructure, delays and procedural hindrances within the government departments, lack of appropriate quality control facilities, lack of adequate technologies in selected areas of production and processing and limits in the dissemination of latest information.

Indian agri-industry mostly faces formidable problems such as shortage of quality raw materials, inadequate research, and development, managerial inadequacies and acute dearth of funds as stated by Hans (2006) after analysing issues and challenges of agribusiness in India.

Chadha and Gulati (2007) in their study 'Performance of agro-industry in India: emerging issues and prospects, in agricultural diversification and smallholders in South Asia' observed that agri-organizations have a necessary need for some trained and professional managers for the growth and development of business.

Industrial sickness, financial crunch, managerial and marketing problems, inappropriate quality control facilities and inadequate infrastructure are some of the major hurdles that hinders successful running and achievements of an agro industry as reported by UNIDO (2013) in the study 'Agribusiness development: Transforming rural life to create wealth'.

The important bottlenecks of agri-enterprises in India include shortage of material and power, lack of adequate finance, outdated technology, inadequate marketing facilities, weak organization and management, lack of trained personnel, and lack of infrastructure facilities (Bairwa and Singh, 2015).

ICRIER (2015) in their report on 'Evaluation of the Impact of the Scheme for Mega Food Park of the Ministry of Food Processing Industries' pointed out the snapshot

of the key issues that hinders the functioning of Agro Food Parks. The constraints were ranked based on the importance and was given as follows- getting timely clearances and approvals from state governments, issues related to units entering into agreement with food processors, problems that arises with financial institutions such as high rate of, collateral requirement, issues encountered with producers to reach in agreements, political interferences, delay in releasing of grant from authorities etc.

One of the major reasons resulting in functional and institutional inefficiencies of agribusiness enterprises in India is the lack of skilled management as observed by Sundar (2016) in his study 'Agribusiness scope, opportunities and challenges in India'.

According to Aggarwal (2017) in the study 'Food Parks in India: A critical assessment of scenario', the core reasons of the poor performance of Food Parks are the lack of availability of three key factors: land, capital and labour.

2.7 Suggestions

Ways of harnessing the potential of agribusiness in India include modernization of existing agri-infrastructure and creation of new capacities for handling and storage of agricultural produce and improving the export competitiveness as reported by Bairwa and Singh (2015) in their study 'Development of agribusiness industry in India: opportunities, challenges and solutions'.

ICRIER (2015) pointed out some general recommendations for the functioning of Food Parks in their report entitled 'Evaluation of the Impact of the Scheme for Mega Food Park of the Ministry of Food Processing Industries' such as providing innovative incentives or benefits for units, strengthening the role of financial institutions, developing on-line transparent procedures and e-governance mechanism and also providing a push for reforms that benefit both farmers and processors.

According to Sundar (2016) in order to overcome the constraints and challenges observed towards practicing agribusiness, the following suggestions are to be considered. They include bringing new technologies and inputs from foreign partners for mass production, market exploration and linkage development, improving the functioning of factors of production and marketing.

Successful Food Parks should include supporting actors such as universities, standards-setting agencies, vocational training institutions, research community, and financial institutions. . Improved quality of transport infrastructure across all modes including port, surface roads, railways, airports and waterway, low cost of capital and support of appropriate institutions attract sufficient investments in the Food Parks as pointed out by Aggarwal (2017) in her study 'Food Parks in India: A critical assessment of scenario'.

Methodology

CHAPTER III

METHODOLOGY

Methodology refers to the systematic and theoretical analysis of methods applied to a field of study. The main focus of this chapter is on methods and procedures employed in the study for data collection, data analysis and interpretation of the results. The research methodology in accordance with the objectives of study is presented under the following heads.

3.1. Research design

3.2. Locale of the study

3.3. Selections of respondents

3.4. Operationalisation and measurement of variables

3.5. Structure and function of AFPs

3.6. Stakeholder linkage analysis

3.7. Constraints faced by AFPs in rendering services

3.8. Suggestions to overcome the constraints faced by AFPs

3.9. Data collection techniques

3.10. Statistical tools used for data analysis

3.11. Hypothesis

3.1. RESEARCH DESIGN

Research design is the fundamental plan, structure and strategy used for collecting and analysing the measures of variables that are specified in research problem so as to obtain solutions to the research questions and also to control variance (Kerlinger, 1983). It is the process of planning the research to effectively address the research problem.

Ex- post-facto research design was employed in the study as the researcher does not have any direct control over the independent variables since they are inherent ones. Since the independent variables cannot be directly manipulated as they had already occurred, their effects become obvious (Ray and Mondal, 2011).

3.2. LOCALE OF THE STUDY

Four functional Agro Food Parks in the state of Kerala was purposefully selected based on their performance and variability in the services they offer. The AFPs selected for the study are given in figure 1.

3.2.1 Brief description of the Agro Food Parks

Spices Park, Puttady

The Spices Park was established at Puttady in Idukki district of Kerala on February 13, 2011. It was developed in an area of 10 acres of land by Spices Board (The Hindu, 2011). It is a park setup for processing and value addition of spices and spice products especially cardamom (small) and pepper which offers the processing facilities at par with the international standards (Spices Board India, 2015).

Seafood Park, Aroor

The Seafood Park located at Aroor, Alappuzha is country's first seafood park which was established on 21st December, 1999. It became functional on 24th November, 2004 through a private-public partnership (Zaubacorp, 2019). The park has been set up to upgrade the quality of seafood pre-processing facilities to international standards (Financial Express, 2004).

KINFRA, Nellad

The Small Industries Park set up by the Kerala Industrial Infrastructure Development Corporation (KINFRA) is located at Nellad in Ernakulam district (Wikimapia, 2019). The park has been set up in an area of 67 acres of land under the Integrated Infrastructure

Development Scheme (IIDC) of the Union Industry Ministry. Around 30 acres have been earmarked for projects in the food-processing sector alone (KINFRA, 2019).

KINFRA, Malappuram

The KINFRA Food Park located at Kakkancherry in Malappuram district was the premier Food Park established in the state of Kerala. The conception of the project was during 2000 and was inaugurated in 2003 by the then president, Dr. A.P.J. Abdul Kalam. A Special Economic Zone for food processing has been established in the park along with food incubation facilities (Rao, 2006).

3.3. SELECTION OF RESPONDENTS

20 respondents (i.e. agripreneurs) were randomly selected from each of the four Agro Food Parks, hence making a total sample size of 80. The officials from each Agro Food Park were purposively selected since they comprised of either one or two (Figure 2).

3.4. OPERATIONALISATION AND MEASUREMENT OF THE VARIABLES

3.4.1. Operationalisation and measurement of dependent variable

3.4.1.1. Entrepreneurial behaviour

Depending on the objectives of study, entrepreneurial behaviour of agripreneurs of Agro Food Parks was selected as the dependent variable.

In this study, entrepreneurial behaviour of agripreneurs of Agro Food Parks was operationally defined as cumulative outcome of ten attributes namely hope of success, persistence, use of feedback, risk taking, persuasibility, self-confidence, manageability, innovativeness, knowledgeability and achievement motivation.

Entrepreneurial behaviour was measured using a scale developed by Wankhade *et al*. (2013) with slight modifications. The scale consists of ten attributes of which each

attribute had five statements, hence making a total of 50 statements. A five point continuum was used to measure each statement ranging from strongly agree, agree, undecided, disagree and strongly disagree with weightage of 5, 4, 3, 2 and 1 respectively. The score ranges from 5 to 25 for each attribute.

Entrepreneurial Behaviour Index (EBI) was used to measure the entrepreneurial behaviour of the respondents. The total score was calculated by adding the scores obtained for ten entrepreneurial attributes. The minimum and maximum score ranged between 50 and 250. Based on the EBI, the respondents were grouped into three categories namely low, medium and high by considering the mean and standard deviation values.

Entrepreneurial Behaviour Index (EBI) is given by the formula,

$$\textbf{EBI} = \frac{\text{Sum of obtained score on ten entrepreneurial attribute} - \text{Minimum}}{\text{Maximum obtainable score on ten entrepreneurial attribute} - \text{Minimum}} \times 100$$

*Minimum value = 50

The ten attributes and their respective statements were provided in the interview schedule and the agripreneurs were asked to respond to the statements (Appendix 3). The ten attributes were operationalized as follows:

3.4.1.1.1. Risk Taking

Defined as the degree to which the agripreneur is oriented towards risks and uncertainties and has the courage to face the problems associated with business enterprise.

3.4.1.1.2. Hope of success

Defined as the degree to which an individual believes that he can turn his problems and issues into opportunities.

3.4.1.1.3. Persistence

Defined as the degree to which an agripreneur is persistent to achieve his goal.

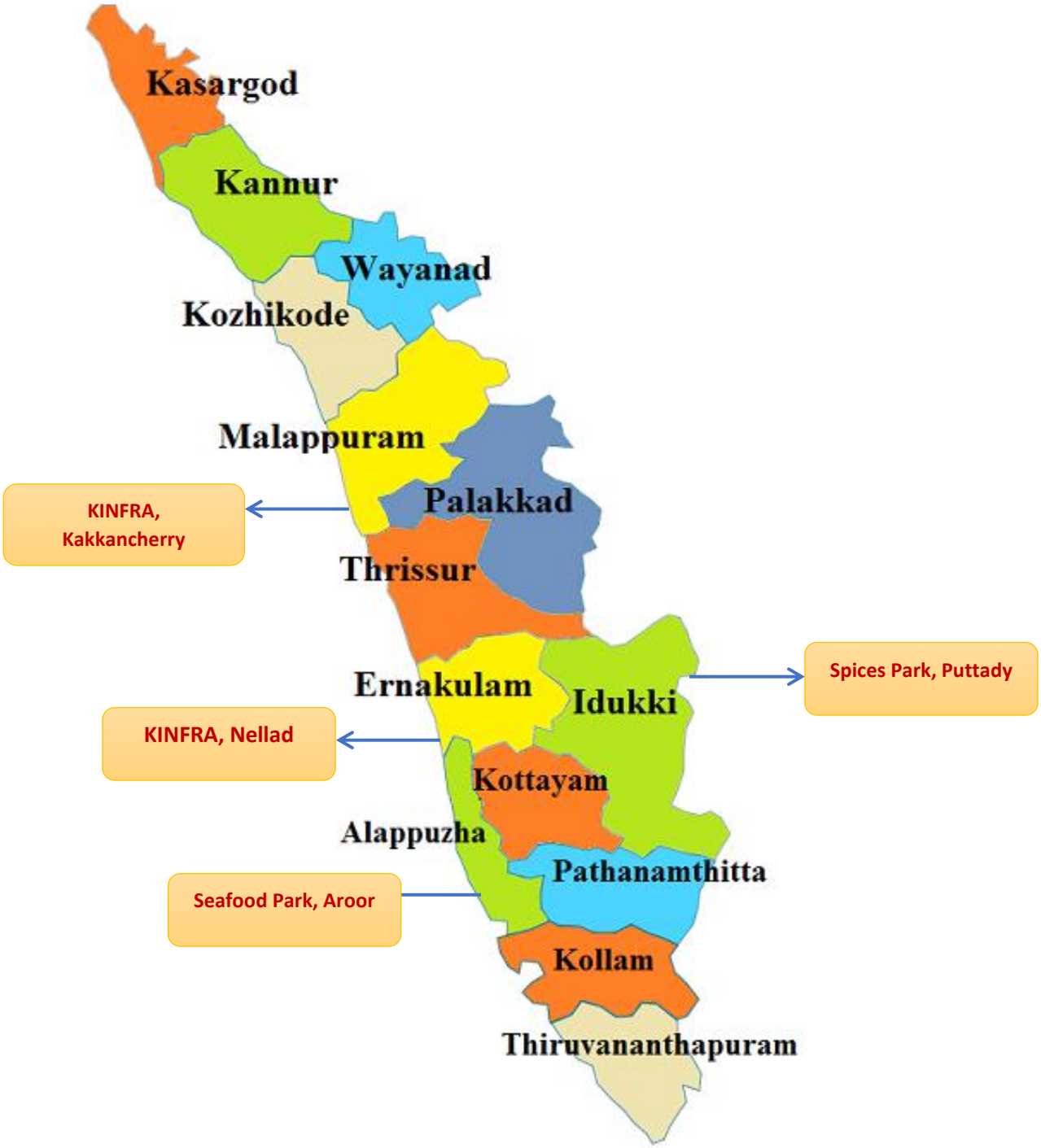


Fig 1. Locale of the study

Fig 2. Selection of respondents

3.4.1.1.4. Use of feedback

Defined as the degree to which an agripreneur is ready to accept and use feedback.

3.4.1.1.5. Self confidence

Defined as the extent to which a person believes in his qualities, abilities and judgements.

3.4.1.1.6. Knowledgeability

Defined as the degree to which an agripreneur has knowledge of the business, market, demand and supply.

3.4.1.1.7. Persuasibility

Defined as the degree to which an agripreneur is capable of convincing and influencing other individuals, customers and even competitors to create and maintain a good rapport.

3.4.1.1.8. Manageability

Defined as the capability of an agripreneur to manage the business by hims**e**lf.

3.4.1.1.9. Innovativeness

Defined as the degree to which an individual is relatively earlier in adopting new ideas than other members of the social system.

3.4.1.1.10. Achievement motivation

Defined as the value that drives an agripreneur to excel in his activities and hence attain a sense of personal accomplishment.

3.4.1.2. Performance analysis

The performance of Agro Food Parks were analysed in terms of Key Performance Indicators.

Key Performance Indicators (KPI):

KPI was operationalized as those indicators that throw light to the different dimensions that reflects the degree of performance effectiveness of Agro Food Parks. It was measured in terms of both leading and lagging performance indicators. Leading indicators (LE) are those indicators that designate input oriented comparably constructs that are difficult to measure and easy to influence whereas lagging (LA) refers to those indicators that are relatively easy to quantify and measure, that is output oriented but hard to improve or influence.

Sl. No.	General Performance Indicators (LE & LA)	Degree of importance				
		5	4	3	2	1
1.	Efficiency (LE)					
2.	Customer focus (LE)					
3.	Employee relations(LE)					
4.	Environmental factors(LE)					
5.	Social factors (LE)					
6.	Innovation (LA)					
7.	Structure of the firm (LA)					
8.	Business performance (LA)					

These indicators were ranked based on their weighted mean score.

3.4.2. Operationalisation and measurement of independent variables

Based on major objectives of the study, literature review, discussion with experts and observations of the researcher, personal, social, economic and psychological variables were taken for the study which have relationship with the dependent variable. Thirty five independent variables were selected based on various

literatures which were given for judges' rating to extension experts. It was given in the form of a questionnaire to collect responses from the judges on a five-point continuum with response pattern as 'most relevant', 'more relevant', 'relevant', 'less relevant' and 'least relevant' with scores 5, 4, 3, 2, 1 respectively. The questionnaire is furnished in the Appendix 3.

The copies of questionnaire were sent to twenty five judges through post and mail. Twenty one of the judges responded. The score assigned by these judges were added up for each variable. The variables having high scores were selected as the independent variables for the study.

Table 1. Selected independent variables with their corresponding measurement procedure

Sl. no.	**Independent Variables**	**Measurement**
1.	Age	Census Report of GOI (2011)
2.	Education	Method developed by Thomas (2004)
3.	Experience	Experience of agripreneurs expressed in number of years
4.	Cosmopoliteness	Scale developed by Chaudhari *et. al*. (2007) with slight modification
5.	Market perception	Procedure developed by Nair (1969)
6.	Problem solving ability	Procedure developed by Sundaran (2016)
7.	Management orientation	Scale developed by Samantha (1977)
8.	Extension orientation	Scale developed by Bhaskaran (1979)
9.	Credit orientation	Procedure adopted by Beal and Sibley (1967)
10.	Environmental orientation	Scale developed by Menon (1995)
11.	Economic motivation	Scale developed by Prasad (1983)
12.	Group cohesion	Arbitrary scale
13.	Organizational climate	Scale developed by Kolb *et. al*. (1974)

3.4.2.1. Age

Age was operationalised as the actual age completed in years by the respondent at the time of investigation. It was classified based on Census Report (2011) classification method.

Age category	Years	Score
Young	< 35	1
Middle aged	35-55	2
Old Aged	> 55	3

The respondents were categorised into different groups and expressed as frequency and percentage.

3.4.2.2. Education

Education was operationalised as the level of formal education attained by the respondent at the time of enquiry. In this study the scoring procedure a developed by Thomas (2004) was used with necessary modifications. One score each was added to every successful completion of formal schooling and the respondents was then categorized based on their level of education.

Category	Code
Illiterate	0
Primary	1-4
Middle	5-7
High school	8-12
Collegiate	>13

The respondents were categorised into different groups based on their level of education and expressed as frequency and percentage.

3.4.2.3. Experience

Experience was operationalized as the number of years the respondent has been engaged in agripreneurial activity within the AFP. With mean and standard deviation as check, respondents were categorised as below with respect to their experience.

Category	Criteria
Low	< Mean - SD
Medium	Mean ± SD
High	>Mean + SD

3.4.2.4. Cosmopoliteness

Cosmopoliteness was operationalized as the extent to which respondent is oriented to his or her immediate outside social system. It was measured based on scale developed by Chaudhari *et. al*. (2007) with slight modifications. The instrument consists of six statements in which three were positive statements and three negative statements. It was measured using three - point continuum viz. 'agrees', 'undecided' and 'disagrees' with weightage 2, 1, 0 respectively and reverse for the negative statements. Also membership of the respondents in any organization was given a score of one. The total score ranges from 0- 13 (Appendix 3).

Based on the values obtained, the mean and standard deviation was worked out. The respondents were grouped into three categories as given below.

Category	Criteria
Low	< Mean - SD
Medium	Mean ± SD
High	>Mean + SD

3.4.2.5. Market perception

Market perception was operationalised as the capability of the agripreneur to analyse trends in market and obtain greater returns by selling the produce. It was measured using the procedure adopted by Nair (1969) with slight modifications. The instrument consists of three statements and the score ranges from 3-9 (Appendix 3).

Based on the values obtained, the mean and standard deviation was worked out. The respondents were grouped into three categories as given below.

Category	Criteria
Low	< Mean - SD
Medium	Mean ± SD
High	>Mean + SD

3.4.2.6. Problem solving ability

Problem solving ability was operationally defined as the ability of an agripreneur to identify and analyse the problem, find the probable solutions, select the best alternative and implement it. It was measured using procedure developed by Sundaran (2016). The instrument comprises of eight statements of which five were positive statements and three were negative statements. The responses were rated on a five- point continuum ranging from 'strongly agree', "agree', 'undecided', 'disagree' and 'strongly disagree' with scores 5, 4, 3, 2 and 1, respectively for positive statements and vice-versa for the negative statements. The scores of each statement was summed up to obtain the total score of the respondents. The total score ranged from 8-40 (Appendix 3).

3.4.2.7. Management orientation

Management orientation was operationalized as the orientation of the respondent towards scientific management of the enterprise measured in terms of planning orientation, production orientation and market orientation.

Management orientation was measured using the scale developed by Samantha (1977) in terms of planning, production and market orientation. The instrument consisted of eighteen statements of which ten were positive statements and eight were negative statements. It was measured using a two- point continuum viz. 'agree' and 'disagree' with weightage 1, 0 respectively and reverse for the negative statements. The total score for management orientation was calculated by summing up the score obtained for individual statements. The total score ranged from 0-18 (Appendix 3).

3.4.2.8. Extension orientation

Extension orientation was operationally defined as the degree to which the respondent contacted different extension agents and also the extent of participation in various extension activities organised by these agencies.

It was measured using scoring pattern developed by Bhaskaran (1979) in terms of extension contact and extension participation with slight modifications.

The scoring procedure for extension contact is as follows:

Response	Score
Often	3
Frequently	2
Occasionally	1
Never	0

The five items coming under the extension agents included agriculture officers and agriculture departments, scientists of Kerala Agricultural University (KAU) and Indian Council of Agricultural Research (ICAR) institutes, personnel of other institutes or commodity boards, friends and neighbours and progressive entrepreneurs. By summing up the values for different extension contacts, total score was obtained. The score ranges from 0- 15.

The scoring procedure for extension participation is as follows:

Response	Score
Whenever conducted	2
Sometimes	1
Never	0

There was five items under extension events which included seminars, fairs or exhibitions, meetings, study tours and schemes or policies. The score was calculated by adding up the values for different extension contacts. The total score ranged from 0- 10. The score obtained in both extension contact and extension participation was used to calculate the extension orientation of the respondents.

Using mean and standard deviation, respondents were categorised as below with respect to their extension orientation.

Category	Criteria
Low	< Mean - SD
Medium	Mean ± SD
High	>Mean + SD

3.4.2.9. Credit orientation

Credit orientation was operationalized as the favourable attitude of the respondent towards institutional financial sources for obtaining credit. It was measured using a scale developed by Beal and Sibley (1967) with necessary modifications. The instrument comprised of five statements. The maximum and minimum score a respondent could get was 17 and 5, respectively (Appendix 3).

3.4.2.10. Environmental orientation

Environmental orientation was operationally defined as the extent to which the respondent has concern for his or her environment. A scale developed by Menon (1995) was used to measure the environmental orientation with slight modifications. The instrument consisted of four statements. The maximum score and the minimum score a respondent could get was 4 and 0, respectively (Appendix 3).

3.4.2.11. Economic motivation

Economic motivation was operationalised as the extent to which the respondent is oriented towards maximization of profit and the relative value he or she pays for monetary gains. It was measured using Supe's scale as modified by Prasad (1983). Of the six statements included in the scale, five were positive statements and one was a negative statement. Score of 0 was given to every 'no' response and 1 for every 'yes' response in case of positive statement and reverse for the negative statements. The scores ranges from 0- 6.

3.4.2.12. Group cohesion

Group cohesion was operationalised as the extent of affiliation the members of group have with each other and the degree of motivation they have to remain in the group. It was measured using an arbitrary scale.

The instrument consisted of five statements in which four were positive statements and one was a negative statement. It was measured using a three- point continuum viz. 'always', 'sometimes' and 'never' with weightage 2, 1, 0 respectively and reverse for the negative statements. The total score for group cohesion was obtained by adding the score obtained for each statement. The score ranges from 0- 10.

3.4.2.13. Organisational climate

Organisational climate was operationalized as the individual's perception towards the procedures, policies and practices of the food parks. It was measured using a scale

developed by Kolb *et. al.* (1974). The instrument comprised of seven statements of which six were positive statements and one was a negative statement. It was rated on a five- point continuum namely 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree' with scores 5, 4, 3, 2, 1 respectively for positive statements and reversed scoring for negative statements. The score ranged between 7 and 35 (Appendix 3).The categorisation procedure used for the study was as follows:

Category	Class
Poor	7-16
Average	17-26
Good	27-35

3.5. STRUCTURE AND FUNCTION OF AFPs

3.5.1. Structure of AFPs

The structure of AFPs were identified and represented as an organogram. The levels of management and total number of functionaries were also calculated.

3.5.2. Functions of AFPs

The functions of Agro Food Parks were enumerated based on interaction with the officials and members of AFPs and also with relevant review of literature.

3.6. STAKEHOLDER LINKAGE ANALYSIS

In order to study the stakeholder linkage of AFPs, stakeholders were identified based on forward and backward linkages and strength of linkage was calculated based on weighted mean score. Stakeholder linkage mapping was done to represent it diagrammatically.

3.7. CONSTRAINTS FACED BY AFPs IN RENDERING SERVICES

The constraints faced by AFPs in rendering services were identified based on discussion with officials and members of AFPs and relevant review of literature. A list (open ended) regarding both operational problems and management problems faced by

agripreneurs in AFPs was prepared based on secondary data and administered to the respondents. They were ranked based on mean rank as perceived by the agripreneurs.

Sl. No.	Constraints	Rank
1.	Lack of financial supports	
2.	Actual time in laying projects exceeds envisaged time	
3.	Insufficient infrastructure facilities	
4.	Locational disadvantages	
5.	Slow single window clearance	
6.	Indifferent attitude of park authorities	
7.	Indifferent attitude of local people	
8.	Any other	

3.8. SUGGESTIONS TO OVERCOME THE CONSTRAINTS FACED BY AFP

Suggestions for overcoming the constraints were collected from the respondents and experts based on discussions and interactions.

3.9. DATA COLLECTION TECHNIQUES

A pre-tested well-structured interview schedule was administered to the respondents. Personnel interview was employed as the method of data collection. The schedule was pre-tested with 10 respondents selected outside the sample area and suitable changes were made based on the information collected on the basis of these corrections, the final interview schedule was prepared. The interview was conducted in local language. The final interview schedule is enclosed in Appendix 3.

3.10. STATISTICAL TOOLS USED

Statistical methods used to analyse the data and draw conclusions are depicted below:

3.10.1. Mean

The respondents were grouped based on mean values of independent and dependent variables. After grouping of the respondents, their percentages were worked out.

3.10.2. Percentage analysis

After grouping the agripreneurs into various categories, percentage analysis was used for simple and meaningful interpretation of data. It is calculated by multiplying the frequency with hundred and further dividing it with the total number of respondents.

3.10.3. Standard deviation

Standard deviation is used to quantify the amount of dispersion of a data set. It is the positive square of the squared deviations taken from the arithmetic mean.

3.10.4. Correlation analysis

Correlation analysis is a statistical technique used to find out the degree of relationship between the variables. In this study, it was used to illustrate the relationship between the dependent and independent variables.

3.10.5. Weighted mean

Weighted mean refers to the type of mean that is calculated by multiplying the weight associated with a particular event and then summing all the products together. In this study, weighted mean was used to enlist the performance indicators of agripreneurs in the AFPs.

3.10.6. Principal Component Analysis

Principal Component Analysis was conducted to find out the contributing factors of entrepreneurial behaviour.

3.11. HYPOTHESIS SET UP FOR THE STUDY

A research hypothesis refers to the statement created by researchers when they speculate upon the outcome of the experiment. It must be testable and realistic. A hypothesis must be verifiable to allow a verification or falsification. In this study the hypothesis set and established were:

1. Entrepreneurial behaviour of agripreneurs in AFPs are low.
2. There exists no significant relationship between independent variables and the entrepreneurial behaviour.
3. There exists no linkage with the stakeholders in AFPs.
4. There are no constraints faced by the AFPs and its members.

Results and Discussions

CHAPTER IV

RESULTS AND DISCUSSION

This chapter highlights the findings of the study in tune with the objectives. They are categorized under the following heads.

4.1. Inventorisation of AFPs in the state of Kerala.

4.2. Distribution of respondents based on profile characteristics.

4.3. Entrepreneurial behaviour of agripreneurs.

4.4. Correlation of Entrepreneurial behaviour with independent variables.

4.5. Performance analysis of AFPs.

4.6. Structure of AFPs.

4.7. Functions of AFPs.

4.8. Stakeholder Linkage Analysis of AFPs.

4.9. Constraints experienced by agripreneurs in AFPs.

4.10. Constraints as perceived by AFP officials in rendering services.

4.11. Suggestions as perceived by AFP officials.

4.12. Validation of hypothesis.

4.1. INVENTORISATION OF AGRO FOOD PARKS IN KERALA

An Agro Food Park (AFP) refers to an agri-business park allocated for agriculture and allied food companies that provide common infrastructure facilities such as laboratories for testing and quality control, cold storages, warehouses and supplementary pollution control facilities. The list of Agro Food Parks, both functional and non- functional in the state of Kerala are presented in Table 2.

Table 2. Inventorisation of Agro Food Parks in Kerala

Sl. No	Name of Food Park	Functional year	Promoters
1.	Food Park Kakkancherry,Malappuram	2003	KINFRA
2.	Seafood park Aroor, Alappuzha	2004	MPEDA, KINFRA and Seafood Exporters
3.	Food Park Nellad, Ernakulam	2005	KINFRA
4.	Spices Park Puttady, Idukki	2011	Spices Board
5.	Food Park Adoor, Pathanamthitta	2011	KINFRA
6.	Food Park Kalpetta, Wayanad	2014	KINFRA
Non- functional (Under implementation)			
7.	Mega Food Park Cherthala, Alappuzha	2020 (tentative)	KSIDC
8.	Mega Food Park Elapully, Palakkad	2020 (tentative)	KINFRA

4.2. DISTRIBUTION OF RESPONDENTS BASED ON PROFILE CHARACTERISTICS

The distribution of agripreneurs based on the independent variables selected through judges rating are presented below.

4.2.1. Age

Age was operationalised as the actual age completed in years by the respondent at the time of investigation. Table 3 depicts the distribution of agripreneurs based on their age.

Table 3. Distribution of agripreneurs based on their age

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Young (< 35 years)	1	5	4	20	3	15	5	25	13	16.25
Middle aged (35-55 years)	14	70	12	60	10	50	11	55	47	58.75
Old aged (> 55 years)	5	25	4	20	7	35	4	20	20	25
Mean = 46.61 SD = 11.21							Range: 26-71			

On analysis of Table 3 it was evident that 58.75 per cent of the agripreneurs surveyed belonged to the middle age category, followed by agripreneurs in old age (25.00%) and young age (16.25%).

On screening the AFP wise distribution of respondents based on age, it was observed that in all the AFPs more than 50 per cent of agripreneurs belonged to the middle age category. Of this, highest per cent was observed in Idukki (70.00%), followed by Alappuzha (60.00%), Malappuram (55.00%) and Ernakulam (50.00%).

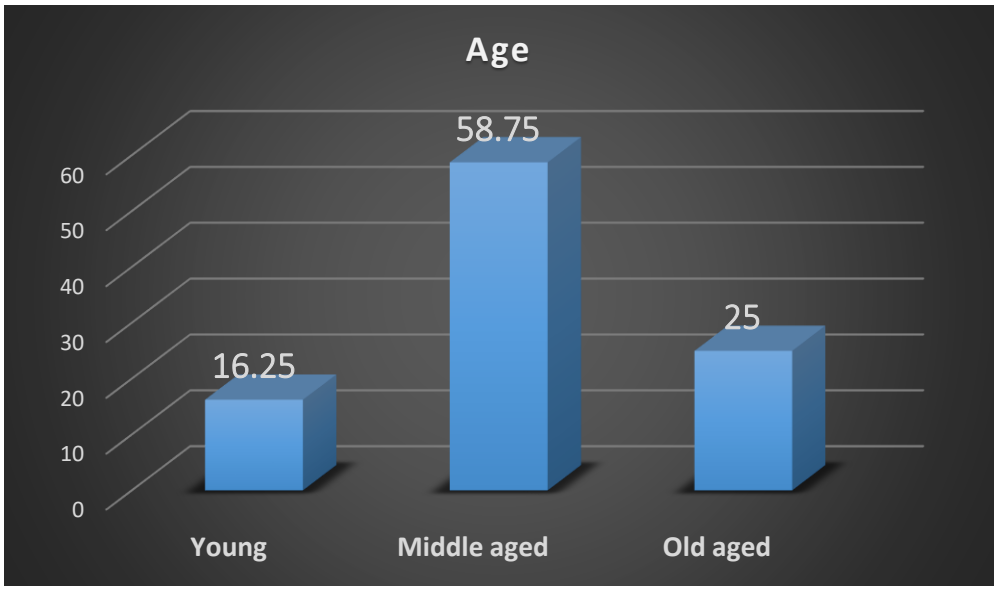


Fig 3. Distribution of agripreneurs based on age

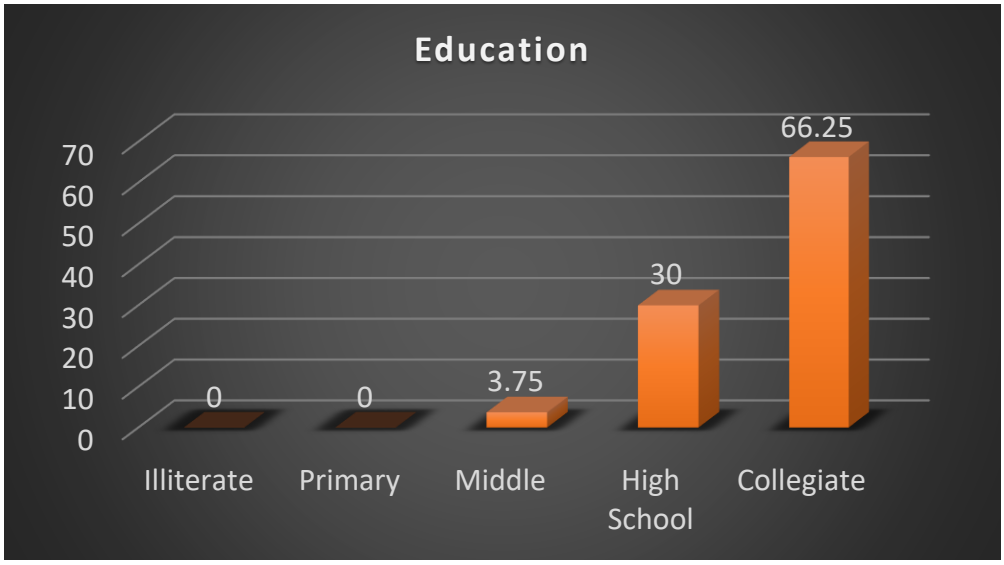


Fig 4. Distribution of agripreneurs based on education

Respondents belonging to the young age category were very less in all the four AFPs with 5, 20, 15 and 25 per cent respectively in Idukki, Alappuzha, Ernakulam and Malappuram. Hence it was concluded that the majority of the agripreneurs in AFPs belonged to the category of middle age, followed by old age and only less than 20 per cent of respondents were young agripreneurs.

The underlying reason for this might be attributed to the passion of youth towards white collar jobs and their perception that agro based enterprises are risk intensive and non-profitable in nature. While the middle age agripreneurs can effectively take up self-employment by virtue of their experience. The results obtained are in agreement with Sandhya (2014) and Sindhu (2015).

4.2.2. Education

Education refers to the level of formal education attained by the respondent at the time of interview. The respondents were grouped into different categories based on their level of education like illiterate, primary, middle, high school and collegiate. Table 4 depicts the distribution of agripreneurs based on their education.

Table 4. Distribution of agripreneurs based on their education

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Illiterate	0	0	0	0	0	0	0	0	0	0
Primary	0	0	0	0	0	0	0	0	0	0
Middle	2	10	0	0	1	5	0	0	3	3.75
High School	12	60	4	20	5	25	3	15	24	30
Collegiate	6	30	16	80	14	70	17	85	53	66.25
Mean = 12.49 SD = 1.81							Range: 6-14			

On analysis of Table 4, it was inferred that all the respondents were literate with educational qualification ranging from middle school to collegiate level. Among the

agripreneurs surveyed, 66.25 per cent had education at collegiate level, followed by high school and middle school with 30.00 and 3.75 per cent respectively.

The AFP wise distribution of respondents based on education also reflected this finding. Majority of the agripreneurs had a collegiate level of education with 80.00, 70.00 and 85.00 per cent in Alappuzha, Ernakulam and Malappuram, respectively whereas in Idukki, 60.00 per cent of the respondents belonged to high school level. Both in Alappuzha and Malappuram, all the respondents had education of high school level and above.

Hence, it can be concluded that 96.25 per cent of the agripreneurs had educational qualification from high school to collegiate level. The high educational qualification of the respondents might be attributed to the high literacy rate and the well-established educational system in the state of Kerala. These findings are in accordance with Nagalakshmi and Sudhakar (2013) and Reddy (2019).

4.2.3. Experience

Experience refers to the number of years the respondent has been engaged in agripreneurial activity within the AFP. Table 5 illustrates the distribution of agripreneurs based on their experience.

Table 5. Distribution of agripreneurs based on their experience

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	2	10	1	5	2	10	4	20	9	11.25
Medium	18	90	15	75	14	70	11	55	58	72.50
High	0	0	4	20	4	20	5	25	13	16.25
Mean = 5.51 SD = 3.60							Range: 1-16			

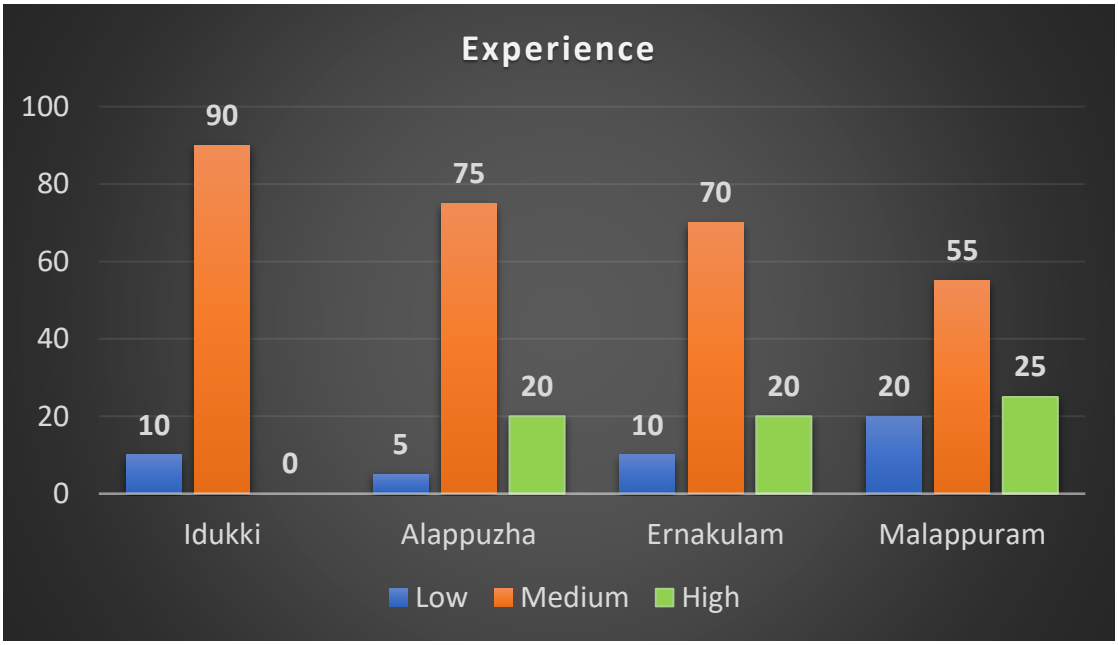


Fig 5. Distribution of agripreneurs based on experience

A perusal of Table 5 showed that the majority (72.50%) of the respondents had medium level of experience in agripreneurial activity, followed by high and low level of experience with 16.25 and 11.25 per cent, respectively.

Analysing AFP wise distribution of respondents, it was concluded that in all the four AFPs majority of the agripreneurs had medium experience. While considering the high experience category, it was observed that more than 20.00 per cent of respondents belonged to this, except in Idukki where none of the respondents belonged to the high experience category.

Therefore it can be concluded that 72.50 per cent of agripreneurs have medium level of agripreneurial experience. This might be because most of the AFPs chosen for study have been established after 2003. Most of the respondents have experience up to 6 years, which indicate that new ventures are being established in AFPs as a result of inspiration drawn from the success of already existing units.

These findings are in accordance with Usha (2012) and Reddy (2019).

4.2.4. Cosmopoliteness

Cosmopoliteness refers to the extent to which the respondent is oriented to the immediate outside social system (Choudhari *et. al.*, 2007). The distribution of agripreneurs based on their cosmopoliteness is projected in Table 6.

Table 6. Distribution of agripreneurs based on their cosmopoliteness

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	3	15	0	0	6	30	2	10	11	13.75
Medium	14	70	16	80	11	55	15	75	56	70
High	3	15	4	20	3	15	3	15	13	16.25
Mean = 9.20 SD = 2.24							Range: 2-13			

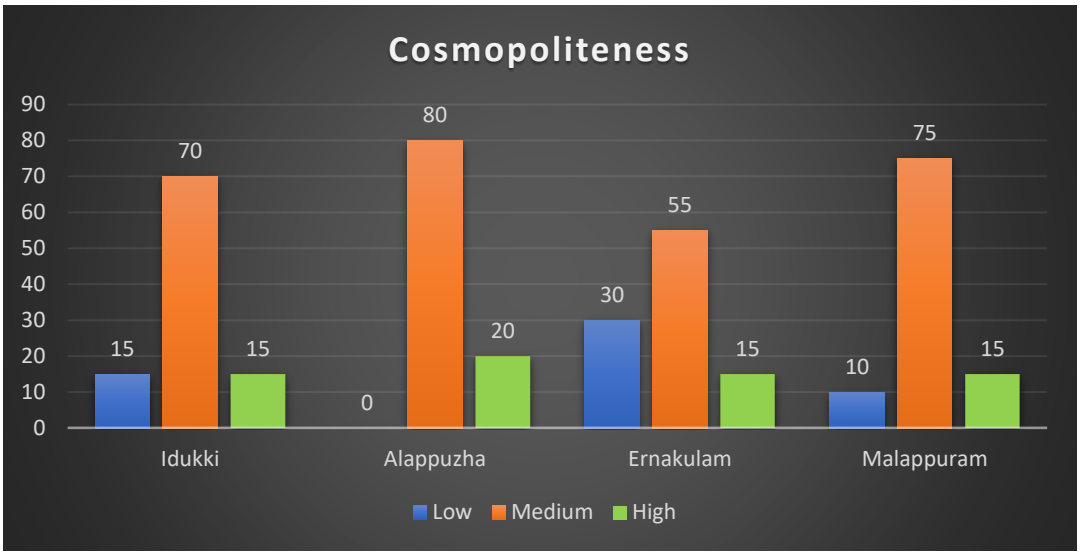


Fig 6. Distribution of agripreneurs based on cosmopoliteness

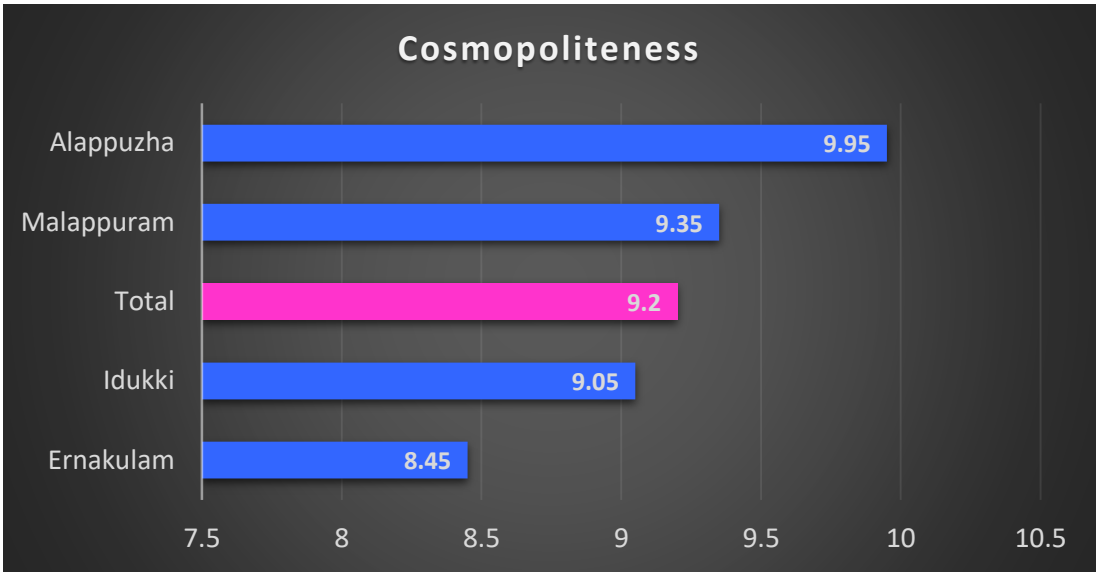


Fig 7. Distribution of AFPs based on cosmopoliteness

From Table 6 it was evident that seventy per cent of the agripreneurs had medium level of cosmopoliteness, followed by high and low level of cosmopoliteness with 16.25 and 13.75 per cent, respectively.

The AFP wise distribution of respondents also reflected similar results with 70.00, 80.00, 55.00 and 75.00 per cent of agripreneurs in Idukki, Alappuzha, Ernakulam and Malappuram, respectively being medium cosmopolite. The perusal of data shows that all the agripreneurs in Alappuzha are medium to high cosmopolite whereas in Ernakulam 30.00 per cent of agripreneurs are less cosmopolite in nature.

Hence, it can be inferred that majority (86.25 %) of the agripreneurs have medium to high level of cosmopoliteness. This can be attributed to the fact that most of the respondents have high level of education. Moreover, the AFPs play a major role in improving their contact outside the social system. The results are in line with findings of Chaudhari (2006), Patil (2011) and Imam (2013).

4.2.5. Market perception

Market perception was operationalised as the capability of the agripreneur to analyse trends in market and obtain greater returns by selling the produce (Nair, 1969). The distribution of agripreneurs based on market perception is presented in Table 7.

Table 7. Distribution of agripreneurs based on their market perception

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	7	35	3	15	5	25	3	15	18	22.5
Medium	11	55	8	40	12	60	9	45	40	50
High	2	10	9	45	3	15	8	40	22	27.5
Mean = 6.59 SD = 1.35							Range: 4-9			

It was summarised from Table 7 that majority (50.00%) of the agripreneurs had medium level of market perception, followed by high and low levels of market perception with 27.50 and 22.50 per cent, respectively.

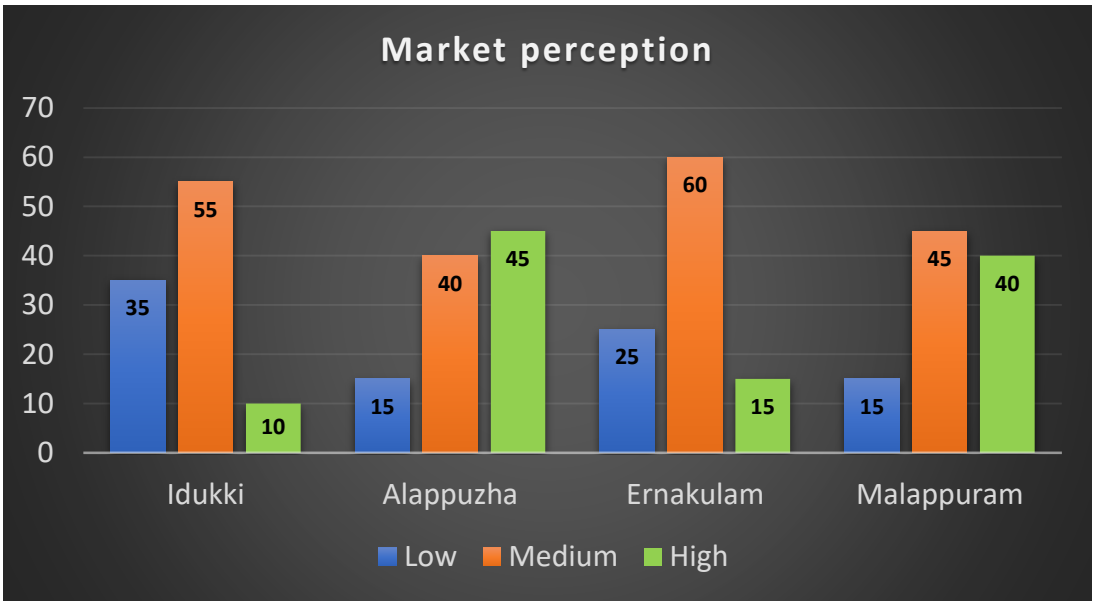


Fig 8. Distribution of agripreneurs based on market perception

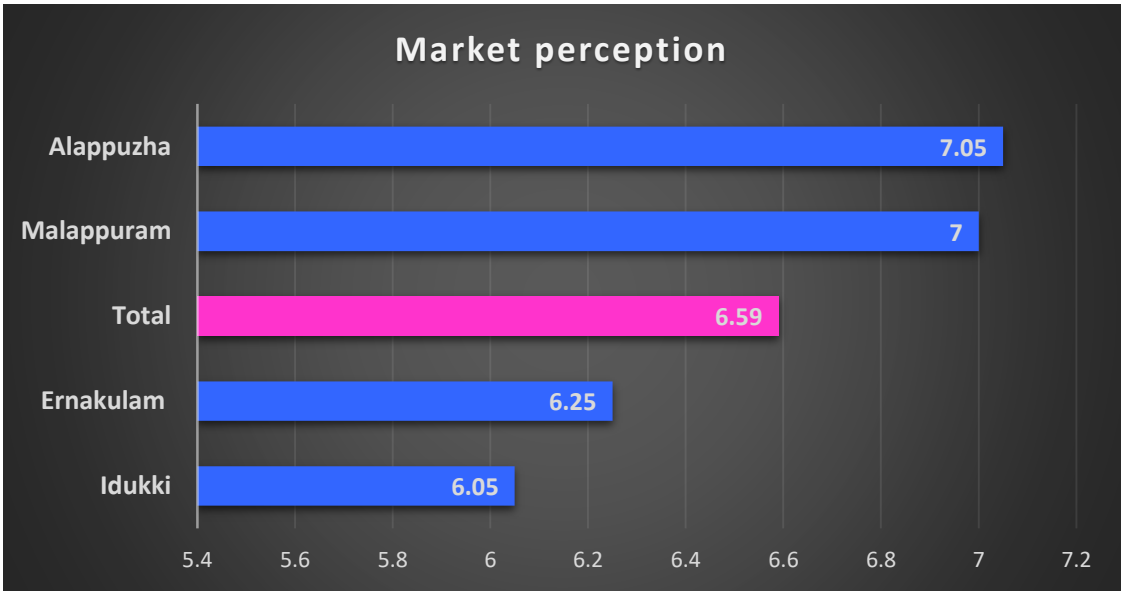


Fig 9. Distribution of AFPs based on market perception

The AFP wise distribution also reflected similar results except in Alappuzha where agripreneurs with high market perception (45.00%) was recorded more than medium (40.00%) and low (15.00%) levels of market perception. This might be due to the fact that all the agripreneurs in Alappuzha are seafood exporters which make them more market oriented than others.

Hence it can be concluded that most of the agripreneurs have medium to high level of market perception. This can be attributed to the fact that most of the agripreneurs in AFPs are associated with exporting of commodities and market led activities. Also it might be due to growing availability of market information with advances in communication and information technology. This results support the findings of Elakkia (2007) and Anupama (2014).

4.2.6. Problem solving ability

Problem solving ability was operationally defined as the ability of an agripreneur to identify and analyse the problem, find the probable solutions, select the best alternative and implement it (Sundharan, 2016). The distribution of agripreneurs based on their problem solving ability is presented in Table 8.

Table 8. Distribution of agripreneurs based on their problem solving ability

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	6	30	6	30	2	10	2	10	16	20
Medium	12	60	11	55	15	75	13	65	51	63.75
High	2	10	3	15	3	15	5	25	13	16.25
Mean = 30.73 SD = 2.62							Range: 24-36			

A perusal of Table 8 revealed that the majority (63.75%) of the agripreneurs had medium problem solving abilities, followed by low and high problem solving abilities with 20.00 and 16.25 per cent, respectively.

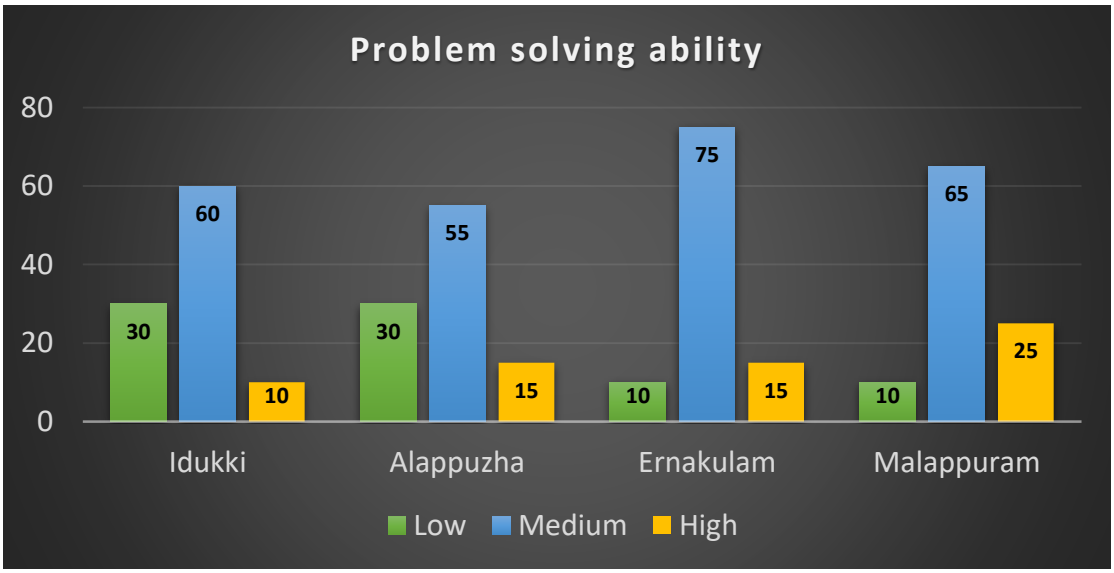


Fig 10. Distribution of agripreneurs based on problem solving ability

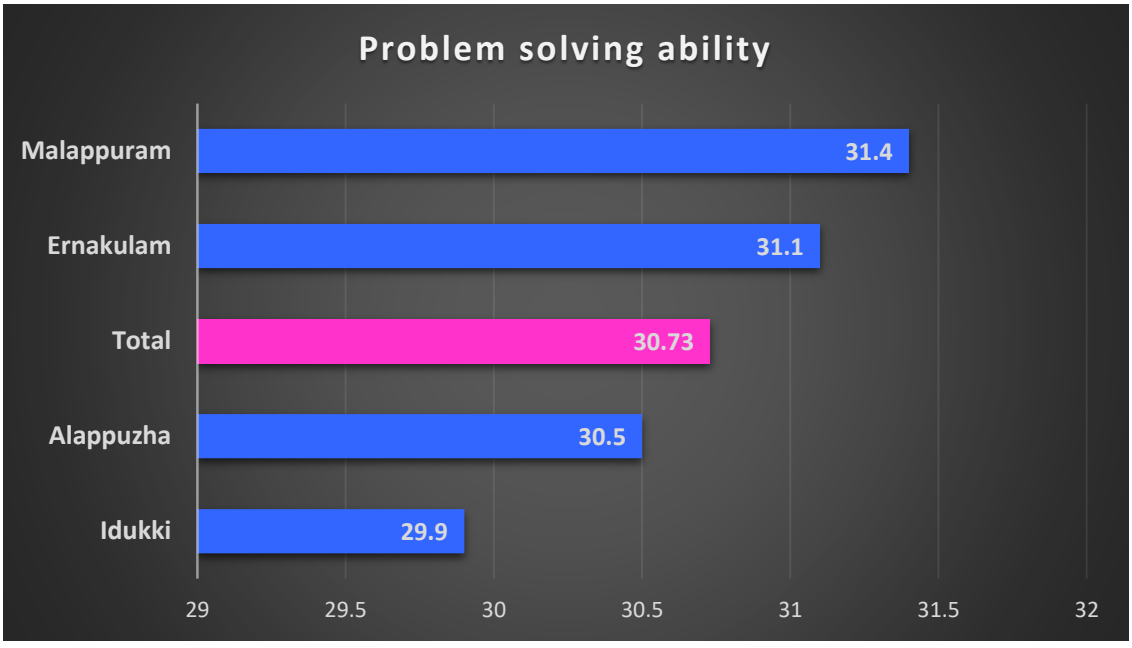


Fig 11. Distribution of AFPs based on problem solving ability

On screening the AFP wise distribution of respondents based on problem solving abilities, it was observed that in all the AFPs more than 50.00 per cent of agripreneurs had medium problem solving abilities. Of this, the highest per cent was observed in Ernakulam (75.00%), followed by Malappuram (65.00%), Idukki (60.00%) and Alappuzha (55.00%).

Hence it can be inferred that most of the respondents had medium level of problem solving abilities which might be due to their dependence on the officials of AFPs and other external agencies to solve their issues. The result reflects the findings of Sundharan (2016) and Raj (2018).

4.2.7. Management orientation

Management orientation refers to the orientation of the respondent towards scientific management of the enterprise measured in terms of planning orientation, production orientation and market orientation (Samantha, 1977). The distribution of agripreneurs based on their management orientation is illustrated in Table 9.

Table 9. Mean value of agripreneurs based on their management orientation

Category	Idukki (n=20)	Alappuzha (n=20)	Ernakulam (n=20)	Malappuram (n=20)	Total
Planning orientation	4.7	5.15	5.15	5.2	5.05
Production orientation	3.8	4.15	3.9	3.9	3.94
Marketing orientation	5.5	5.25	5.75	5.35	5.46

Table 10. Distribution of agripreneurs based on their management orientation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	6	30	3	30	2	10	2	10	16	20
Medium	11	60	10	55	13	75	15	65	51	63.75
High	3	10	7	15	5	15	3	25	13	16.25
Mean = 14.46 SD = 2.20							Range: 8-18			

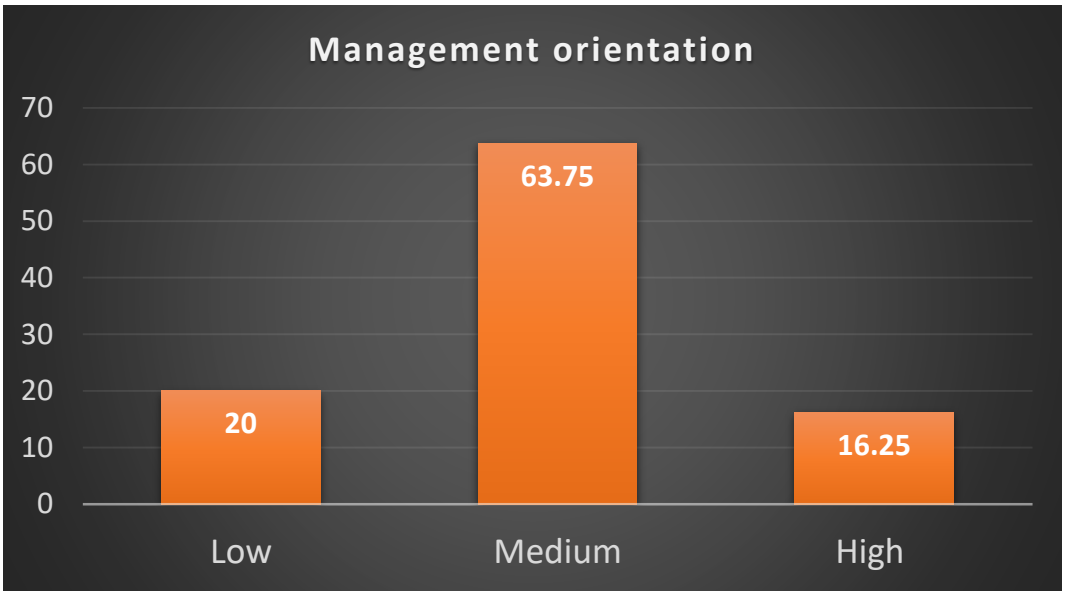


Fig 12. Distribution of agripreneurs based on management orientation

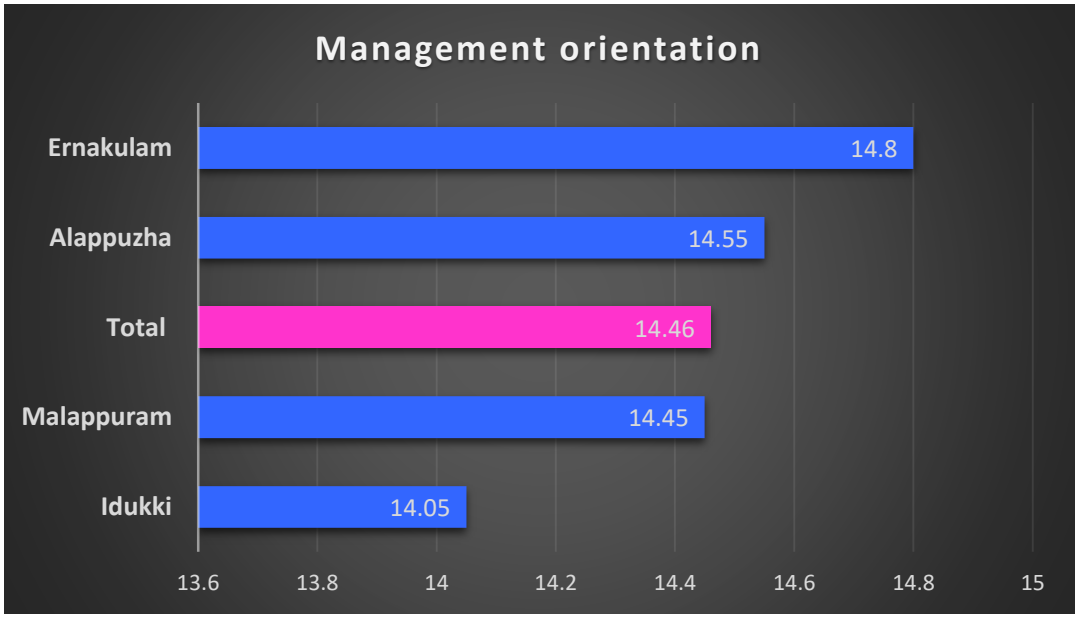


Fig 13. Distribution of AFPs based on management orientation

A cursory look at Table 9 and 10 revealed that the majority (63.75%) of the agripreneurs had medium management orientation, followed by low (20.00%) and high (16.25%) management orientation.

On screening the sub components of management orientation, marketing orientation was found to be highest, followed by planning orientation whereas production orientation was least among the respondents. This might be due to the reason that almost all the respondents are involved in exporting their produce, and hence are highly market driven.

Hence it can be concluded that most of the agripreneurs have medium management orientation, irrespective of the AFP. The probable reason for management orientation might be their medium extension contact and cosmopoliteness. Exposure of agripreneurs to various professional situations like seminars, trainings etc. might have contributed to develop their medium management orientation. The findings are in accordance with the studies of Kacharu (2013) and Sofeghar (2017).

4.2.8. Extension orientation

Extension orientation was operationally defined as the degree to which the respondent contacted different extension agents and also the extent of participation in various extension activities organised by these agencies (Bhaskaran, 1979). It was obtained by summing up the scores obtained of extension contact and extension participation. The distribution of agripreneurs based on their extension orientation is illustrated in Table 11, 12 and 13.

Table 11. Percentage distribution of respondents based on extension contact

Category	Idukki(n=20)				Alappuzha(n=20)				Ernakulam(n=20)				Malappuram(n=20)				Total			
	VO	O	OC	N	VO	O	OC	N	VO	O	OC	N	VO	O	OC	N	VO	O	OC	N
Agricultural Officer	5	40	50	5	0	15	55	30	0	25	55	20	0	5	40	55	1.25	21.25	50	27.5
Scientists at KAU and ICAR	25	30	45	0	20	50	30	0	20	10	45	25	0	15	50	35	16.25	26.25	42.5	15
Personnel of other institutions/ commodity boards	55	25	10	10	45	40	10	5	50	35	15	0	35	45	20	0	46.25	36.25	13.75	3.75
Friends and neighbours	10	40	45	5	15	60	20	5	5	45	45	5	10	50	40	0	10	48.75	37.5	3.75
Progressive entrepreneurs	10	25	25	40	45	15	25	15	40	55	5	0	20	60	15	5	28.75	38.75	17.5	15

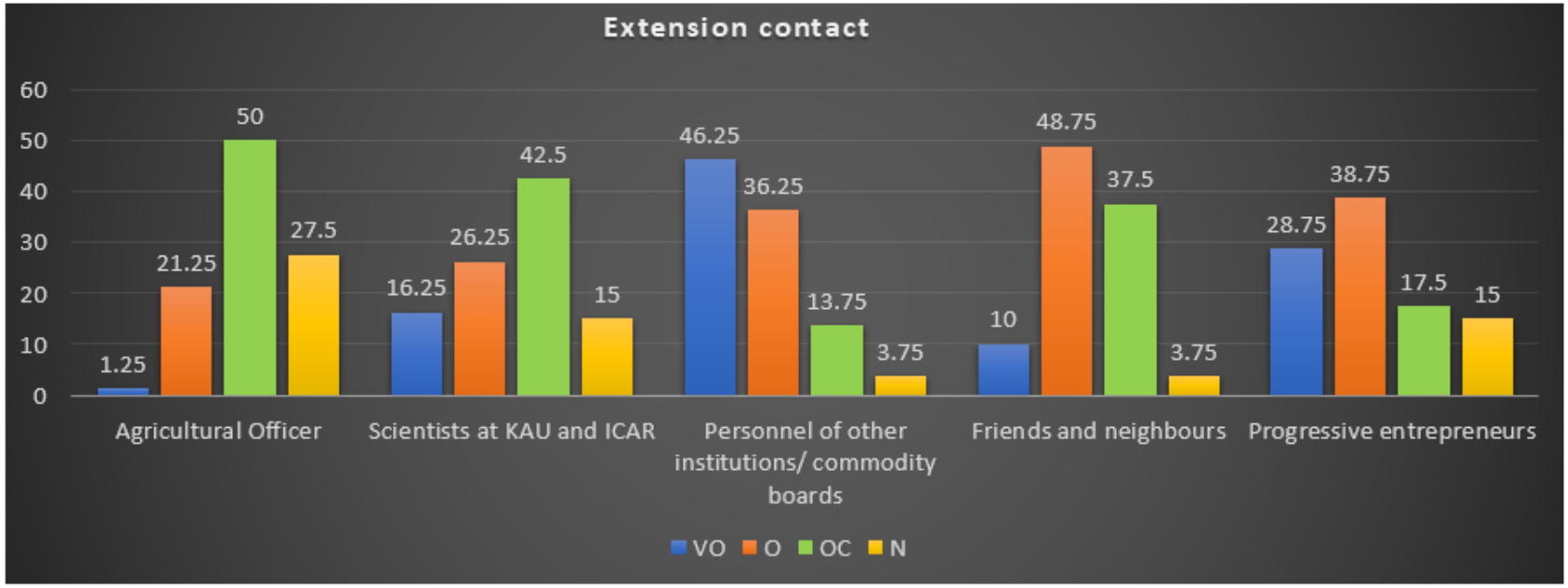


Fig 14. Distribution of agripreneurs based on extension contact

i. Extension contact

On analysing Table 11, it was inferred that 46.25 per cent of the respondents stated that they contacted personnel of AFPs and other commodity boards ' very often', followed by progressive entrepreneurs (28.75%), scientists at KAU and other ICAR institutions (16.25%), friends and neighbours (10 %) and finally agricultural officers (1.25%).

On checking the total results, it was observed that 82.50 per cent of respondents had either 'very often' or 'often' contact with the personnel of AFPs and other commodity boards, 67.50 per cent with progressive entrepreneurs and 58.75 per cent with their friends and neighbours. Only 22.50 per cent of the agripreneurs had contact with the agricultural officers which were the least contacted group.

From AFP wise results it was observed that in Idukki 80.00 per cent of the respondents had 'often' contact with personnel of AFPs and other commodity boards. This might be because the AFP in Idukki is promoted by the Spices Board. Also 55.00 per cent of the agripreneurs in Idukki had 'often' contact with scientists at KAU and other ICAR institutions which can be attributed to the proximity of Cardamom Research Station, Pampadumpara.

ii. Extension participation

On a cursory look at Table 14, it was inferred that about 72.50 per cent of the agripreneurs participated in meetings 'whenever conducted' whereas 45.00 per cent participated in fairs and exhibitions. Analysing AFP wise distribution, it can be observed that in Idukki all the respondents participated in seminars either 'whenever conducted' or 'sometimes' mainly because the seminars are conducted within the AFP by the Spices Board and hence it is easy for them to attend.

Looking into the overall result it was summarised that meeting is the event in which about 100.00 per cent of the respondents participated either 'whenever - conducted' or 'sometimes', followed by 93.75 in fairs or exhibitions, 63.75 per cent in seminars and 35.00 per cent in study tours.

Table 12. Percentage distribution of respondents based on extension participation

Category	Idukki (n=20)			Alappuzha (n=20)			Ernakulam (n=20)			Malappuram (n=20)			Total		
	WC	S	N	WC	S	N	WC	S	N	WC	S	N	WC	S	N
Seminars	15	85	0	25	50	25	0	35	65	5	40	55	11.25	52.5	36.25
Fairs/ Exhibitions	20	75	5	35	60	5	50	40	10	75	20	5	45	48.75	6.25
Meetings	35	65	0	90	10	0	80	20	0	85	15	0	72.5	27.5	0
Schemes	0	5	95	5	45	50	5	20	75	0	15	85	2.5	21.25	76.25
Study tours	0	70	30	0	45	55	0	15	85	0	10	90	0	35	65

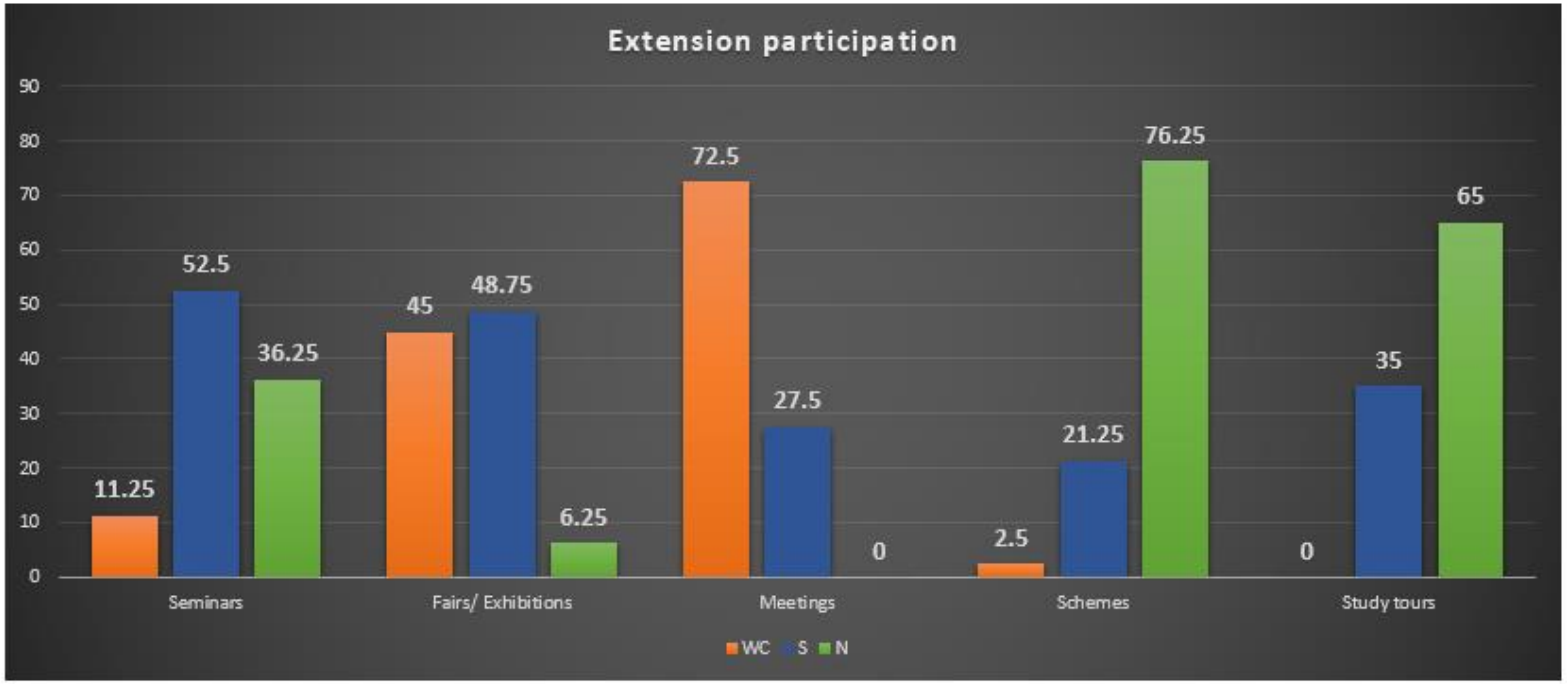


Fig 15. Distribution of agripreneurs based on extension participation

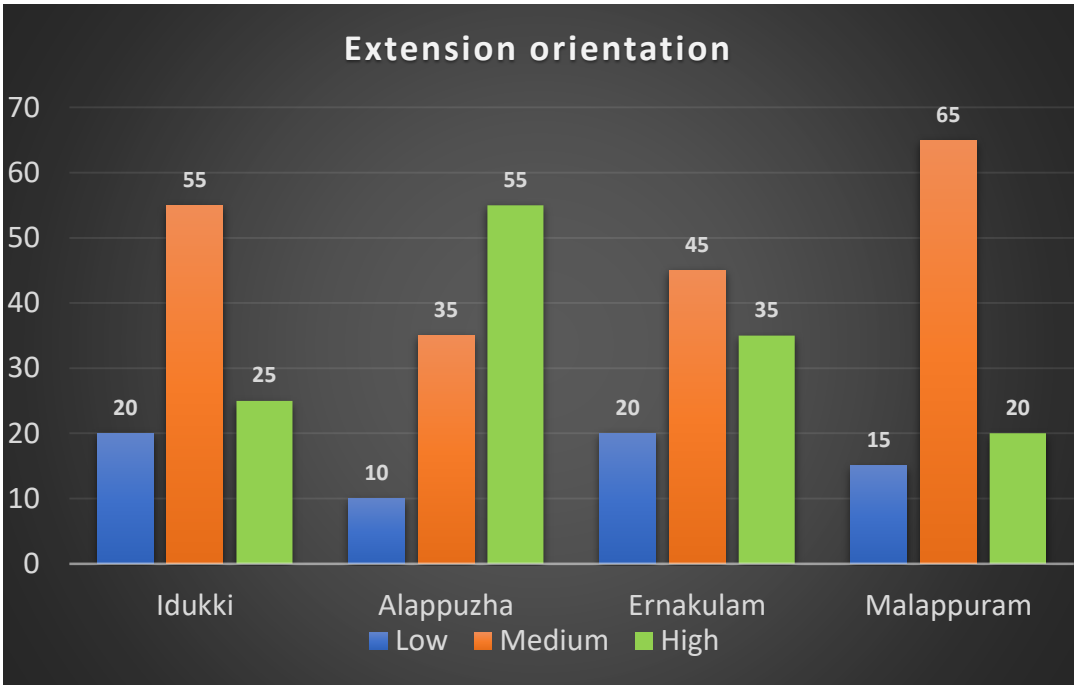


Fig 16. Distribution of agripreneurs based on extension orientation

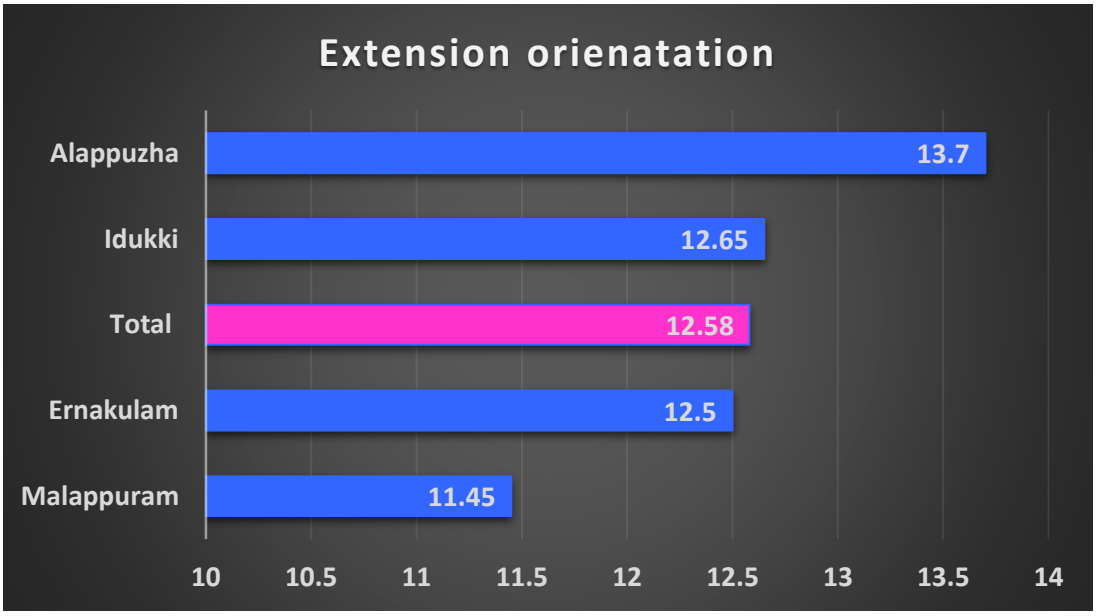


Fig 17. Distribution of AFPs based on extension orientation

Extension orientation

Table 13. Distribution of agripreneurs based on their extension orientation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	4	20	2	10	4	20	3	15	13	16.25
Medium	14	70	13	65	13	65	16	80	56	70
High	2	10	5	25	3	15	1	5	11	13.75
Mean = 12.58 SD = 3.78							Range: 5-20			

On summarising the extension orientation of the respondents from Table 13, about 70.00 per cent of the agripreneurs had medium extension orientation, followed by low (16.25%) and high (13.75%) extension orientation, respectively.

On screening AFP wise distribution of respondents, similar results was noticed. In all the AFPs more than 65.00 per cent of the respondents had medium extension orientation which may be attributed to their medium level of cosmopoliteness. The results are in line with the findings of Basheer (2016).

4.2.9. Credit orientation

Credit orientation was operationalized as the favourable attitude of the respondent towards institutional financial sources for obtaining credit. The distribution of agripreneurs based on their credit orientation is presented in Table 14.

Table 14. Distribution of agripreneurs based on their credit orientation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	6	30	1	5	2	10	1	5	10	12.50
Medium	9	45	14	70	15	75	12	60	50	62.50
High	5	25	5	25	3	15	7	35	20	25.00
Mean = 13.4 SD = 1.55							Range: 9-16			

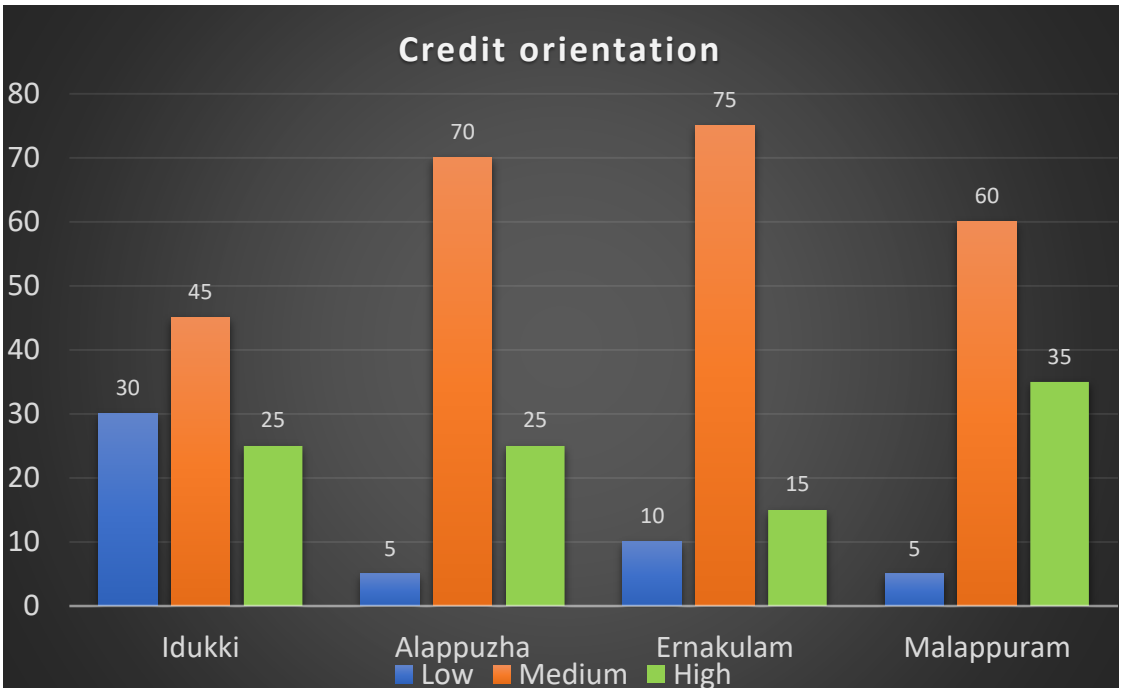


Fig 18. Distribution of agripreneurs based on credit orientation

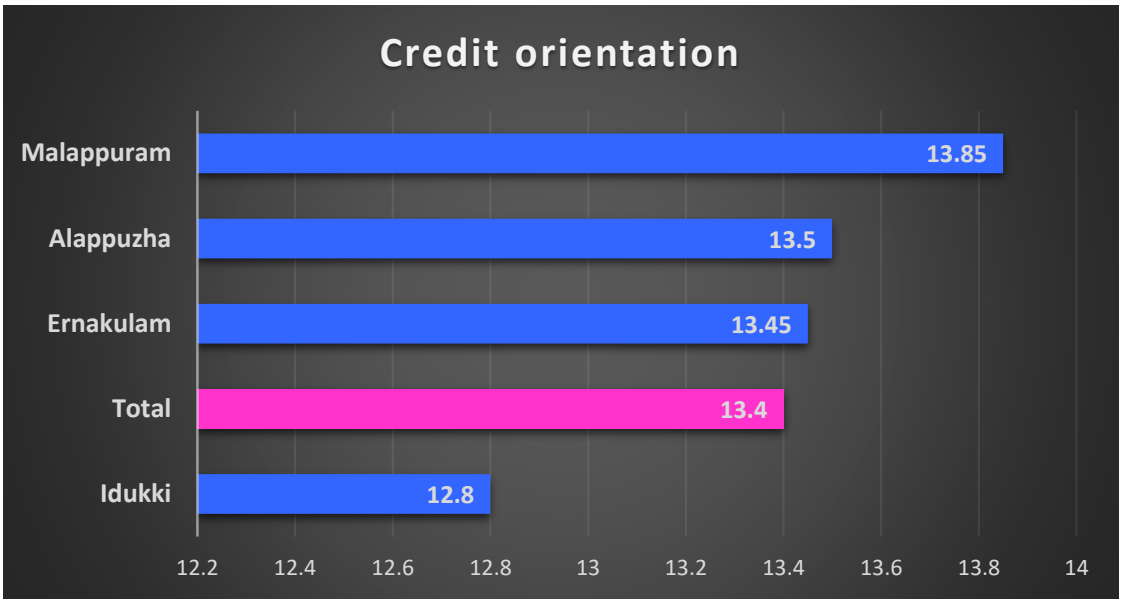


Fig 19. Distribution of AFPs based on credit orientation

A perusal of Table 14 indicated that the majority (62.50%) of the agripreneurs had medium level of credit orientation, followed by high (25.00%) and low (12.50%) credit orientation.

On screening the AFP wise distribution of respondents based on credit orientation, it was observed that in all the AFPs more than 45.00 per cent of agripreneurs had medium credit orientation. Whereas in case of low credit orientation only less than 10.00 per cent of the respondents in all AFPs belonged to this category, except in Idukki where 30.00 per cent of the agripreneurs had low credit orientation.

Hence it can be summarised that majority of the agripreneurs had medium to high level of credit orientation. This might be due to the fact that financial institutions are more willing to provide services to those enterprises located within the AFPs and therefore the agripreneurs of AFPs have more access to the institutional sources of finance.

The results are in confirmation with that of Gowa (2014) and Raj (2018).

4.2.10. Environmental orientation

Environmental orientation is the degree to which the respondent has concern for his environment. The distribution of agripreneurs based on their environmental orientation is projected in Table 15.

Table 15. Distribution of agripreneurs based on their environmental orientation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low (< mean)	7	35	4	20	4	20	2	10	17	21.25
High (> mean)	13	65	16	80	16	80	18	90	63	78.75
Mean = 3.76 SD = 0.45							Range: 2-4			

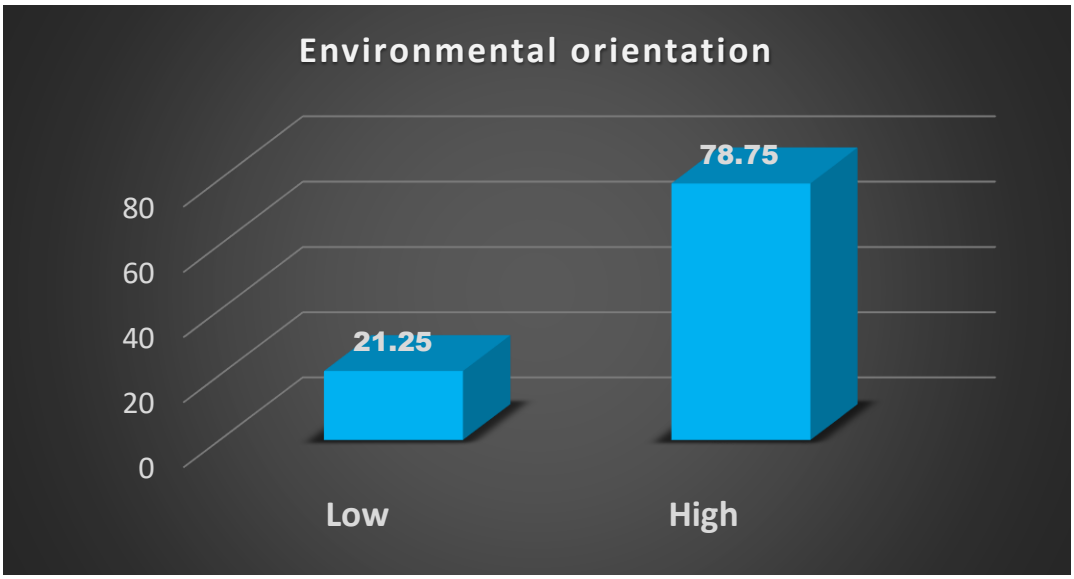


Fig 20. Distribution of agripreneurs based on environmental orientation

A cursory look at Table 15 revealed that the majority (78.75%) of the respondents belonged to high level of environmental orientation, whereas 21.25 per cent of agripreneurs had low environmental orientation.

The AFP wise distribution of respondents also reflected similar results with 65.00, 80.00, 80.00 and 90.00 per cent agripreneurs in Idukki, Alappuzha, Ernakulam and Malappuram, respectively belonging to the high environmental orientation category.

Hence, it can be inferred that most of the agripreneurs had high environmental orientation. This might be attributed to the environmental friendly attitude of the agripreneurs who established their enterprises in Food Parks because of its sustainable nature. Also proper waste disposal mechanisms and effluent treatment plants are functional in all the four AFPs which clearly indicates the high environmental concern of Food Parks and its members. The results are in confirmatory with the studies done by Loganathan (2002) Sasidharan (2015) and contrary to the findings of Raj (2018).

4.2.11. Economic motivation

Economic motivation was operationalised as the extent to which the respondent is oriented towards maximization of profit and the relative value he or she pays for monetary gains. The distribution of agripreneurs based on their economic motivation is illustrated in Table 16.

Table 16. Distribution of agripreneurs based on their economic motivation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	1	5	2	10	1	5	1	5	5	6.25
Medium	15	75	9	45	13	65	14	70	51	63.75
High	4	20	9	45	6	30	5	25	24	30
Mean = 3.93 SD = 0.95							Range: 2-6			

It can be inferred from Table 16 that majority (63.75%) of the agripreneurs had medium economic motivation, followed by high (30.00%) and low (6.25%) levels of

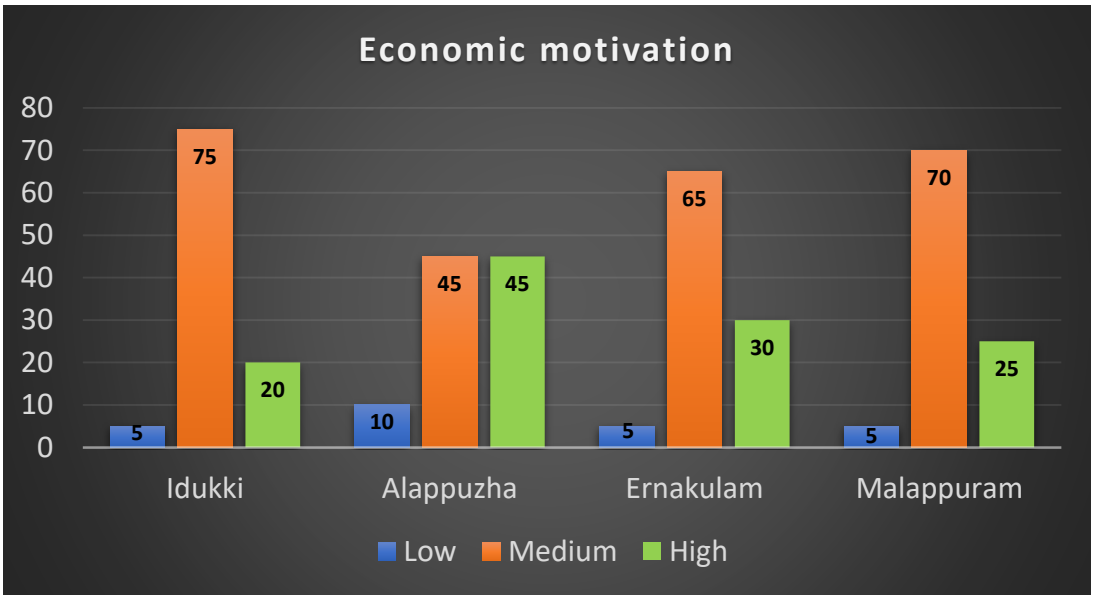


Fig 21. Distribution of agripreneurs based on economic motivation

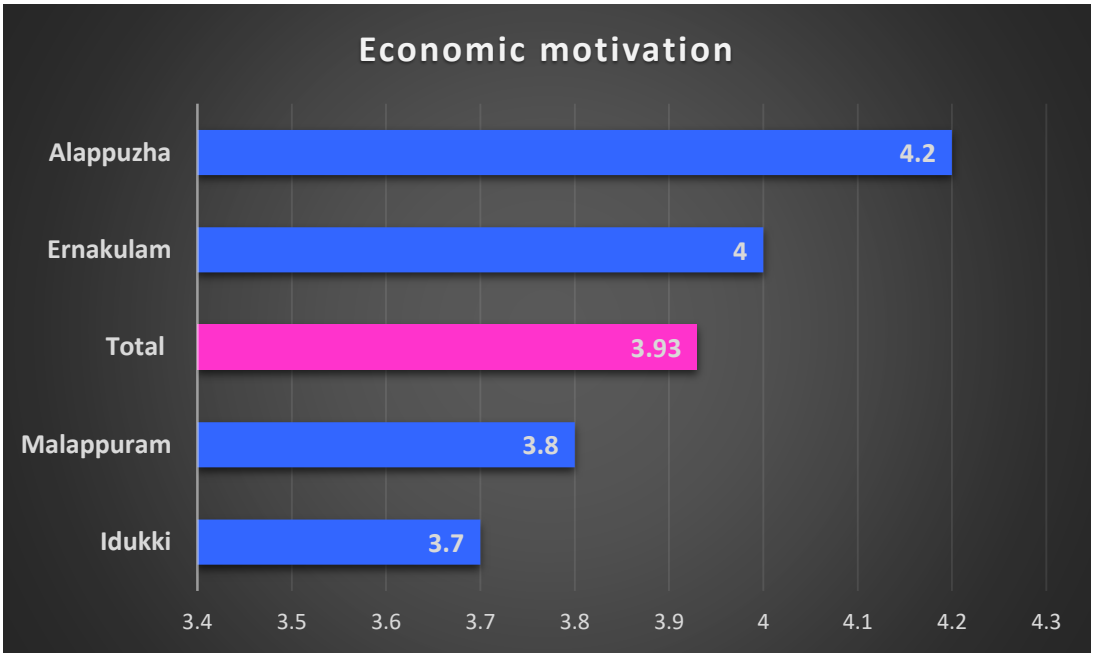


Fig 22. Distribution of AFPs based on economic motivation

economic motivation. The score of total respondents ranged between 2 and 6. It indicated that there were respondents who obtained a maximum score of six but no respondents with minimum score of zero.

The AFP wise distribution of respondents also reflected the total results where respondents with medium economic motivation were higher in number except in Alappuzha where equal number of respondents were present in both medium and high category.

Hence it can be summarised that 93.75 per cent of the agripreneurs have medium to high economic motivation. This might be due to the reason that majority of them are profit oriented and export their produce rather than selling it in the local markets .The results are in line with Gowa (2014)

4.2.12. Group cohesion

Group cohesion was operationalised as the extent of affiliation the members of the group have with each other and the degree of motivation they have to remain in the group (Chandran, 2015). The distribution of agripreneurs based on their group cohesion is presented in Table 17.

Table 17. Distribution of agripreneurs based on their group cohesion

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	2	10	2	10	2	10	3	15	9	11.25
Medium	17	85	11	55	17	85	12	60	57	71.25
High	1	5	7	35	1	5	5	25	14	17.5
Mean = 5.21 SD = 1.42							Range: 2-8			

It was evident from Table 17 that majority (71.25%) of the respondents have medium group cohesion, followed by high and low group cohesion with 17.50 and 11.25 per cent, respectively. The score of total respondents ranged between 2 and 8.

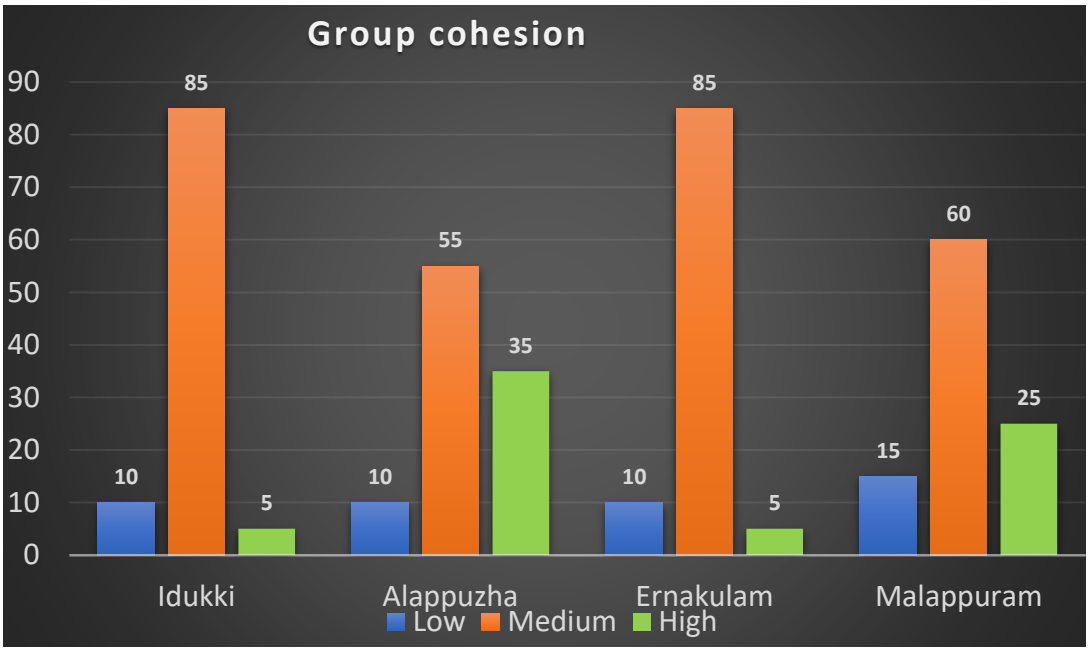


Fig 23. Distribution of agripreneurs based on group cohesion

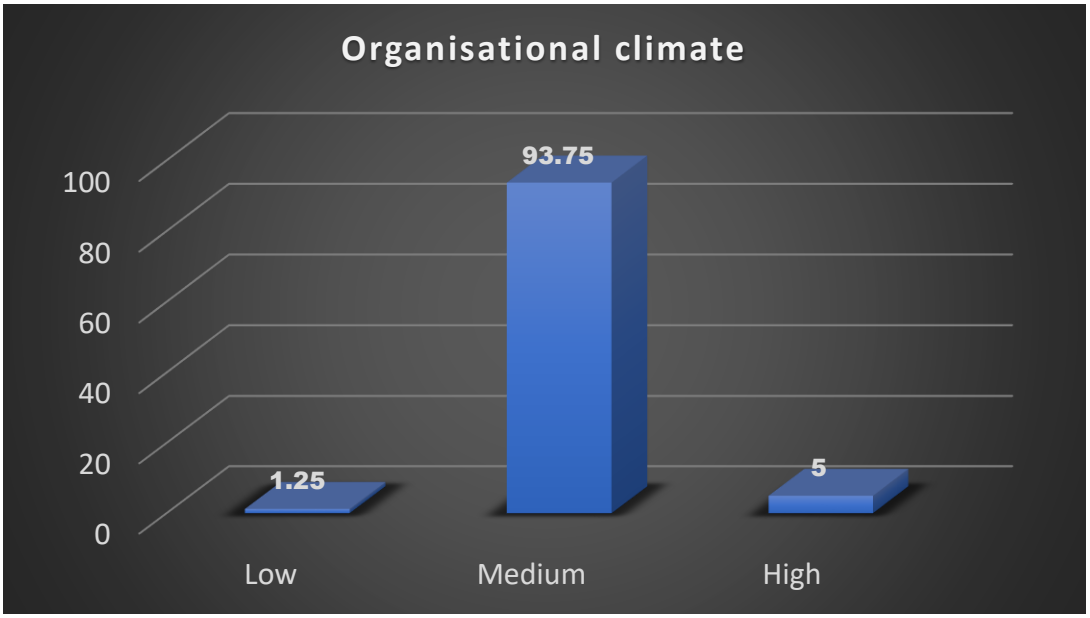


Fig 24. Distribution of agripreneurs based on organisational climate

On screening the AFP wise results, similar results can be observed with 85.00, 55.00, 85.00 and 60.00 per cent of respondents having medium group cohesion in Idukki, Alappuzha, Ernakulam and Malappuram, respectively.

Hence it can be inferred that majority (88.75%) of the respondents have medium to high level of group cohesion. This can be attributed to the group characteristics of AFPs, that is, all the agripreneurs within a food park are organised into a group. This supports the findings of Chandran (2015).

4.2.13 Organisational climate

Organisational climate was operationalized as the individual's perception towards the procedures, policies and practices of the food parks (Victor, 2018). The distribution of agripreneurs based on their organisational climate is illustrated in Table 18.

Table 18. Distribution of agripreneurs based on their organisational climate

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Poor (7-16)	0	0	0	0	1	5	0	0	1	1.25
Average (17-26)	19	95	18	90	19	95	19	95	75	93.75
Good (27-35)	1	5	2	10	0	0	1	5	4	5
Mean = 23.16 SD = 2.58							Range: 16-32			

A perusal of Table 18 revealed that majority (93.75%) of the respondents were having medium organisational climate, whereas 5.00 and 1.25 per cent of the respondents were having high and low organisational climate, respectively.

The AFP wise distribution of respondents reflected similar results. There were no respondents having a low organisational climate except in Ernakulam with 5.00 per cent. Whereas in case of high organisational climate Idukki, Alappuzha and

Malappuram had 5.00, 10.00 and 5.00 per cent of respondents, respectively. While no respondents had a high organisational climate in Ernakulam.

Hence it can be summarised that most of the agripreneurs had medium organisational climate. The results are on par with results of Vijaibabu (2005) and Victor (2018).

4.3. ENTREPRENEURIAL BEHAVIOUR OF AGRIPRENEURS

4.3.1. Analysis of components of entrepreneurial behaviour of agripreneurs

Entrepreneurial behaviour of agripreneurs in AFPs was operationally defined as cumulative outcome of ten attributes namely hope of success, persistence, use of feedback, risk taking, persuasibility, self-confidence, manageability, innovativeness, knowledgeability and achievement motivation.. Distribution of respondents based on their entrepreneurial attributes was done using mean and standard deviation. The results are presented below.

4.3.1.1. Risk taking

Risk taking refers to the degree to which the respondent is oriented towards risk and uncertainty and has the courage to face the problems associated with business enterprise (Kacharu, 2013). The distribution of agripreneurs based on their risk taking is presented in Table 19.

Table 19. Distribution of agripreneurs based on their risk taking

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	1	5	3	15	5	25	2	10	11	13.75
Medium	16	80	12	60	13	65	16	80	57	71.25
High	3	15	5	25	2	10	2	10	12	15
Mean=17.38 SD = 2.12					Range: 11-12					

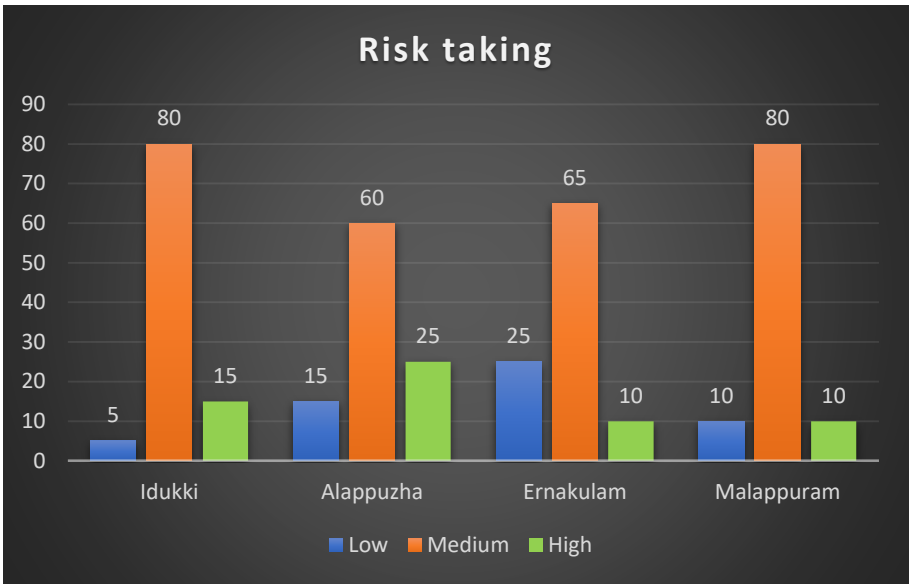


Fig 25. Distribution of agripreneurs based on risk taking

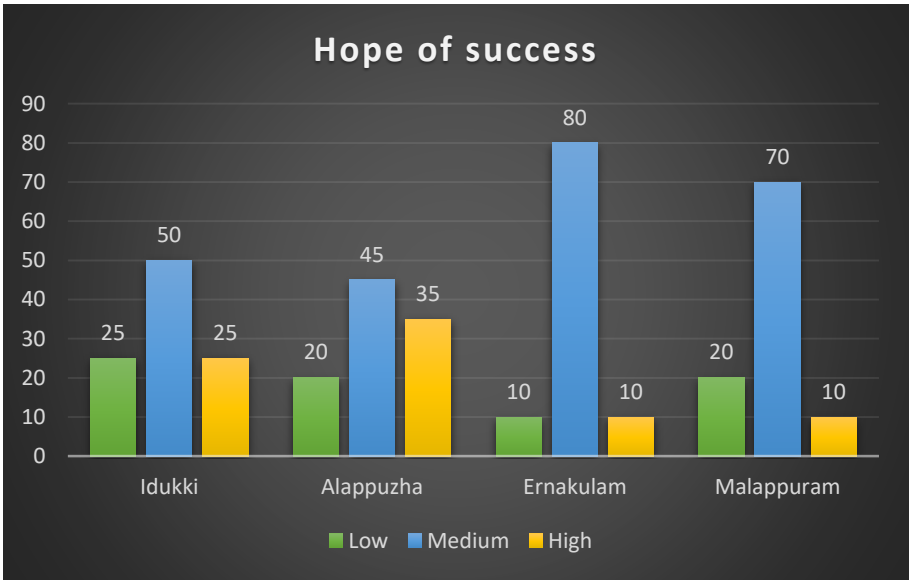


Fig 26. Distribution of agripreneurs based on hope of success

A perusal of Table 19 revealed that majority (71.25%) of the respondents belonged to medium category of risk taking, followed by high (15.00%) and low (13.75%) category of risk takers.

On screening the AFP wise distribution of respondents, similar results could be observed. The probable reason for medium, followed by high risk taking ability of the agripreneurs might be middle age, medium experience and high educational qualification. The results are in accordance with the findings of Kacharu (2013). The results are also in confirmation with Raj (2018) who reported that majority (72.50%) of the respondents belonged to medium category of risk taking.

4.3.1.2. Hope of success

Hope of success refers to the degree to which an individual believes that he can turn his problems and issues into opportunities (Raj, 2018). The distribution of agripreneurs based on their hope of success is presented in Table 20.

Table 20. Distribution of agripreneurs based on their hope of success

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	5	25	4	20	2	10	4	20	15	18.75
Medium	10	50	9	45	16	80	14	70	49	61.25
High	5	25	7	35	2	10	2	10	16	20
Mean=15.14 SD = 1.71					Range: 12-19					

From Table 20, it is evident that 61.25 per cent of the respondents had medium hope of success, whereas 20.00 and 18.75 per cent of the respondents belonged to high and low category, respectively.

Distribution of respondents based on AFPs also reflected similar results, except in Malappuram where 20.00 per cent of respondents belong to the low category and

only 10.00 per cent of the respondents have high hope of success. The findings are in line with the studies of Raj (2018) who reported that 61.25 per cent of the respondents had medium hope of success.

4.3.1.3. Persistence

Persistence refers to the degree to which an agripreneur is persistent to achieve his goal. The distribution of agripreneurs based on their persistence is presented in Table 21.

Table 21. Distribution of agripreneurs based on their persistence

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	2	10	2	10	3	15	4	20	11	13.75
Medium	17	85	15	75	13	65	15	75	60	75
High	1	5	3	15	4	20	1	5	9	11.25
Mean=19.58 SD =1.70					Range: 16-23					

From the data furnished in Table 21, it can be inferred that majority (75.00%) of the respondents had medium level of persistence, followed by low (13.75%) and high (11.25%) levels of persistence.

The same trend follows in all AFPs with no disparity. However it was interesting to note that in Alappuzha and Ernakulam, respondents with high persistence were more than those in the low persistence category. The findings are in line with Raj (2018) who observed that sixty per cent of the respondents had medium level of persistence.

4.3.1.4. Use of feedback

Use of feedback refers to the degree to which an agripreneur is ready to accept and use feedback. The distribution of agripreneurs based on their use of feedback is presented in Table 22.

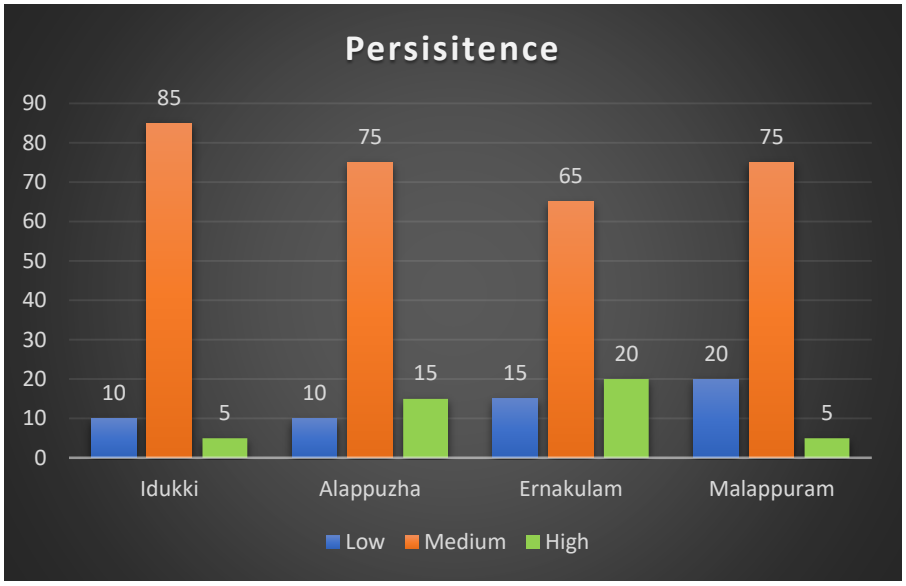


Fig 27. Distribution of agripreneurs based on persistence

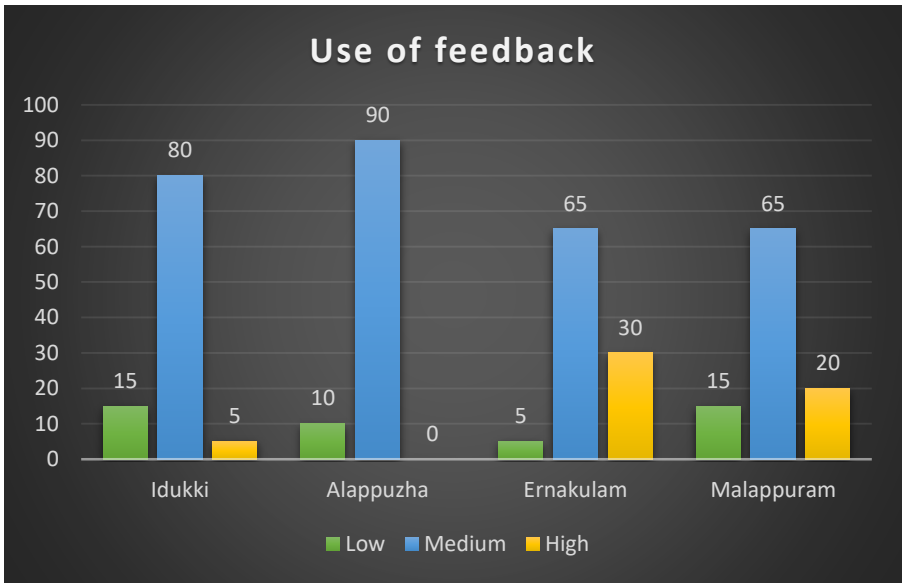


Fig 28. Distribution of agripreneurs based on use of feedback

Table 22. Distribution of agripreneurs based on their use of feedback

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	3	15	2	10	1	5	3	15	9	11.25
Medium	16	80	17	85	13	65	13	65	59	73.75
High	1	5	1	5	6	30	4	20	12	15
Mean=16.98 SD =2.34					Range: 12-22					

Table 22 revealed that more than half (73.75%) of the respondents belonged to medium category of feedback usage, followed by 15.00 and 11.25 per cent in high and low category, respectively.

Considering the AFP wise distribution it was clear that more number of respondents belonged to the low category of feedback usage in Idukki (15.00%) and Alappuzha (10.00%) than in high category. However, the majority of respondents in all AFPs fell into the medium category of feedback usage. This might be attributed towards their medium level of experience in agripreneurial activities. The study confirms the findings of Raj (2018) who stated that 62.50 per cent of the respondents belonged to medium category of feedback usage.

4.3.1.5. Self confidence

Self-confidence refers to the degree to which a person believes in his qualities, abilities and judgements. The distribution of agripreneurs based on their self-confidence is presented in Table 23.

It was observed from Table 23 that majority of respondents (72.50%) had medium level of self-confidence, followed by 15.00 per cent with low level of self-confidence and 12.50 per cent of respondents with high level of self-confidence. AFP wise distribution of respondents also revealed the same.

Table 23. Distribution of agripreneurs based on their self- confidence

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	3	15	6	30	1	5	2	10	12	15
Medium	15	75	12	60	17	85	14	70	58	72.5
High	2	10	2	10	2	10	4	20	10	12.5
Mean=15.93 SD =2.31					Range: 9-21					

Thus, it was inferred that the majority of respondents had a medium level of self-confidence. It might be due to the fact that respondents were not fully oriented about their abilities to improve their enterprise.

Findings of present study are in line with the findings of Wankhade *et. al.* (2011) who reported that the majority of entrepreneurs had medium level of self-confidence. It also endorses the findings of Chaudhari (2006) and Patil (2011) and Raj (2018).

4.3.1.6. Knowledgeability

Knowledgeability was operationalised as the degree to which an individual has knowledge of his business, market, demand and supply (Raj, 2018). The distribution of agripreneurs based on their knowledgeability is presented in Table 24.

Table 24. Distribution of agripreneurs based on their knowledgeability

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	3	15	2	10	4	20	6	30	15	18.75
Medium	15	75	16	80	13	65	13	65	57	71.25
High	2	10	2	10	3	15	1	5	8	10
Mean=20.36 SD =1.81					Range: 16-24					

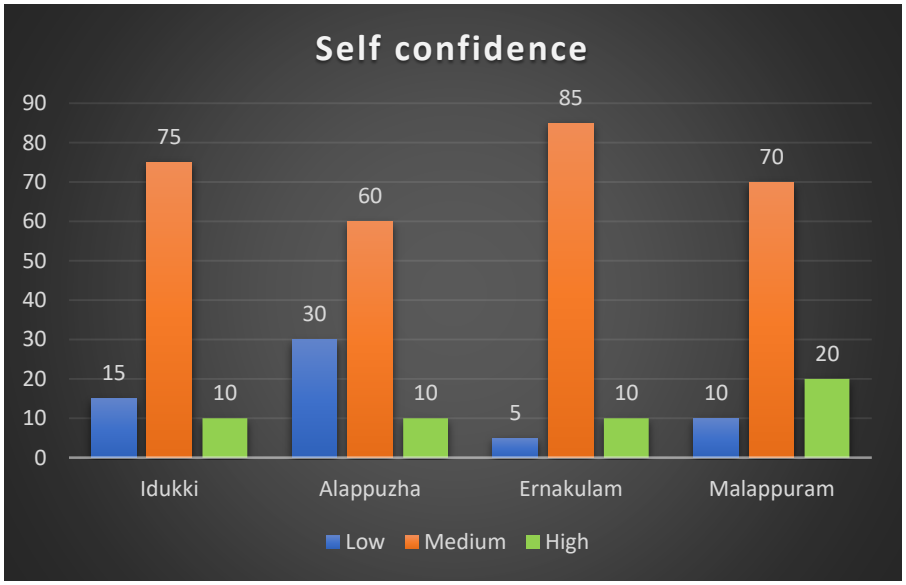


Fig 29. Distribution of agripreneurs based on self- confidence

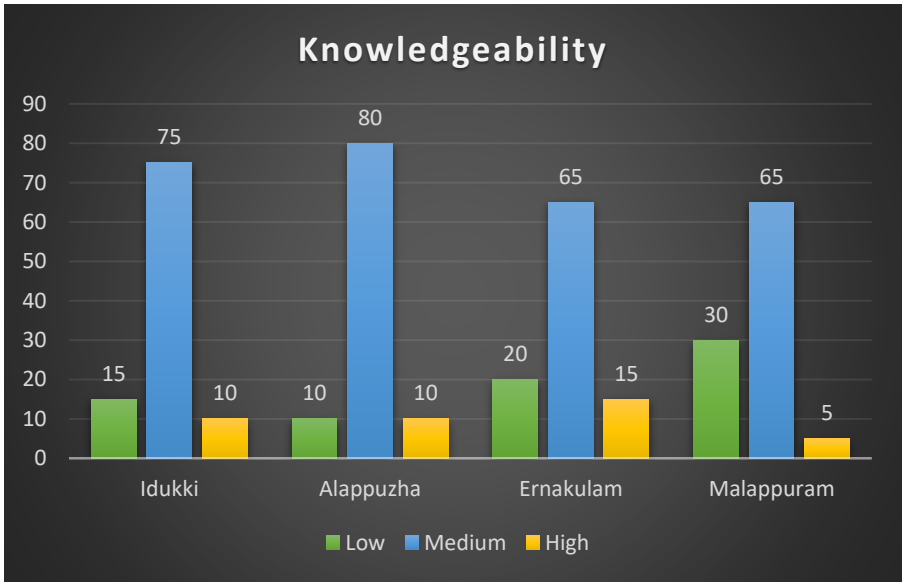


Fig 30. Distribution of agripreneurs based on knowledgeability

A glance of Table 24 revealed that majority of the respondents (71.25%) had medium knowledge about the enterprises, whereas 18.75 per cent of respondents had low and only 10.00 per cent of respondents had high knowledge about their enterprises.

A detailed analysis of AFP wise distribution showed a similar trend as that of overall distribution of respondents. Thus, it is concluded that majority of respondents had medium level of knowledgeability. This might be attributed to the medium experience, medium cosmopoliteness and medium extension orientation of the respondents. The result is in confirmatory with Raj (2018) who stated that 61.25 per cent of the respondents belonged to medium category of knowledgeability.

4.3.1.7. Persuasibility

Persuasibility refers to the degree to which an agripreneur is capable of convincing and influencing other individuals, customers and even competitors to create and maintain a good rapport (Raj, 2018). The distribution of agripreneurs based on their persuasibility is presented in Table 25.

Table 25. Distribution of agripreneurs based on their persuasibility

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	5	25	5	25	1	5	1	5	12	15
Medium	14	70	13	65	11	55	15	75	53	66.25
High	1	5	2	10	8	40	4	20	15	18.75
Mean=16.58 SD =2.65					Range: 11-21					

A perusal of data presented in Table 25 revealed that more than half (66.25%) of the respondents had medium level of persuasibility. Whereas 18.75 and 15.00 per cent of the respondents had high and low level of persuasibilty, respectively.

The AFP wise distribution also shows similar trend except in Idukki and Alappuzha where more number of respondents belonged to low category than in high

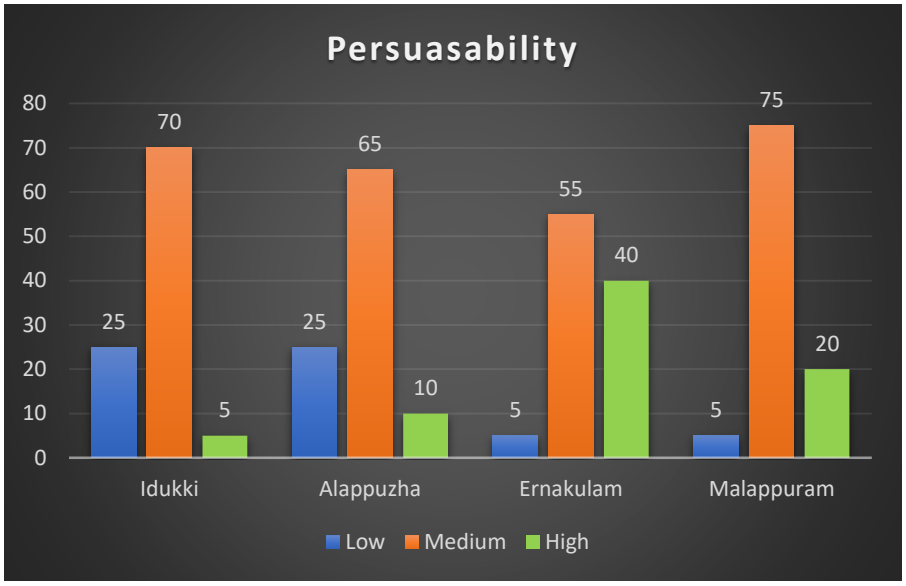


Fig 31. Distribution of agripreneurs based on persuasibility

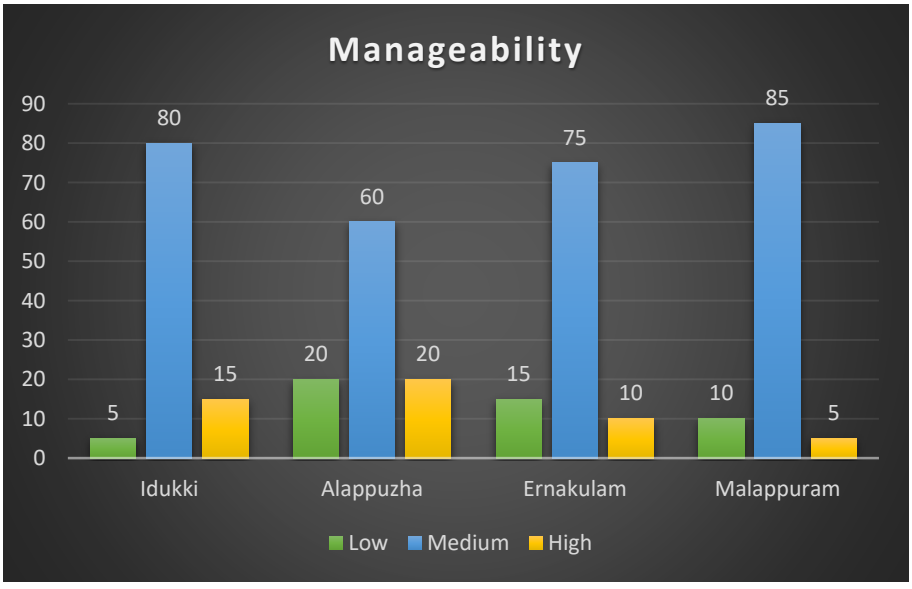


Fig 32. Distribution of agripreneurs based on manageability

category. However the majority of respondents in all AFPs had medium level of persuasibility. The probable reason might be the medium level of experience and medium management orientation of the agripreneurs. The results are in line with Raj (2018) who reported that the majority (61.25%) of the respondents had medium level of persuasibility.

4.3.1.8. Manageability

Manageability refers to the capability of an agripreneur to manage the business by hims**e**lf. The distribution of agripreneurs based on their manageability is presented in Table 26.

Table 26. Distribution of agripreneurs based on their manageability

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	1	5	4	20	3	15	2	10	10	12.5
Medium	16	80	12	60	15	75	17	85	60	75
High	3	15	4	20	2	10	1	5	10	12.5
Mean=17.36 SD =1.94							Range: 13-22			

Total distribution of respondents based on manageability as illustrated in Table 25 showed that majority (75.00%) of the respondents belonged to medium category of manageability, followed by high and low category with 12.50 per cent of respondents each.

A detailed analysis revealed that all the AFPs follow the same trend. This can be attributed to their medium management orientation and medium experience in agripreneurial activities. The results are in line with Raj (2018) who stated that 61.25 per cent of the respondents had medium manageability.

4.3.1.9. Innovativeness

Innovativeness refers to the degree to which an individual is relatively earlier in adopting new ideas than other members of the social system (Ray, 1998). The distribution of agripreneurs based on their innovativeness is presented in Table 27.

From Table 27 it can be inferred that, majority (66.25%) of the respondents had medium level of innovativeness, followed by 17.50 per cent of respondents who had high level of innovativeness. It was also observed that only 16.25 per cent of respondents had a low level of innovativeness.

Table 27. Distribution of agripreneurs based on their innovativeness

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	7	35	2	10	2	10	2	10	13	16.25
Medium	10	50	16	80	13	65	14	70	53	66.25
High	3	15	2	10	5	25	4	20	14	17.5
Mean=17.53 SD =2.99					Range: 10-23					

On screening the AFP wise distribution of respondents, similar results can be observed except in Idukki were 35.00 per cent of the respondents belonged to low category of innovativeness. This might be attributed to the fact that in Idukki the respondents mainly focussed on processing of only two major crops, namely cardamom and pepper. Also, only very few had taken up value addition of the products.

A considerable percentage of agripreneurs were found in medium and high categories of innovativeness. The possible reason might be the higher education and medium extension orientation which helped these agripreneurs to put the new processing technologies into practice. These results are in accordance with the findings of Imam (2013), Kacharu (2013) and Raj (2018).

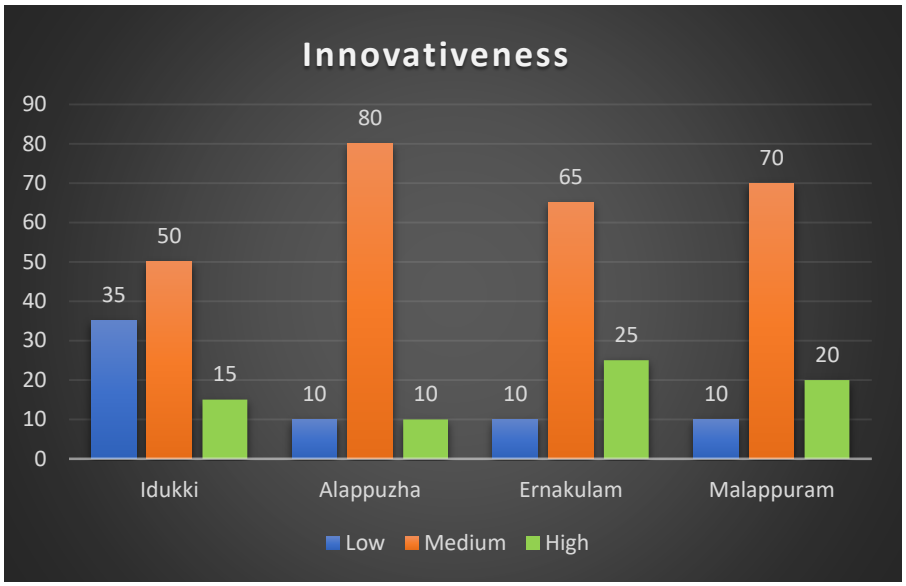


Fig 33. Distribution of agripreneurs based on innovativeness

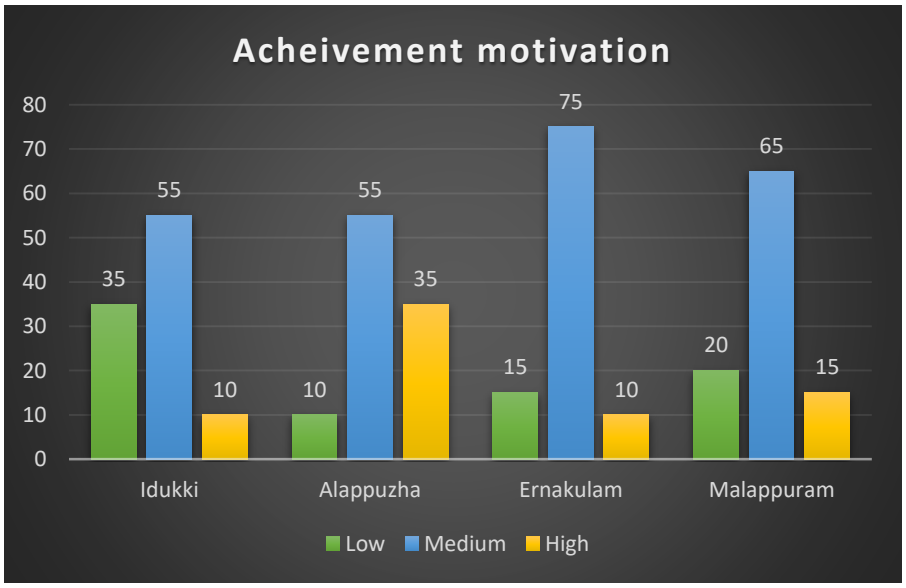


Fig 34. Distribution of agripreneurs based on achievement motivation

4.3.1.10. Achievement motivation

Achievement motivation refers to the value that drives an agripreneur to excel in his activities and hence attain a sense of personal accomplishment (Raj, 2018). The distribution of agripreneurs based on their achievement motivation is presented in Table 28.

Table 28. Distribution of agripreneurs based on their achievement motivation

Category	Idukki (n=20)		Alappuzha (n=20)		Ernakulam (n=20)		Malappuram (n=20)		Total	
	F	%	F	%	F	%	F	%	F	%
Low	7	35	2	10	3	15	4	20	16	20
Medium	11	55	11	55	15	75	13	65	50	62.5
High	2	10	7	35	2	10	3	15	14	17.5
Mean=16.26 SD =2.11					Range: 11-21					

From Table 28, it was evident that majority of the agripreneurs (62.50%) had medium level of achievement motivation, followed by 20.00 per cent who had low level of achievement motivation. However, only 17.50 per cent of the respondents had high level of achievement motivation.

Similar results can be observed on analysing the AFP wise distribution of respondents, except in Alappuzha where 35.00 and 10.00 per cent of the respondents had high and low level of achievement motivation, respectively.

Hence it can be concluded that the majority of agripreneurs belonged to medium category of achievement motivation. This can be attributed to the zeal and enthusiasm of the agripreneurs to become financially sound. The results are in line with the findings of Imam (2013), Kacharu (2013). The findings are also in confirmation with Raj (2018) who reported that majority (61.25%) of the respondents were having medium level of achievement motivation.

4.3.2 Overall entrepreneurial behaviour of agripreneurs

Entrepreneurial behaviour is operationally defined as a series of actions an entrepreneur undertakes to establish his own enterprise. It is a composite skill, the resultant of many qualities and traits. It was measured using a scale developed by Wankhade *et. al*. (2013) with necessary modifications. Agripreneurs were grouped into different categories based on Entrepreneurial Behaviour Index (EBI) with mean and standard deviation as check. The results are presented in Table 29.

Table 29. Distribution of respondents based on Entrepreneurial Behaviour Index

Category	High		Medium		Low	
	F	%	F	%	F	%
Idukki Range(49-72.5)	2	10	11	55	7	35
Alappuzha (Range 48-73.5)	4	20	12	60	4	20
Ernakulam (Range 51-72)	3	15	16	80	1	5
Malappuram (Range 54-74.5)	1	5	14	70	5	25
Total	10	12.5	53	66.25	17	21.25
Mean = 61.55 SD = 5.86						

It was evident from Table 29 that the majority (66.25%) of agripreneurs in AFPs were having medium entrepreneurial behaviour. Whereas 12.50 and 21.25 per cent of the agripreneurs in AFPs were having high and low entrepreneurial behaviour, respectively.

On screening AFP wise distribution of respondents, similar result was revealed. However, in Idukki and Malappuram more number of respondents belonged to the low (35.00% and 25.00%) category of entrepreneurial behaviour than to the high (10.00% and 5.00%) category of entrepreneurial behaviour. Moreover, it was observed that 95.00 per cent of the respondents in Ernakulam had medium to high entrepreneurial behaviour.

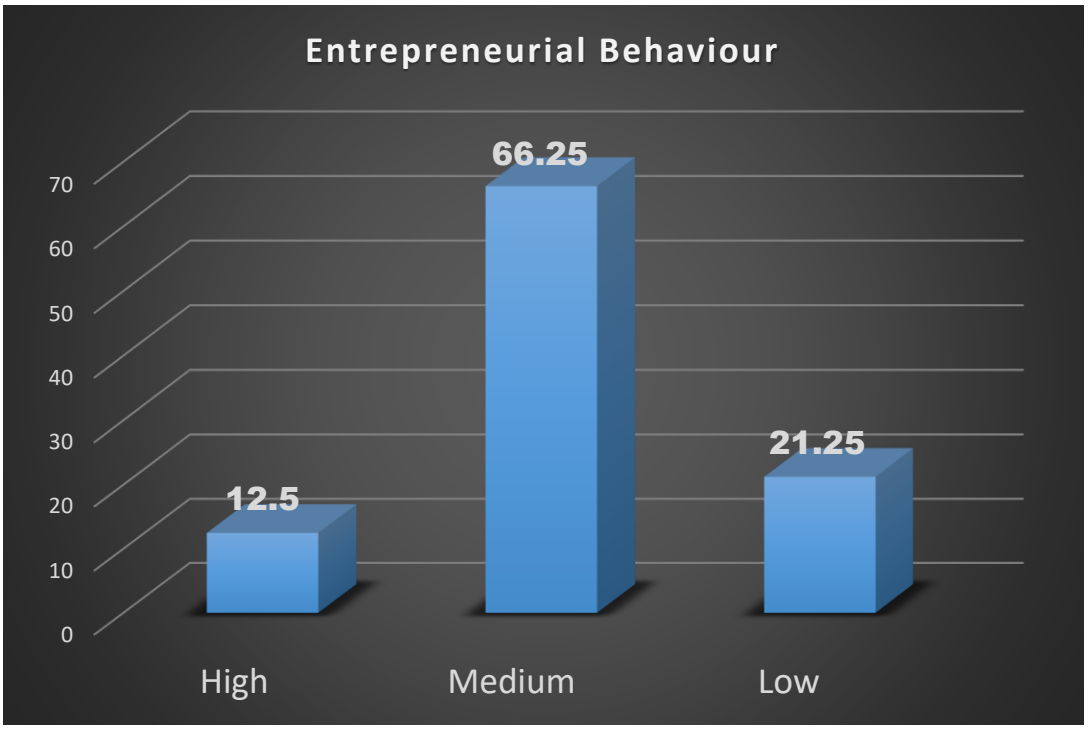


Fig 35. Distribution of respondents based on Entrepreneurial Behaviour Index

Inference of Table 28 revealed that the mean score value of EBI for all the ten dimensions together was 61.55 with a range 48-74.5. This indicated that the mean value is above the mean of range (61.25), clearly establishing the fact that 21.25 per cent of agripreneurs who belonged to the low category of entrepreneurial behaviour could have respondents with high score value close to that of the medium category.

Hence it can be concluded that 66.25 per cent of the agripreneurs in AFPs were having medium entrepreneurial behaviour. This can be attributed to the fact that most of the respondents belonged to medium category of economic motivation, market perception, extension orientation, management orientation, cosmopoliteness, problem solving ability and credit orientation. Majority had medium level of attributes related to entrepreneurial behaviour and hence their overall entrepreneurial behaviour was medium.

The results obtained are in conformity with the findings of Sindhu (2015) who reported that majority (48.33%) of the agripreneurs had medium entrepreneurial behaviour. Similar results were observed in Deepthi (2016), according to which majority (57.91%) of the agripreneurs had medium level of entrepreneurial behaviour. The present results are also in line with Sofeghar (2017) and Raj (2018), who reported that 72.50 and 62.50 per cent of the respondents were having medium entrepreneurial behaviour, respectively.

From Table 30 it can be observed that the most important dimension based on the mean value was knowledgeability (20.38) which was followed by persistence (19.58), innovativeness (17.53), manageability (17.38), risk taking (17.38), use of feedback (16.98), persuasibility (16.58), achievement motivation (16.26), self-confidence (15.93) and hope of success (15.14) in the decreasing order of importance. The dimensions are presented in Table 30 for a better understanding.

Table 30. Mean values of dimensions of entrepreneurial behaviour

Sl.no.	Dimensions	Mean value
1.	Risk taking	17.38
2.	Hope of success	15.14
3.	Persistence	19.58
4.	Use of feedback	16.98
5.	Self confidence	15.93
6.	Knowledgeability	20.38
7.	Persuasibility	16.58
8.	Manageability	17.38
9.	Innovativeness	17.53
10.	Achievement motivation	16.26

However, it was essential to understand as to which dimensions contribute maximum to the overall entrepreneurial behaviour for which Principal Component Analysis (PCA) was conducted. The results of PCA to illustrate the total variance of dimensions of entrepreneurial behaviour as perceived by the agripreneurs is given in Table 31.

Table 31. Total variance of dimensions of entrepreneurial behaviour

Components	Initial Eigen values			Extraction sum of squared loadings		
	Total	% of Variance	Cumulative (%)	Total	% of Variance	Cumulative (%)
PC 1	2.948	29.50	29.50	2.948	29.50	29.50
PC 2	1.329	13.30	42.80	1.329	13.30	42.80
PC 3	1.104	11.00	53.80	1.104	11.00	53.80
PC 4	1.015	10.20	64.00	1.015	10.20	64.00
PC 5	0.839	8.40	72.40	0.839	8.40	72.40
PC 6	0.816	8.20	80.50	0.816	8.20	80.50
PC 7	0.639	6.40	86.90			
PC 8	0.491	4.90	91.80			
PC 9	0.464	4.60	96.40			
PC 10	0.355	3.60	100.00			

Based on eigen value, it can be unequivocally inferred that out of the ten components, the four components namely risk taking, hope of success, persistence and use of feedback where the most contributing variables towards entrepreneurial behaviour, as they have eigen value greater than one.

From Table 31 it was inferred that first component (risk taking) was responsible for 29.50 per cent variance, second component (hope of success) was responsible for 13.29 per cent variance, third component (persistence) was responsible for 11.04 per cent variance and fourth component (use of feedback) was responsible for 10.15 per cent variance.

However, considering the cumulative variance it can be observed that the first four variables together exhibit 64.00 per cent variance. Whereas fifth and sixth variables along with first four, together exhibit 80.50 per cent variance.

Table 32. Loadings (Eigenvectors) of Correlation Matrix

	PC1	PC2	PC3	PC4	PC5	PC6
Risk taking	**0.294**	0.162	**-0.387**	-0.161	**0.671**	-0.262
Hope of success	0.190	**-0.347**	**-0.679**	0.121	-0.018	0.075
Persistence	0.193	**-0.354**	0.189	**0.559**	0.056	**-0.623**
Use of feedback	**0.419**	0.087	0.075	-0.046	**-0.431**	-0.124
Self confidence	**0.376**	0.130	-0.279	0.254	-0.252	**0.313**
Knowledgeability	**0.342**	-0.054	**0.458**	-0.034	**0.357**	0.091
Persuasibility	**0.422**	**0.338**	0.123	-0.238	0.102	0.082
Manageability	0.072	**0.615**	0.006	**0.584**	-0.018	0.023
Innovativeness	**0.387**	-0.126	0.035	**-0.374**	**-0.360**	-0.273
Achievement motivation	**0.270**	**-0.438**	0.210	0.206	0.171	**0.578**

From Table 32 it was evident that in the first component persuasibilty (0.422) had maximum eigen value followed by use of feedback (0.419), innovativeness (0.387) and self-confidence (0.376). In case of second component, manageability (0.615) had the maximum value and in third component, knowledgeability (0.458) had the highest value. Considering the fourth, fifth and sixth component manageability (0.584), risk

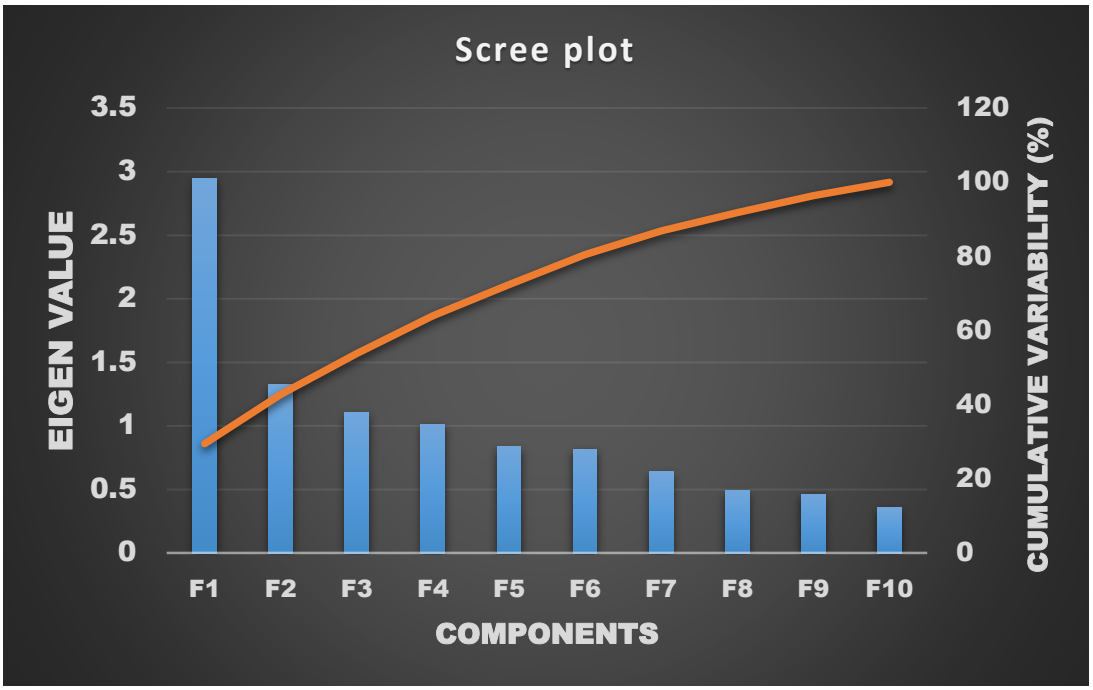


Fig 36. Total variance of dimensions of Entrepreneurial behaviour

taking (0.671) and achievement motivation (0.578) had the highest values, respectively. It was found that all the dimensions of entrepreneurial behaviour were having significant contribution to entrepreneurial behaviour.

Hence it can be concluded that irrespective of the components and on the basis of eigen values, the dimensions that contributed to entrepreneurial behaviour in the order of decreasing importance were risk taking, hope of success, persistence, use of feedback, self- confidence and knowledgeability, persusibility, manageability, innovativeness and achievement motivation. This is illustrated through a scree plot diagram in Figure 36.

Entrepreneurship is a process in which the entrepreneurs identifies new opportunities, introduces new products and services to society and receives its risks. Hence, risk bearing is a prerequisite for entrepreneurship. According to Allah and Nakhaie (2011), the major risks accepted by the entrepreneurs include financial risk, job risk, social-family risk and mental risk. Since success of enterprises mostly depends on the capability of the entrepreneurs to evaluate risks and decide which path to pursue, it becomes indispensable for good entrepreneurial behaviour. The findings are in line with Macko and Tyszka (2009) and Wankhade *et. al.* (2013).

According to Palmurugan *et. al.* (2008), hope of success have a major influence on entrepreneurial behaviour. Individuals who are convinced about their high probability of success will have high intentions to start a new business, and thereby exhibit more entrepreneurial behaviour.

Wankhade *et. al.* (2013) opined that entrepreneurs tend to persist in the face of difficulties and obstacles. Failure does not easily discourage the entrepreneurs, rather they carry on with more enthusiasm and self-confidence.

The ability to seek and use feedback on one's performance and decisions is an important quality of entrepreneurs. The way an entrepreneur uses the feedback, either from customers or his fellow colleagues largely determines the success of his venture. The findings are in line with Palmurugan *et. al.* (2008) and Wankhade *et. al.* (2013).

Similarly, all other components namely self- confidence, knowledgeability, persuasibility, manageability, innovativeness and achievement motivation contribute to entrepreneurial behaviour in decreasing order of preference.

4.4 CORRELATION OF ENTREPRENEURIAL BEHAVIOUR WITH INDEPENDENT VARIABLES

A correlation analysis was carried out to find out as to whether the independent variables had any association with entrepreneurial behaviour of agripreneurs. The coefficients of correlation of the profile characteristics with entrepreneurial behaviour of agripreneurs have been furnished in Table 33.

Table 33. Correlation between Entrepreneurial Behaviour and profile characteristics

Profile characteristics	Correlation coefficient
Age	-0.052
Education	0.225*
Experience	0.150
Cosmopoliteness	0.360**
Market perception	0.421**
Problem solving ability	0.551**
Credit orientation	0.488**
Environmental orientation	0.257*
Economic motivation	0.276*
Group cohesion	0.263*
Organisational climate	0.107
Management orientation	0.477**
Extension orientation	0.402**

(** 1% Significant level, * 5% Significant level)

A perusal of Table 33 revealed that out of thirteen independent variables, ten variables were significantly correlated to entrepreneurial behaviour, of which six variables namely, cosmopoliteness, market perception, problem solving ability, credit orientation, extension orientation and management orientation were positively

correlated at 1% level of significance. Whereas four variables namely, education, environmental orientation, group cohesion and economic motivation were positively and significantly correlated at 5% level of significance.

It was also inferred that other variables like age, experience and organisational climate had no significant relationship with entrepreneurial behaviour.

4.4.1. Education and entrepreneurial behaviour

Education of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. This leads to the inference that the higher the education of an agripreneur, more would be the entrepreneurial behaviour. Education being the solution for acquiring knowledge, it widens the mental horizon of agripreneurs making them more innovative, change prone and scientifically oriented and the results fall in line with the findings of Gowa (2014), Sindhu (2015), Deepthi (2016) and Muleva *et. al*. (2019).

4.4.2. Cosmopoliteness and entrepreneurial behaviour

Cosmopoliteness of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. This might be because cosmopoliteness caters the agripreneur's information needs and resources from the very locality in which the enterprise exists. The findings are in line with the results obtained by Choudhari (2006).

4.4.3. Market perception and entrepreneurial behaviour

Market perception of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. This might be due to the reason that agripreneurs with more market perception have more information on market demand, price fluctuations and also identify new opportunities in market. The findings are in line with the results obtained by Sindhu (2015), Deepthi (2016) and Raj (2018).

4.4.4. Problem solving ability and entrepreneurial behaviour

Problem solving ability of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. This might be because

problem solving ability helps the agripreneurs to identify problems, analyse it and take appropriate decisions that helps to nurture their business environment. The findings are in line with the results obtained by Raj (2018).

4.4.5. Management orientation and entrepreneurial behaviour

Management orientation of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. The observed trend of positive and significant correlation between management orientation and entrepreneurial behaviour may be due to the fact that one can make the enterprise profitable only by means of better management. It will enable the agripreneur to optimize the production with the available resources through proper planning, production and marketing strategies. The findings are in line with the results obtained by Vidhyadhari (2007) and Sofeghar (2017).

4.4.6. Extension orientation and entrepreneurial behaviour

Extension orientation of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. It can be due to the fact that extension orientation provide the agripreneurs with various information such as development initiatives relevant to their enterprise. Also contact with the extension personnel will help them to legitimize the decision regarding their enterprise. The result obtained is in conformity with the findings of Sofeghar (2017).

4.4.7. Credit orientation and entrepreneurial behaviour

Credit orientation of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. Lack of awareness on savings, credit and subsidies can adversely affect the agripreneurs in terms of deriving sustainable profit and sustaining the agri business in the long run and this could be the reason for significant relationship between credit orientation and entrepreneurial behaviour. Agripreneurs largely depend on the financial institutions for loans and other services to improve their business. Hence credit orientation is indispensable to enhance entrepreneurial behaviour The findings are in line with the results obtained by Gowa (2014) and Raj (2018) whereas it was contradictory to Sofeghar (2017).

4.4.8. Environmental orientation and entrepreneurial behaviour

Environmental orientation of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. Environmental orientation was significant as perceived by the agripreneurs that enabled them to develop a sustainable business environment with support of the regional people. The Agro Food Park can raise their status of esteem through following environmental friendly measures addressing issues of externalities and thereby earn the confidence of the local people situated in and around the venue of Food Park. The findings are not in line with the results obtained by Raj (2018).

4.4.9. Economic motivation and entrepreneurial behaviour

Economic motivation of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. It was obvious that economic motivation could be significant because, if an agripreneur develops higher levels of economic motivation, he strives hard to achieve it and also internalizes different aspects about managing enterprise to sustain the enterprise for a long run besides the motive for profit maximization. Hence, it is quite natural to expect a positive relationship between entrepreneurial behaviour and economic motivation. The findings are in line with the results obtained by Gowa (2014) and Muleva *et. al.* (2019).

4.4.10. Group cohesion and entrepreneurial behaviour

Group cohesion of agripreneurs were found to have positive and significant correlation with their entrepreneurial behaviour. It can be attributed to the fact that when agripreneurs are organised in groups, their overall entrepreneurial characteristics enhance. The findings are in line with the results obtained by Abubakar and Abubakar (2016).

4.5 PERFORMANCE ANALYSIS OF AGRO FOOD PARKS

4.5.2. Leading Performance Indicators

A perusal of Table 34 revealed that the leading performance indicator as perceived by agripreneurs that was ranked first was ‘customer focus’ followed by efficiency,

environmental factors, employee relations and social factors in decreasing order of importance, respectively.

Table 34. Ranking of leading performance indicators of AFPs based on weighted mean

Sl. No.	Particulars	Mean	Rank
1	Customer focus	4.48	1
2	Efficiency	4.33	2
3	Environmental factors	3.48	3
4	Employee relations	3.24	4
5	Social factors	2.60	5

However, it was interesting to note that out of the five leading indicators measured for its key performance as perceived by the agripreneurs, only two indicators namely, customer focus and efficiency were above mean value.

Leading indicators helps to improve the overall performance of AFPs in terms of goal attainment and also helps to align the stakeholders and processes with organizational objectives.

4.5.2. Lagging Performance Indicators

The lagging performance indicators focussed on the quantitative parameters which reflected the efficiency components than the effective components, which was comparatively easy to measure. The results are presented in Table 35.

Table 35. Ranking of lagging performance indicators of AFPs based on weighted mean

Sl. No.	Particulars	Mean	Rank
1	Business performance	4.28	1
2	Innovation	3.69	2
3	Structure of firm	2.20	3

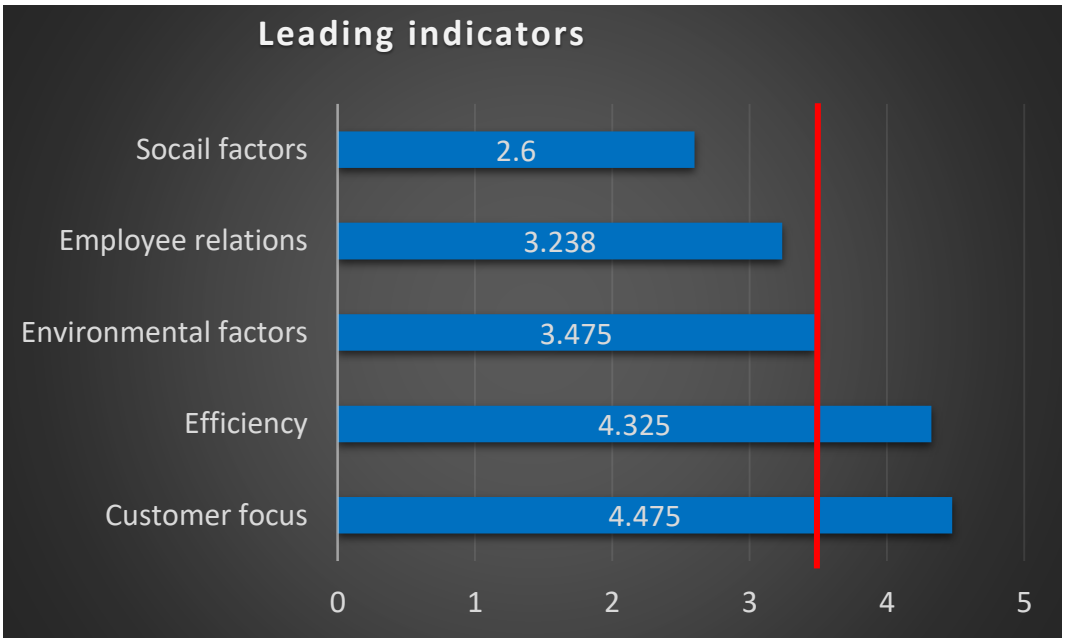


Fig 37. Leading performance indicators of AFPs

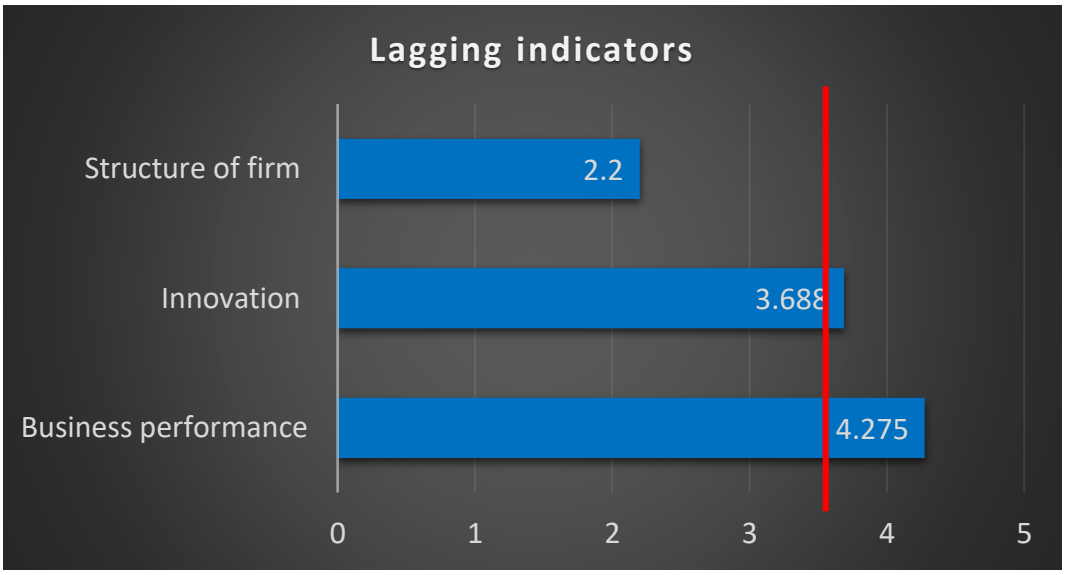


Fig 38. Lagging performance indicators of AFPs

From Table 35, it can be inferred that out of the three lagging performance indicators as perceived by the agripreneurs, 'business performance' was ranked first followed by innovation and structure of the firm in decreasing order of importance respectively.

It was also found that out of the three lagging indicators measured for its key performance as perceived by the agripreneurs, only two indicators namely, business performance and innovation were above mean value. However, all these indicators is vital to get an appraisal of the overall performance of AFPs.

4.6 STRUCTURE OF AFPs

The organisational structure of AFPs was analysed in terms of levels of management and functionaries. The results are presented in Table 36.

A perusal of Table 36 revealed that all the AFPs had three levels of management. Regarding functionaries, maximum (71) were present in Alappuzha followed by Malappuram (25) and Idukki (16). However, minimum functionaries were present in Ernakulam (5).

Table 36. Organisational structure of AFPs

Category	Levels of management	Functionaries
Spices Park, Idukki	3	16
Seafood Park, Alappuzha	3	71
KINFRA Food Park, Ernakulam	3	5
KINFRA Food Park ,Malappuram	3	25

Seafood Park in Alappuzha has a sea lab which provide services to public such as food testing, water quality testing etc. This attributes to high number of functionaries in Alappuzha. For a better understanding of organisational structure, organogram of AFPs were developed and is presented in Figure 39, 40, 41 and 42.

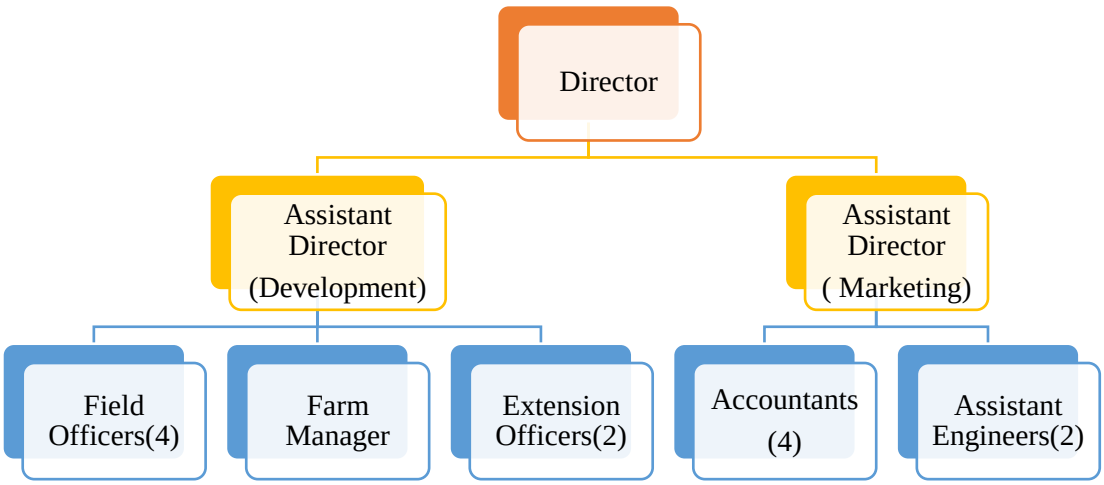


Fig 39. Organisational structure of Spices Park, Idukki

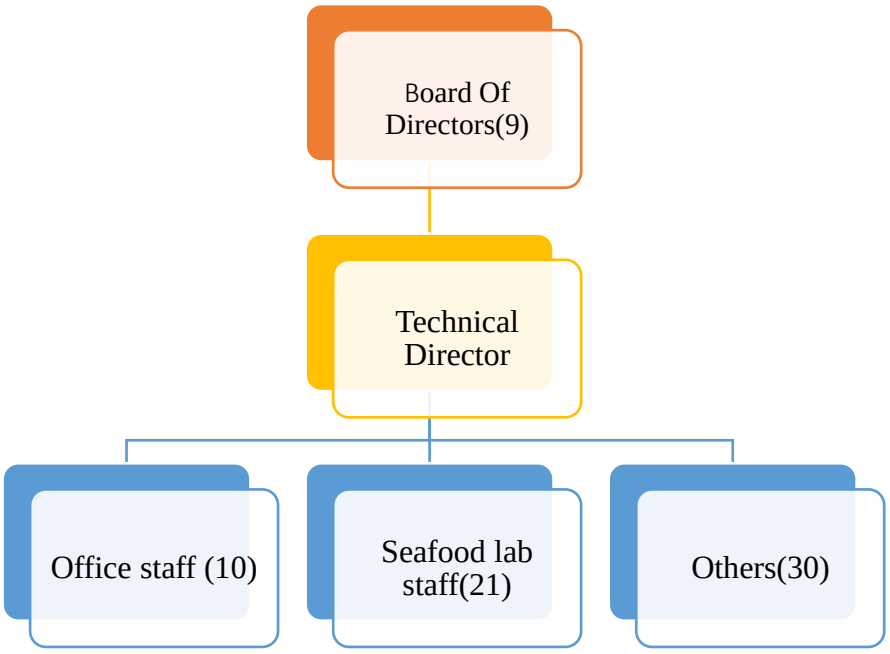


Fig 40. Organisational structure of Seafood Park, Alappuzha

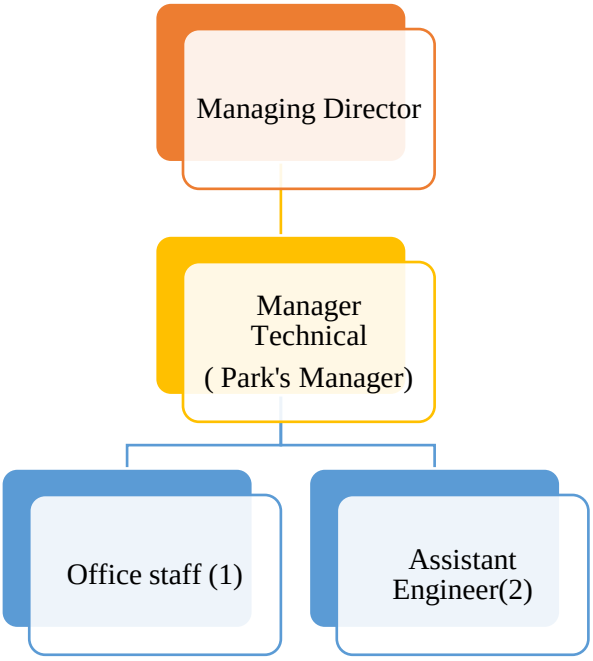


Fig 41. Organisational structure of KINFRA Food Park, Ernakulam

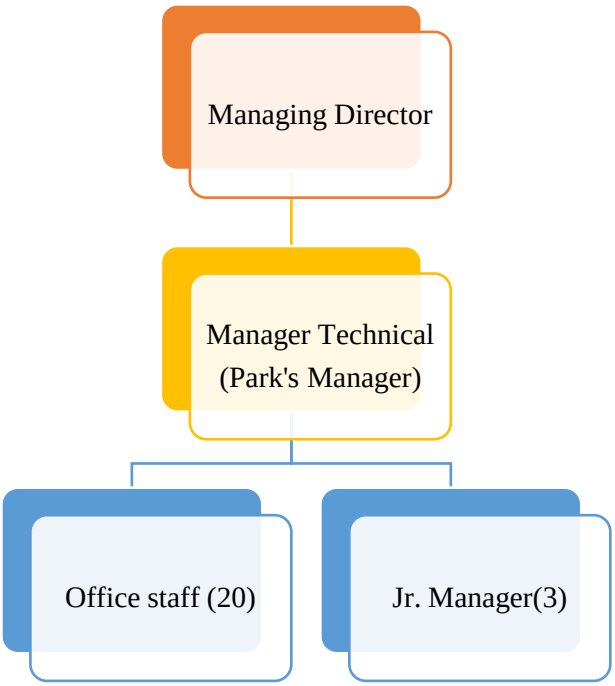


Fig 42. Organisational structure of KINFRA Food Park, Malappuram

4.7 FUNCTIONS OF AFPs

The major functions of AFPs were identified and enumerated based on interactions with the officials of AFPs. The most important function of AFP is to provide land area on lease basis to private agripreneurs in order to establish agricultural and food companies. This attracts the aspiring agripreneurs, since land is a major constraint which requires much capital investment otherwise.

AFPs provide services such as management facilities, information and communication technologies, transportation facilities, storage and packaging facilities that can be shared across a range of different crops and livestock products. Similarly there are opportunities for recycling wastes or using rejected products from the one processing stream as raw material for the next.

The agri enterprises located in AFPs are associated with common infrastructure specific for the industry such as testing labs, warehouses and cold storage facilities, quality inspection and quarantine facilities, waste management, and effluent treatment infrastructure and marketing infrastructure. AFPs also offer regular infrastructure required for running successful business such as road network, drainage, power supplies, and telecommunications. Another important function of AFPs is to provide single window clearance to all new enterprises that are being established within its territory. This helps the industries to have hassle- free operation within a short time period.

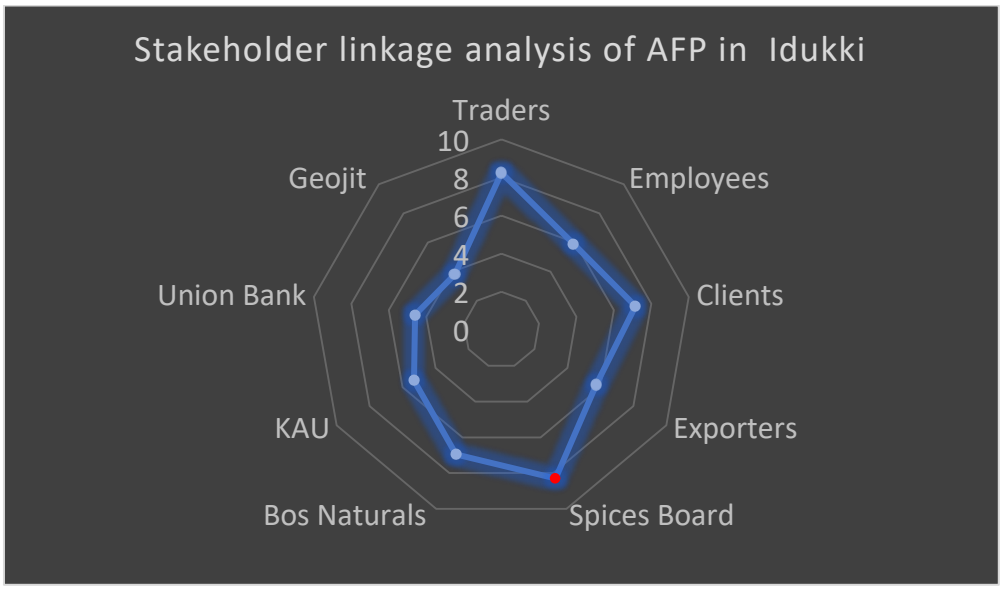
4.8. STAKEHOLDER LINKAGE ANALYSIS OF AFPs

Stakeholders are individuals or agencies who have a share in the project, who are in turn affected by the realisation of the project or who influences the decision making as well as realisation processes. Stakeholder linkages of AFPs was expressed in terms of number of stakeholders and their strength of linkage with the AFP. The results are presented in Table 37.

A perusal of Table 37 revealed that maximum number of stakeholders are present in Idukki (9), followed by Malappuram (6), Ernakulam (5) and the least in Alappuzha (4). In case of Idukki, strength of linkage was found to be maximum with Spices Board (8.3), followed by traders (8.25), clients (7.15), private company – Bos

Table 37. Stakeholders of AFPs

AFP	Stakeholders									Total
Idukki	Traders	Employees	Clients	Exporters	Spices Board	Bos Naturals	KAU	Union Bank	Geojit	9
	8.25	5.9	7.15	5.75	8.3	6.95	5.3	4.6	3.8	
Alappuzha	Agripreneurs	Employees	Clients	Board of directors						4
	8.1	6.45	7.5	8.8						
Ernakulam	Agripreneurs	Employees	Clients	Exporters	Suppliers					5
	8.7	6.6	4.7	6.9	5.65					
Malappuram	Agripreneurs	Employees	Clients	Exporters	Suppliers	Consumers				6
	9.05	7.25	4.2	6.35	5.5	5.55				



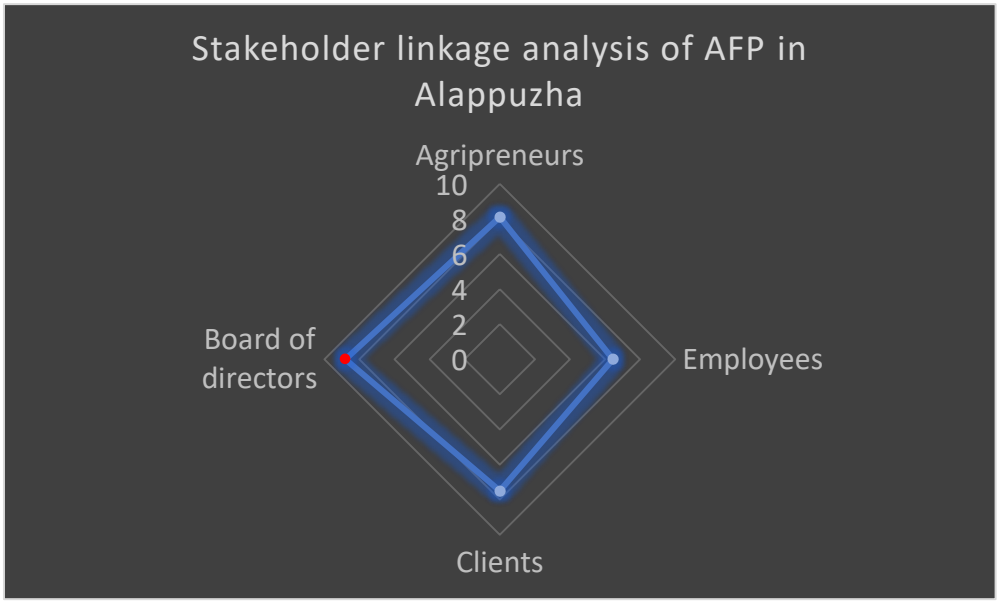
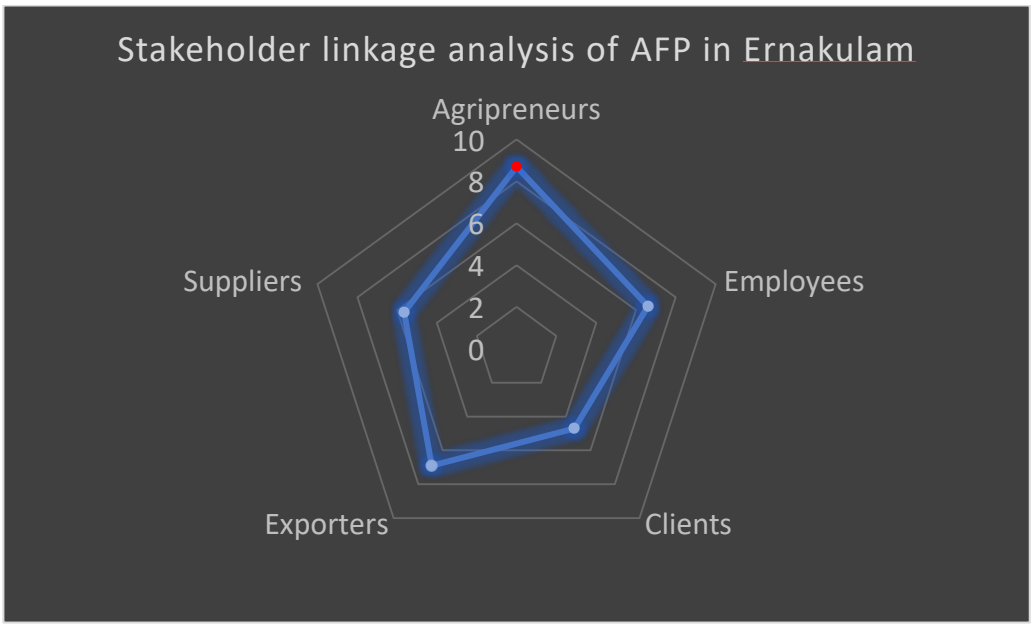


Fig 43. Stakeholders of AFPs in Idukki and Alappuzha



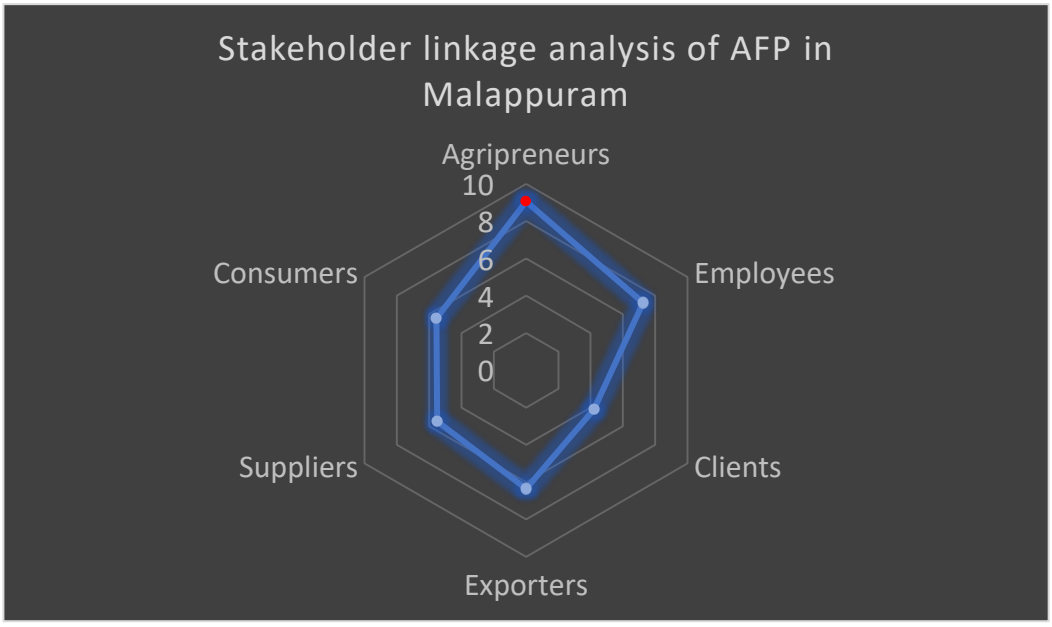


Fig 44. Stakeholders of AFPs in Ernakulam and Malappuram

Naturals (6.95), employees (5.9), exporters (5.75), KAU (5.3), banking partner-Union bank (4.6) and future trading company- Geojit (3.8), in decreasing order of linkage strength.

Regarding Malappuram, maximum linkage strength was observed with agripreneurs (9.05), followed by employees (7.25), exporters (6.35), consumers (5.55), suppliers of raw materials (5.5) and clients (4.2). In Ernakulam, linkage strength was found to be highest with agripreneurs (8.7), followed by exporters (6.9), employees (6.6), suppliers of raw materials (5.65) and clients (4.7).

With respect to Alappuzha, highest linkage strength was observed with the Board of directors (8.8), followed by agripreneurs (8.7), clients (7.5) and employees (6.45) in decreasing order of linkage strength. Stakeholder linkage diagram was developed for better understanding and is presented in Figure 43 and 44.

4.9. CONSTRAINTS EXPERIENCED BY AGRIPRENEURS IN AFPs

Agripreneurs encounter many challenges while working in Agro Food Parks. Constraints experienced were identified, ranked and presented in Table 38. The constraints having highest mean rank was given highest rank

Table 38. Constraints experienced by agripreneurs in AFPs

Sl. No.	Constraints	Mean rank (N=80)	Overall rank
1.	Lack of financial supports	2.65	1
2.	Actual time in laying projects exceeds envisaged time	3.10	2
3.	Insufficient infrastructure facilities	3.63	3
4.	Locational disadvantages	3.79	5
5.	Slow single window clearance	3.69	4
6.	Indifferent attitude of park authorities	5.69	7
7.	Indifferent attitude of local people	5.43	6

It was evident from Table 38 that the major constraints experienced by agripreneurs are the lack of financial support. Respondents opined that they face financial crunch in successfully running the business, especially during the initial period of establishment.

Next important constraint was the increased time involved in establishment of agri enterprises within the AFP than the envisaged time. This results in delay of the projects and thereby affects the business environment.

4.10 CONSTRAINTS AS PERCEIVED BY AFP OFFICIALS IN RENDERING SERVICES

The major constraints experienced by AFPs in rendering services as perceived by the officials was identified through discussion with the experts in AFPs. Since there were only few experts, ranking method was not adopted. The officials opined that the major constraint experienced by AFPs was the inadequate availability of funds at appropriate time from the authorities. This revealed the acute dearth of funds in AFPs.

Unavailability of land for further expansion of AFPs was pointed out as another constraint. This in turn hinders the establishment of new agri-enterprises in AFPs. Weak management and lack of trained personnel also affected the functioning of AFPs. Locational disadvantages such as increased distance from seaport, town etc. affected the availability of raw materials and export of products.

Another reason attributed to the poor functioning of AFPs was the lack of awareness about the services offered by AFPs to public. Only large scale agripreneurs are much aware about the facilities in AFPs whereas farmers and other aspiring agripreneurs are still deprived of knowledge on AFPs.

4.11 SUGGESTIONS AS PERCEIVED BY AFP OFFICIALS TO OVERCOME THE CONSTRAINTS

The major suggestions put forward by the officials of AFPs to overcome the constraints are listed below.

Spices Park, Idukki

- Creating awareness among the farmers about the services offered by Spices Park since most of the services are used by traders and exporters to their advantage.
- Availing farmers with processing, value addition and storage facilities of international standards help them to improve the quality of the produce which in turn improves their exporting capacity and make them more competent in the international market.

Seafood Park, Alappuzha

- In long run, facilities for processing and value addition of seafood products could be developed since at present only pre- processing facilities of seafood are available within the park.

KINFRA Food Park, Ernakulam

- Providing timely and adequate financial services by the authorities for the smooth functioning of the Food Park.
- Expansion of existing land area to accommodate more food processing units within the AFP. Since the available area is already occupied, further establishment of new units is interrupted.

KINFRA Food Park, Malappuram

- Availing the stakeholders with faster single window clearance which will enable the units to be operational within a short span of time.
- Enhancing the proximity to market since the existing location of the park is far away from Calicut town.

General suggestions:

- Modernising and upgrading the existing infrastructural facilities of AFPs to international standards so as to attract more investors.
- Establishing location specific commodity based Food Parks such as Spices Park that will ensure the availability of raw materials within close proximity

and also commodity specific processing infrastructure facilities. This will also enhance collective bargaining power of the processors in markets.

4.12 VALIDATION OF HYPOTHESIS

A research hypothesis refers to the statement created by researcher when they speculate upon the outcome of the experiment. It must be testable and realistic. A hypothesis must be verifiable to allow a verification or falsification. In this study the hypothesis set and established were:

1. **Entrepreneurial behaviour of agripreneurs in AFPs are low**.

The results from Table 28 revealed that majority (66.25%) of the agripreneurs in AFPs were having medium entrepreneurial behaviour. Also the mean score value of Entrepreneurial Behaviour Index (EBI) for all the ten dimensions together was 61.55 with a range 48.00-74.50. This proves that the entrepreneurial behaviour of agripreneurs were medium. Hence the hypothesis was falsified.

2. **There exists no significant relationship between independent variables with respect to technology needs and risk assessment.**

The results from Table 32 revealed that out of thirteen independent variables, ten variables were significantly correlated to entrepreneurial behaviour, of which six variables namely, cosmopoliteness, market perception, problem solving ability, credit orientation, extension orientation and management orientation were positively correlated at 1% level of significance. Whereas four variables namely, education, environmental orientation, group cohesion and economic motivation were positively and significantly correlated at 5% level of significance. Thus null hypothesis is rejected.

3. **There exists no linkage with the stakeholders in AFPs.**

The results from Table 36 revealed that maximum number of stakeholders are present in Idukki (9), followed by Malappuram (6), Ernakulam (5) and the least in Alappuzha (4). This proves that there is strong linkage in AFPs with the stakeholders. Hence the hypothesis was falsified.

4. There are no constraints faced by the AFPs and its members.

The results from Table 37 revealed that the major constraints experienced by agripreneurs are the lack of financial support followed by the increased time involved in establishment of agri enterprises within the AFP than the envisaged time. This shows are they are many constraints faced by the AFPs and its members. Hence the hypothesis was falsified.

Summary

CHAPTER V

SUMMARY

India is an agro based economy. Around 61.50 per cent of its population depends on agriculture to make a livelihood (Census Report, 2011). Food and agri business is the backbone of sustainable development with its massive economic, social and environmental footprint. India have a large production base, giving it the potential both to feed its own population and also to become one of the largest suppliers of food to the world (MOFPI, 2014). One of the major initiatives taken by the government for developing food processing industries in India is the Food Park scheme. It was enacted to ensure establishment of world-class infrastructure and common user facilities in the food processing sector. This study was carried out to examine the prospects and problems of AFPs, understand the structure and functioning of the existing AFPs in Kerala and its role in fostering entrepreneurship. . The study will largely contribute to the present knowledge of the socioeconomic factors that influence the entrepreneurial behaviour of agripreneurs within the AFPs. Since , the implementation of Food Park Scheme has not gained required momentum in Kerala as in other states and no profound studies has been conducted regarding the impending factors that obstructs its penetration into the society, the study becomes essential.

Hence the current study was undertaken with the following objectives:

1. To analyse the structure and functions of Agro Food Parks.
2. To assess the role of Agro Food Parks in fostering entrepreneurship.
3. To study the profile characteristics of agripreneurs in the Agro Food Parks.
4. To study the performance of Agro Food Parks as perceived by the agripreneurs.
5. To identify the constraints that hinder the development of Agro Food Parks.

The study comprised of eighty respondents who were selected randomly from four AFPs, namely, Spices Park- Idukki, Seafood Park- Alappuzha, KINFRA Food Park- Ernakulam and KINFRA Food Park- Malappuram. The study was done to

determine the entrepreneurial behaviour of agripreneurs in AFPs and the performance of AFPs. Thirteen independent variables were selected through judge's ratings and they were age, education, experience, cosmopoliteness, market perception, management orientation, extension orientation, problem solving ability, credit orientation, economic motivation, environmental orientation, group cohesion and organisational climate.

The data were collected from the respondents through personal interview using a well-structured and pre tested interview schedule. Apposite statistical analysis was used for interpretation of the data and generation of results.

The salient findings of the study were:

1. Majority of agripreneurs belonged to middle aged category (58.75%) *i.e* between 35- 55 years, followed by old aged (25.00%) and young aged (16.25%) categories.
2. More than half of agripreneurs (66.25%) had education up to collegiate level, followed by 30.00 per cent acquiring high school and 3.75 per cent with middle school education.
3. Majority of the agripreneurs (72.50%) had medium level of experience (2-9 years) in agripreneurial activity, whereas 16.25 per cent had agripreneurial experience of more than 9 years and 11.25 per cent had agripreneurial experience of less than 2 years.
4. Seventy per cent of the agripreneurs had medium level of cosmopoliteness, whereas 16.25 per cent had high and 13.75 per cent had low level of cosmopoliteness, respectively.
5. Half of the respondents (50.00%) had medium level of market perception, followed by high and low levels of market perception with 27.50 and 22.50 per cent of the respondents, respectively.
6. It was evident that that the majority (63.75%) of the agripreneurs had medium problem solving abilities.
7. It was observed that majority (63.75%) of the agripreneurs had medium management orientation. Whereas considering the aspects of management orientation, marketing orientation of the respondents were found to be high, followed by planning and production orientation.

8. Personnel of AFPs and other commodity boards were the most contacted extension agents where 46.25 per cent of them stated that they contacted them 'very often', followed by progressive entrepreneurs (28.75%), scientists at KAU and other ICAR institutions (16.25%), friends and neighbours (10.00%) and finally agricultural officers (1.25%). The agripreneurs also stated that the most 'often' contacts were made with their friends and neighbours.
9. Meeting was the event in which 72.50 per cent of the agripreneurs participated followed by 45.00 per cent participated in fairs and exhibitions, 11.25 per cent in seminars. The least participated event was study tours where none of the respondents participate.
10. About 70.00 per cent of the agripreneurs had medium extension orientation, while 16.25 per cent had low and 13.75 per cent had high extension orientation.
11. More than half of the respondents (62.50%) had medium level of credit orientation, followed by high (25.00%) and low (12.50%) credit orientation, respectively.
12. Environmental orientation was high for majority of the respondents (78.75 %).
13. It was observed that majority (63.75%) of the agripreneurs had medium economic motivation, followed by high (30.00%) and low (6.25%) levels of economic motivation.
14. Majority (71.25%) of the respondents have medium group cohesion, followed by high and low group cohesion with 17.50 and 11.25 per cent, respectively.
15. 93.75 per cent of the respondents opined that they were having medium level of organisational climate.
16. It was found that majority of the respondents belonged to medium category of risk taking (71.25%), hope of success (61.25%), persuasibility (75.00%), feedback usage (75.00%), self-confidence (72.50%), knowledgeability (71.25%), persistence (75%), manageability (66.25%), innovativeness (66.25%) and achievement motivation (62.50%).

17. Majority (66.25%) of the agripreneurs were having medium entrepreneurial behaviour with a mean entrepreneurial behaviour index of 61.55. However 21.25 and 12.50 per cent of the agripreneurs in AFPs were having low and high entrepreneurial behaviour, respectively.
18. It was observed that the most important dimension based on the mean value was knowledgeability (20.38) which was followed by persistence (19.58), innovativeness (17.53), manageability (17.38), risk taking (17.38), use of feedback (16.98), persuasibilty (16.58), achievement motivation (16.26), self-confidence (15.93) and hope of success (15.14) in the decreasing order of importance.
19. Principal Component Analysis was worked out for confirmation. It revealed that the four components of entrepreneurial behaviour *viz*., risk taking, hope of success, persistence and use of feedback explained 64.00% of variations with eigen values greater than one.
20. It was revealed that out of the thirteen independent variables, six variables *viz.*, cosmopoliteness, market perception, problem solving ability, credit orientation, management orientation and extension orientation were positively and significantly correlated to entrepreneurial behaviour at 1% level of significance
21. It was also observed that four variables, namely, education, environmental orientation, group cohesion and economic motivation were positively and significantly correlated to entrepreneurial behaviour at 5% level of significance.
22. It was evident that in leading performance indicator, ‘customer focus’ was ranked ‘one’ with a weighted mean score of 4.48. Similarly, ‘business performance’ was the most important lagging performance indicator with a weighted mean score of 4.30.
23. The organisational structure analysis revealed that all the AFPs had three levels of management whereas the maximum functionaries were present in Alappuzha and the least in Ernakulam.

24. The major functions of AFPs include providing land area to establish food companies, common infrastructural facilities such as cold storages, warehousing facilities, effluent treatment plants, quality control laboratories, single window clearance etc.
25. On analysing the stakeholder linkage of AFPs, stakeholders were found to be maximum (9) in Idukki and minimum (4) in Alappuzha.
26. The major constraint identified was the lack of adequate and timely availability of funds which in turn hindered the development of AFPs. Next constraint was the increased time involved in establishment of agri enterprises within the AFP than the envisaged time.
27. The major suggestions as perceived by the officials of AFPs include expansion of existing land area to accommodate more number of units, to create awareness in public about the services offered by AFPs and to improve the infrastructural facilities to the international standard.

Suggestions for future research work

1. Scaling up the same study in other Agro Food Parks as well.
2. Comparative studies of the Agro Food Parks in Kerala and other states.
3. Product wise analysis of different Agro Food Parks.
4. Research studies on the policies to develop Agro Food Parks.
5. Comparative studies on the entrepreneurial behaviour and performance of agripreneurs within and outside the AFPs.

Plate 1. Interacting with the official of Spices Park, Idukki

Plate 2. Orientation programme conducted at Spices Park, Idukki

Plate 3. e- Auction centre in Spices Park, Idukki

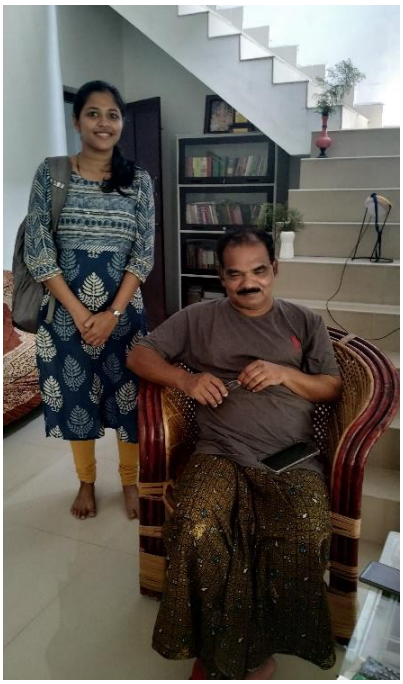


Plate 4. Interacting with farmers in Idukki

Plate 5. Interacting with the members of Seafood Park, Alappuzha

Plate 6. Interacting with the members of KINFRA Food Park, Ernakulam

Plate 7. Interacting with the members of KINFRA Food Park, Malappuram

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PROSPECTS AND PROBLEMS OF AGRO FOOD PARKS (AFPs): A MULTI-DIMENSIONAL ANALYSIS

by

RIN ROSE ANTONY

(2018-11-071)

ABSTRACT

of the thesis submitted in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE IN AGRICULTURE

Faculty of Agriculture

Kerala Agricultural University

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF AGRICULTURE

VELLAYANI, THIRUVANANTHAPURAM-695 522

KERALA, INDIA

2020

Abstract

ABSTARCT

The study entitled “Prospects and Problems of Agro Food Parks (AFPs): a Multidimensional Analysis” was undertaken with the objectives of analysing the entrepreneurial behaviour, profile characteristics, structure and function of AFPs, performance analysis, stakeholder linkage and constraints faced by the AFPs. The study comprised of eighty respondents who were selected randomly from four AFPs, namely, Spices Park- Idukki, Seafood Park- Alappuzha, KINFRA Food Park- Ernakulam and KINFRA Food Park- Malappuram. Thirteen independent variables were selected through judge’s ratings. The variables namely entrepreneurial behaviour and performance analysis were the dependant variables of the study.

On analysis of data, it was found that majority (58.75%) of agripreneurs were middle aged (35- 55 years) and 66.25 per cent of the respondents were graduates and above. Over 72.50 per cent of respondents had an experience of 2-9 years in agripreneurial activities. More than half (70.00%) of the respondents had medium level of cosmopoliteness and fifty percent had medium perception about the market. Majority of the respondents were in the medium category of problem solving ability (63.75%), credit orientation (62.50%), economic motivation (63.75%), management orientation (63.75%), group cohesion (71.25%) and extension orientation (70.00%).

Distribution of respondents based on extension contact revealed that majority (82.50%) of the respondents depended on personnel’s of AFPs and commodity boards for information and support. More than three-fourth (78.75%) of the respondents had high level of environmental orientation.

Majority (66.25%) of the agripreneurs were having medium entrepreneurial behaviour with a mean entrepreneurial behaviour index of 61.55. Distribution of respondents based on their entrepreneurial attributes was done using mean and standard deviation, it was found that majority of the respondents belonged to medium category of risk taking (71.25%), hope of success (61.25%), persuasibility (75.00%), feedback usage (75.00%), self-confidence (72.5%), knowledgeability (71.25%), persistence (75.00%), manageability (66.25%), innovativeness (66.25%) and achievement

motivation (62.50%). The results of the Principal Component Analysis revealed that the four components of entrepreneurial behaviour viz., risk taking, hope of success, persistence and use of feedback explained 64 per cent of variations with eigen values greater than one.

The correlation study revealed that out of the thirteen independent variables, six variables viz., cosmopoliteness, market perception, problem solving ability, credit orientation, management orientation and extension orientation were positively and significantly correlated at 1% level of significance whereas education, environmental orientation, group cohesion and economic motivation were positively and significantly correlated at 5% level of significance.

Performance was analysed in terms of leading and lagging indicators. 'Customer focus' was ranked 'one' with a weighted mean score of 4.48 under leading performance indicator. Similarly, 'business performance' was the most important lagging performance indicator with a weighted mean score of 4.30. The organisational structure analysis revealed that all the AFPs had three levels of management whereas the maximum functionaries were present in Alappuzha. The major functions of AFPs include providing land area to establish food companies, common infrastructural facilities such as cold storages, warehousing facilities, effluent treatment plants, quality control laboratories, single window clearance etc. On analysing the stakeholder linkage of AFPs, stakeholders were found to be maximum (9) in Idukki and minimum (4) in Alappuzha.

Out of the seven constraints as perceived by the agripreneurs and the officials of AFPs, the major constraint identified was the 'lack of adequate and timely availability of funds 'which in turn hindered the development of AFPs. The main suggestions as perceived by the officials of AFPs include expansion of existing land area to accommodate more number of units, to create awareness in public about the services offered by AFPs and to improve the infrastructural facilities to the international standards. To conclude, it is quintessential to design policies at macro level in order to improve the facilities and agripreneurial potential of AFPs so that the farmers and aspiring agripreneurs can make use of the services provided by AFPs in the best possible way.

Appendices

APPENDIX I

KERALA AGRICULTURAL UNIVERSITY
COLLEGE OF AGRICULTURE
Department of Agricultural Extension
Vellayani, Thiruvananthapuram - 695 522

TITLE OF STUDY
"**Prospects and Problems of Agro Food Parks (AFPs): A Multi-dimensional Analysis"**

Date: 31-12-2019

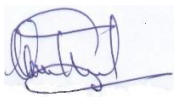
Sir/Madam,

Ms. Rin Rose Antony (Ad. No. 2018-11-071), the Post Graduate student in the Department of Agricultural Extension, College of Agriculture, Vellayani is undertaking a research study entitled "Prospects and Problems of Agro Food Parks (AFPs): A Multi-dimensional Analysis" as part of her research work. Variables supposed to have close association with the study have been identified after extensive review of literature.

Considering your vast experience and knowledge on the subject, I request you to kindly spare some of your valuable time to examine the variables critically and to rate the relevancy of them with the continuum provided. Any other variables found suitable for the study may also be kindly suggested inorder to improve the quality of the study. I request your goodself to kindly return the list duly filled at the earliest in the self-addressed stamped envelope enclosed with this letter.

Thanking you

Yours faithfully



(Allan Thomas)

OBJECTIVES OF THE STUDY

The study aims in the assessment of Agro Food Parks (AFPs) in Kerala, analyse its structure, role and performance in fostering entrepreneurship and to identify the constraints that hinder its development.

Table showing variables taken for the study

Variables are given in bold cases and their meaning is explained for its easy understanding. You may please rate the statement with a tick mark in the appropriate column against the statement with special reference to its importance to meet the objectives of the study. You are free to correct and suggest modification for the statements under each stated variable of study.

Sl. No	Variables and their operational definition	Relevancy rating (R-relevant)				
		Most R	More R	R	Less R	Least R
1.	**Age**: Operationalized as the actual age completed in years at the time of interview					
2.	**Education**: Defined as the level of formal education attained by the respondent at the time of study					
3.	**Occupational status**: Refers to the position of the respondent which acts as major source of income in which he/ she spends major part of his time and attention					
4.	**Landholding**: Refers to the total land owned by the respondent					
5.	**Annual income**: Refers to the total earning of the respondent through the agri-enterprise per year					
6.	**Cosmopoliteness** : Degree to which respondent is oriented to his/ her immediate outside social system					
7.	**Experience**: Refers to the number of years the respondent has been engaged in agripreneurial activity					
8.	**Innovation proneness**: Refers to the keenness of the respondent in accepting new ideas and seeking changes in business enterprise, if practical and feasible					

9.	**Market perception**: Operationalised as the capacity of the entrepreneur to identify the market trends to sell the produce for greater returns					
10.	**Decision making ability**: It is operationalized as the skill, or proficiency in the act of choosing between two or more courses of action on the basis of scientific criteria for achieving maximum economic profit					
11.	**Social participation**: Refers to the content and nature of participation of the respondents in various activities					
12.	**Management orientation**: Defined as the organisation's choice of response within its environment that depends on its belief whether or not its action can have an effect on the overall running of the organisation					
13.	**Problem solving ability**: Operationalised as the ability to identify the problem, find the solution, select the best one and apply it					
14.	**Self-reliance**: Refers to the extent to which a person relies on self for his/her future					
15.	**Extension orientation**: Refers to the extent of contact with different extension agencies and his/her participation in various extension activities					
16.	**Scientific orientation**: Refers to the degree to which the respondent is oriented towards scientific practices followed in agrofood parks					
17.	**Credit orientation**: Refers to the favourable and positive attitude of the respondent towards obtaining credit from institutional sources					
18.	**Environmental orientation**: Operationalised as the degree to which the respondent has concern for his/her environment					
19.	**Mass media exposure**: Refers to the degree to which the different mass media namely television, newspaper, magazines, books etc. is utilised by the entrepreneur for seeking information					

20.	**Perceived knowledge of technology**: Defined as the thorough knowledge and understanding of the respondent about the technology					
21.	**Socio- political participation**: Refers to the extent and nature of participation of respondent in various activities of socio-political participation					
22.	**Economic motivation**: Refers to the extent to which the respondent is oriented towards profit maximization and relative value he/ she pays on monetary gains.					
23.	**Group motivation**: Defined as the goal directing behaviour of individual members so as to influence mutually in achieving group goals					
24.	**Training** : Defined as the number of training undergone by the respondent for the success of his/ her business					
25.	**Attitude towards group approach**: Refers to the degree of favourableness or unfavourableness of the respondent towards group approach					
26.	**Group cohesion:** Defined as the degree to which the group members are affiliated to one another and are motivated to remain in the group					
27.	**Organizational climate**: Operationalized as the individuals' perception with respect to the organizational procedures, policies and practices					
28.	**Type of enterprise**: Defined as different products manufactured and sold through agro food parks					
29.	**Others if any please specify**					

APPENDIX II

The variables with mean relevancy score:

Sl. No	Independent variables	Mean relevance score
1.	Age	**3.70**
2.	Education	**3.85**
3.	Occupational status	3.18
4.	Landholding	2.86
5.	Annual income	3.24
6.	Cosmopoliteness	**3.72**
7.	Experience	**3.94**
8.	Innovation pronessness	3.37
9.	Market perception	**3.82**
10.	Decision making ability	3.16
11.	Social participation	3.39
12.	Management orientation	**3.73**
13.	Problem solving ability	**3.82**
14.	Self- reliance	3.35
15.	Extension orientation	**3.89**
16.	Scientific orientation	2.75
17.	Credit orientation	**3.85**
18.	Environmental orientation	3.57
19.	Mass media exposure	3.28
20.	Perceived knowledge of technology	3.21
21.	Socio-political participation	2.93
22.	Economic motivation	**3.63**
23.	Group motivation	3.16
24.	Training	3.29
25.	Attitude towards group approach	3.32
26.	Group cohesion	**3.71**
27.	Organisational climate	**3.88**
28.	Type of enterprise	3.43

Mean score = 3.47

APPENDIX III

KERALA AGRICULTURAL UNIVERSITY

COLLEGE OF AGRICULTURE, VELLAYNI, THIRUVANANTHAPURAM

DEPARTMENT OF AGRICULTURAL EXTENSION

INTERVIEW SCHEDULE

Prospects and Problems of Agro Food Parks (AFPs): A Multi- dimensional Analysis

Name of the Food Park:

Name and address of the respondent

1. **Name:**
2. **Address:**
3. **Age:**
4. **Phone no:**
5. **Education:**
6. **Annual income:**
7. **Experience:**
8. **Membership in any organization:**
9. **Cosmopoliteness:**

Sl. No	STATEMENT	DA(0)	UD(1)	A(2)
1.	There is no need to collect additional information from outside			
2.	I try to get information regarding agribusiness through mass media facilities			
3.	I can only learn from my own experiences.			
4.	Maintaining contact with progressive entrepreneurs is useful for managing the business.			
5.	Visiting the subject matter specialist is a waste of time			
6.	Exhibitions, seminars , workshops helps to gather recent information			

10. Problem solving ability:

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	Usually, I am able to think effective alternatives to solve a problem					
2.	I make decisions and later regret them					
3.	I don't take advice from the experts					
4.	I trust my capacity to solve new and complex problems					
5.	I make decisions and remains happy with it later					
6.	I am not sure whether I can manage a problem					
7.	When I face a problem, I collect entire information about the situation					
8.	I am confident that I can solve a problem					

11. Market perception:

Sl. No	Statement	Response
1.	Will you be able to market the produce/ service, if there the production rate is increased?	Yes(2) No(1)
2.	Do you find it difficult to sell the produce in local market?	Very difficult (1) Difficult (2) Easy (3) Very easy (4)
3.	How much price the produce/ service will fetch compared to produce/ service of other agencies?	Low (1) Same (2) High (3)

12. Management Orientation:

Planning orientation:

Sl.No	Statement	Agree(1)	Disagree(0)
1.	Each year one should revise the project proposal based on situations		
2.	It is not necessary to make a proper project proposal prior to starting the business		
3.	Proper assessment of the inputs required should be done prior to starting the business		
4.	It is not necessary to think ahead of the cost involved in the business		
5.	One need not consult any expert before starting the business		
6.	It is possible to increase the profit through proper project plan.		

Production orientation:

Sl. No	Statements	Agree (1)	DA (0)

1.	Business if started at the right time can increase the profit		
2.	One can use as much as inputs as he likes		
3.	Preparing project proposal in consultation with experts can reduce the expenses		
4.	The project plan should be followed as such		
5.	Production is based on demand		
6.	Maximizing the use of inputs, increases profit		

Marketing Orientation:

Sl. No.	Statements	Agree (1)	DA(0)
1.	Market news is not useful to business		
2.	A farmer can get good price by processing his produce		
3.	Warehouses and cold storages help to get better prices for the produce		
4.	One should sell his produce to the nearest market irrespective of the price		
5.	Proper grading and standardisation fetch high price for the produce		
6.	Take up enterprises with more consumer demand		

13. Extension orientation

Extension contact

Sl.No	Items	Often	Frequently	Occasionally	Never
1.	Agriculture Officer and Agri. Department				
2.	Scientists of KAU and ICAR institutes				

3.	Personnel of other institutes/ commodity boards				
4.	Friends, neighbours etc.				
5.	Progressive entrepreneurs				

Extension participation

Sl.No	Items	Whenever conducted	Sometimes	Never
1.	Seminars			
2.	Fairs / Exhibitions			
3.	Meetings			
4.	Schemes such as ACABC			
5.	Study tours			
6.	Others			

14. Credit orientation

Sl. No	Statements	Response
1.	Do you think an agripreneur like you should borrow credit from institutional sources?	Yes(2) No(1)
2.	In your opinion, how difficult is it to secure credit for agri- enterprises?	Very difficult (1) Difficult (2) Easy (3) Very easy (4)
3.	How an entrepreneur is treated when he goes to secure credit?	Very badly(1) Badly (2) Fairly (3) very fairly (4)
4.	There is nothing wrong in taking credit from institutional sources for increasing production.	SDA(1) DA(2) UD(3) A(4) SA(5)
5.	Have you used credit previously?	Yes(2) No(1)

15. Environmental orientation

Sl. No.	Statements	Agree (2)	DA (1)

1.	Excessive and exploitative use of chemicals poses threat to earth and human kind		
2.	Soil pollution, water pollution and air pollution are the major environmental issues concerned by humans		
3.	Do you think that conventional agri- enterprises are less polluting than that in Food parks		
4.	Food Parks are associated in resource recycling that reduces environmental damage.		

16. Economic motivation

Sl. No.	Statements	Agree (1)	DA (0)
1.	Entrepreneur should take up business with motive to increase production and profit.		
2.	An entrepreneur becomes successful when he/she makes more profit.		
3.	Any innovative idea which brings in profit should be adopted.		
4.	Specialized agro- processing should be preferred by an agripreneur over conventional crop production system.		
5.	Without financial support from the agripreneur, his family finds it difficult to move ahead		
6.	An entrepreneur should only earn for living but should never connect finance with life's important matters		

17. Group cohesion

Sl. No.	Statements	Always (2)	Sometimes(1)	Never (0)
1.	The AFP to which I belong functions properly			
2.	Almost all the members of the group take part actively in planning, production and marketing aspects			

3.	Differences in opinion are common during group decision making			
4.	Members exhibit mutual trust among each other			
5.	Since the differences in opinion exceeds its limit, it becomes difficult to arrive at a wise decision			

18. Organisational climate

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	There are many rules, policies, procedures and practices in the Food Park which I have to follow rather than being able to work as you see fit.					
2.	I can make my own decisions and solve the problems without checking with supervisors in each step of the work.					
3.	The goals set by the Food Park is communicated to its members for quality and outstanding production.					
4.	Members are free to take up leadership roles and are rewarded for successful leadership.					
5.	All the things are well organized and goals are clearly defined than being disorderly or messy.					
6.	Friendliness is a valued norm and one can trust another and support each other in the organization.					
7.	The organisation always appreciate good works of the members and don't punish if anything go wrong					

19. Entrepreneurial behaviour

Please give your degree of agreement and disagreement about each of the following statements

Risk taking

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I don't fear investing my money on a venture whose dividends I have calculated					
2.	I will consider a risk worth taking if the probability for success is 40-60 %					
3.	I don't mind working under conditions of uncertainty as long as there is a reasonable probability of gains from it for me					
4.	I will consider a risk worth taking only if the probability for success is 60-100 %					
5.	I don't care if the profit is small so long as it is assured and constant					

Hope of success

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I believe problems and barriers can be turned into opportunities that can be exploited					
2.	I am unprepared for the outcome of my actions					
3.	I don't think of negative consequences of decisions that I make					
4.	I cannot see the future as bright and promising					
5.	I meet and solve problems as they are					

Persistence

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I don't allow failures to discourage me					
2.	Once I have started a task I usually carry it to its completion					
3.	I find myself working harder under stress					
4.	I work just as hard as most people I know					

5.	When I fail in a goal, I immediately turn my attention to another goal					

Use of feedback

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I don't get upset when given negative feedback about the way I perform					
2.	I try to know more about the life stories of successful businessman					
3.	Mistakes and failures overwhelm me so much that I cannot learn from them					
4.	I am unwilling to charge my mind, once its is made up even in the face of new development					
5.	I find no reason to consult other people about how to run my business better because I am satisfied with the way I run it.					

Self confidence

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I accomplish most when I am alone, under no direct supervision of anyone					
2.	I tend to overestimate my capabilities for succeeding in any venture					
3.	I doubt my ability to cope under new untested condition					
4.	I find difficulty in asserting myself against the opinion of majority					
5.	Even if I am hardworking and ambitious, if I don't have the money, I can't start a business.					

Knowledgeability

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	The knowledge, experience and training I have on my proposed business is good enough					

2.	My competence is better than that of the ordinary man in my community					
3.	I want to have good knowledge of my market before I start my business					
4.	I need not waste time and money on “market research” if the product sells, I will go on producing					
5.	I don’t see the importance of reading newspaper everyday					

Persuasability

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I don’t get discouraged from an initial “no” from a buyer because I am usually able to convince him inevitably to my product					
2.	I am able to stimulate and direct others					
3.	I find it hard to beg, that is to ask favours from other people					
4.	I have difficulties in obtaining loans from others					
5.	It is not so easy for me to get people to do what I want them to do					

Manageability

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	I find nothing wrong in consulting expert advice regarding how I must manage my business					
2.	As an entrepreneur I need to practice basic managerial skills so that my business need not be a one man show for a concerted effort to myself and those who work for me					
3.	It is not necessary to be scientific and rational labour management as long as one has the will to do what he wants					

4.	I cannot be away too long from my business because no one else can manage its activities					
5.	I believe the sole proprietorship is the best form of ownership for a business to succeed					

Innovativeness

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	While my product/ service may not entirely be new. I am thinking of new and better ways to make it competitive					
2.	While others see nothing unusual in the surrounding. I am able to perceive in it new opportunities for business					
3.	I avoid changing the way things are done					
4.	I have never tried introducing a new product to the market and don't wish to try it					
5.	I want to earn more money by starting a new economic activity					

Achievement motivation

Sl. No	STATEMENT	SD	DA	UD	A	SA
1.	Challenges make me work harder and I am happy to take it					
2.	I am more concerned with being successful (growth) in business rather than profit oriented					
3.	I earn only as to make a comfortable way of living					
4.	I don't mind taking unchallenging activities if the pay is good					
5.	I prefer people based on relationships rather than on basis of competence					

14. Performance analysis

Sl. No	General Performance Indicators (LA & LA)	Degree of importance				
		1	2	3	4	5
1.	Efficiency (LE)					
2.	Customer focus (LE)					
3.	Employee relations(LE)					
4.	Environmental factors(LE)					
5.	Social factors (LE)					
6.	Innovation (LA)					
7.	Structure of the firm (LA)					
8.	Business performance (LA)					

15. Constraints

Sl. no	Constraints	R
9.	Lack of financial supports	
10.	Actual time in laying projects exceeds envisaged time	
11.	Insufficient infrastructure facilities	
12.	Locational disadvantages	
13.	Slow single window clearance	
14.	Indifferent attitude of park authorities	
15.	Indifferent attitude of local people	

Others if any:

16. Suggestions

APPENDIX IV

Principal Component Analysis Based on Correlation Matrix

Descriptive Statistics

	risk	hope	persis	feed	self	knowl	persuab	manage	innovate	achieve
Mean	17.375	15.138	19.575	16.975	15.925	20.375	16.575	17.375	17.525	16.263
Variance	4.541	2.956	2.931	5.544	5.387	3.301	7.134	3.807	9.037	4.525
S.D	2.131	1.719	1.712	2.355	2.321	1.817	2.671	1.951	3.006	2.127

Covariance Matrix

	risk	hope	persis	feed	self	knowl	persuab	manage	innovate	acieve
risk	4.541	0.834	0.301	0.972	1.282	0.744	2.263	0.263	1.370	0.255
hope	0.834	2.956	0.325	0.649	1.010	0.087	-0.029	-0.293	0.927	0.660
persis	0.301	0.325	2.931	0.736	0.499	0.604	0.058	0.060	0.909	0.885
feed	0.972	0.649	0.736	5.544	2.163	1.453	2.888	0.503	3.254	0.918
self	1.282	1.010	0.499	2.163	5.387	0.712	2.411	0.915	2.027	1.248
knowl	0.744	0.087	0.604	1.453	0.712	3.301	1.883	0.136	1.535	1.242
persuab	2.263	-0.029	0.058	2.888	2.411	1.883	7.134	0.997	3.466	1.088
manage	0.263	-0.293	0.060	0.503	0.915	0.136	0.997	3.807	-0.718	-0.517
innovate	1.370	0.927	0.909	3.254	2.027	1.535	3.466	-0.718	9.037	1.228
acieve	0.255	0.660	0.885	0.918	1.248	1.242	1.088	-0.517	1.228	4.525

Correlation Matrix

	risk	hope	persis	feed	self	knowl	persuab	manage	innovate	acieve
risk	1.000	0.228	0.082	0.194	0.259	0.192	0.398	0.063	0.214	0.056
hope	0.228	1.000	0.110	0.160	0.253	0.028	-0.006	-0.087	0.179	0.180
persis	0.082	0.110	1.000	0.183	0.126	0.194	0.013	0.018	0.177	0.243
feed	0.194	0.160	0.183	1.000	0.396	0.340	0.459	0.110	0.460	0.183
self	0.259	0.253	0.126	0.396	1.000	0.169	0.389	0.202	0.291	0.253
knowl	0.192	0.028	0.194	0.340	0.169	1.000	0.388	0.038	0.281	0.321
persuab	0.398	-0.006	0.013	0.459	0.389	0.388	1.000	0.191	0.432	0.191
manage	0.063	-0.087	0.018	0.110	0.202	0.038	0.191	1.000	-0.122	-0.125
innovate	0.214	0.179	0.177	0.460	0.291	0.281	0.432	-0.122	1.000	0.192
acieve	0.056	0.180	0.243	0.183	0.253	0.321	0.191	-0.125	0.192	1.000

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Eigenvalues of Correlation Matrix

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
Eigenvalues	**2.948**	**1.329**	**1.104**	**1.015**	**0.839**	**0.816**	0.639	0.491	0.464	0.355
Proportion	0.295	0.133	0.110	0.102	0.084	0.082	0.064	0.049	0.046	0.036
Cumulative Proportion	0.295	0.428	0.538	0.640	0.724	0.805	0.869	0.918	0.964	1.000

Loadings (Eigenvectors) of Correlation Matrix

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
risk	**0.294**	0.162	**-0.387**	-0.161	**0.671**	-0.262	-0.200	-0.100	-0.166	-0.339
hope	0.190	**-0.347**	**-0.679**	0.121	-0.018	0.075	**0.505**	0.189	0.003	0.268
persis	0.193	**-0.354**	0.189	**0.559**	0.056	**-0.623**	-0.209	-0.036	0.031	0.228
feed	**0.419**	0.087	0.075	-0.046	**-0.431**	-0.124	0.253	**-0.403**	**-0.598**	-0.154
self	**0.376**	0.130	-0.279	0.254	-0.252	**0.313**	**-0.363**	**-0.413**	**0.483**	-0.053
knowl	**0.342**	-0.054	**0.458**	-0.034	**0.357**	0.091	**0.568**	-0.197	**0.408**	-0.075
persuab	**0.422**	**0.338**	0.123	-0.238	0.102	0.082	-0.174	0.194	-0.106	**0.735**
manage	0.072	**0.615**	0.006	**0.584**	-0.018	0.023	0.209	**0.432**	-0.046	-0.207
innovate	**0.387**	-0.126	0.035	**-0.374**	**-0.360**	-0.273	-0.092	**0.535**	0.289	-0.333
acieve	**0.270**	**-0.438**	0.210	0.206	0.171	**0.578**	-0.247	0.267	**-0.342**	-0.188

Correlation of Principal Components with Original Variables

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	Communality k=6
risk	0.506	0.187	-0.407	-0.162	0.614	-0.237	-0.160	-0.070	-0.113	-0.202	0.916
hope	0.326	-0.400	-0.713	0.122	-0.016	0.067	0.404	0.132	0.002	0.160	0.794
persis	0.331	-0.409	0.199	0.563	0.051	-0.563	-0.167	-0.025	0.021	0.136	0.953
feed	0.720	0.100	0.079	-0.046	-0.395	-0.112	0.202	-0.282	-0.407	-0.092	0.705
self	0.645	0.150	-0.293	0.256	-0.231	0.282	-0.290	-0.289	0.329	-0.032	0.723
knowl	0.588	-0.062	0.481	-0.035	0.327	0.082	0.454	-0.138	0.278	-0.045	0.696
persuab	0.725	0.389	0.130	-0.240	0.093	0.074	-0.139	0.136	-0.072	0.438	0.765
manage	0.123	0.709	0.006	0.588	-0.016	0.021	0.167	0.303	-0.031	-0.123	0.864
innovate	0.665	-0.145	0.037	-0.377	-0.330	-0.246	-0.074	0.375	0.197	-0.198	0.776
acieve	0.463	-0.505	0.221	0.208	0.156	0.522	-0.198	0.187	-0.233	-0.112	0.859

Principal Component Scores from Correlation Matrix

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
O1	-0.127	-1.199	0.858	-1.419	1.291	-0.729	0.222	1.702	0.760	0.122
O2	-1.107	-1.247	-1.925	-0.879	0.459	0.014	1.721	0.536	1.531	0.502
O3	1.865	-0.440	0.781	0.682	0.814	-0.064	0.352	0.042	0.438	0.383
O4	1.613	0.533	-0.393	0.279	-0.001	-0.884	-0.016	0.244	0.958	-0.574
O5	-1.662	-0.076	-2.420	-0.224	-0.128	1.054	1.534	-0.583	-0.143	-0.862
O6	-0.457	0.073	-1.240	-0.100	0.446	-0.242	-0.149	-0.419	-0.078	-0.327
O7	0.605	-0.369	-1.105	-0.106	-0.169	-1.288	-0.112	0.501	0.830	0.157
O8	-0.383	0.873	-1.373	1.626	-0.484	-0.221	1.341	1.105	0.137	1.766
O9	-0.854	-0.103	0.639	-0.237	2.399	-0.111	-1.808	-1.937	1.011	-0.461
O10	-2.075	-0.346	-0.890	-0.567	1.258	-0.925	-0.071	-0.820	-0.307	0.705
O11	0.600	-0.180	-0.205	-0.107	-0.560	0.152	-0.334	0.322	-0.215	1.095
O12	-1.032	-1.339	-1.418	0.375	0.977	0.294	-0.643	-0.468	-0.593	0.907
O13	0.081	1.100	0.328	0.848	-0.323	0.057	1.369	0.571	-0.908	-1.068
O14	-0.887	-0.078	0.242	-0.794	-0.251	1.749	0.449	0.049	1.195	-2.800
O15	-1.207	0.632	-0.457	0.325	0.490	0.372	1.471	-3.055	0.148	-0.038
O16	0.918	0.529	1.565	-0.286	-0.095	0.234	0.944	-1.532	-0.023	-2.349
O17	0.625	1.388	0.210	0.647	-0.197	-0.262	-0.935	-1.885	0.660	-1.130
O18	-1.737	0.768	1.099	1.286	0.662	-1.069	-0.606	-0.323	-0.203	0.285
O19	0.111	1.513	-0.682	0.037	-0.073	-2.229	0.844	-0.030	-0.292	-1.178
O20	-0.995	0.425	1.980	1.860	-0.144	2.477	-0.412	-1.383	-0.301	0.219
O21	-0.975	-1.069	1.515	1.751	-1.768	-0.613	1.255	1.574	1.626	-0.178
O22	0.398	-0.720	0.644	-0.322	1.429	0.177	0.841	1.360	0.684	0.456
O23	-2.450	0.352	1.551	0.209	-0.126	-0.960	1.651	1.576	0.345	-0.235
O24	0.072	-0.223	0.391	0.285	-1.601	-1.036	1.473	-0.845	1.933	1.190
O25	0.310	-1.393	-0.035	1.345	1.306	0.951	0.688	-0.577	-0.755	-0.040
O26	1.165	-2.378	0.133	0.050	0.976	0.254	0.629	-0.472	-0.275	1.441
O27	-0.636	-2.510	-0.389	0.069	0.061	0.912	-0.157	0.156	-1.279	-0.095
O28	-1.163	-1.866	0.268	0.219	2.370	0.485	0.774	-0.074	-1.384	0.020
O29	1.203	1.191	-0.303	0.261	0.409	-1.610	-0.183	0.566	-0.039	-0.800
O30	-1.093	-0.956	0.356	-1.271	0.167	-0.665	0.052	-0.895	-0.081	-0.844
O31	-0.478	0.508	0.149	-0.663	-1.382	0.495	-1.541	0.043	-0.038	-0.857
O32	0.773	0.281	-0.543	-0.148	2.361	-0.782	1.182	1.472	-1.182	-0.024
O33	-1.091	0.798	0.601	-2.220	-0.023	0.994	-0.909	1.451	-1.354	1.506
O34	0.443	0.529	-0.101	-0.480	1.694	-0.459	-1.367	-0.116	0.867	0.098
O35	0.140	-1.067	-1.120	-0.499	-0.323	0.200	-0.005	0.604	1.000	-1.416
O36	0.464	-0.116	-0.050	0.699	-0.360	-0.450	0.384	-0.187	0.318	0.482
O37	1.000	0.938	-1.100	0.697	0.472	0.547	0.223	1.752	-0.955	-0.529
O38	0.015	1.919	1.367	0.171	1.008	1.935	-0.113	2.920	-0.815	0.126
O39	1.649	-0.177	-2.403	2.406	-0.156	-0.120	-0.596	0.926	-0.385	-1.518
O40	0.070	0.161	-0.479	1.046	0.500	2.415	-0.059	0.117	0.859	-0.462

O41	0.185	0.829	0.639	-0.259	0.790	0.897	0.714	-1.051	0.868	-0.635
O42	-1.805	-0.174	-0.497	0.168	-0.474	-1.880	-0.188	-0.364	1.503	1.899
O43	0.545	0.620	0.372	0.166	-0.194	-0.396	1.321	0.489	-1.721	1.547
O44	0.771	1.178	0.738	-0.955	-0.837	-0.545	0.412	-0.125	0.938	0.458
O45	0.811	1.363	-1.212	-0.717	-0.062	0.768	0.122	0.167	-0.538	-0.733
O46	-0.557	-1.061	0.484	0.211	-2.094	-1.561	-1.461	0.498	-2.958	0.096
O47	1.045	0.002	0.490	-0.049	1.044	0.608	-0.700	1.241	0.536	0.182
O48	0.929	1.489	-0.019	-0.446	0.331	-0.928	-0.646	-1.114	0.117	0.928
O49	-0.441	-0.264	-0.482	-1.768	-2.437	0.303	-0.190	-0.188	-0.351	-0.800
O50	0.981	0.318	0.511	-2.448	-0.506	1.533	1.518	0.862	2.203	0.809
O51	-0.495	-1.381	0.369	1.051	-0.036	-1.299	-1.733	-0.133	0.586	-0.727
O52	0.547	0.461	-0.024	1.509	-1.764	-0.347	0.818	-0.201	1.151	-0.026
O53	0.029	1.129	0.295	0.261	0.870	0.579	-0.518	0.240	0.831	0.692
O54	0.014	-1.945	-0.115	0.194	-1.866	0.009	-0.894	0.207	-1.269	-0.515
O55	1.936	-1.726	0.192	-0.282	-0.027	-1.754	1.704	-0.906	-0.285	0.412
O56	0.190	0.289	1.855	-0.350	-0.264	-0.479	-1.245	-1.070	-0.130	1.669
O57	0.809	-0.038	0.552	-0.018	0.100	-0.280	-0.543	-0.035	-2.296	1.793
O58	1.061	0.048	2.649	-0.258	0.313	-0.940	-0.507	-0.121	1.066	0.348
O59	0.872	1.253	-1.406	1.967	-0.396	0.386	0.650	-1.540	-1.134	-0.182
O60	-0.056	0.217	-0.330	-0.090	0.153	-0.141	1.479	-1.789	-1.442	0.234
O61	1.035	-1.158	0.438	0.184	0.593	1.427	-0.092	-0.510	-1.177	0.074
O62	1.126	-0.727	-1.859	-1.782	0.247	0.083	-0.493	-1.473	1.734	1.802
O63	-1.367	1.303	-1.270	-0.138	-0.260	1.290	0.777	0.321	-0.393	0.834
O64	-0.203	1.299	-0.502	0.703	0.945	-0.064	-1.717	0.010	0.858	1.192
O65	0.414	-0.794	-1.012	1.071	-0.975	1.316	-1.183	1.289	1.416	-0.139
O66	-0.456	-0.398	-0.998	0.452	-1.599	-0.024	-2.039	0.478	1.305	-0.785
O67	-0.399	-0.244	0.068	0.021	0.573	-2.018	0.586	0.954	-0.845	-1.364
O68	2.287	-0.842	-0.299	-0.538	0.535	-0.209	-1.004	-0.357	-0.716	-1.574
O69	0.548	-0.946	-0.567	-2.234	-1.678	1.581	-0.969	-0.441	-0.394	0.805
O70	-1.210	1.016	-0.785	-1.415	-0.991	0.348	0.637	-0.120	-0.718	0.338
O71	-1.527	0.885	-0.316	2.123	0.137	0.951	-1.716	0.499	0.433	1.690
O72	0.859	0.386	0.729	-0.686	-0.267	0.315	0.404	1.067	0.299	0.423
O73	0.418	1.373	0.229	-1.519	-0.061	0.720	-0.977	-0.766	-0.867	-0.208
O74	-1.297	0.494	0.363	-0.167	0.276	-1.332	-1.562	-0.386	-0.221	-0.940
O75	-1.225	-0.469	1.151	-1.364	-0.158	-0.346	0.390	0.873	-0.630	-1.860
O76	0.706	0.572	-0.554	-1.008	-1.377	-0.325	-1.193	0.382	-1.303	0.500
O77	-0.337	1.317	0.538	-0.227	-1.153	-1.013	1.145	-0.421	-1.085	0.198
O78	-0.659	-0.722	0.097	0.343	0.656	-0.716	-1.604	1.276	0.907	-1.084
O79	-0.482	0.085	1.136	-0.387	0.453	0.817	0.429	-0.926	0.012	-1.838
O80	0.684	-1.696	2.306	1.831	-1.927	1.619	0.683	-0.803	0.016	0.811

APPENDIX V

Tables of Means, S.D. and Stand. Error

Variables	Mean	S.Deviation	S. Error
Variable 1	173.100	11.729	1.311
Variable 2	46.613	11.283	1.261
Variable 3	12.488	1.821	0.204
Variable 4	5.513	3.628	0.406
Variable 5	9.200	2.258	0.252
Variable 6	6.588	1.357	0.152
Variable 7	30.725	2.634	0.294
Variable 8	13.400	1.556	0.174
Variable 9	3.763	0.457	0.051
Variable 10	3.925	0.952	0.106
Variable 11	5.213	1.429	0.160
Variable 12	23.163	2.592	0.290
Variable 13	14.463	2.216	0.248
Variable 14	12.575	3.805	0.425

Dependent Variable No. 1
Independent variables are 2 3 4 5 6 7 8 9 10 11 12 13 14

Variance covariance Matrix

	Variable 1	Variable 2	Variable 3	Variable 4	Variable 5	Variable 6	Variable 7	Variable 8	Variable 9	Variable 10	Variable 11	Variable 12	Variable 13	Variable 14
Variable 1	135.840	-6.749	4.751	6.311	9.405	6.616	16.802	8.785	1.361	3.045	4.354	3.209	12.229	17.705
Variable 2	-6.749	125.712	-9.549	5.874	-4.022	-4.872	3.256	-6.845	-1.092	-0.767	-2.093	-4.974	-6.333	-13.065
Variable 3	4.751	-9.549	3.275	1.025	1.577	0.989	0.946	1.130	0.303	0.337	0.384	0.208	1.387	2.095
Variable 4	6.311	5.874	1.025	13.000	1.385	1.199	2.366	0.333	0.222	0.538	-0.496	0.017	0.988	-0.295
Variable 5	9.405	-4.022	1.577	1.385	5.035	1.020	2.417	1.145	0.298	0.090	0.195	-0.532	2.145	4.135
Variable 6	6.616	-4.872	0.989	1.199	1.020	1.817	1.387	0.902	0.215	0.132	0.275	0.042	1.178	1.162
Variable 7	16.802	3.256	0.946	2.366	2.417	1.387	6.849	1.322	0.210	-0.133	0.058	0.332	1.190	1.871
Variable 8	8.785	-6.845	1.130	0.333	1.145	0.902	1.322	2.390	0.182	0.280	0.552	0.472	1.677	2.133
Variable 9	1.361	-1.092	0.303	0.222	0.298	0.215	0.210	0.182	0.206	0.007	0.100	-0.049	0.535	0.324
Variable 10	3.045	-0.767	0.337	0.538	0.090	0.132	-0.133	0.280	0.007	0.894	0.166	0.362	0.397	1.218
Variable 11	4.354	-2.093	0.384	-0.496	0.195	0.275	0.058	0.552	0.100	0.166	2.017	0.603	0.677	1.165
Variable 12	3.209	-4.974	0.208	0.017	-0.532	0.042	0.332	0.472	-0.049	0.362	0.603	6.636	-0.338	0.932
Variable 13	12.229	-6.333	1.387	0.988	2.145	1.178	1.190	1.677	0.535	0.397	0.677	-0.338	4.849	5.234
Variable 14	17.705	-13.065	2.095	-0.295	4.135	1.162	1.871	2.133	0.324	1.218	1.165	0.932	5.234	14.294

Correlation Matrix

	Variable 1	Variable 2	Variable 3	Variable 4	Variable 5	Variable 6	Variable 7	Variable 8	Variable 9	Variable 10	Variable 11	Variable 12	Variable 13	Variable 14
Variable 1														
Variable 2	-0.052^{NS}													
Variable 3	0.225*	-0.471**												
Variable 4	0.150^{NS}	0.145^{NS}	0.157^{NS}											
Variable 5	0.360**	-0.160^{NS}	0.388**	0.171^{NS}										
Variable 6	0.421**	-0.322**	0.405**	0.247*	0.337**									
Variable 7	0.551**	0.111^{NS}	0.200^{NS}	0.251*	0.412**	0.393**								
Variable 8	0.488**	-0.395**	0.404**	0.060^{NS}	0.330**	0.433**	0.327**							
Variable 9	0.257*	-0.215^{NS}	0.369**	0.135^{NS}	0.292**	0.351**	0.176^{NS}	0.260*						
Variable 10	0.276*	-0.072^{NS}	0.197^{NS}	0.158^{NS}	0.042^{NS}	0.103^{NS}	-0.054^{NS}	0.192^{NS}	0.017^{NS}					
Variable 11	0.263*	-0.131^{NS}	0.149^{NS}	-0.097^{NS}	0.061^{NS}	0.144^{NS}	0.016^{NS}	0.252*	0.156^{NS}	0.124^{NS}				
Variable 12	0.107^{NS}	-0.172^{NS}	0.045^{NS}	0.002^{NS}	-0.092^{NS}	0.012^{NS}	0.049^{NS}	0.119^{NS}	-0.042^{NS}	0.149^{NS}	0.165^{NS}			
Variable 13	0.477**	-0.257*	0.348**	0.124^{NS}	0.434**	0.397**	0.206^{NS}	0.493**	0.535**	0.191^{NS}	0.216^{NS}	-0.060^{NS}		
Variable 14	0.402**	-0.308**	0.306**	-0.022^{NS}	0.487**	0.228*	0.189^{NS}	0.365**	0.189^{NS}	0.341**	0.217^{NS}	0.096^{NS}	0.629**	