ENTREPRENEURIAL SKILLS AMONG THE AGRICULTURAL STUDENTS IN KERALA

By

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(2018-11-075)

THESIS

Submitted in partial fulfilment of the

requirement for the degree of

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DECLARATION

I, hereby declare that the thesis entitled **"Entrepreneurial skills among the agricultural students in Kerala"** is a bonafide record of research done by me during the course of research and that it has not previously formed the basis for the award to me of any degree, diploma, fellowship or other similar title, of any other University or Society.

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CERTIFICATE

Certified that this thesis entitled **"Entrepreneurial skills among the agricultural students in Kerala"** is a record of research work done independently by **Ms. Aysha Adhina M (2018-11-075)** 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.
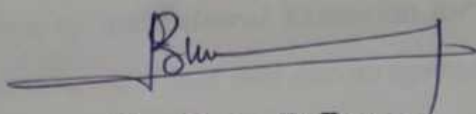
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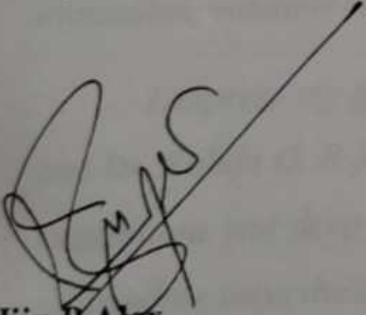Central Training Institute

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Aysha Adhina M

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Introduction

1. INTRODUCTION

"A systematic innovation, which consists in the purposeful and organized search for changes, and it is the systematic analysis of the opportunities such changes might offer for economic and social innovation. Making good decisions is a crucial skill at every level'' – (Drucker, 1985)

India is primarily an agrarian economy. Around 70 per cent of the Indian rural population directly or indirectly depend on agriculture and allied sectors for their livelihood. Though there is an immense growth in the manufacturing and service sectors, the extent of growth and developments take place in the agriculture and allied sectors is really scanty. This trend will directly reflect on the livelihood of the rural population. In fact a huge gap exists between the livelihood of rural and urban population. The vast majority of the rural population is still facing struggles in reaping benefits of the developments take place in India. In order to bridge the existing divide and to nurture rural India it's high time to promote agripreneurship (Rao and Kumar, 2016).

A transition from agriculture to agribusiness is indeed a vital route to foster Indian agriculture sector and to make the sector more attractive and profitable. Agripreneurship can be considered as a tool for rejuvenating the socio-economic conditions of rural poor which mainly includes employment creation, income generation, poverty reduction and overall improvement in health, nutrition and food security in the Indian economy (Bairwa *et al*., 2014).

The mounting rate of unemployment is one among the most important issues of the Indian economy in the current era. According to the reports of CMIE (Centre for Monitoring Indian Economy) the unemployment rate in India rose to 24.30 per cent (Sharma, 2020). The segment of agriculture graduates securing elite jobs in the public sector is also declining gradually. Hence more job opportunities be created in the private sector so as to pave better future for unemployed graduates (George and Bhaskaran, 2004).

The increase in unemployment rate is primarily contributed by replacement of workforce by technologies, population explosion, declining mortality rate and growth rate in labour force. These reasons have turned the youth to focus their attention on entrepreneurship. Entrepreneurship can address the issues of unemployment both directly and indirectly. Entrepreneurship is an essential strategy to solve the problems of unemployment prevailing in India (Verma *et al.,* 2018).

According to Chatterjee (1992) an entrepreneur is one who made something new, embraced chance, arranged creation and handled the monetary vulnerability. He termed entrepreneurship as the mission and entrepreneur as the missionary.

Acquisition of entrepreneurial skills indicates possessing the ability to find and evaluate business opportunities, gather the necessary resources, initiate appropriate action to ensure success and to implement actions to take advantage of the opportunities for rewarding outcome (Brouwer, 2002).

Smilor (2002) defined entrepreneurial skills as activities or practical know-how that is required to establish and successfully run a business enterprise. These may comprise areas such as finance, accounting, marketing or production.

Promoting entrepreneurship among youth can heal the issues of unemployment and can make students realise that there exist several alternatives to build their own destiny by opening their own companies rather than seeking a decent job. The ever growing unemployment structure of India has created an awareness among students for developing a positive attitude towards entrepreneurship (Deshmukh and Kadam, 2014).

The concept of agripreneurship

Dollinger (2003) defines agripreneurship as the creation of innovative economic organization for acquiring growth or gain under the prevailing situations of risk and uncertainty in agriculture. Agripreneurship is the entrepreneurial process takes place in agriculture and allied sectors. It is the process of adoption of innovative ideas, methods, processes, techniques in agriculture and allied sectors as enterprises for achieving better output and economic gains. On the other hand agripreneurship can be defined as the profitable combination of agriculture and entrepreneurship which transforms a farm

into agribusiness establishment in agriculture and allied sectors. Hence agripreneurship can be regarded as the entrepreneurial activities required to produce, distribute, transport and market agricultural products to earn income (Yusoff *et al*., 2015).

Opportunities for agripreneurship

Globalisation and liberalization have paved better opportunities for entrepreneurship in agriculture and allied sectors in the present scenario. The opportunities for agripreneurship can be viewed under different stages of agriculture production *i.e* input stage, farming stage, value chain, output processing and marketing stage. The inclination of people towards organic farming has opened new doors for the production and marketing of bio-inputs such as bio-fertilizers, bio-pesticides *etc*. The creation of innovative ideas with regard to different agro-practices such as balanced application of fertilizers, soil nutrient management practices, agro-machineries to reduce cost of cultivation *etc*. will be seeding better opportunities for agripreneurship. The potential scope for agripreneurship can also be clearly visible in the agro-processing units (Verma *et al*., 2018). More over emerging agripreneurs can explore areas such as cold storage facilities, refrigerated transport, and grading, packaging, quality control measures *etc*. (Vinoth and Paramashivam, 2016).

Agriculture forms one of the most risk prone sectors of Indian economy as it relies on several unpredictable factors like weather, market fluctuations and undulated topography. One of the important ways to boost up this sector is through the incorporation of location specific technologies and suitable business models. In a bid to double the farmers' income by 2022, the Government of India is continuously looking for ways to boost agricultural production, food processing and marketing avenues through the integration of latest technologies and innovations; thus creating a huge scope for agripreneurship. A stream of educated youth with innovative ideas can transform agriculture into sustainable business enterprises.

The active participation of youth in agriculture is vital in addressing several key hurdles predominant in agrarian sector. Which primarily includes not only the challenges regarding production of sufficient and nutritious food and creation of job opportunities to many unemployed graduates, but also it can positively impact the agro-

processing industry, revamp the non-farm economy and can significantly contribute to the national revenue generation through taxation and foreign exchange earnings (Addo, 2018).

The emergence of entrepreneurs and their contribution to the national economy is quite visible in India. Whereas, with over 70 per cent of the population still depending on the agricultural sector, 90 per cent of the jobs are still driven by this major sector has been very slow in venturing into agri-businesses. Students are the potential source of entrepreneurship. Courses on entrepreneurship development, rural work experience on entrepreneurship development and implementation of Agri Clinic and Agri Business Centre scheme are creating less impact among the students to opt for agripreneurship especially in Kerala.

Promoting diverse entrepreneurial activities among the students has become an important effort to face the socio economic challenges of our country. With several organizations understanding the importance of entrepreneurship and the ways in which they can create jobs for the unemployed, thus paving the way for an enriching economy have directed their efforts to motivate their students to venture into start-ups. The last two decades of economic growth has been mainly due to the rise of various entrepreneurial start-ups in this country, primarily in the IT sector. Hence the opportunities hidden in agripreneurship must be unfurled.

Every year, around 350 students are graduating from Kerala Agriculture University. Among these students, only a few of them prefer to have an entrepreneurial career though there are tremendous opportunities for agripreneurship. Encouraging students to take up agripreneurship as their career choice is realized as crucial, not only for the growth of agrarian sector but also for addressing issues of unemployment. As well as entrepreneurial skills are prerequisites for enhancing the employability of agriculture students. Hence it was felt as appropriate to study the entrepreneurial skills of agricultural students in Kerala with the following objectives:

Objectives of the study

- To assess the various entrepreneurial skills of agricultural students
- To study attitude of agricultural students towards agripreneurship

- To identify factors governing agri-business orientation among agricultural students
- To examine the kinds of support system needed for getting students engaged in agripreneurship.

Scope of the study

Agripreneurship can be considered as the engine for the development of the slow moving yet most important sector 'Agriculture'. Entrepreneurship in agriculture and allied sector can address many of the existing key challenges in the agrarian sector that hinder further developments. In fact agripreneurship can provide possible solutions to one of the most debated topics 'unemployment among highly qualified graduates'. Several studies related to 'agripreneurship among students have been conducted in many of the universities under ICAR. But so far no researches have been carried out in Kerala Agricultural University to explore the entrepreneurial skills among the agricultural students in Kerala.

The outcome of this study helps in understanding the entrepreneurial skills of agricultural students, attitude of agriculture students towards agripreneurship and the support system needed for promoting agripreneurship among the agricultural students. This study intends to compare the entrepreneurial orientation of three categories of agriculture students in Kerala i.e. students studying Under Graduation in agriculture, Diploma in agriculture and Vocational Higher Secondary Education (V.H.S.E) in agriculture.

Limitations of the study

Although the investigation has been carried out with utmost care to make the study more comprehensive and accurate, certain limitation did remain. The current study, being a part of masters' degree programme suffered from the normal inherent limitations usually encountered by a student researcher. The limitations suffered by the study are narrated below:

1. The research was confined to only 150 respondents, representing the entire community of agriculture students in Kerala, hence the findings of the study may not be generalized.

2. The investigation suffered from normal limitations of inadequacy of time, money and other facilities usually encountered by a student researcher.

3. The findings of the study were based on the responses indicated by the student respondents. The precision of the study relied on the biased or unbiased responses of the students.

4. Though sincere and deliberate efforts were taken while selecting the variables for the current research, some more variables may be still missing.

Presentation of the study

The report of the study is presented in five chapters. The first chapter outlines a brief introduction, objectives, scope and limitations of the study. The second chapter mainly includes the review of literature relevant to the problem. The materials and methods which have a bearing on measurement of variables along with the statistical procedure used are clearly described in the third chapter. The results and discussion based on the obtained results have been explained in the fourth chapter. Finally, the fifth chapter deals with summary and conclusions of the thesis followed by bibliography. The appendices and the abstract of the study are given at the end.

Review of literature

2. REVIEW OF LITERATURE

A review of literature is a comprehensive summary of the previous research on a topic. It is an integral part of scientific investigation and it helps the researcher to enlighten themselves with the work done in the past to pinpoint the findings and bottle necks related to the study. For conducting and fostering the present investigation all accessible journals, books, reports, e-journals were referred by the researcher. Sincere efforts have been made to collect most relevant review on entrepreneurial skills of agricultural students but as limited research has been done in past, it had not been conceivable by the researcher to go through review directly related to the entrepreneurial behaviour of agricultural students.

In light of the objectives of the study the chapter was structured in a way to traverse the relevant research results. It has been presented under the following sub heads:

2. 1 Socio-economic characteristics of the respondents

2. 2 Psychological characteristics of the respondents

2. 3 Attitude of agriculture students towards agripreneurship

2. 4 Entrepreneurial skills among agricultural students

2. 5 Factors governing agribusiness orientation among agricultural students

2. 6 Support system needed for promoting agripreneurship

2. 1 Socio-economic characteristics of the respondents

2. 1. 1 Gender

Garhwal (2010) conducted the study in 'Internet Utilization Behaviour of Agricultural Students of Swami Keshwanand Rajasthan Agricultural University, Bikaner (SKNAU)' found that majority of the student respondents were males (75.22%) while only 24.78 percent of the student respondents were female respondents.

Akanbi (2013) in his study regarding the determinants of entrepreneurial intention among college students indicated that more than half (54.5%) of the students were females and 45.50 per cent of the students were males.

Based on the research conducted by Fard *et al*. (2013) entitled 'Analysis of factors affecting the development of an entrepreneurial student indicated that majority of the student respondents were males (74%) and only 26 percent of the respondents were females.

Adedapo *et al.* (2014) delineated that out of the total student respondents majority of them were males (63%) and remaining 37 percent respondents were females.

A research conducted by Chidi (2014) on 'Critical factors influencing the entrepreneurial undergraduate's decision venturing into agribusiness 'revealed that 57 per cent of the respondents were males while females accounted for the rest of 43%.

The results of the study entitled 'Designing a model for entrepreneurial intentions of agricultural students' conducted by Najafabadi (2016) reported that majority (78%) of the student respondents were females and remaining 26 per cent of the respondents were males.

Nagendra (2018) in his study on 'Skill gap analysis among agriculture graduates in Kerala' reported that majority (72.50%) of the agriculture graduates of Kerala Agriculture University were females, whereas the male graduates were found to be 27.50 per cent.

Belas *et al*. (2018) in his study entitled 'Relationship of gender to the position of Slovak university students on the socio-economic determinants of the business environment and the development of entrepreneurship' documented that 62 per cent of the student respondents were females whereas male respondents accounted about 38 per cent.

2. 1. 2 Parental occupation

Tewari (2014) reported that majority of the students' parental occupation was reported as 'Agriculture'. Only 29.16 per cent of the students' parental occupation was found to be 'Non-Agricultural' profession.

Chandrakar (2014) delineated that parental occupation of more than half of the respondents was found to be government service, followed by 31.07 percent of the students' parents were farmers while 13.15 per cent of students were from business family background and 3.15 per cent of the students' parents were employed in private sectors and 3.15 per cent of the students' were engaged in other occupations.

Kumaran and Anand (2016) documented that one third of the student respondents' (33%) parental occupation was found to be agriculture while 20 per cent of the students were from small scale business family background and about half of the respondents' parents were working as employees in private and public sectors.

Tanwar (2018) found that majority of the students' (59.09 percent) parents were engaged as farmers. Parental occupation of 19.32 per cent of the students was found to be labourers and 13.64 per cent of the students' parents had occupation in government and private sectors whereas parents of 7.95 per cent of the students were entrepreneurs.

Yadav (2018) concluded that more than half (57.50 percent) of the students' parents were farmers. 17.50 per cent of students' parents were government employees, whereas 13.75 per cent of the students' parents were employed in private sectors and 6.25 per cent of the students' parents were labourers and only 5 per cent of the parents were engaged in business activities.

2. 1. 3 Annual income of the family

Rameshrao (2009) reported that slightly more than half of the student respondents belonged to the income category of more than Rs.1.5 lakh, and the per cent of students having an annual income between Rs.1 lakh and Rs.1.5 lakh was observed as 32.14%. Whereas only 10 per cent of the post graduate students had an annual income up to Rs.1 lakh.

Narendra (2010) reported that around 38% of the agricultural students had a family annual income in between Rs.1 lakh and Rs.1.5 lakh followed by 32% of the students with an annual income from Rs.1.5 lakh to Rs.2 lakh and about 19% of the students were from families of annual income of more than Rs.2 lakhs. Whereas 10% of the students came under an annual income up to Rs.1 lakh.

Shashikant (2011) documented that majority of the agriculture students (52%) had an annual family income of more than Rs.2 lakh whereas slightly less than one third (31.33%) of the students were from a family whose income was between Rs.1 lakh and Rs.2 lakh, and 16.67 per cent of the agriculture graduates had an annual family income up to Rs.1 lakh.

Saranya (2015) indicated that half of the respondents belonged to high income category while 45 per cent of the students had medium annual income and only 5 per cent of the students were from families of low annual income category.

Barau and Adesiji (2018) observed that the economic status of the family got the highest rank among the socio-economic factors influencing the entrepreneurial aspiration among students. Majority of the respondents (60%) came under the middle income category (Rs.2, 00000-Rs.10, 0000 per annum), while the minority fall in the low income category (below Rs.2, 00000 per annum).

Meena (2018) delineated that majority of the agriculture students (89.21 %) were from middle income category followed by 8.83 per cent of the students belonged to high income group and only 1.96 per cent of the students came under low annual income group.

2. 1. 4 Mass media contact

According to the study conducted by Balan (2003) entitled 'A study on the career preferences of undergraduate agricultural students of Kerala Agricultural University' concluded that more than half of the (58.33%) undergraduate students of Kerala Agricultural University had medium level exposure towards mass media, followed by 21.67 per cent students with high level of mass media contact and 20.00 per cent students were found to have low level of mass media contact.

Bakhar (2016) reported that majority of the students (58%) had high level exposure to mass media followed by 27 per cent students with medium level and 15 per cent of them had low level of mass media contact.

Krishna (2017) found that majority of the undergraduate students were found to have medium level of mass media contact, followed by 16 per cent of the students with high level of mass media contact and 14 per cent of the students had low level of exposure towards mass media.

2. 1. 5 Training received

Ponmani (2015) found that majority (85%) of the students had undergone training on entrepreneurship development.

Dharamkar (2017) reported that more than half (51.36%) of the respondents had low level of exposure to training on entrepreneurship, followed by 37.73 per cent respondents with medium and 10.91 per cent respondents with high exposure to training.

Bandi and Reddy (2018) documented that majority (72.86%) of the respondents were untrained and rest of the respondents (27.15%) had received training for entrepreneurship in agriculture.

2. 2 Psychological characteristics of the students

2. 2. 1 Leadership ability

Deepthi (2016) concluded that slightly less than half of the respondents had high leadership quality followed by 38.33 per cent respondents with medium and 14.17 per cent respondents with high leadership quality respectively.

Kumar (2017) found that more than half (54.72%) of the student respondents were having medium level of leadership ability, followed by 30.66 per cent students who were having low and 14.64 per cent students had high leadership ability.

Verma (2017) revealed that majority (63.56%) of the agriculture students had high leadership ability. 27.12 per cent of the student respondents were having medium followed by 9.32 per cent students had low leadership ability.

Tariq *et al*. (2020) reported that the majority (68.33%) of the respondents had medium level of leadership ability, followed by respondents having low level of leadership ability (19.16%), while only 12.50% had high level of leadership ability.

2. 2. 2 Career aspirations of the students

Autio *et al*. (2001) indicated that majority of the students preferred corporate career and entrepreneurial career, while civil servant career and academic career were the least preferred options by the students.

Shashikanth (2011) found that majority of the post graduate students in Anand Agricultural University expressed interest to choose research/ academic position in the agricultural university whereas 22 per cent of the students preferred administrative position in various ICAR institutions and 18.66 per cent of them had a job preference for being an employee in private multinational companies.

Ayanda *et al*. (2012) revealed that among the students of Kwara state agricultural university 72.8% disagreed that farming as a prestigious job while 61.7% preferred to be a bank employee and 56.8% preferred to work in international organizations.

Egunsola *et al.* (2012) expressed that self-employment was found to be the major career option preferred by majority of the student respondents and the least preferred career was jobs in private sector.

Zakaria *et al*. (2014) reported that out of the 292 agricultural students interviewed only less than half (45.3%) of them preferred agribusiness as their career choice. Majority of the respondents interested in starting an agribusiness venture preferred livestock and poultry rearing and crop production as an agribusiness area of interest.

Raj (2016) in her study entitled 'Factors affecting academic performance and aspirations of undergraduate students of Punjab Agricultural University, Ludhiana' indicated that majority (55.33%) of the students aspired to go for higher studies, the percentage of students who were inclined towards government and private sectors jobs

were 15 per cent and 6.7 per cent. Eight per cent of the students wanted to get married and settle in life, only 4 per cent of the students intended to become an entrepreneur.

Vennela (2017) delineated that the career preference of male and female agricultural students were similar and most of the students preferred agricultural research and agricultural education as their career path, whereas agro industry/ private sector was the least preferred career choice.

2. 2. 3 Self-confidence

Das (2006) reported that 46 per cent of the students were having medium level of self-confidence followed by 30 per cent of the students with high and 24 per cent of the students had low level of self-confidence.

Rameshrao (2009) in his study entitled 'Attitude and aspiration of post graduate students towards agriculture entrepreneurship' found that slightly less than half of the post graduate students (48%) had medium level of self-confidence followed by 33 per cent of the students with high level of self-confidence, while 19% of the students had low level of self-confidence.

Bhanupratap (2012) indicated that more than half of the agricultural post graduate students had medium level of self-confidence followed by 22.50% of the respondents with low level of self-confidence. Whereas 20.80% students were found with low level of self-confidence.

Bai (2016) expressed that majority of the agriculture graduates (69%) had medium level of self-confidence followed by 23 per cent of the student respondents with high level of self-confidence while only 8 per cent of the students were having low level of self-confidence.

2. 2. 4 Achievement motivation

Mohanty (1998) revealed that majority (62.57%) of the final year students had medium level of achievement motivation. 21.67 per cent of the students came under the category of high level of achievement motivation. Whereas only 15.76 per cent of the students had low level of achievement motivation.

Pattar (2011) reported that 36.70 per cent of the student respondents were having high achievement motivation followed by 31.70 per cent respondents with medium and 31.60 per cent students with low achievement motivation.

Gadhvi (2012) found that majority of the post graduate agricultural students belonged to medium level category in terms of achievement motivation followed by 18.34 per cent students were found to have high level of achievement motivation. Only 8.33 per cent students had low level of achievement motivation.

Mishra (2016) indicated that more than half of the post graduate agriculture students (55.55%) had high achievement motivation and 26.67 per cent of the students had medium level of achievement motivation, whereas 17.78 per cent of the students were found to have very high level of achievement motivation. Surprisingly none of the students belonged to low level of achievement motivation.

Devi (2019) reported that majority of the post graduate students (71.66%) had medium level of achievement motivation. The per cent of the students with low and high achievement motivation was found to be equal (14.17%).

2. 2. 5 Innovativeness

Gelen (2007) delineated that 33.33 per cent of the student respondents belonged to medium level in terms of innovativeness, whereas 28.67 and 28.46 per cent of the student respondents had high and low level of innovativeness respectively.

Khan (2007) found that under graduate students (18.49%) had higher level of innovativeness in comparison with the level of innovativeness of post graduate students (9.68%).

Shivacharan (2014) reported that around one third of the student respondents had high innovativeness followed by 26.68 per cent students with medium and it was observed that the per cent of the students having very high and low level of innovativeness was almost equal *viz.*18.33 per cent. 3.33 per cent students had very low level of innovativeness.

Deepthi (2016) concluded that slightly more than half of the respondents belonged to medium category with respect to innovativeness. While 32.92 per cent of the respondents had high and 16.25 per cent of them had low level of innovativeness.

Jayant (2017) in his study entitled 'Attitude of post graduate students towards agriculture entrepreneurship' revealed that majority of the post graduate agricultural students had medium level of innovativeness, while 18.33 per cent of the students had high and 13.34 per cent of the students had low level of innovativeness.

2 .2 .6 Self-reliance

Naik (2017) indicated that 43 per cent of the respondents were identified as 'more self-reliant', 41 per cent of the respondents came under the category of 'completely self -reliant', 10 per cent of the respondents belonged to 'less self-reliant category and only 6 percent of the respondents had least self-reliance.

2. 2. 7 Risk taking ability

Gadhvi (2012) documented that more than half (55%) of the post graduate agriculture students belonged to medium category in terms of risk taking ability. Whereas 23.33 per cent of the students had high and 21.67 per cent students had low level of risk taking ability.

Amma and Fahad (2013) found that there was positive relationship between risk bearing capacity of the students and intention of students to start their own business venture. Majority of the students were willing to take risk so as to establish an enterprise.

The study of Modak (2014) entitled 'Entrepreneurial competency of the postgraduate students of Anand Agricultural University of Gujarat' revealed that majority of the post graduate students in Anand Agricultural University (90 per cent) belonged to the category of medium to high level of risk orientation, followed by 5.33 per cent of students with low level of risk orientation and 4.67 per cent of the students were found to have very high level of risk orientation.

Shivacharan (2014) opined that majority of the student respondents (42%) were having high risk taking ability and 27.50 per cent student respondents had very high

risk taking ability whereas 15 per cent of them had medium and 9.17 per cent students had low and 6.66 per cent of them had very low risk bearing capacity.

Jayant (2017) indicated that majority (69.17%) of the agriculture students had medium level of risk taking ability. While the per cent of students who had high and low level of risk taking ability was found to be almost equal 15.83 per cent and 15 per cent respectively.

2. 2. 8 Decision making ability

Narendra (2010) in his study entitled 'Entrepreneurial attitude of agricultural students' documented that majority (66.67%) of the agriculture students had medium level of decision making ability, whereas the per cent of students who belonged to the categories high and low level of decision making ability were found to be nearly equal *viz.* 16.66 per cent and 16.67 per cent respectively.

Talukder (2014) revealed that majority (69%) of the student respondents had medium level of decision making ability, followed by 26 per cent students with high and 5 per cent students with low level of decision making ability.

Dharamkar (2017) delineated that slightly less than half (46.82%) of the respondents had medium level of decision making ability. While slightly more than one third (35.92%) of the student respondents possessed low and 17.27 per cent of the students had low level of decision making ability.

Nagendra (2018) reported that majority of the agricultural students in Kerala Agricultural University had above average decision making ability. It was observed that students had above average endurance to face difficulties with regard to their own decisions.

Sopan (2019) concluded that majority (63.33%) of the agriculture students were having medium level of decision making ability, whereas it was found that 19.17 per cent of the students had high and 17.50 per cent of them had low level of decision making ability.

2. 3 Attitude of agricultural students towards agripreneurship

Mohan and Reddy (2012) observed that majority of the respondents had favourable attitude towards agripreneurship.

Kadiri and Reddy (2012) found that majority of the student respondents had favourable attitude towards opting self-employment in agriculture as their career path.

Setiawan (2014) concluded that major part of the student respondents had high and very high level of positive entrepreneurial attitude while no student respondents had very low level positive attitude towards entrepreneurship.

Mathew (2015) revealed that the youth of Kerala had a positive attitude towards entrepreneurs and entrepreneurship. The high positive attitude of youth towards entrepreneurship clearly portrayed the necessity of providing a better environment for entrepreneurship in order to help the youth to build up their own business venture.

Saranya (2015) indicated that more than two third (69.17%) of the respondents were having favourable attitude towards agripreneurship, followed by 15.83 per cent of the students had high favourable attitude. About 15 per cent of the students had low favourable attitude.

Ghetiya *et al.* (2018) revealed that majority of the students (60%) had higher favourable attitude to establish agro-tourism as an enterprise whereas 40% of the students confined with the medium level of favourable attitude.

The study of Reddy (2018) entitled 'Attitude and aspiration of post graduate students of Junagadh Agricultural University towards agricultural entrepreneurship' revealed that majority of the post graduate agriculture graduates (73.34%) had high favourable attitude towards agripreneurship, while 15 per cent of the respondents had high and 11.66 per cent respondents had least favourable attitude towards entrepreneurship in agriculture.

Abu *et al*. (2019) stated that attitude was identified as the most crucial factor in constructing agro-food entrepreneurship among the Kelantan youth. Majority of Kelantan youth were interested in starting agro-food enterprise.

Yunandar *et al.* (2019) found that the attitude of agricultural students towards entrepreneurship was positively correlated with access to information through internet, classroom lectures and traditional mass media. Internet was found to be the easiest medium to get information about entrepreneurship.

Sharma and Bhuyan (2020) revealed that youth had less inclination towards agripreneurship as a career option, perceived self-employment in agriculture as unsafe and insecure and thought unprofitable.

2. 4 Entrepreneurial skills among agricultural students

Fapojuwo *et al.*(2011) reported that majority of the agriculture students in Nigeria lack essential entrepreneurial skills and adequate knowledge to choose an entrepreneurial career path and to survive in changing environment.

Rajan (2011) concluded that major components of entrepreneurial skills include professional skills, management skills, opportunity skills, strategic and networking skills. The results of the study showed that male students possessed more professional and opportunity skills whereas strategic and management skills were found to be more prominent among female students.

According to Singh (2013) agripreneurs should be proactive, curious, determined, persistence, visionary, hardworking, honest and should have integrity with strong management and organizational skills.

Mohamed *et al.* (2014) reported that the major contributions of entrepreneurial skills among the students were illustrated by 'know how' skills which comprised of financial skills (36.6%) that ranked the highest skills, followed by management skills (9.5%), start-up business skills (8%), operational skills (6.1%), marketing skills (5.3%), communication and management skills which secured the least rank (5.1%).

Ibrahim *et al*. (2016) reported that entrepreneurial skills were considered as a key determinant of entrepreneurial intention among the Nigerian students of UUM (University Utara Malaysia)

Deepthi (2016) documented that slightly less than half (45.83%) of the respondents had medium level of entrepreneurial skills followed by 36.67 per cent and 17.50 per cent with high and low entrepreneurial skills respectively.

Kalpana (2017) in her study entitled 'Inculcating entrepreneurial skills among college students' assessed four basic entrepreneurial skills among students, viz, which were mainly personal skills, interpersonal skills, practical skills, critical and creative thinking skills. The results of the study indicated that students from private or aided colleges possessed more entrepreneurial skills than those of students from government colleges.

Kumar (2017) observed that majority of the students had highest score for general skills, which was required for creating self-awareness, emotional maturity, responsibility etc. whereas the students secured least score for marketing skills which was very essential for identifying and communicating with the customers, sales and marketing aspects.

2. 5 Factors governing agri-business orientation of agricultural students

2. 5. 1 Gender

Sookhtanlo *et al*.(2009) while comparing the psychological characteristics influencing agricultural students' entrepreneurship level found that female students had higher risk taking ability than those of male students whereas creativity level was found to be higher among male students.

Ahamed *et al*. (2010) found that gender did not have any significant effect on entrepreneurial intentions of the students.

Sandhu *et al.* (2010) reported that majority of the male postgraduate students were more inclined to entrepreneurship than the female postgraduates.

Keat *et al*. (2011) observed that gender had positive relation with entrepreneurship intention. Among the students of Malaysian university male students were more interested towards entrepreneurship than that of the female students.

Zeffane (2013) indicated that there were no significant differences on the entrepreneurial potential of males and females whereas, risk taking ability was found to be the only item of entrepreneurial potential on which the two groups differed. Male respondents showed more risk taking ability than that of female respondents.

Deshmukh and Kadam (2014) stated that gender had no significant influence over attitude towards entrepreneurship.

Abebe (2015) delineated that male students expressed more interest towards entrepreneurial career than that of the female students.

Ojebiyi *et al*. (2015) delineated that among final year agriculture students of Federal University of Agriculture, Abeokuta (FUNAAB) the willingness to venture into agriculture-related enterprises after graduation was more prominent among male students (53.6%) than that of female students.

Simanjuntak *et al*. (2016) concluded that there was a significant difference in entrepreneurial potential of men and women. Male students had a higher entrepreneurial potential.

Ibrahim *et al*. (2017) found that the approach of graduate students in Oman towards entrepreneurship was found to be positive, and female respondents scored higher average compared to that of male students.

2. 5. 2 Annual income of the family

Wang and Wong (2004) argued that family income had no significant influence over the interest of students to start their own business venture. The prime motive behind the business interest among students was their own ideas rather than the annual income of the family.

Patel *et al*.(2013) reported that family annual income didn't have any impact on the entrepreneurial intention. The results of the study showed that the respondent from low income family had more inclination towards entrepreneurship than that of the respondents from rich families.

Dharamkar (2017) found that annual income was an important determinant of entrepreneurial orientation, as annual income increased the entrepreneurial inclination also increased.

Kumar (2017) concluded that annual income of the family had a positive and significant influence over the entrepreneurial orientation among students.

2. 5. 3 Parental occupation

While examining the inclination of Malaysian university students towards entrepreneurship, Keat *et al*. (2004) found that the mothers of students were self-employed had more inclination to launch an enterprise.

Auken *et al*. (2006) opined that father was the supreme role model in shaping career choice of children. The self-employed parents or parents who owned a business venture could easily influence and motivate their children to engage in business activities.

Basu and Virick (2008) found that there was a significant relationship between parental occupation and entrepreneurial intention among students. It was observed that students who had self-employed father had more favourable attitude towards entrepreneurship than those of others.

Nishantha (2009) documented that the entrepreneurial intention of students was not impinged by their parental occupation. The results indicated that only 5% of the students had preference to become an entrepreneur as that of their parents.

Solesvik *et al*. (2012) reported that students with self- employed parents had more affinity to choose an entrepreneurial career path.

Ali *et al*. (2014) reported that students from a business family background had more exposure and experience in business activities than the students from employed family background. Hence it was found that the students from entrepreneurial family had more inclination to take business as their career option.

Dhakre (2014) reported that the majority of agricultural students in West Bengal had a positive aspiration towards agripreneurship. The inclination of students towards

agripreneurship is positively correlated with parental occupation, parental education and family income.

Pouratashi (2014) argued that students who had self-employed parents had a strong inclination to move towards agripreneurship than the other students.

Singh (2014) delineated that the propensity of students to choose an entrepreneurial career was dependent on their parental occupation. The students from entrepreneurial family background had more interest to become an entrepreneur.

Dogan (2015) concluded that the students with self-employed fathers had higher entrepreneurial intentions compared to others. This result clearly pinpointed that the role-model position of the father in our national culture.

2. 5. 4 Mass media contact

Kumar (2017) concluded that the efficient use of mass media and other ICTs had tremendous role in eliminating the information poverty among youth about agriculture by opening the window of information such as agricultural information, best agricultural practices, market price, entrepreneurial opportunities, success stories of entrepreneurs *etc*.

Vennela (2017) observed that exposure to mass media had a positive and significant influence on students to choose their career path. Through frequent contact with mass media students could update the information on career options and decide the best.

Sargani *et al*. (2018) reported that mass media played a vital role in fostering entrepreneurship among students. It was observed that by publishing and telecasting the success stories of successful entrepreneurs mass media helped to create more aspiration among the mind set of students.

2. 5. 5 Training received

Mohamed *et al.* (2012) delineated that attending entrepreneurship training programmes could stimulate entrepreneurial interest among youth and could inculcate and equip the students with essential entrepreneurial skills.

Rodrigues *et al.* (2012) found that entrepreneurship training programmes had a positive and significant impact on entrepreneurial inclination among secondary students. It was observed that students who had attended training on entrepreneurship had serious concern to become an entrepreneur in future.

Folsade (2019) expressed that training programmes on agripreneurship had a positive and significant impact on entrepreneurial performance and could empower the youth to take up entrepreneurship as their career choice.

2. 5. 6 Innovativeness

Dioneo-Adetayo (2006) found that innovativeness is one of the factors governing entrepreneurial skills among the youth and there exist a positive correlation between innovativeness and entrepreneurial orientation among the youth.

Ahamed *et al.* (2010) concluded that there existed a strong positive relationship between innovativeness of an individual and entrepreneurial interest among the students. It was found that students with more innovativeness had more inclination towards entrepreneurship.

2. 5. 7 Achievement motivation

Collins *et al.* (2004) expressed that achievement motivation was found to be one among the factors influencing entrepreneurial performance. It was observed that achievement motivation is highly correlated with both choice of an entrepreneurial career and entrepreneurial performance.

The study conducted by Ghasemi *et al.* (2011) on 'The relationship between creativity and achievement motivation with high school students' entrepreneurship' revealed that there is a meaningful and positive correlation between achievement motivation and the entrepreneurship among high school students.

Mukesh (2018) found that achievement motivation was an important determinant of entrepreneurial potential of students. The results of the study showed that there existed a positive and significant relationship between achievement motivation and entrepreneurial potential, students with high achievement motivation had higher entrepreneurial potential.

2. 6 Support system needed for promoting agripreneurship

2. 6. 1 Entrepreneurial education

Ismail *et al*. (2009) indicated that students who had taken entrepreneurship course had more interest to take up entrepreneurship as their career choice since it stimulated interest and ambition among students to become an entrepreneur.

Turker and Selcuk (2009) revealed that a supportive university ambience in terms of entrepreneurial education could motivate the students and could create more entrepreneurial spirit among the students.

Elmuti *et al*. (2012) reported that entrepreneurial education programmes had a great role in igniting entrepreneurial intention among students. These programmes were capable of building self- confidence among interested students to start a business venture.

Rasli *et al*. (2013) opined that entrepreneurial education has been identified as one of the critical factors in fostering entrepreneurial interest among the students and to create a positive attitude towards entrepreneurship.

Abdullah and Samah (2014) demonstrated that introducing agricultural courses to technical and vocational schools, providing agriculture and entrepreneurship courses, and support from other agencies were found to be helpful in seeding agripreneurship among youth.

Setiawan (2014) argued that students who had participated in entrepreneurship courses which involved entrepreneurial projects had more inclination towards entrepreneurship since it could create more awareness about the opportunities and scope of entrepreneurship among the students.

Yusoff *et al*. (2016) concluded that agripreneurship education had played a most significant role in creating entrepreneurship orientation and intention among agricultural students.

Ilman *et al*. (2020) pointed out that entrepreneurial education and university environment indirectly affected entrepreneurial intention among students through

perceived behavioural control and attitude towards entrepreneurship. It was found that entrepreneurial education helped the students to equip with skills, knowledge, and ability to identify business opportunities and manage a business.

2. 6. 2 Support from family and friends

Dohse and Walter (2012) concluded that moral and financial support from parents, partner or circle of friends could create a positive and significant impact on entrepreneurial intention of students.

Gelaidan and Abdullateef (2017) opined that the support received from friends, parents and relatives in terms of financial, physical, informational or moral could nurture the young minds to achieve their entrepreneurial goals.

Ridha *et al.* (2017) reported that support from family, friends, business team and consultant had a tremendous influence upon moulding entrepreneurial intension among students.

2. 6. 3 Government policies and schemes

Kanwat *et al*. (2011) reported that 75 % of the respondents had higher favourable attitude towards ACABC scheme while only few students had least favourable attitude towards ACABC scheme.

Bairwa *et al*.(2015) reported that the agriclinics and agribusiness centre scheme had empowering to rural and urban youth by providing professional and technical skills for setting up the own agri-venture and also helping the farming community by providing inputs timely. ACBCs scheme become popular among agriculture graduates due to specialized training, credit facility, subsidy and handholding support for starting agribusiness.

Nor *et al*. (2015) argued that facilities offered by government, risk associated with enterprise and role of government were identified as the prime factors responsible for creating entrepreneurial inclination among youth.

Bondre *et al.* (2017) indicated that continuation of ACABC scheme with some improvement was required to attract and provide opportunities for agricultural students to set up agricultural ventures and for effective extension services.

2. 6. 4 Credit support from various institutions

Mingyen *et al.* (2007) delineated that a conducive environment and adequate financial support is required in various forms such as pre-seed and seed fund in order to attract and encourage women to entrepreneurship and to facilitate the success of emerging women entrepreneurs in Malaysia.

Sayyar *et al.* (2012) opined that easy access to credit, granting loans at low interest rates to students, removing administrative barriers in entrepreneurship, reform of legislation related to entrepreneurship could promote entrepreneurship in agriculture.

Van der zwan *et al.* (2016) reported that lack of financial support act as a barrier for establishing a start-up company, hence provision of adequate credit support is vital for budding entrepreneurs.

2. 6. 5 Establishment of entrepreneurship club and guidance centres

Bliss and Garrat (2001) indicated that establishment of supporting organization could encourage entrepreneurs who were in the budding stage. An established organization for entrepreneurship could gear up the entrepreneurial potential among the interested individuals by framing ideas for fund raising, marketing *etc*.

Mahajar (2012) suggested that establishment of club for entrepreneurship in school and college campus could encourage students for participating in entrepreneurial activities.

Narwade (2017) opined that only 36 per cent of the students were aware of entrepreneurship development centres. In order to seed the entrepreneurial culture among students it was essential to establish entrepreneurship guidance centres in colleges.

2. 6. 6 Agripreneurship awareness programmes and training programmes

Sushma (2007) reported that about 52 per cent of the respondents who had attended entrepreneurship trainings had started their own agri-enterprise after six months of training.

Bhat and Khan (2014) expressed that regular entrepreneurship awareness programmes conducted by entrepreneurship promotional agencies could improve the coverage of youth about scope and potential of entrepreneurship thereby nourishing the interest of youth towards entrepreneurial career.

2. 6. 7 Basic infrastructure facilities

Ihugba *et al*. (2013) opined that adequate and efficient infrastructure facilities could fuel up the entrepreneurial environment, which would ultimately address the issues of unemployment among youth by encouraging the entrepreneurial spirit among them.

Chidiebere *et al*. (2014) suggested that provision of adequate infrastructure facilities such as good roads, water supply, access to information and communication technology and other tools for trade could enhance entrepreneurial spirit in young minds.

Methodology

3. RESEARCH METHODOLOGY

According to Kothari (2017) research methodology is a way to systematically solve the research problem. This chapter clearly depicts the methods and techniques adopted by the researcher to carry out the current study. By considering the objectives of the study relevant data collection techniques and tools utilized for the study are presented under the following sub-heads:

3.1 Research design

3.2 Locale of the study

3.3 Sampling procedure employed

3.4 Variables and their empirical measurement

3.5 Data collection procedure

3.6 Statistical techniques used in the study

3. 1 Research design

According to Kerlinger (1973) *ex-post facto* research design is defined as the research, in which the independent variable or variables have already occurred and in which the researchers start with the observation of dependent variable or variables. Hence *ex-post facto* research design was found to be appropriate for the current study.

3. 2 Locale of the study

College of Horticulture Vellanikkara, Institute of Agricultural Science – RARS Pattambi and Govt.Vocational Higher Secondary School (Agriculture), Pudukkad were purposively selected for the study.

3. 3 Sampling procedure employed

3. 3. 1 Selection of the respondents

The present study was conducted among three categories of agricultural students. The student respondents comprised of final year RAWE students from the College of Horticulture Vellanikkara, second year agriculture diploma students from the Institute of Agricultural Science – RARS Pattambi and second year VHSE agriculture students from the Govt. Vocational Higher Secondary School

(Agriculture), Pudukkad. Fifty students from each category were randomly selected to form the respondents for the study and thus constituted a sample size of 150 respondents.

3. 4 Variables and their empirical measurement

The variables were identified for the present study through review of available literature, similar researches undertaken and in consultation with experts in the similar field. The identified variables were sent to 60 judges in order to find out their relevancy on a five point continuum ranging from most relevant to least relevant. The judges were selected from the field of agricultural extension and veterinary extension. The responses of 30 judges were taken for calculating the relevancy index of each item. The scores were given as follows:

Sl. No.	Response	Score
1	Most relevant	5
2	More relevant	4
3	Relevant	3
4	Less relevant	2
5	Least relevant	1

Those variables with a relevancy index more than 80 were selected for preparing the interview schedule. The details of the selected variables are attached in Appendix I.

3. 4. 1 Independent variables

3. 4. 1. 1 Gender

3. 4. 1. 2 Annual income of the family

3. 4. 1. 3 Parental occupation

3. 4. 1. 4 Mass media contact

3. 4. 1. 5 Training received

3. 4. 1. 6 Leadership ability

3. 4. 1. 7 Career aspiration

3. 4. 1. 8 Self-confidence

3. 4. 1. 9 Achievement motivation

3. 4. 1. 10 Innovativeness

3. 4. 1. 11 Self-reliance

3. 4. 1. 12 Risk taking ability

3. 4. 1. 13 Decision making ability

3. 4. 2 Dependent variables

3. 4. 2. 1 Attitude of agricultural students towards agripreneurship

3. 4. 2. 2 Entrepreneurial skills among agricultural students

3. 4. 1 Independent variables

3. 4. 1. 1 Gender

It refers to social or cultural distinctions associated with being male or female. This variable was quantified by assigning scores of 1 and 2 for male and female respectively.

3. 4. 1. 2 Annual income of the family

It is the total income earned by all the members of a family from major and subsidiary occupational components and expressed in terms of rupees. Based on the total annual income of the family the student respondents were classified into three categories as a measure for further statistical analysis. The procedure followed by Naik (2017) was adopted for this study.

Sl. No.	Category	Range of income (Rs/annum)
1	High	>5,41000
2	Medium	1,65,000-5,41,000
3	Low	<1,65,000

3. 4. 1. 3 Parental occupation

Parental occupation can be defined as the source of income of parents. The schedule developed by (Kumar, 2017) with suitable modifications was adopted for the current study. The various kinds of occupations were categorized as follows:

Sl.No.	Occupational status of father	Score
1	Unemployed	1
2	Others	2
3	Services	3
4	Farming and allied activities	4
5	Business	5

Sl.No.	Occupational status of mother	Score
1	Others	1
2	Services	2
3	Farming and allied activities	3
4	Home maker	4
5	Business	5

3. 4. 1. 4 Mass media contact

It refers to the extent to which student respondents are exposed to different kinds of mass media such as radio, newspaper, internet etc. The student respondents were asked to express their frequency of contact with the mass media. The following items were included to measure the degree of mass media contact of the agricultural students:

1. Radio
2. Newspaper
3. Internet
4. Television
5. Farm magazine
6. Bulletins
7. Books
8. Films
9. Others

In the present study 'mass media contact' was measured by utilizing the method followed by Krishnan (2017). The responses of the students for each item were recorded and scores were given as follows:

Sl. No.	Category	Score
1	Regularly	3
2	Occasionally	2
3	Never	1

3. 4. 1. 5 Training received

It was operationally defined as intensive learning process for a group of selected students at a place with appropriate facilities for a specific period of time, assisted by competent and potential trainers to impart and improve essential skills and abilities required for developing and managing enterprises in future.

The procedure followed by Shivacharan (2014) was adopted for the current study for measuring training received by the students. The students who had attended training on agripreneurship were given a score of 1 and score 0 was given to students who did not undergone any training.

Sl. No.	Category	Score
1	Received training	1
2	Not received training	0

3. 4. 1. 6 Leadership ability

It refers to the capability and strength of an individual to take initiatives in all circumstances and mould their followers for achieving some specific goals. The scale developed by Subrahmanyeswari and Reddy (2008) with adequate modification was used for measuring this variable. This scale consisted of seven statements in a three point continuum. The response categories always, sometimes, never were allotted with scores of 3, 2 and 1 respectively. The total score for the variable was worked out by summing up the individual scores. Based on distribution of scores on quartile range, the student respondents were grouped into three categories as given below:

Sl. No.	Category	Range of scores
1	High	Above Q3
2	Medium	Between Q1 to Q3
3	Low	Below Q1

3. 4. 1. 7 Career aspiration

It indicates the choice or option of a student for his/her career future. The major career options for agriculture students include agricultural officer in the Department of Agricultural Development and Farmers' Welfare, professor in agricultural colleges, agricultural researcher/ scientist, service in banking sector, agricultural business and employee in agro-industries. The procedure followed by Gelen (2007) with slight modification was adopted for this study. The student respondents were asked to indicate their preference on a four point continuum.

The weighted mean score was calculated by using the formula:

Weighted mean= Most preferred X4+ Preferred X3+Least preferred X2+ Not preferred X1

Total number of respondents

3. 4. 1. 8 Self-confidence

It refers to the belief or trust of an individual in his/her own capabilities. The scale developed by Heatherton and Polivy (1991) with suitable alterations was utilized for the present study. The scale contained six statements and measured on a five point continuum namely strongly agree, agree, undecided, disagree and strongly disagree with the scores of 5, 4, 3, 2 and 1 respectively. The total score was calculated and the students were classified into three categories *Viz*; High, Medium and Low based on the distribution of scores on quartile range.

3. 4. 1. 9 Achievement motivation

In the current study, achievement motivation is operationally defined as the urge to improve oneself in relation to a specific goal. To measure this variable the scale developed by Manmohan (2013) was utilized. The scale consists of 6 statements and the responses from the student respondents were evaluated on a five point continuum

specifically strongly agree, agree, undecided, disagree and strongly disagree with the scores of 5, 4, 3, 2 and 1 respectively. The total score was computed by summing up the individual scores for each statement. For computing the degree of achievement motivation of agricultural students the composite index was used. Based on the distribution of scores on quartile range, students were classified into three categories *viz.* High, Medium and Low.

3. 4. 1. 10 Innovativeness

It was operationally characterised as the individual interest in finding and trying new things. The innovativeness among the agricultural students was measured by evaluating their responses by using the procedure followed by Archana (2013) with reasonable modifications. The scale consists of six statements out of which three of them were negative. The responses of the students were rated on a five point continuum specifically strongly agree, agree, undecided, disagree and strongly disagree with the scores of 5, 4, 3, 2 and 1 respectively. The positive statements were assigned the scores 5, 4, 3, 2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree respectively. The reverse order of scoring was followed for the negative statements.

Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

The total score was obtained by summing up the individual scores. Composite index was used to measure innovativeness of the student respondents. On the basis of quartile range, students were categorized in to three groups *viz.* High, Medium and Low.

3. 4. 1. 11 Self-reliance

It indicates the reliance on one's own powers and resources for his future endeavour rather than those of others. The procedure adopted by Gurubalan (2007) was utilized for the current study for measuring this particular variable. The respondents were categorised as completely self-reliant, more self-reliant, less self-reliant and least

self-reliant. The following scoring system was used to evaluate the responses of student respondents:

Sl. No.	Percentage	Category	Score
1	100	Completely self-reliant	4
2	75-99	More self-reliant	3
3	50-74	Less self-reliant	2
4	25-49	Least self-reliant	1

3. 4. 1. 12 Risk taking ability

Risk taking ability is conceptualized for the present study as the degree to which the orientation of entrepreneur towards risk and uncertainty and has the courage to face the problems in starting and maintaining an enterprise. This variable was evaluated with the help of the scale developed by Sreeram (2013) with due modifications. The scale consisted of seven statements out of which five of them were positive and two were negative statements. The responses of the student respondents were measured on a five point continuum namely strongly agree, agree, undecided, disagree and strongly disagree with the scores of 5, 4, 3, 2 and 1 respectively. The reverse order of scoring was followed for negative statements. The total score was calculated by summing up the individual scores obtained for each statements. For computing the risk taking ability of the agricultural students' composite index was used. Based on the quartile range, students were classified into three categories *viz.* High, Medium and Low.

3. 4. 1. 13 Decision making ability

Decision making ability is defined as the degree to which an entrepreneur justifies his/her choice from among the available alternatives on the basis of scientific criteria for achieving best possible outcome. The scale developed by Tanwar (2018) with due alteration was used for measuring decision making ability of the students. The scale consisted of six statements and the statements were evaluated on a five point continuum, precisely strongly agree, agree, undecided, disagree and strongly disagree with the scoring pattern of 5, 4, 3, 2 and 1 respectively. The statements were dispensed to the agriculture students and asked to indicate their response for each statement. The

total score was computed by adding up the scores for individual items. The students were classified into three categories *viz*. High, Medium and Low on the basis of distribution of scores on quartile range.

3. 4. 2 Measurement of dependent variables

3. 4. 2. 1 Attitude of agricultural students towards entrepreneurship

It is operationally defined as the positive or negative perception, belief or thoughts of agricultural students towards entrepreneurship in agriculture. The attitude scale developed by Movahedi *et al*. (2013) with suitable modifications was utilized for the current study. The scale comprised of 20 statements of which four statements were negative. The student respondents were requested to express their response for each of the statements. The responses of the students were evaluated on a five point continuum specifically strongly agree, agree, undecided, disagree and strongly disagree by awarding scores of 5, 4, 3, 2 and 1. The reverse order of scoring was adopted for the negative statements. By adding the individual score for each statement, the total score was obtained. The total score ranged from 20 to 100. Based on the total score the composite index was calculated. The student respondents were then grouped into three major categories namely favourable attitude, moderately favourable attitude and less favourable attitude.

Sl. No.	Category	Range of scores
1	Favourable	>(Mean + SD)
2	Moderately favourable	(Mean ± SD)
3	Less favourable	<(Mean - SD)

3. 4. 2. 2 Entrepreneurial skills

It is operationalized as the overall skills in entrepreneurial activities possessed by an individual. The entrepreneurial skills of agriculture students were measured by using the scale developed by Sridevi (2013) with appropriate modifications, which included dimensions such as general skills, management skills, product development skills and marketing skills. Through judges' opinion, the statements were selected based on the relevancy index.

The student respondents were requested to express their responses for each statement. The responses were evaluated on a five point continuum, more precisely strongly agree, agree, undecided, disagree and strongly disagree with scores of 5, 4, 3, 2 and 1. The reverse order was followed for the negative statements.

3. 4. 2. 2. 1 Dimensions of entrepreneurial skills: Operational definitions

General skills   : The skills needed for self-awareness, emotional maturity, creativity, ability and willingness to accept responsibilities.

Managerial skills: The skills related to planning, organizing, co-ordinating and managing the work on a day to day basis, team spirit, taxation, finances *etc.*

Product development skills: The skills which are necessary to improve the existing product or service or formulate new product to satisfy the needs of society.

Marketing skills: The skills related to identifying customers, demands, communication, negotiation, sales and ethical guidelines.

Based on the scores obtained, the student respondents were classified into five categories as given below:

Sl. No.	Category	Range of index
1	Low	0 – 20
2	Below average	21-40
3	Average	41-60
4	Above average	61-80
5	High	81-100

(Thakur, 2014)

3. 5 Data collection procedure

3. 5. 1 Instruments used for the study

In view of the objectives of the study a detailed interview schedule was prepared. A pilot study was conducted among the students of College of Horticulture, Vellanikkara by administering the prepared interview schedule. By evaluating the responses from selected respondents, some modifications were made in the interview

schedule. The modified interview schedule adopted for the study is given in Appendix IV.

3. 5. 1 Method of data collection

The pre-tested interview schedule was administered individually to the selected student respondents. It was made sure that the questions were accurately comprehended by the student respondents.

3. 6 Statistical techniques used in the study

The data collected from the student respondents were processed appropriately by assigning scores, tabulated and evaluated by means of suitable statistical measures such as frequency and percentage, arithmetic mean, standard deviation and correlation coefficient**.**

3. 6. 1 Arithmetic mean

It is defined as the sum of all values of observations divided by the total number of observations. Symbolically arithmetic mean is represented as X.

$$\textbf{Arithmetic mean (X)} = \frac{x1 + x2 + x3 + \cdots + xn}{n}$$

where,

x1,x2,xn= Individual scores

n= Total number of observations

3. 6. 2 Standard Deviation (SD)

It is the positive square root of the mean of the squared deviations taken from arithmetic mean. It is represented by (σ).

3. 6. 3 Frequency and percentages

Frequency distribution and percentages were used to know the distribution pattern of respondents according to variables.

Percentages were used for standardization of sample by calculating the number of individuals that would be under the given category.

3. 6. 4 Principal Component Analysis

Principal component analysis (PCA) is a statistical procedure that allows us to summarise the information content in large data labels by means of a smaller set of summary indices that can be more easily visualised and analysed. The rationale behind the method is an attempt to reduce the complexity of the data by decreasing the number of variables.

Kaiser-Mayer-Olking (KMO) is used for assessing sampling adequacy and evaluate the correlations and partial correlation. Communality represents the amount of variance in the variable accounted by all the components. Total variance explained indicates the inconsistency by each component. The scree plot graphically displays the variance explained by each component.

In the current study, PCA is used to find out the number of components that best describe the responses of the statements to quantify the dependent variable i.e., entrepreneurial skills among the agricultural students in Kerala.

3. 6. 5 Spearman's rank correlation coefficient (ρ)

It (ρ) was used to determine the relationship between independent variables and the dependent variable i.e. entrepreneurial skills among the agricultural students.

$$\text{Rho } (\rho) = 1 - \frac{6\sum D^2}{n^3 - n}$$

Where, ρ – Spearman's correlation coefficient

D – Difference between ranks

n- Number of pairs of data

3. 6. 6 Kendall's coefficient of concordance (w)

It was used to determine the association among K sets of rankings. To calculate 'W' the sum of ranks (Rj) in each column of a K/N table is found out. The formula used for computing 'W' is give below:

$$W = \frac{125}{K2(N3 - N)}$$

S = Sum of squares of the observed deviations from the mean of Rj

$$S = \sum \left(Rj - \frac{\sum Rj}{N} \right)^2$$

K = Number of rankings

N = Number of objects or entities ranked

3. 6. 7 Kruskal - Wallis one way analysis of variance by ranks

This test was used to determine the significant difference of the overall entrepreneurial skills of selected agriculture students of Kerala.

$$H = \frac{12}{N(N+1)} \sum_{j=1}^{k} \frac{R_j^2}{n_j} - 3(N+1)$$

$k = number\ of\ samples$

$n_j = number\ of\ cases\ in\ the\ j^{th}\ sample$

$N = \sum n_j,\ the\ number\ of\ cases\ in\ all\ samples\ combined$

$R = sum\ of\ ranks\ in\ the\ j^{th}\ sample (coloumn)$

$\sum_{j=1}^{k}\ directs\ to\ sum\ over\ k\ samples\ (columns)$

3. 6. 8 Probit Analysis

Probit analysis is a type of regression used to analyze binomial response variables. In the present study, probit analysis was used to determine the individual factors which influence the students' probability to attain above average entrepreneurial skills. Marginal effect is the effect of one independent variable on response variable keeping all other independent variables constant. It shows more likelihood or less likelihood of happening of an event.

3.6. 9 Software used for statistical analysis

The collected data were coded and analysed using the SPSS - 19 version and Gretel available in the College of Horticulture, Vellanikkara. The results obtained based on the data analysis, findings are presented in the following chapter along with the discussion.

Results and discussion

4. RESULTS AND DISCUSSION

Based on the objectives of the study, data were collected using well structured questionnaire and interview schedule from three categories of agricultural students in Kerala. The collected data were classified, tabulated and analysed for the interpretation of findings, which are presented in this chapter under following major heads:

4. 1 Socio-economic characteristics of agricultural students

4. 2 Psychological characteristics of agricultural students

4. 3 Attitude of agricultural students towards agripreneurship

4. 4 Entrepreneurial skills among agricultural students

4. 5 Factors governing agri-business orientation of agricultural students

4. 6 Support system needed for promoting agripreneurship

4. 7 Suggestions and recommendations

4. 1 Socio-economic characteristics of agricultural students

4. 1. 1 Gender

Table 4. 1 Distribution of agricultural students according to their gender

(n=150)

Sl. No.	Gender	VHSE (Ag.)		D.Sc.(Ag.)		B.Sc.(Ag.)	
		Frequency	%	Frequency	%	Frequency	%
1	Male	15	30	9	18	14	28
2	Female	35	70	41	82	36	72
Total		50	100	50	100	50	100

The data depicted in the table 4. 1 indicated that 70.00 per cent of the respondents of vocational higher secondary school were female, whereas 30 per cent of the student respondents were male. Similar trend was seen in D.Sc.(Ag.) and B.Sc. (Ag.) agriculture students. Majority (82%) of the D.Sc.(Ag.) students were female, while the per cent of male students were found to be only 18 per cent. In the case of

B.Sc.(Ag.) students 72 per cent of the students were female and male students accounted about 28 per cent.

The data presented in the table 4. 1 indicated that majority of the agricultural students in Kerala were female. Kerala being the state with highest sex ratio might be the possible reason for this pattern. In fact there are ample opportunities for girls in agriculture sector. The finding is in line with results of Najafabadi (2016) and Nagendra (2017).
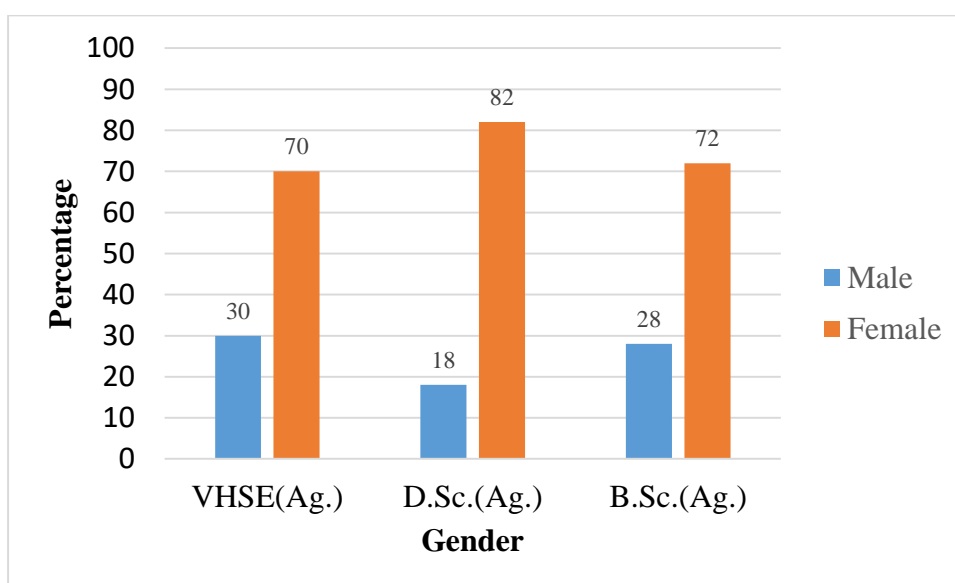
Figure 1 Distribution of agricultural students according to their gender

4. 1. 2 Annual income of the family of respondents

Table 4. 2 Distribution of respondents according to their family annual income

(n=150)

Sl. No.	Category	Range of family Income (Rs./Annum)	Percentage (%)		
			VHSE(Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Low	Up to 1,65,000	60	40	36
2	Medium	1,65,000-5,41,000	40	56	54
3	High	5,41,000	0	4	10

It could be observed from the table 4.2 that majority (60%) of the VHSE (Ag.) students were from families of low income category, followed by 40 per cent students were from families of annual income between Rs. 1,65,000 to Rs.5,41,000, whereas

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none of the VHSE (Ag.) students were from high income category of families.While examining the annual family income of D.Sc.(Ag.) students it was noted that majority (56%) of the students belonged to medium income category, and 40 per cent students had an annual family income up to Rs.1,65,000, whereas only 4 per cent of the D. Sc.(Ag.) students were from high family annual income category. Somewhat similar trend of family annual income was observed among B.Sc. (Ag.) students. Slightly more than half (54%) of the students belonged to medium income category, followed by 36 per cent students, who had low and 10 per cent students had high family annual income. In the case of D.Sc.(Ag.) and B.Sc.(Ag.) students the results are on par with the findings of Kumar(2017).
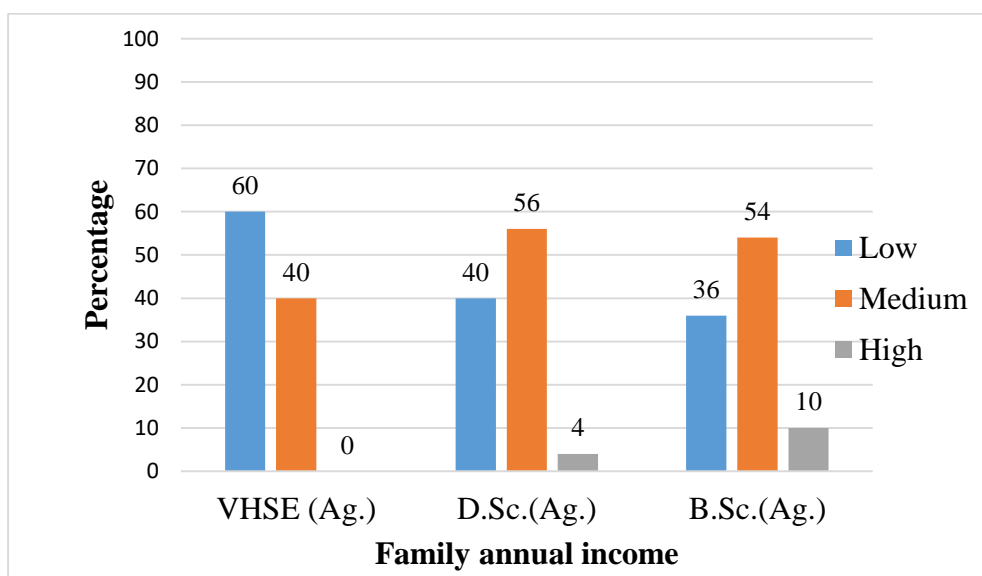
Figure 2 Distribution of agriculture students according to their family annual income

4. 1. 3 Parental occupation

4. 1. 3. 1 Occupational status of fathers of agricultural students

The data presented in table 4.3 revealed that nearly half (48%) of the VHSE (Ag.) students' father's occupation came under 'others' category. The percentage of VHSE (Ag.) students whose fathers employed in farming and business category was found to be equal (20%). While only 10 per cent of the fathers of VHSE (Ag.) students were employed in service sector. A very less per cent (4%) of the VHSE (Ag.) students' fathers were unemployed. Almost similar trend was observed among D.Sc.(Ag.)

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students. Less than one -third (30%) of the fathers of D.Sc.(Ag.) students' occupational status were in 'others' category. Others category included daily wage labourers.

The percentage of D.Sc.(Ag.) students whose fathers employed in farming and business category were also observed as equal (24%). The percentage of D.Sc.(Ag.) students whose fathers employed in service sector was 22. Whereas almost one - third (32%) of the B.Sc.(Ag.) students' fathers were government servants and 26 per cent of the B.Sc.(Ag.) students' fathers were engaged in independent businesses. A little less than one fourth (24%) of their fathers were agriculturist and 18 per cent of the B.Sc.(Ag.) students' father's occupational status belonged to 'others' category.

Table 4.3 Distribution of agriculture students according to their occupational status of fathers **(n=150)**

Sl. No.	Occupation	Frequency			Percentage		
		VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag)	VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Farming and allied activities	10	12	12	20	24	24
2	Govt. Service	5	11	16	10	22	32
3	Business	10	12	13	20	24	26
4	Others	23	15	9	46	30	18
5	Unemployed	2	0	0	4	0	0

Kerala is the state with highest literacy rate and unemployment rate. When we examine the job status of parents of agricultural students, it could be delineated that only negligible per cent of the parents were unemployed. While only few of them had government jobs that might be a reflection of their level of education. The results are in agreement with that of Das (2006) and Nagendra (2017)**.**

Occupational status of fathers of agriculture students
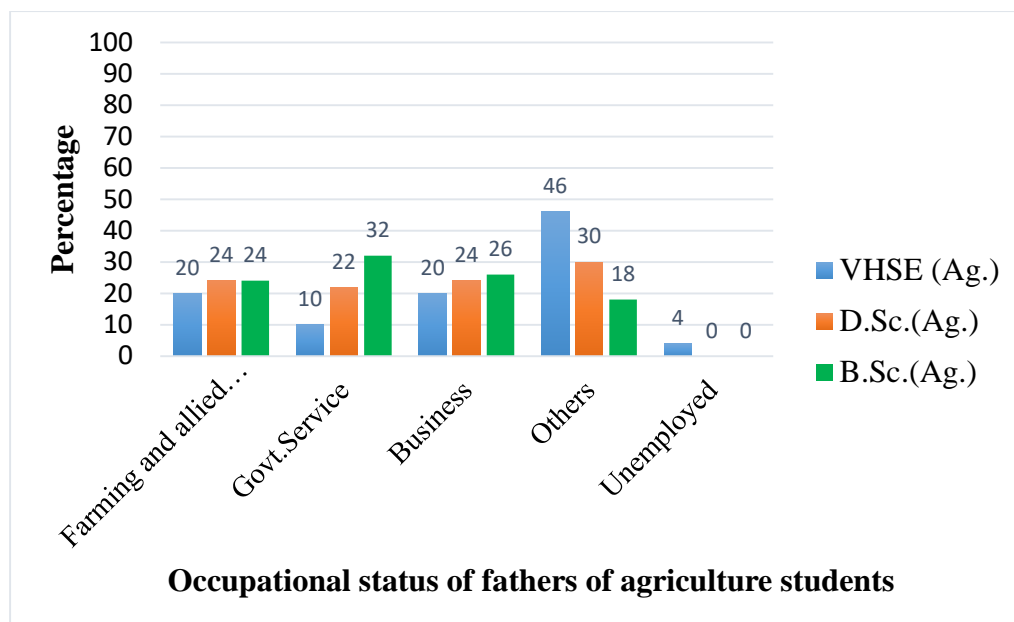
Figure 3 Distribution of agriculture students according to their occupational status of fathers

4. 1. 3. 1 Occupational status of mothers of agricultural students

Table 4. 4 Distribution of agriculture students according to their occupational status of mothers

Sl. No	Occupation	Frequency			Percentage		
		VHSE(Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)	VHSE(Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Farming and allied activities	6	0	4	12	0	8
2	Govt. Service	6	9	13	12	18	26
3	Business	0	0	3	0	0	6
4	Homemaker	33	37	28	66	74	56
5	Others	5	4	2	10	8	4

Table 4.4 showed that majority of the student's mothers were homemakers (VHSE (Ag.) = 66%, D.Sc.(Ag.) = 74%, B.Sc. (Ag.)=56%). The percentage of mothers of (VHSE (Ag.) students, who were employed in government service and farming

sector was equal *viz.* 12 per cent. Ten per cent of the mothers of VHSE (Ag.) students belonged to 'others' employment category. While it was observed that none of their mothers were entrepreneurs.

While analysing the occupational status of diploma student's mothers, none of them were employed in farming community and business sector and 18 per cent of them were government employees. Whereas 8 per cent of the mothers were employed in others category. In the case of B.Sc.(Ag.) students, 8 per cent of the mothers were employed in farming sector, 26 per cent of them were govt. employees, 6 per cent of them were entrepreneurs and 4 per cent of them belonged to others employment category.

The results indicated that majority of the students' mothers were homemakers. The findings could be the influence of their educational status family support. Yet a reasonable percentage of mothers were employed in government sector. The higher literacy rate and strong determination to be an employee might be the possible explanation for this trend. The findings were in accordance with that of Balan (2003) and Rai (2016).
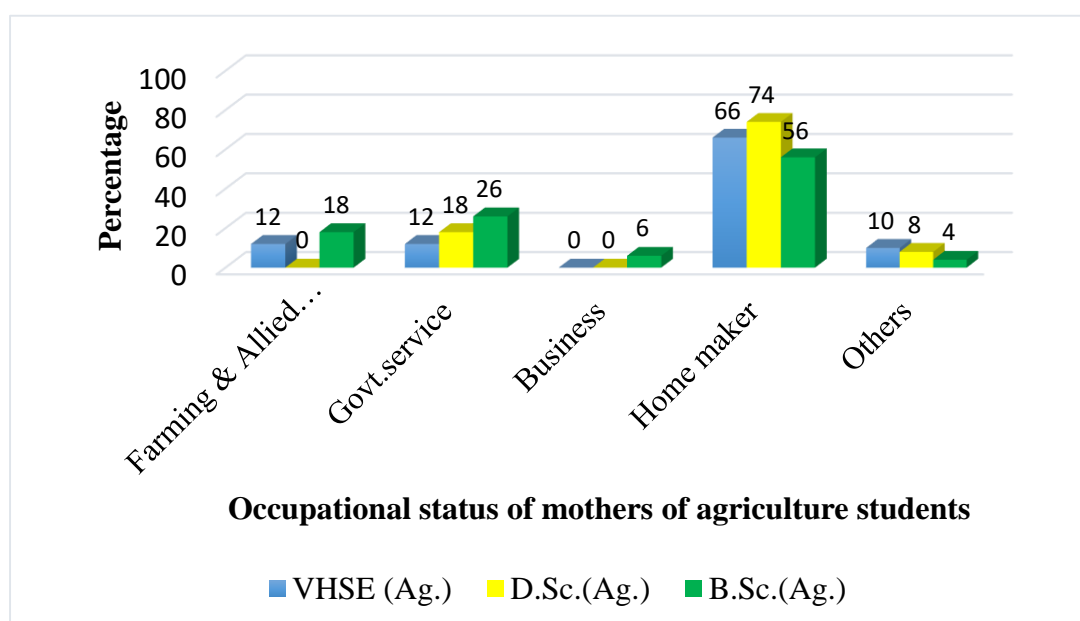
Figure 4 Distribution of agriculture students according to their occupational status of mothers

4. 1. 6 Mass media contact

Table 4. 5 Distribution of VHSE (Ag.) students according to their mass media contact (n=50)

Sl. No.	Categories of mass media contact	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<66.60	7	14
2	Medium	66.60-86.05	35	70
3	High	>86.05	8	16
Mean=76.33				S.D=9.72

Table 4. 12 portrayed the categories of VHSE (Ag.) students based on their exposure towards mass media. It was seen that 70 per cent of the VHSE (Ag.) students had medium level of exposure to mass media followed by 16 per cent of the VHSE (Ag.) students with high and 14 per cent of them had low mass media contact.

Majority of the students had moderate to high exposure to mass media. It is an indication of the enthusiasm of the students to update the available information. The results were on par with the findings of Balan (2003) and Krishna (2017).
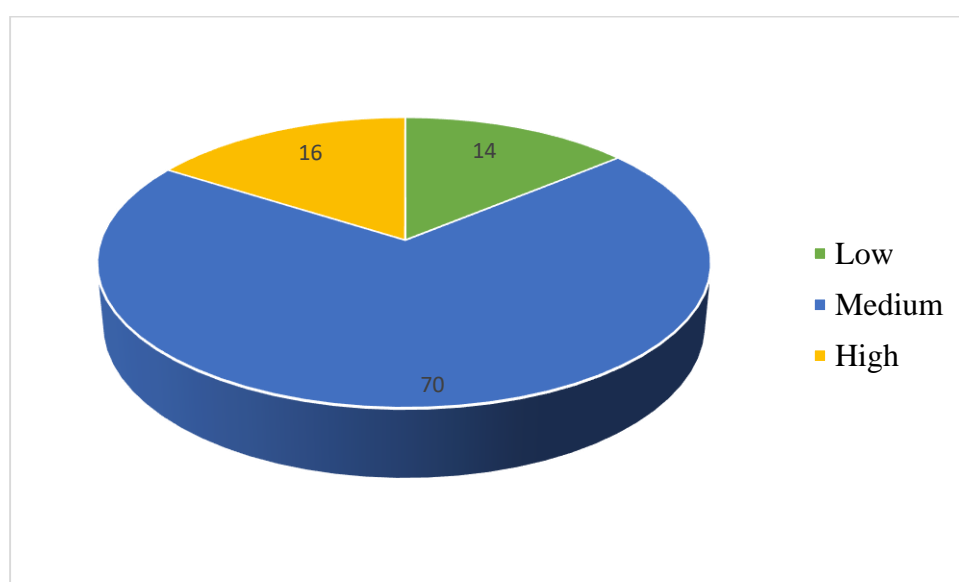
Figure 5 Distribution of VHSE (Ag.) students according to their mass media contact

Table 4. 6 Distribution of D.Sc.(Ag.) students according to their mass media contact

(n=50)

Sl. No.	Categories of mass media contact	Range of indices	D.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<63.12	11	22
2	Medium	63.12-80.20	33	66
3	High	>80.20	6	12
Mean=71.66				S.D= 8.54

The data presented in the table 4. 6 documented the categorization of diploma agriculture students based on their mass media contact. It could be inferred from the above table that majority (66%) of the diploma agriculture students had medium level of exposure to mass media, followed by 22 per cent of the diploma agriculture students had low and 12 per cent of them had high level of mass media contact.

Thus majority of the diploma agriculture students had moderate exposure to mass media. While the number of students who had low exposure to mass media were found to be higher than that of the students who had high mass media contact viz. some of the students may not be interested to update the available information. The findings were in agreement with the studies of Kamaraddi (2011).
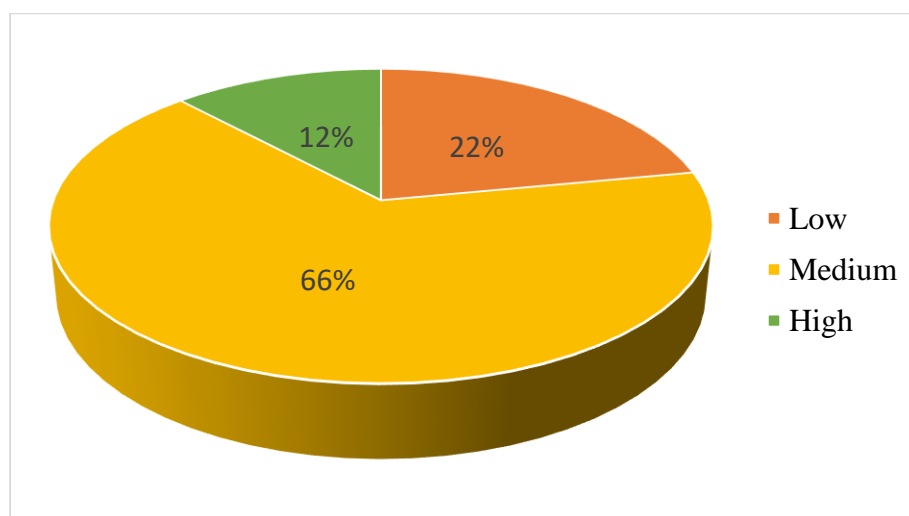
Figure 6 Distribution of D.Sc. (Ag.) students according to their mass media contact

Table 4. 7 Distribution of B.Sc. (Ag.) students according to their mass media contact

(n=50)

Sl.No.	Categories of mass media contact	Range of indices	B.Sc. (Ag.) students	
			Frequency	Percentage
1	Low	<65.95	3	6
2	Medium	65.95-82.21	37	74
3	High	>82.21	10	20
Mean=74.08				**S.D= 8.13**

It could be inferred from the table 4.7 that majority (74%) of the B.Sc.(Ag.) students had medium level of mass media contact, followed by 20 per cent of the B.Sc.(Ag.) students had high and only 6 per cent of the students had low level of mass media contact.
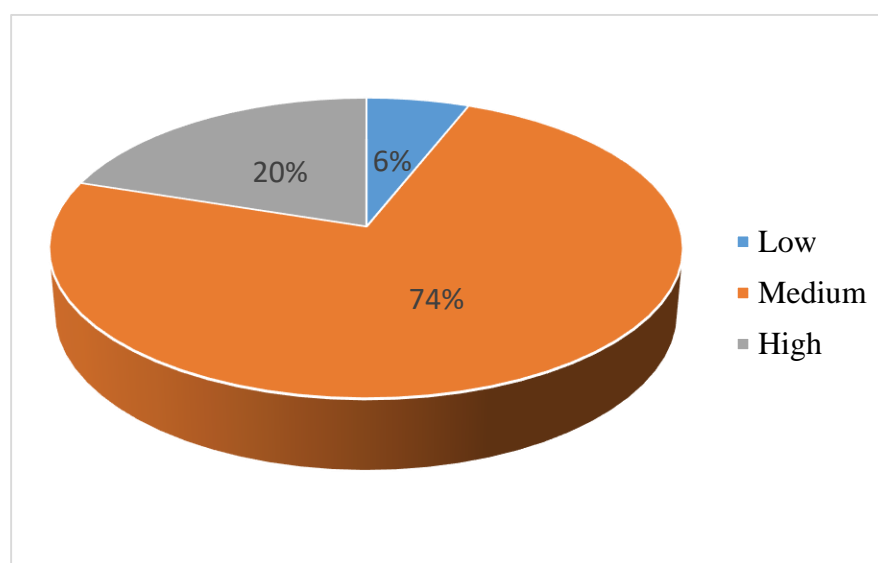
Figure 7 Distribution of B.Sc. (Ag.) students according to their mass media contact

Kerala being the state with highest literacy rate, in most of the households there would be subscription of at least a newspaper, magazine, television etc. Generally, people are interested in updating their general knowledge and gaining essential latest

information. The results were on par with the findings of Balan (2003) and Krishna (2017).

4. 1. 7 Trainings received

Table 4. 8 Distribution of respondents according to the trainings received by them (n=150)

Sl. No.	Category	Frequency			Percentage		
		VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag)	VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Received trainings	19	0	50	38	0	100
2	Not received trainings	31	50	0	62	100	0

It is inferred from the table4.8, that 38 per cent of the VHSE.(Ag.) students had participated in training on entrepreneurship, while 62 per cent of them had not participated in any training regarding entrepreneurship. The Department of General Education, Government of Kerala in collaboration with Kerala Agricultural University conducted skill oriented agripreneurship programmes in the selected schools of Kerala during the year 2019 and 2020. That is the reason why more than one-third of the VHSE.(Ag.) students had undergone training.

As part of the curriculum in RAWE programme, all the B.Sc.(Ag.) students had undergone training in entrepreneurship It was observed that none of the D.Sc.(Ag.) students had undergone any training on entrepreneurship as there was no provision for training in entrepreneurship in their curriculum.

In the case of VHSE (Ag.) students the results were in accordance with that of Ponmani (2015). While examining the results of B.Sc. (Ag.) students the findings were on par with that of Bandi and Reddy (2018).
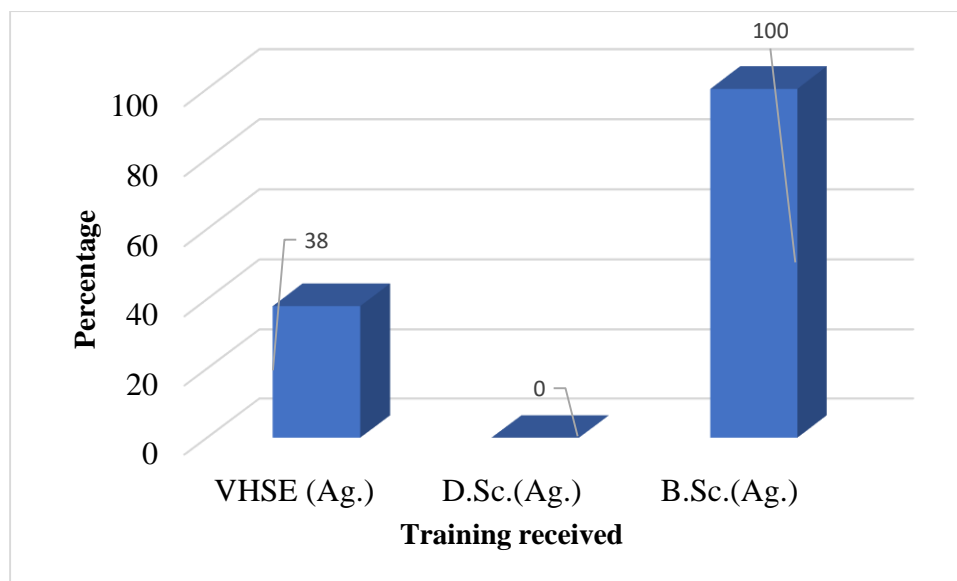
Figure 8 Distribution of agriculture students according to the trainings received by them

4. 2. Psychological characteristics of the respondents

4. 2. 1 Leadership ability

Table 4. 9 Distribution of VHSE (Ag.) students according to their leadership ability (n=50)

Sl. No.	Categories of leadership ability	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	< 70.23	12	24
2	Medium	70.23-85.71	22	44
3	High	> 85.71	16	32
Interquartile range : 15.48				

It could be explained from the table 4. 9 that slightly less than half (44%) of the VHSE (Ag.) students had medium level of leadership ability, followed by 24 per cent students with low and 32 per cent VHSE (Ag.) students with high leadership ability.Leadership ability stands for capability of an individual to lead or guide the members of a team to achieve a predetermined goal. A little less than half of the VHSE (Ag.) students had medium level of leadership ability and slightly less than one fourth

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of the VHSE (Ag.) students had low level of leadership ability. Leadership ability is not an innate skill, it is acquired by an individual over years through experience and exposure. While compared to D.Sc. (Ag.) and B.Sc. (Ag.) students the leadership ability of VHSE (Ag.) students were found to be slightly low. VHSE (Ag.) students are much younger than D.Sc. (Ag.) and B.Sc. (Ag.) students. Moreover they are just beginners in agricultural education hence they might not be having much experience and exposure in meeting the day today challenges. This might be the possible reason for having medium level of leadership ability among the VHSE (Ag.) students. The findings were in accordance with the findings of Kumar (2017).
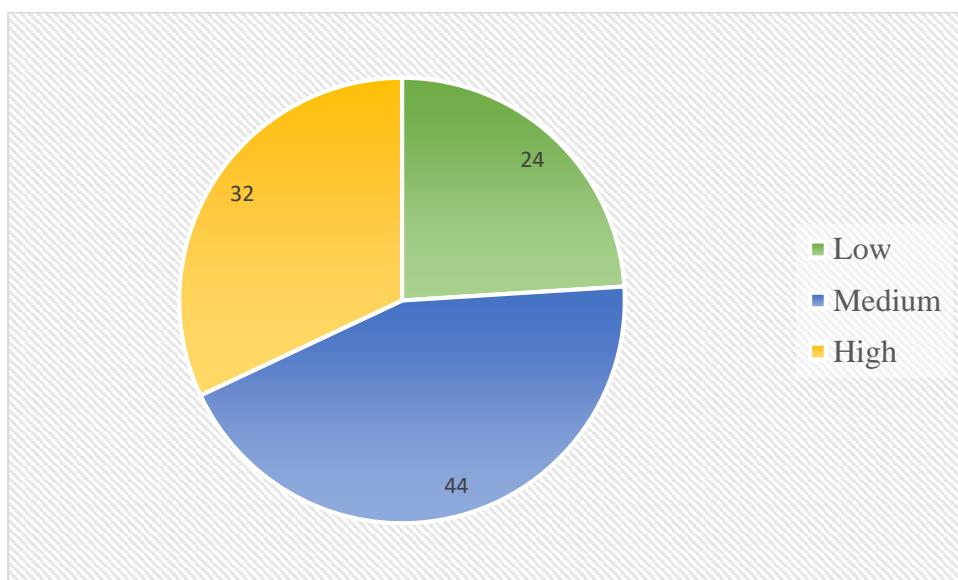
Figure 9 Distribution of VHSE (Ag.) students according to their leadership ability

Table 4. 10 Distribution of D.Sc. (Ag.) students according to their leadership ability (n=50)

Sl.No.	Categories of leadership ability	Range of indices	D.Sc. (Ag.)	
			Frequency	**Percentage**
1	Low	<61.9	7	14
2	Medium	61.9-76.19	23	46
3	High	>76.19	20	40
Interquartile range : 14.29				

Table 4.10 depicted that majority (46%) of the D.Sc.(Ag.) students belonged to medium category of leadership ability, while 40 per cent of the students had high and only 14 per cent of the D.Sc.(Ag.) students had low leadership ability. In comparison with the VHSE (Ag.) students, the number of D.Sc.(Ag.) students who belonged to high category was found to be more. Age and experience might be the possible explanation for this finding. The results were on par with that of Das (2006).
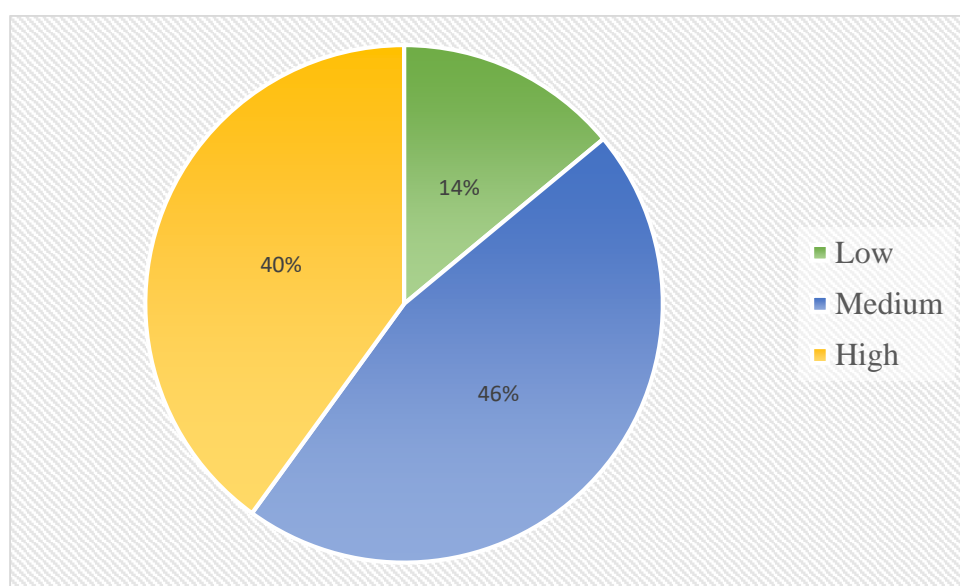
Figure 10 Distribution of D.Sc. (Ag.) students according to their leadership ability

Table 4. 11 Distribution of B.Sc.(Ag) students according to their leadership ability (n=50)

Sl.No.	Categories of leadership ability	Range of indices	B.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<76.19	7	14
2	Medium	76.19-90.47	28	56
3	High	>90.47	15	30
Interquartile range : 14.28				

It could be observed from the table 4.11 that more than half (56%) of the B.Sc.(Ag.) students had medium level of leadership ability followed by 30 per cent of the B.Sc.(Ag.) students with high and 14 per cent of the B.Sc.(Ag.) students had low level of leadership ability.

The results indicated that majority of them had moderate ability to guide and motivate the followers so as to achieve a common objective. It was observed that the number of students having medium and high leadership ability. Apart from age factor the experience gained through course curriculum comprised of eight semesters and exposure to various extra-curricular activities might be the possible reasons that majority of the B.Sc.(Ag.) students came under the category of medium to high leadership ability. The findings were in accordance with that of Das (2006).
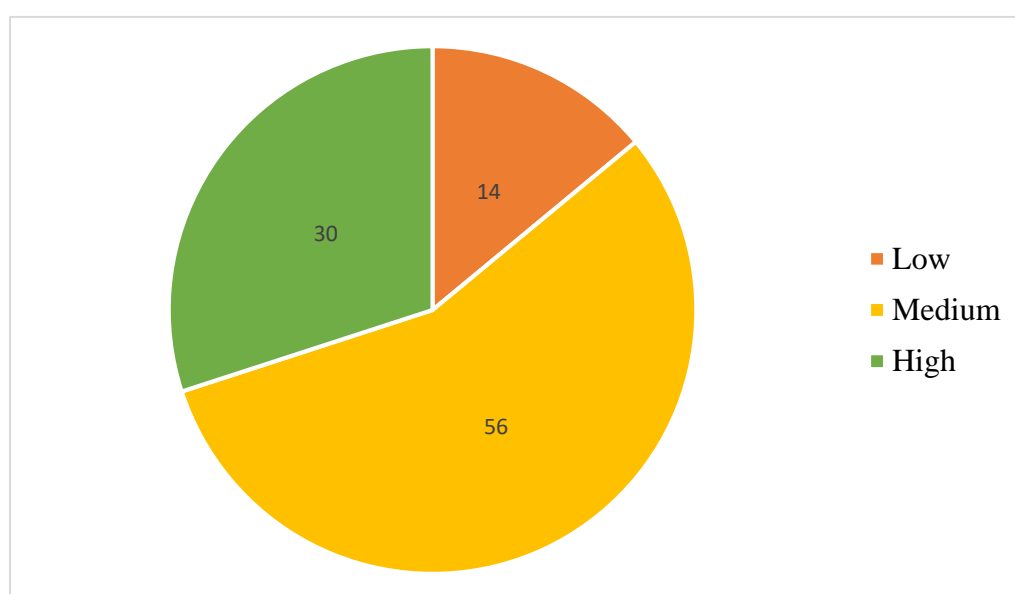
Figure 11 Distribution of B.Sc.(Ag.) students according to their leadership ability

4. 2. 2 Career aspiration

The students were asked to indicate their career preference and the obtained results are depicted in the table 4. 12. The results pinpointed that 'to become a government officer in Department of Agriculture Development and Farmers' Welfare' was ranked one, with a mean weightage score of 3.75, followed by 'to go for higher studies' with a weighted mean score of 3.72. Then the next preferred career option by majority of the students was found to be a government officer in non-agricultural sector. Followed by employment in agri-business companies (2.98), employment in banking sector (2.64), to become a professor/scientist was found to be the second last preference

of students with a weighted mean score of 2.60.While 'to establish own agri-business was observed as the least preferred career path with a weighted mean score of 2.40.

Table 4. 12 Distribution of agricultural students according to their career preference

Sl. No.	Career aspiration	Weighted mean score				Rank
		VHSE(Ag.)	B.Sc.(Ag)	B.Sc.(Ag)	Overall	
1	To go for higher studies	3.72	3.86	3.60	3.72	2
2	To become government officer (Dept. of Agriculture Development and Farmers' Welfare)	3.76	3.8	3.70	3.75	1
3	To become government officer (Other than Dept. of Agriculture Development and Farmers' Welfare)	3.12	3.04	3.20	3.12	3
4	To be a Professor/Scientist	2.62	2.78	2.42	2.60	6
5	Employment in agri-business companies	3.00	3.10	2.86	2.98	4
6	Establish own agribusiness	2.82	2.66	1.74	2.40	7
7	To become employee in banking sector	2.66	2.32	2.96	2.64	5

The findings clearly indicated that majority of the agriculture students wanted to become an employee in the government sector and it was observed 'to become an entrepreneur' was the least preferred career option of agricultural students. The possible

reason for this pattern would be students might think that being an entrepreneur is bit risky task and lack of sufficient financial and moral support might be another reason why students shows reluctance towards entrepreneurship. Being a government employee, it offers financial security and life time security hence that might be the possible explanation why majority of the students prefer to become an employee in government sector. The results were in accordance with that of Kumar (2017).

4. 2. 3 Self-confidence

The findings of table 4. 13 documented that majority (64%) of the VHSE (Ag.) students had medium level of self-confidence. While 20 per cent of them were having high level of self-confidence and 16 per cent of the student respondents had low level of self-confidence.

Table 4. 13 Distribution of VHSE (Ag.) students according to their self-confidence

(n=50)

Sl.No.	Categories of self-confidence	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<73.33	8	16
2	Medium	73.33-80	32	64
3	High	>80	10	20
Interquartile range : 6.67				
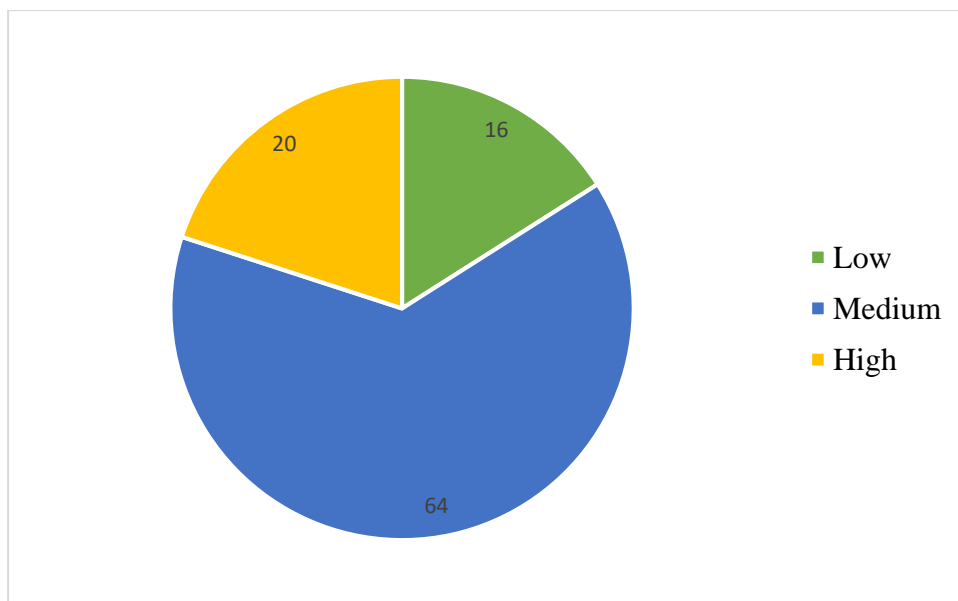
Figure 12 Distribution of VHSE (Ag.) students according to their self-confidence

Self-confidence is nothing but trust in one's own abilities. The results indicated that majority of the VHSE(Ag.) students had medium level of self-confidence. This might be due to low family annual income and inadequate exposure to mass media. The results were in line with that of Bhanupratap (2012) and Baburao (2019).

Table 4. 14 Distribution of D.Sc.(Ag) students according to their self-confidence
                                                                          (n=50)

Sl.No.	Categories of self-confidence	Range of indices	D.Sc.(Ag.) students	
			Frequency	**Percentage**
1	Low	<70	12	24
2	Medium	70-85.83	25	50
3	High	>85.83	13	26
Interquartile range = 15.83				

The results tabulated in the table 4. 14 documented the categorization of D.Sc.(Ag.) students according to their self-confidence. The findings indicated somewhat similar trend as that of the VHSE (Ag.) students. It was observed that half (50%) of the D.Sc.(Ag.) students belonged to medium category of self-confidence. While 26 per cent of the D.Sc.(Ag.) student respondents possessed high level of self-confidence and 24 per cent of the students were found with low level of self-confidence.
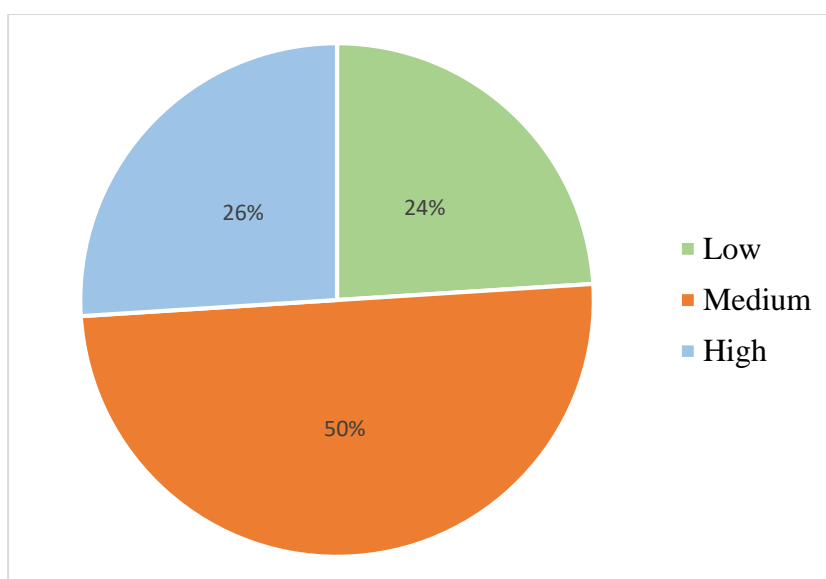
Figure 13 Distribution of D.Sc.(Ag.) students according to their self-confidence

It was observed that none of the D.Sc. (Ag.) students had undergone entrepreneurship development training programmes. Participation in training programmes inculcate entrepreneurial skills and boost up the self-confidence among individuals. Hence lack of adequate training programmes may lead to poor self-confidence among students. The results were in line with that of Bhanupratap (2012) and Baburao (2019).

Table 4. 15 Distribution of B.Sc. (Ag.) students according to their self-confidence

(n=50)

Sl. No.	Categories of self-confidence	Range of indices	B.Sc. (Ag.)students	
			Frequency	Percentage
1	Low	<59.1	12	24
2	Medium	59.1-83.33	20	40
3	High	>83.33	18	36
Interquartile range : 24.23				

The data given in the table 4. 15 delineated that more than one- third (40%) of the B.Sc. students had medium level of self-confidence followed by 36 per cent students with high and 24 per cent students with low self-confidence respectively.
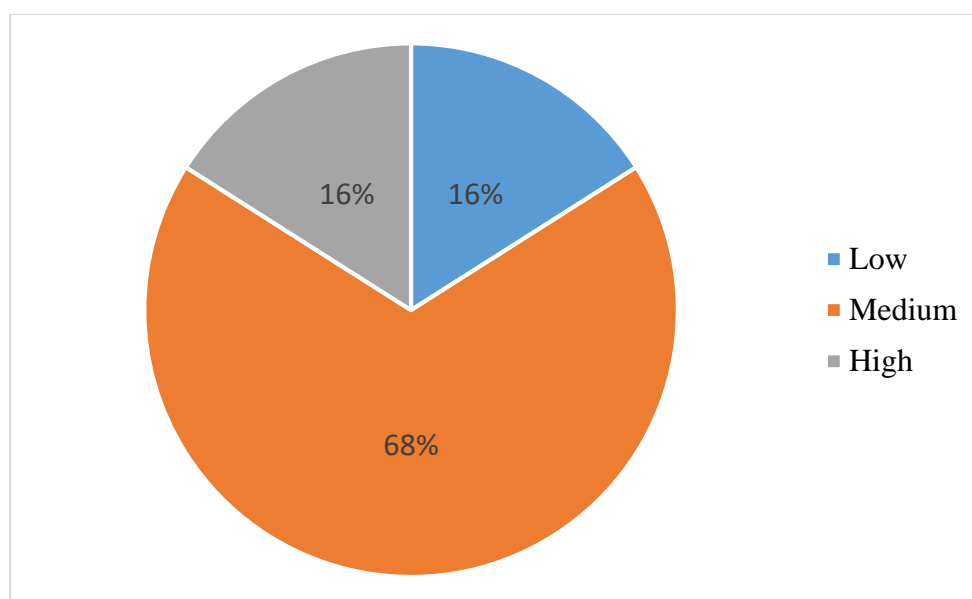
Figure 14 Distribution of B.Sc.(Ag.) students according to their self-confidence

Thus it could be concluded that, though majority of the students had medium level of self-confidence. The number of students who had high level of self-confidence was observed as higher than that of the students who had low level of self-confidence. It was reported that all the B.Sc. (Ag.) student respondents had participated in entrepreneurship development training programmes. And it was also found that majority of the students had moderate to high level of exposure to mass media. These are the probable reasons for the categorization given in the above table.

4. 2. 4 Achievement motivation

Table 4. 16 Distribution of VHSE (Ag.) students according to their achievement motivation **(n=50)**

Sl.No.	Categories of Achievement motivation	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<62.5	12	24
2	Medium	62.5-73.33	20	40
3	High	>73.33	18	36
Interquartile range : 10.83				
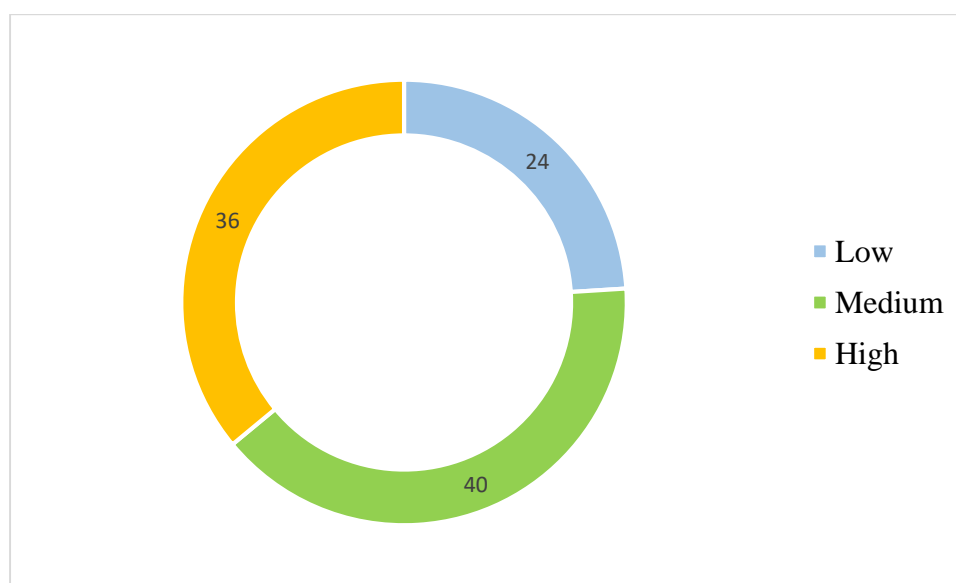
Figure 15 Distribution of VHSE (Ag.) students according to their achievement motivation

The details of achievement motivation of VHSE (Ag.) students are presented in table 4. 16. It could be concluded that more than one- third (40%) of them had medium level of achievement motivation, followed by 36 per cent of the students with high and 24 per cent of them with low achievement motivation.

The categorization of students based on their achievement motivation might be the reflection of their family annual income. Since majority of the VHSE (Ag.) students were from families of low income. Hence insufficient financial support may act as a barrier for meeting an individual's realistic goals.

Table 4. 17 Distribution of D.Sc.(Ag.) students according to their achievement motivation **(n=50)**

Sl.No.	Categories of Achievement motivation	Range of indices	D.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<63.33	8	16
2	Medium	63.33-80	32	64
3	High	>80	10	20
Interquartile range : 16.67				

The observations given in table 4.17 explained the achievement motivation of D.Sc.(Ag.) students. The results pinpointed that majority (64%) of the diploma students belonged to 'medium' category of achievement motivation. Whereas 20 per cent of them had high achievement motivation while the per cent of students with low achievement motivation was observed as 16.

Thus it could be concluded that majority of the D.Sc.(Ag.) students had moderate to high achievement motivation. D.Sc.(Ag.) course can be considered as a bridge to B.Sc. (Ag.) course. Hence to achieve the goal an individual should possess enough achievement motivation. The findings were in accordance with that of Mohanty (1998) and Gadhvi (2012).
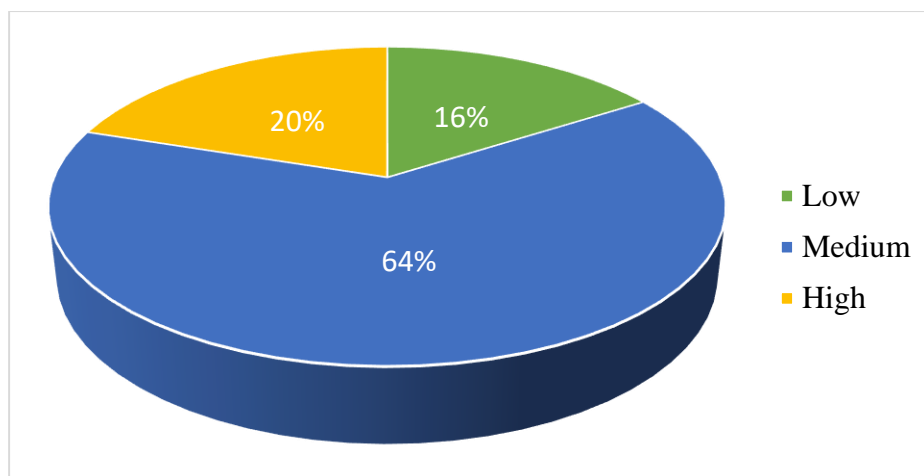
Figure 16 Distribution of D.Sc.(Ag.) students according to their achievement motivation

Table 4. 18 Distribution of B.Sc.(Ag.) students according to their achievement motivation (n=50)

Sl.No.	Categories of Achievement motivation	Range of indices	B.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<66.66	8	16
2	Medium	66.66-83.33	29	58
3	High	>83.33	13	26
Interquartile range : 16.67				

Table 4. 18 stated that the findings regarding the achievement motivation of B.Sc.(Ag.) students followed similar trend as that of the D.Sc.(Ag.) students. Majority (58%) of the students had shown medium level of achievement motivation. Whereas 26 per cent of them belonged to high achievement motivation category and 16 per cent of the student respondents had low level of achievement motivation.

Achievement motivation is an internal phenomenon which would influence overall performance and skills of students. It was found that majority of the B.Sc.(Ag.) students had a desire to meet their predetermined goals and to be successful in this

competitive era. The findings were in accordance with that of Mohanty (1998) and Gadhvi (2012).
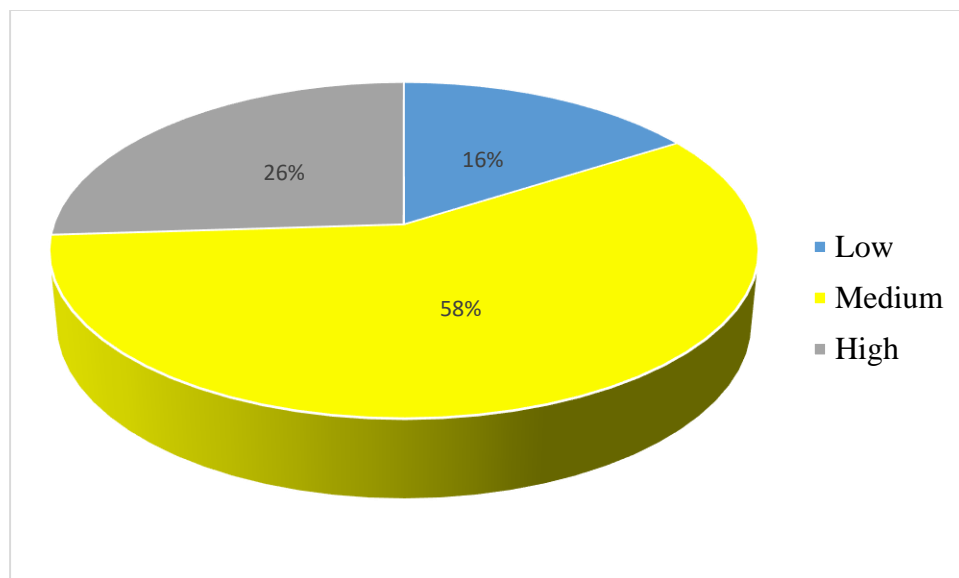
Figure 17 Distribution of B.Sc.(Ag.) students according to their achievement motivation

4. 2. 5 Innovativeness

Table 4. 19 Distribution of VHSE (Ag.) students according to their innovativeness

(n=50)

Sl.No.	Categories of Innovativeness	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<66.66	11	22
2	Medium	66.66-77.5	27	54
3	High	>77.5	12	24
Interquartile range : 10.84				

Table 4. 19 depicted the categories of VHSE (Ag.) students based on their innovativeness. The results indicated that majority (54%) of the respondents fell into medium category, followed by 24 per cent students with high and 22 per cent of the students had low level of innovativeness.
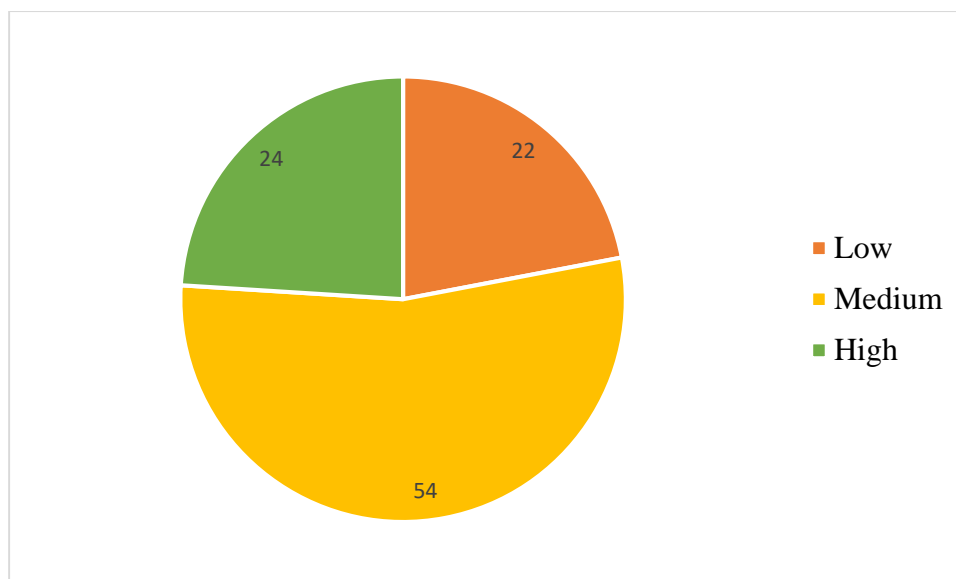
Figure 18 Distribution of VHSE (Ag.) students according to their innovativeness

Majority of the VHSE (Ag.) students were having moderate ability to try out new practices and technologies. It was concluded that majority of the VHSE (Ag.) students were from families of low income. As a result they might be stick on to the traditional practices and show reluctance to adopt innovative technologies. This could be the possible explanation for majority of the students came under medium category of innovativeness. The results were on par with that of Manju (1996).

Table 4. 20 Distribution of D.Sc. (Ag.) students according to their innovativeness

(n=50)

Sl.No.	Categories of Innovativeness	Range of indices	D.Sc.(Ag.) students	
			Frequency	**Percentage**
1	Low	<63.33	10	20
2	Medium	63.33-80	31	62
3	High	>80	9	18
Interquartile range : 16.67				

It could be inferred from the table 4. 20 that majority (62%) of the D.Sc.(Ag.) students had medium level of innovativeness. While 20 per cent of the respondents had low and 18 per cent of them possessed high level of innovativeness.

Thus majority of them had moderate to high level of innovativeness, which indicates that the D.Sc. (Ag) students might be bit heedful to try out a new ideas or practices. They might be waiting for others to try out innovative ideas. The results were in line with that of Deepthi (2016) and Jayant (2017).
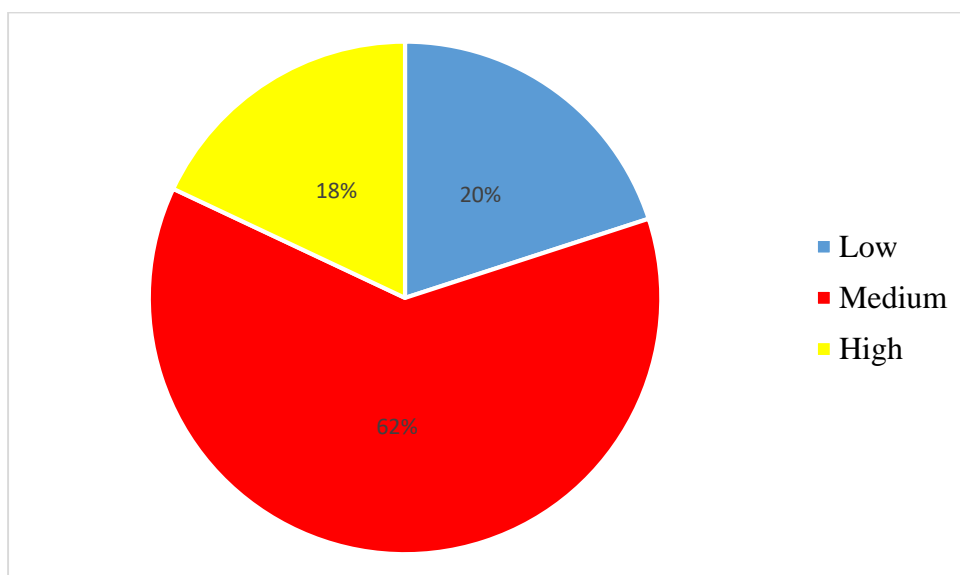
Figure 19 Distribution of D.Sc. (Ag.) students according to their innovativeness

Table 4. 21 Distribution of B.Sc. (Ag.) students according to their innovativeness (n=50)

Sl. No.	Categories of innovativeness	Range of indices	B.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<70	11	22
2	Medium	70-80	28	56
3	High	>80	11	22
Interquartile range : 10				

The data given in the table 4. 21 delineated that majority (56%) of the B.Sc.(Ag.) students were in medium category of innovativeness. The percentage of students with high and low level of innovativeness was found to be equal *i.e.* 22 per cent. Majority of the B.Sc. (Ag.) were found be moderately innovative in nature and the number of students who had higher innovativeness was higher than that of the

students with low level of innovativeness. While examining the mass media contact of B.Sc. (Ag.) students they were having medium to high exposure to mass media. The ideas and practices transmitted through mass media could create an enthusiasm among students to try out new practices rather than hugging the traditional practices. This would be the reason for having more number of students under medium and high categories of innovativeness. The results were in line with that of Deepthi (2016) and Jayant (2017).
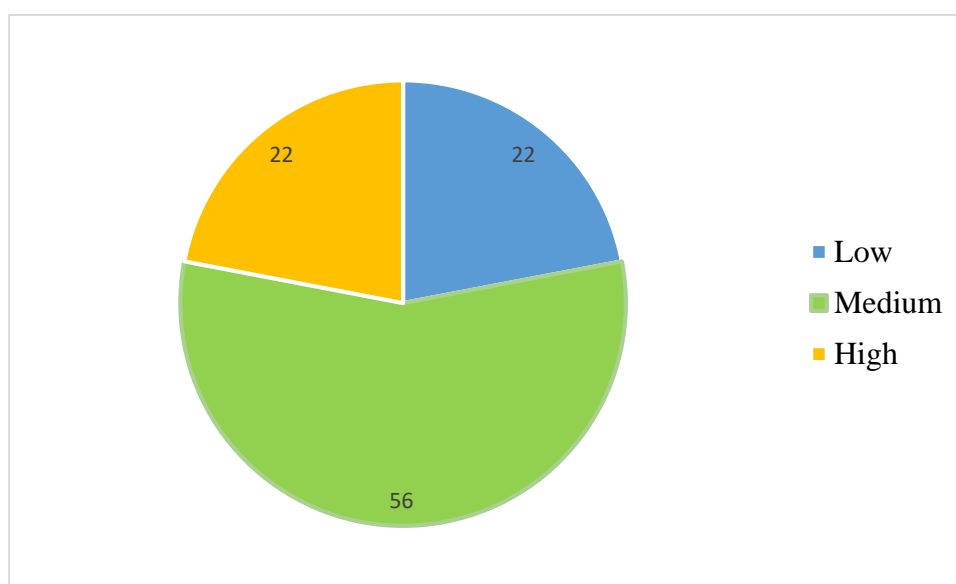
Figure 20 Distribution of B.Sc. (Ag.) students according to their innovativeness

4. 2. 6 Self-reliance

Table 4. 22 Distribution of agriculture students according to their self-reliance
(n=150)

Sl. No.	Category	Range of self-reliance (%)	Percentage (%)		
			VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Least self-reliant	25-49	2	0	0
2	Less self-reliant	50-74	8	14	8
3	More self-reliant	75-99	48	74	54
4	Completely self-reliant	100	42	12	38

Table 4. 22 emphasised the distribution of agricultural students in Kerala according to their self-reliance. It was concluded that majority of the students from three categories belonged to 'more self-reliant' category. When we analyse each categories it was observed that slightly less than half (48%) of the VHSE (Ag.) students had more self-reliance, followed by 42 per cent students with complete self-reliance and 8 per cent students had less self-reliance. The per cent of the students who were in 'least self-reliant' category was found to be scanty. It was only 2 per cent. In the case of D.Sc.(Ag.) students, majority (74%) of them were more self-reliant and 14 per cent of them belonged to 'less self-reliant' category and 12 per cent of the students had complete self-reliance. No D.Sc.(Ag.) students were in 'least self-reliant' category. While examining the trend among B.Sc.(Ag.) students, it was found that majority of the students were in 'more self-reliant' category followed by 38 per cent students who were in 'completely self -reliant' category and only 8 per cent of them were found to be less self-reliant. Just like the trend of D.Sc.(Ag.) students, none of the B.Sc.(Ag.) students were in 'least self-reliant' category.

Self-reliance is one of the essential characteristics of a successful entrepreneur. It is the ability of an individual to depend on oneself rather than relying on others. Hence by possessing the ability to route one's own destiny may open the windows towards success. Therefore being able to support one's own things definitely can act as a desirable entrepreneurial trait.

4. 2. 7 Risk taking ability

Table 4. 23 Distribution of VHSE (Ag.) students according to their risk taking ability

(n=50)

Sl. No.	Categories of risk taking ability	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<68.57	11	22
2	Medium	68.57-77.14	24	48
3	High	>77.14	15	30
Interquartile range : 8.57				

The findings of the table 4. 23 exposed the risk taking ability among the VHSE (Ag.) students. It could be concluded that majority (48%) of the students had medium level of risk taking ability, followed by 30 per cent students with high and 22 per cent students with low level of risk taking ability.

Risk taking ability is one among the most vital characteristics of an entrepreneur. In the case of VHSE students (Ag.) majority of the students had moderate to high risk bearing ability. The ability of an individual to take risk is associated with several factors. Since majority of the students were from families of poor economic background, there exists an innate ability of bearing risk among them. In order to uplift their own economic background to stable and sound they have to imbibe sufficient risk taking abilities. That might be the reason why majority of the students belonged to medium to high risk taking ability. The results were in line with that of Jayant (2017).
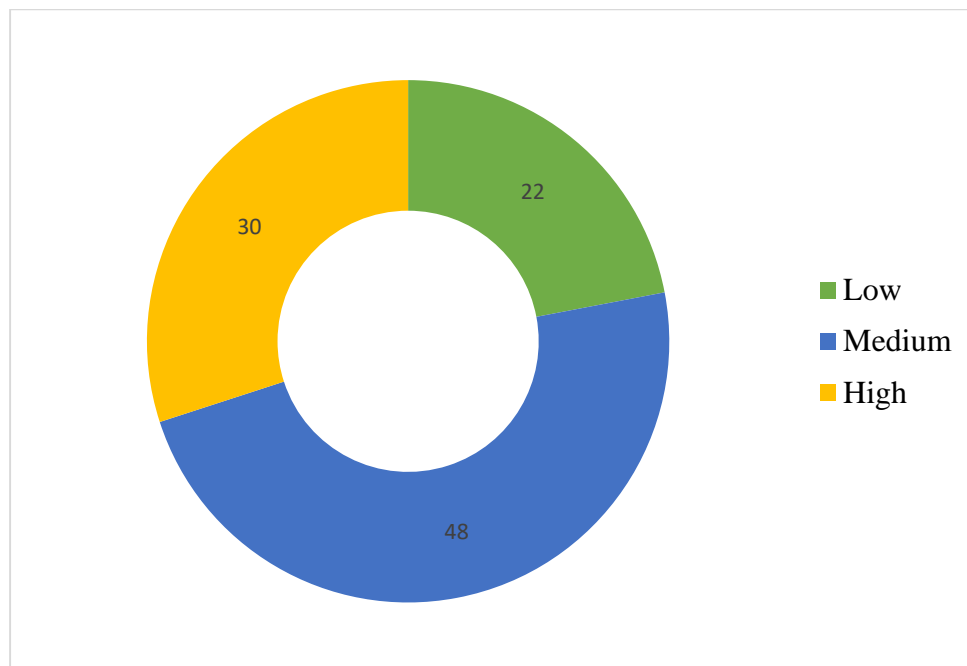
Figure 21 Distribution of VHSE (Ag.) students according to their risk taking ability

Table 4. 24 Distribution of D.Sc.(Ag.) students according to their risk taking ability (n=50)

Sl.No.	Categories of risk taking ability	Range of indices	D.Sc.(Ag.)students	
			Frequency	Percentage
1	Low	<68.57	11	22
2	Medium	68.57-77.14	20	40
3	High	>77.14	19	38
Interquartile range : 8.57				

The table 4. 24 highlighted the risk taking ability of D.Sc.(Ag.) students. It could be delineated that little more than one – third (40%) of the D.Sc.(Ag.) students had medium level of risk taking ability followed by 38 per cent students with high and 22 per cent of them had low level of risk taking ability.
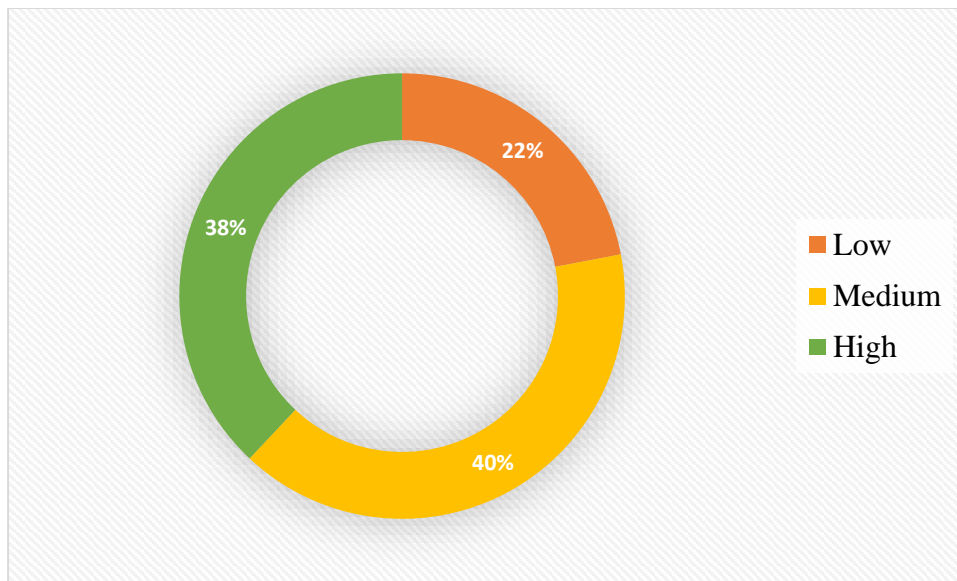
Figure 22 Distribution of D.Sc.(Ag.) students according to their risk taking ability

The results showed that majority of the D.Sc. (Ag.) students had medium to high level of ability to accept and take risk so as to achieve their entrepreneurial goals. The parental occupation might be the reflection of this particular trend. It was observed that 24 per cent of the students' fathers were entrepreneurs. Hence they might be

considering their father as their supreme role model and ready to bear risk for producing fruitful results. The results were in line with that of Gadhvi (2012).

Table 4. 25 Distribution of B.Sc. (Ag.) students according to their risk taking ability

<div align="right">

(n=50)

</div>

Sl.No.	Categories of risk taking ability	Range of indices	B.Sc. (Ag.) students	
			Frequency	Percentage
1	Low	<73.57	12	24
2	Medium	73.57-85.71	23	46
3	High	>85.71	15	30
Interquartile range : 12.14				

Table 4. 25 portrayed the categories of B.Sc. (Ag.) students according to their risk taking ability. The results pointed out that just below half (46%) of the B.Sc.(Ag.) students possessed medium level of risk taking ability while 30 per cent of them had high level of risk taking ability and 24 per cent of them belonged to 'low' category of risk taking ability.
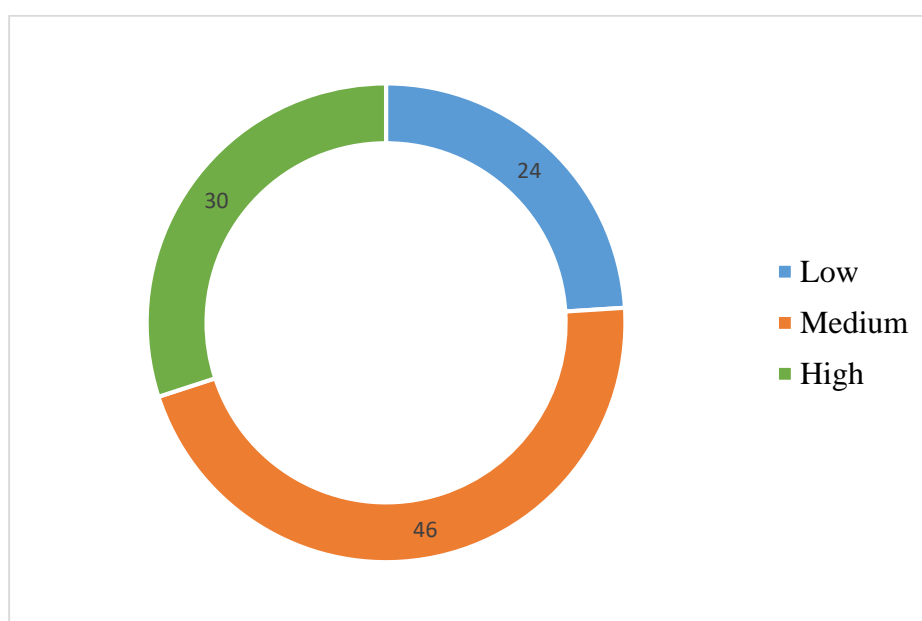
Figure 23 Distribution of B.Sc.(Ag.) students according to their risk taking ability

The results indicated that majority of the B.Sc.(Ag.) students had moderate risk bearing ability. And among the three category of agricultural students the number of students having high risk bearing capacity was found to be higher among B.Sc.(Ag.) students. The effect of family annual income and participation in entrepreneurship development training might be the possible reasons for these results. It was reported that all the B.Sc.(Ag.) students had attended entrepreneurship development programme as a part of their RAWE programme. The findings were in line with that of Gadhvi (2012).

4. 2. 8 Decision making ability

Table 4. 26 Distribution of VHSE (Ag.) students according to their decision making ability

(n=50)

Sl.No.	Categories of decision making ability	Range of indices	VHSE (Ag.) students	
			Frequency	Percentage
1	Low	<70	9	18
2	Medium	70-83.33	24	48
3	High	>83.33	17	34
Interquartile range : 12.5				

The categorisation of VHSE (Ag.) students according to their decision making ability is presented in the table 4. 26. It could be inferred from the table that around half (48%) of the students had medium level of decision making ability. Just above one-third (34%) of the students belonged to the category 'high' with respect to their decision making ability. The percentage of students having low level of decision making ability was reported as 18 per cent.

It is the capability of an individual to choose a better decision from several alternatives. It was observed that majority of the students had medium to high decision making ability during critical circumstances. In fact they are adolescent age students they might be very proactive in nature. That would be the reason for this trend. The results were in accordance with that of Dharamkar (2017).
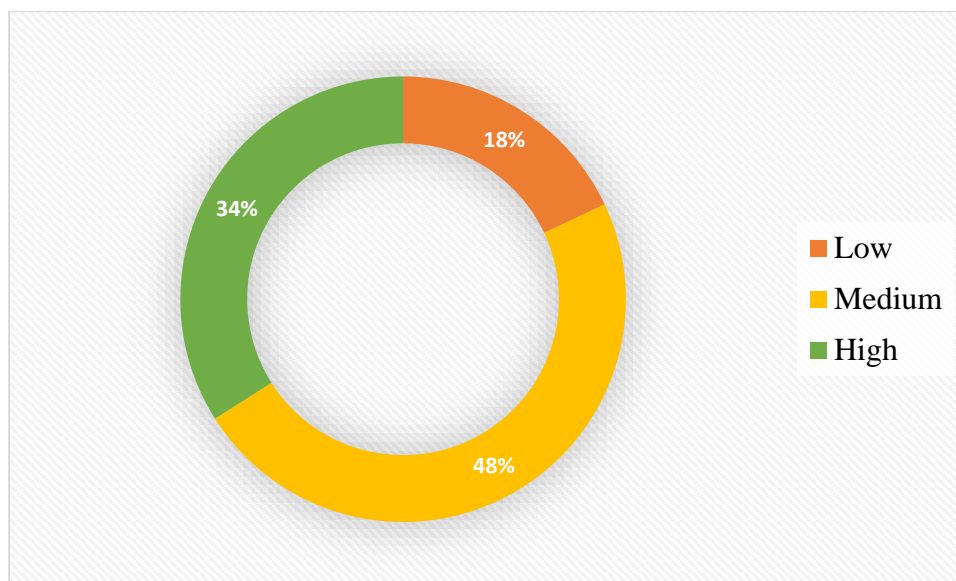
Figure 24 Distribution of VHSE (Ag.) students according to their decision making ability

Table 4. 27 Distribution of D.Sc. (Ag.) students according to their decision making ability

(n=50)

Sl.No.	Categories of decision making ability	Range of indices	D.Sc.(Ag.) students	
			Frequency	**Percentage**
1	Low	<73.33	5	10
2	Medium	73.33-83.33	31	62
3	High	>83.33	14	28
Interquartile range : 10				

It is evident from the table 4. 27 that majority (62%) of the students had medium level of decision making ability, followed by 28 per cent students with high and 10 per cent of them had low decision making ability.

The results clearly indicated that a major portion of the students had moderate decision making skills. While the number of students having high decision making skills was higher than that of those students having low decision making ability. The possible explanation for this particular trend might be availability of enough and adequate information and exposure to ambient entrepreneurial environment which help

to start and establish an enterprise. The results were in line with that of Sopan (2019) and Talukder (2014).
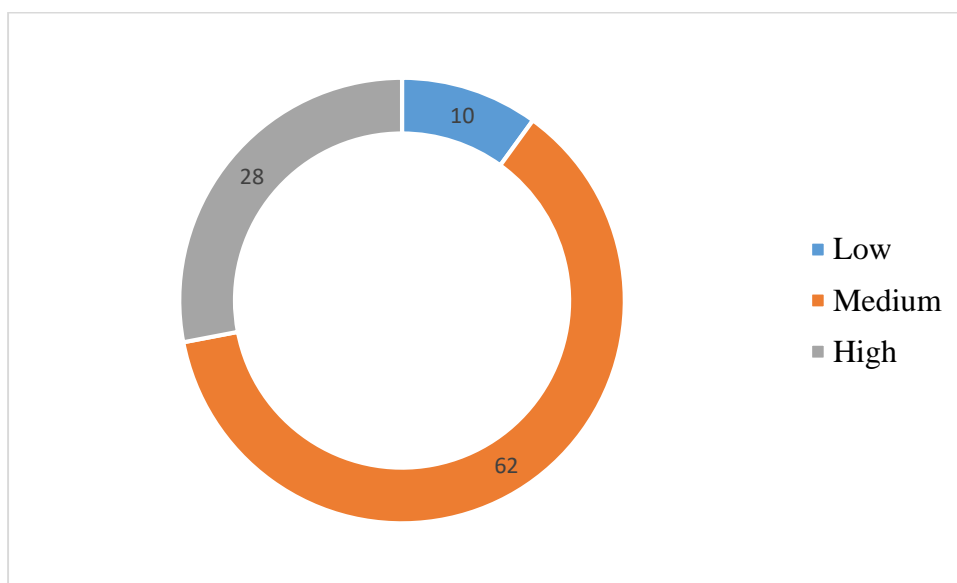
Figure 25 Distribution of D.Sc. (Ag.) students according to their decision making ability

Table 4. 28 Distribution of B.Sc. (Ag.) students according to their decision making ability

Sl.No.	Categories of decision making ability	Range of indices	B.Sc.(Ag.) students	
			Frequency	Percentage
1	Low	<70	10	20
2	Medium	70-88.33	28	56
3	High	>88.33	12	24
Interquartile range : 18.33				

From the table 4. 28 it could be understood that 56 per cent of the B.Sc.(Ag.) students possessed medium level of decision making ability. The percentage of the students who belonged to 'high' category of decision making ability was seen as 24 per cent. Whereas 20 per cent of the students had low level of decision making ability.
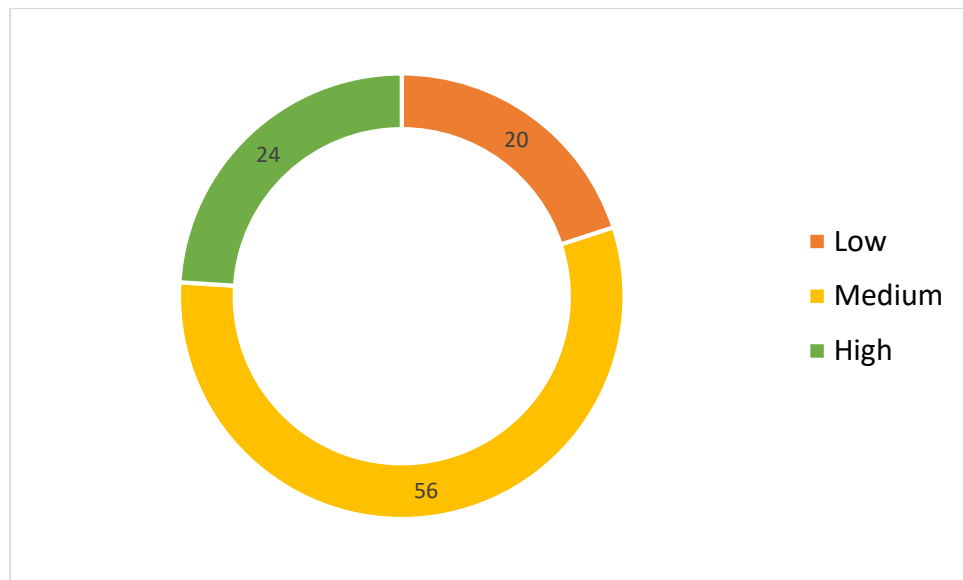
Figure 26 Distribution of B.Sc. (Ag.) students according to their decision making ability

The results showed that the majority of the students had moderate to high level of decision making ability. The reason for this pattern could be the experience gained over four years of professional education of agriculture with special emphasis on RAWE programme could augment the ability to make better decision among B.Sc (Ag.) students. The results were in concurrence with that of Sopan (2019) and Talukder (2014).

4. 3 Attitude of students towards agripreneurship

Table 4. 29 Distribution of VHSE (Ag.) students according to their attitude towards agripreneurship

(n=50)

Sl.No.	Category	Range of indices	VHSE (Ag.) students	
			Frequency	**Percentage**
1	Less favourable	<64.57	6	12
2	Moderately favourable	64.57-80.22	38	76
3	Favourable	>80.22	6	12
Mean= 72.4				**S.D = 7.82**

The findings of table 4. 29 revealed that more than three- fourth (76%) of the VHSE (Ag.) students came under the category of 'moderately favourable' on the basis of attitude towards agripreneurship. The per cent of the students who were in 'high' and 'low' category was found to be equal *viz*.12 per cent each.

Thus, it is evident that majority of the students had moderately favourable attitude to enter into the field of entrepreneurship in agriculture. This might be the reflection of the family income status. It was seen that majority of the students were from low income family background. Hence students might have a feeling of fear to enter into an entirely independent field without any support from their family members. The results were in accordance with that of Saranya (2015).
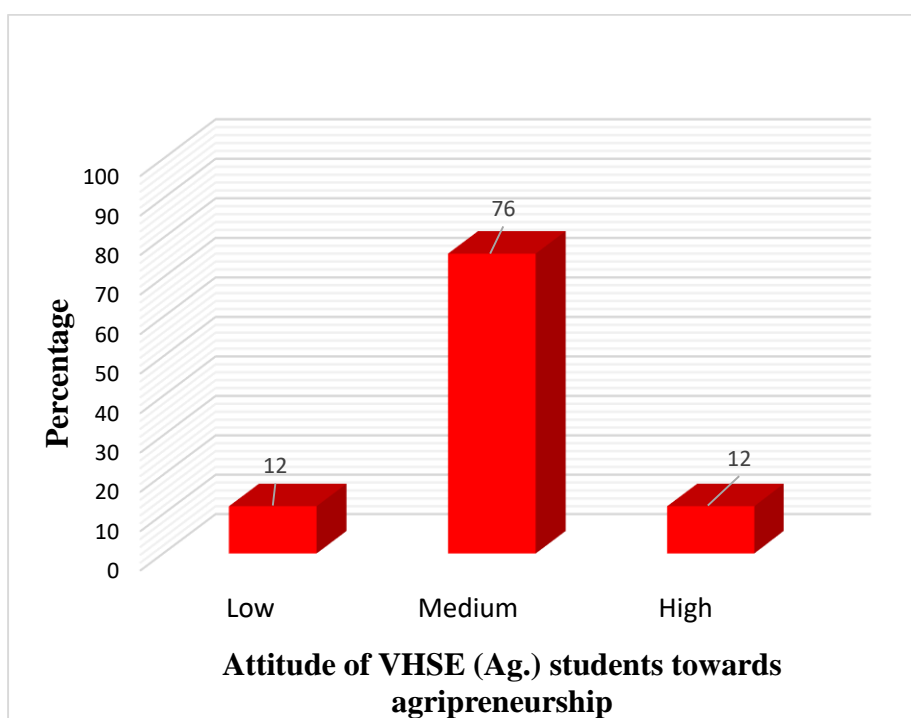
Figure 27 Distribution of VHSE (Ag.) students according to their attitude towards agripreneurship

Table 4. 30 Distribution of D.Sc. (Ag.) students according to their attitude towards agripreneurship

Sl.No.	Category	Range of indices	D.Sc.(Ag.) students	
			Frequency	**Percentage**
1	Less favourable	<74.65	9	18
2	Moderately favourable	74.65-87.74	34	68
3	Favourable	>87.74	7	14
Mean= 81.2				**S.D = 6.54**

It could be concluded from the table 4. 30 that majority (68%) of the diploma students had moderately favourable attitude towards agripreneurship, followed by 18 per cent students with less favourable and 14 per cent of them had favourable attitude towards agripreneurship.
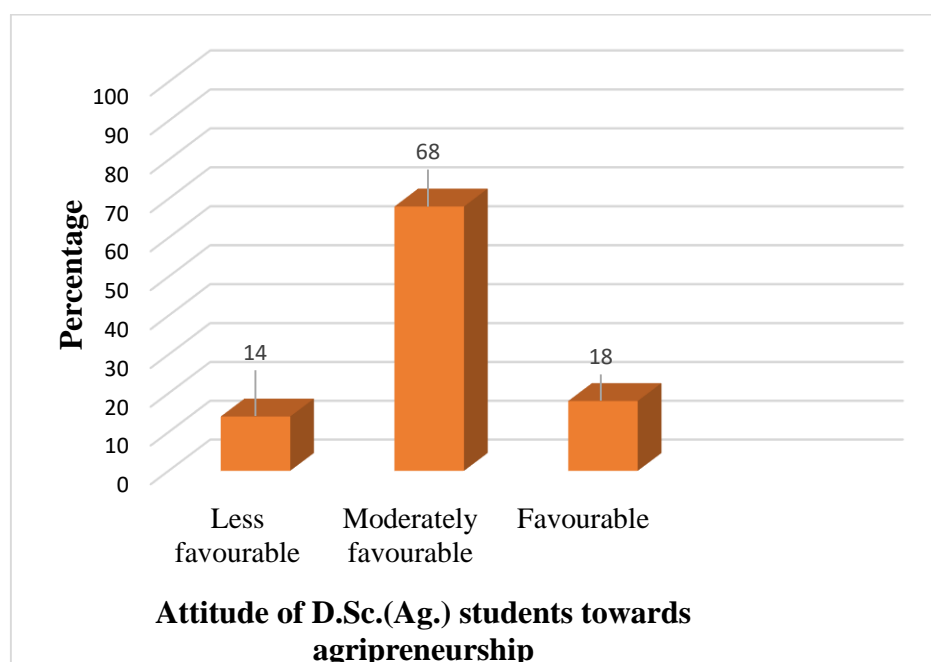
Figure 28 Distribution of D.Sc.(Ag.) students according to their attitude towards agripreneurship

Hence majority of the D.Sc. (Ag.) students had moderately favourable attitude to pursue entrepreneurship as their career choice. While examining the table it was clear

that the number of students who had less favourable attitude was more in comparison with the number of students who were having favourable attitude towards agripreneurship. Lack of adequate training and insufficient exposure towards mass media might be the possible explanation for this trend. The results were in accordance with that of Sharma and Bhuyan (2020).

Table 4. 31 Distribution of B.Sc.(Ag.) students according to their attitude towards agripreneurship

(n=50)

Sl.No.	Category	Range of indices	B.Sc. (Ag.) students	
			Frequency	Percentage
1	Less favourable	<69.88	3	6
2	Moderately favourable	69.88-81.47	39	78
3	Favourable	>81.47	8	16
Mean= 75.68				**S.D = 5.79**

Table 4. 31 indicated the categorization of B.Sc.(Ag.) students on the basis of their attitude towards agripreneurship. The results showed that majority (78%) of the students had moderately favourable attitude towards agripreneurship while 16 per cent of them had favourable attitude. It was observed that only negligible per cent (6%) of them had less favourable attitude towards agripreneurship.

The results pinpointed that a majority of the students had moderately favourable to favourable attitude towards starting and establishing their own agro-enterprise. It was reported that majority of the students had attended entrepreneurship development training programmes during their RAWE programme and majority of them had medium to high mass media contact. As a consequence of these, most of the students might have gained adequate knowledge about scope and potential of agripreneurship. Moreover as a part of their experiential learning programme many of the students could enter into entrepreneurship. Hence the knowledge and experience acquired by the students over these years might be the probable reason for this categorisation. The findings were in line with that of Kadiri and Reddy (2012) and Reddy (2018).
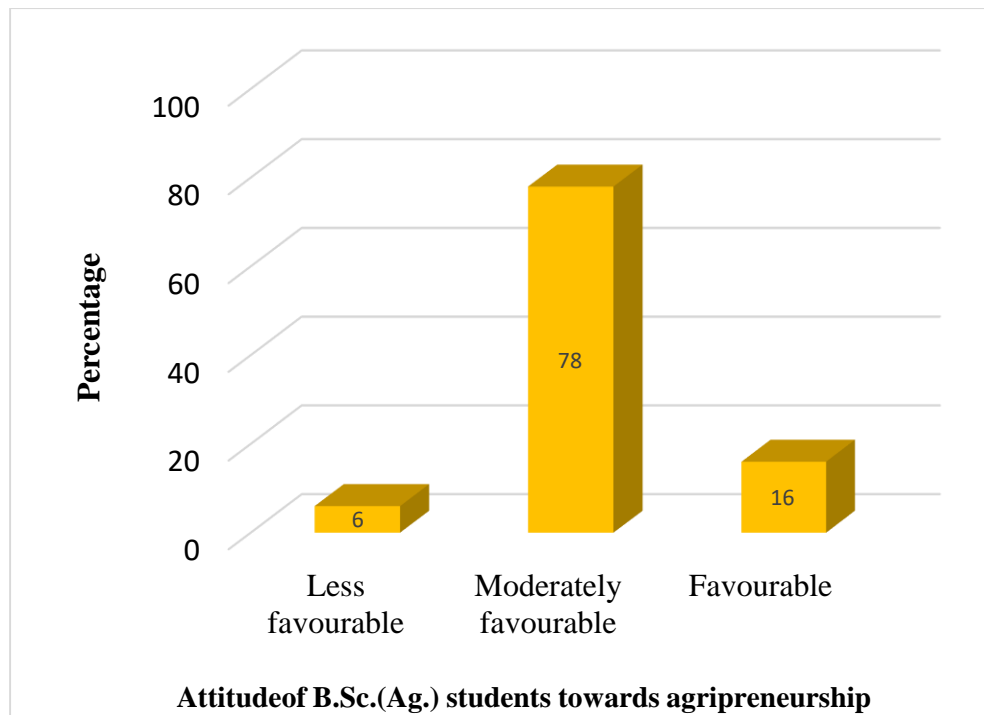
Figure 29 Distribution of B.Sc.(Ag.) students according to their attitude towards agripreneurship

4. 4 Entrepreneurial skills among agricultural students

4. 4. 1 General skills

Table 4. 32 highlighted the general skills of agricultural students. General skills imply the skills needed for self-awareness, emotional maturity, creativity, ability and willingness to accept responsibilities. It could be inferred from the table 4. 32 that the B.Sc.(Ag.) students possessed high general skills (88.22) followed by VHSE (Ag.) students and D.Sc.(Ag.) students with an index value of 80.74 and 71.92 respectively. The statements (1), (4), (6) and (9) indicated that VHSE (Ag.) students had high skills with index values 86, 86, 81.2, and 83.6 respectively. It showed that the VHSE (Ag.) students were good at team building, were ready to take responsibilities, flexible enough to cope up with any situations and inculcated with high perseverance. In the case of D.Sc. (Ag.) students, the data in the table revealed that the students had above average general skills with an index value of 71.92. All the statements from (1) to (10) indicated that these students had above average general skills. Statement (10) possessed

the highest index value (79.2) that reflected high perseverance of D.Sc.(Ag.) students. While analysing the general skills of B.Sc.(Ag.) students, it was observed that the students belonged to high category with an index value of 88.22. All the statements from (1) to (10) concluded that the B.Sc.(Ag.) students had high general skills. Among the ten statements, statement (4) secured highest index value (93.2), that implies excellent team building ability of B.Sc.(Ag.) students. The results were in line with that of Kumar (2017).

Table 4. 32 Distribution of agricultural students according to their general skills

(n=150)

Sl. No.	Statements-General skills	VHSE (Ag.)		D.Sc.(Ag.)		B.Sc.(Ag.)	
		Index	Category	Index	Category	Index	Category
1	I am a person who is ready to take responsibility (G1)	86.0	High	74.8	Above average	90.4	High
2	I don't start anything without a clear vision and plan of action (G2)	78.0	Above average	72.8	Above average	89.6	High
3	I have a strong desire to work independently (G3)	79.6	Above average	66.8	Above average	80.4	High
4	I am good in team building (G4)	86.0	High	66.0	Above average	93.2	High
5	When others see problems, I see opportunity (G5)	78.8	Above average	73.6	Above average	84.0	High
6	I accept and act upon the good points made by others (G6)	81.2	High	73.2	Above average	92.0	High
7	I anticipate what task needs to be done (G7)	78.0	Above average	66.8	Above average	85.6	High
8	Once I start a project I pursue it inspite of challenges (G8)	76.8	Above average	71.6	Above average	83.2	High
9	I persevere till I can achieve my dream (G9)	83.6	High	78.8	Above average	89.2	High
10	I'm flexible and able to take advice (G10)	78.8	Above average	79.2	Above average	87.2	High
Mean		**80.74**	**High**	**71.92**	**Above average**	**88.22**	**High**

Independent-Samples Kruskal-Wallis Test

Total N	150
Test Statistic	61.790
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.000

1 : VHSE (Ag.) students

2 : D.Sc. (Ag.) students

3 : B.Sc. (Ag.) students
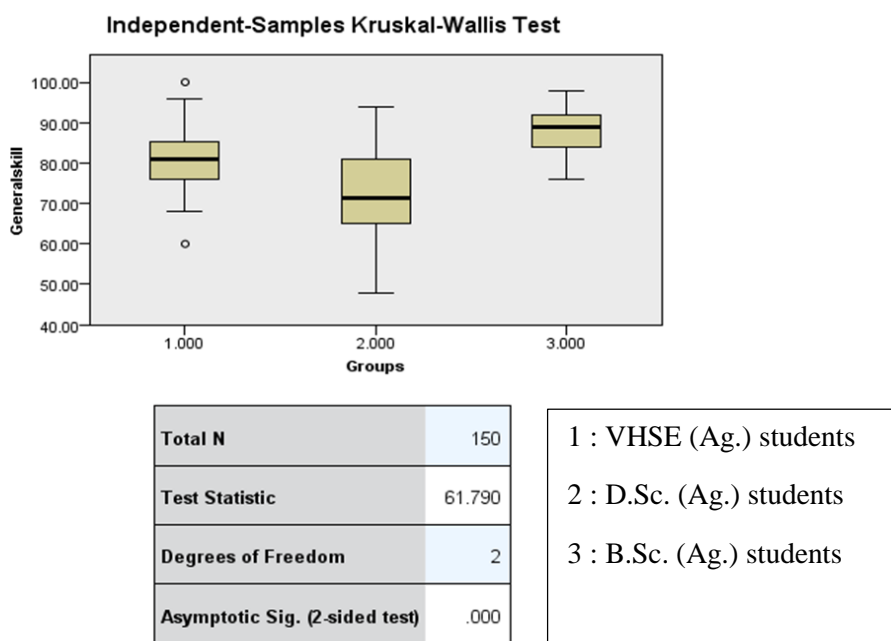
1. The test statistic is adjusted for ties.

Figure 30 Box plot of the three categories of agricultural students comparing general skills

4. 4. 2 Managerial skills

Table 4. 33 depicted the managerial skills of agricultural students in Kerala. The results of the table pinpointed that B.Sc.(Ag.) students had high managerial skills (82.04) followed by VHSE (Ag.) students (77.84) and D.Sc.(Ag.) students. VHSE (Ag.) students were found to possess above average managerial skills with an index value of 77.84. Statements (7) and (10) delineated that VHSE (Ag.) students belonged to high category with an index value of 78.8 and 80.4 respectively. It showed that the VHSE (Ag.) students had good planning and organizing skills. The findings were in accordance with that of Kumar (2017).

Almost similar trend was observed in the case of D.Sc.(Ag.) students i.e D.Sc.(Ag.) students had above average managerial skills with an index value of 76.34. The statements (1), (2), (3), (4), (5), (6), (7), (8), (9) and (10) for evaluating the managerial skills of D.Sc.(Ag.) students were found to be above average with the index values of 77.6, 76.8, 73.2, 77.2, 74.8, 76.4, 78.8, 76, 70.4 and 74.8 respectively. Since

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diploma course curriculum is mainly giving emphasis on practical section, these students can search and evaluate necessity and can plan for better opportunities for entrepreneurship that might be the possible reason to have above average managerial skills. The findings were in line with that of Kumar (2017).

Table 4. 33 Distribution of agricultural students according to their managerial skills

(n=150)

Sl. No.	Statements	VHSE (Ag.)		D.Sc.(Ag.)		B.Sc.(Ag.)	
		Index	Category	Index	Category	Index	Category
1	I can easily delegate work to people (M1)	79.2	Above average	77.6	Above average	82.4	High
2	I find new ways to solve problems (M2)	75.6	Above average	76.8	Above average	80.0	High
3	I produce accurate, clear, error-free documents (M3)	76.8	Above average	73.2	Above average	75.2	Above average
4	I know how to assemble, motivate and empower an effective team (M4)	74.4	Above average	77.2	Above average	82.4	High
5	I change my communication style according to the circumstances (M5)	75.2	Above average	74.8	Above average	84.0	High
6	I can persuade people by talking to them (M6)	78.0	Above average	76.4	Above average	82.8	High
7	I can plan my work in advance and in detail (M7)	80.8	High	78.8	Above average	78.4	Above average
8	I foresee opportunities and threats in uncertain situations (M8)	78.4	Above average	76.0	Above average	84.0	High
9	I enjoy supervising people and monitoring their progress (M9)	76.0	Above average	70.4	Above average	84.8	High
10	I'm good at organizing things and seeing tasks to completion (M10)	80.4	High	74.8	Above average	88.4	High
Mean		**77.84**	**Above average**	**76.34**	**Above average**	**82.04**	**High**

From the table 4.33 it could be concluded that the mean index for the managerial skills of B.Sc.(Ag.) students was high with an index value of 82.04. The index for the

statements (1), (2), (4), (5), (6), (8), (9), (10) was high with the index values of 82.4, 80, 82.4, 84, 82.8, 84, 84.8 and 88.4 respectively.

The findings clearly emphasised that the B.Sc.(Ag.) students knew how to delegate work, how to assemble, motivate, monitor and supervise people, organise things, evaluate opportunities and threats. Moreover these students are inculcated with essential problem solving skills. The possible explanation would be the active participation of students in extra-curricular activities, and exposure to different modules in RAWE programme helped the students to achieve essential managerial skills. The results were on par with that of Nagendra (2018).

Independent-Samples Kruskal-Wallis Test

Total N	150
Test Statistic	10.147
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.006

1 : VHSE (Ag.) students

2 : D.Sc. (Ag.) students

3 : B.Sc. (Ag.) students
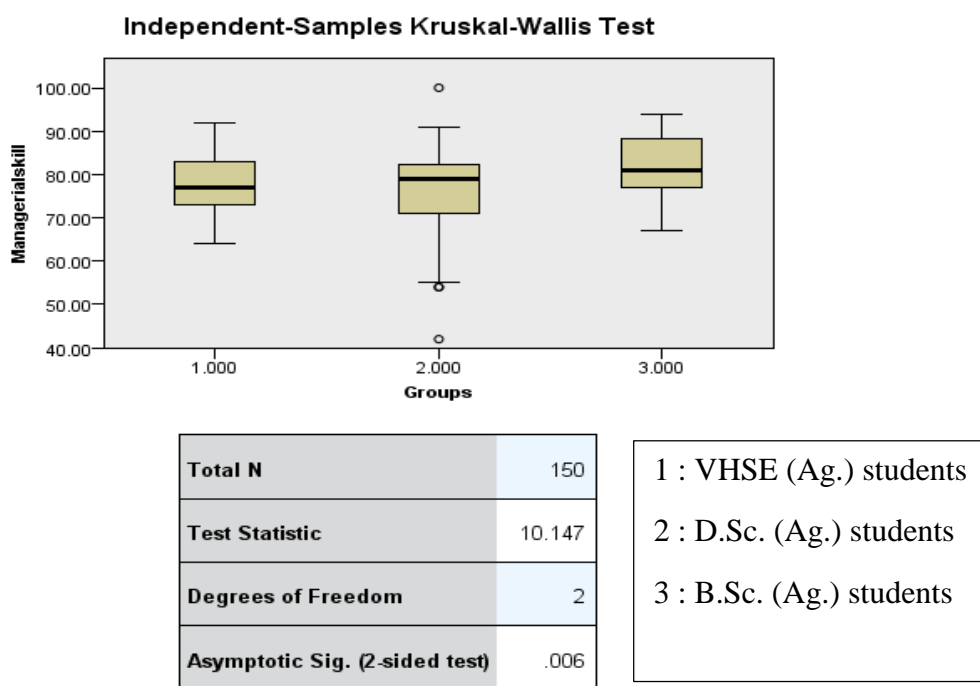
1. The test statistic is adjusted for ties.

Figure 31 Box plot of the three categories of agricultural students comparing managerial skills

4. 4. 3 Product development skills

Table 4. 34 Distribution of agricultural students according to their product development skills (n=150)

Sl. No.	Statements- Product development skills	VHSE (Ag.)		D.Sc.(Ag.)		B.Sc.(Ag.)	
		Index	Category	Index	Category	Index	Category
1	I can handle heavy manual work without problems (P1)	66.8	Above average	72.8	Above average	84.0	High
2	I always try to get new ideas for producing new product/service (P2)	77.2	Above average	77.2	Above average	83.2	High
3	I am curious to learn new aspects (P3)	74.0	Above average	73.6	Above average	88.0	High
4	I apply my skill to develop things differently (P4)	72.4	Above average	72.8	Above average	89.2	High
5	I can easily imagine many ways to satisfy a need (P5)	68.8	Above average	72.8	Above average	89.6	High
6	I am capable of imagining how we can make things work(P6)	68.0	Above average	74.8	Above average	90.0	High
7	I want to build something that will be recognized publicly (P7)	73.6	Above average	77.2	Above average	85.2	High
8	I am able to develop new product from the existing one (P8)	73.2	Above average	70.4	Above average	78.4	Above average
9	I know how and where to find information and how to use it (P9)	67.6	Above average	70.0	Above average	81.2	High
10	If I take something apart, I remember how I did it and can I put it together again (P10)	73.2	Above average	74.8	Above average	80.4	High
Mean		**73.74**	**Above average**	**74.3**	**Above average**	**84.04**	**High**

Table 4. 34 highlighted the product development skills of agricultural students in Kerala. The findings pointed out that B.Sc.(Ag.) students possessed high product development skills (84.04) followed by D.Sc.(Ag.) students and VHSE (Ag.) students with index values of 74.3 and 73.74 respectively. The mean index of VHSE (Ag.) students indicated that they belonged to the category above average with an index value of 73.74.For all the statements from (1) to (10) for assessing product development skills the VHSE (Ag.) students recorded themselves in the above average category with the index values of 66.8, 77.2, 74, 72.4, 68.8, 68, 73.6, 73.2, 67.6 and 73.2 respectively. Among these statements, (2) and (7) secured highest index value *i.e* 77.2. It shows that the VHSE (Ag.) students had above average capabilities for experimenting and developing new products and passionate to develop products that would be recognized and accepted publicly. The participation of students in agripreneurship development trainings might have contributed to achieve an above average product development skills among VHSE (Ag.) students. The results were in agreement with that of Kumar (2017).

Almost similar pattern of results were found among D.Sc. (Ag.) students. It could be inferred from the table 4. 34 that the index value was found to be above average with a mean index value of 74.3. The statements from (1) to (10) were recorded above average with the index values of 72.8, 77.2, 73.6, 72.8, 72.8, 74.8, 77.2, 70.4, 70 and 74.8 respectively. The academic curriculum of diploma students mainly emphasise on practical aspects rather than sticking on to theoretical knowledge. Hence students might have gained much more product development skills. The results were in line with that of Devi (2011).

Whereas in the case of B.Sc.(Ag.) students the findings showed that the respondents were in high category with respect to the product development skills with an index value of 84.04. All the statements except statement 8 were rated as high by the B.Sc.(Ag.) students with the index values of 84, 83.2, 88, 89.2, 89.6, 90, 85.2, 78.4, 81.2 and 80.4 respectively. It showed that the students were curious to learn about innovations and ready to try out new ideas, enthusiastic to develop different products in different ways and had strong desire to build something that would be recognized publicly. High exposure to well designed job oriented practical classes might have

helped the students to acquire more product development skills. The findings were in accordance with that of Shanker (2011).
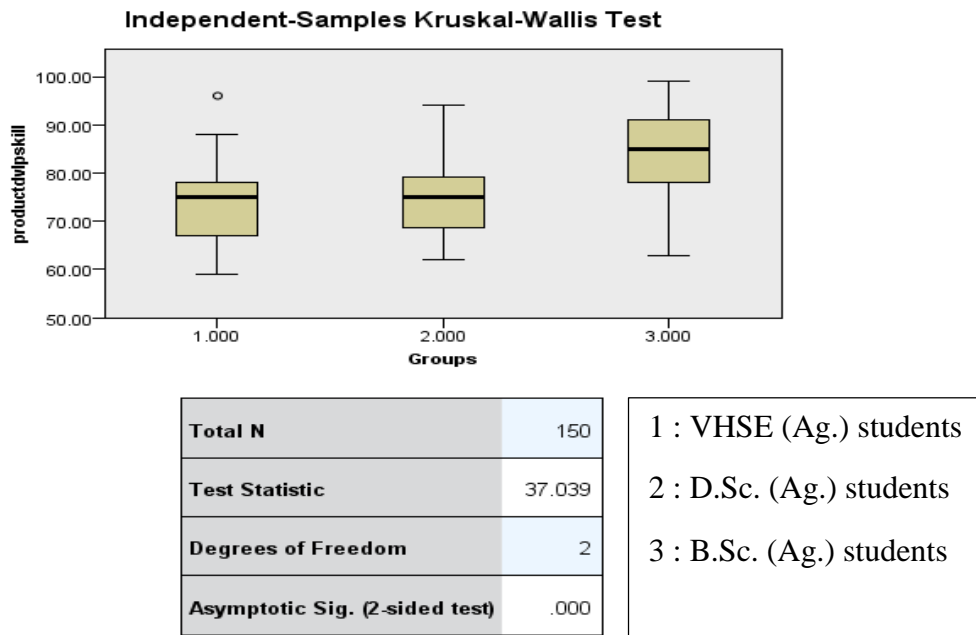
Figure 32 Box plot comparing product development skills of three categories of agricultural students

4. 4. 4 Marketing skills

The findings presented in the table 4. 35 pointed out the marketing skills of agricultural students in Kerala. The results indicated that the B.Sc.(Ag.) students secured high marketing skills (83.52) followed by D.Sc.(Ag.) students (71.52) and VHSE (Ag.) students (59.73). While analysing the marketing skills of VHSE (Ag.) students, they had average level of marketing skills with an index value of 59.73. All the statements except (2) and (3) delineated the average category of marketing skills with the index values 55.2, 57.6, 52.4, 54.8, 54.4, 59.6, 56.8 and 59.6 respectively. It

highlighted that the student respondents had average skills in understanding the psychology of a person, estimation and budgeting, making professional contacts and make use of new technologies. While for statements (2) and (3) the student respondents rated themselves in above average category with the index values of 65.2 and 62.4 respectively. The possible explanation for this would be their inadequate experience and socio-economic background. Majority of the VHSE.(Ag.) students were from poor family background, where financial issues might be a pulling factor. The results were in agreement with that of Kumar (2017).

Table 4. 35 Distribution of agricultural students according to their marketing skills

(n=150)

Sl. No.	Statements- Marketing skills	VHSE (Ag.)		D.Sc.(Ag.)		B.Sc.(Ag.)	
		Index	Category	Index	Category	Index	Category
1	I try to be the first or the best in my area of competency (MK1)	55.2	Average	70.0	Above average	82.8	High
2	I know how to sell and can describe what selling involves (MK2)	65.2	Above average	72.4	Above average	82.4	High
3	I can convince selling a product to any customer (MK3)	62.4	Above average	74.0	Above average	86.0	High
4	I don't mind failing if I learn something in the process (MK4)	57.6	Average	71.2	Above average	86.8	High
5	I believe making use of new technology is investment (MK5)	52.4	Average	72.4	Above average	83.6	High
6	I am good in making professional contacts (MK6)	54.8	Average	73.6	Above average	82.0	High
7	I am good in estimation and budgeting (MK7)	54.4	Average	74	Above average	80.4	High
8	I am able to understand the psychology of a person (MK8)	59.6	Average	72.8	Above average	88	High
9	I imagine how objects drawn on paper will look in reality (MK9)	56.8	Average	66.8	Above average	84.4	High
10	I have a demonstrating talent for selling products (MK10)	59.6	Average	71.2	Above average	84	High
Mean		**59.73**	**Average**	**71.52**	**Above average**	**83.52**	**High**

The marketing skill of D.Sc.(Ag.) students was found to be above average. All the statements from (1) to (10) were rated by the student respondents as above average category. These statements indicated that the student respondents had above average skills in convincing and making professional contact with people, making use of new technologies, demonstrating talent estimation and budgeting. The active participation of students in extra-curricular activities such as debate, speech etc. might have contributed to acquire good communication skills as well. Hence that would be the possible reason to have this trend. The results were on par with that of Kumar(2017).

While analysing the marketing skills of B.Sc.(Ag.) students it was observed that the respondents belonged to high category. For all the statements from (1) to (10) the students had high level of marketing skills with the index values of 82.8, 82.4, 86, 86.8, 83.6, 82, 80.4, 88, 84.4 and 84. The experience obtained through experiential learning programme and active participation of students in agripreneurship development trainings might have resulted in achieving high marketing skills for B.Sc.(Ag.) students. The results were on par with the findings of Nagendra (2018).
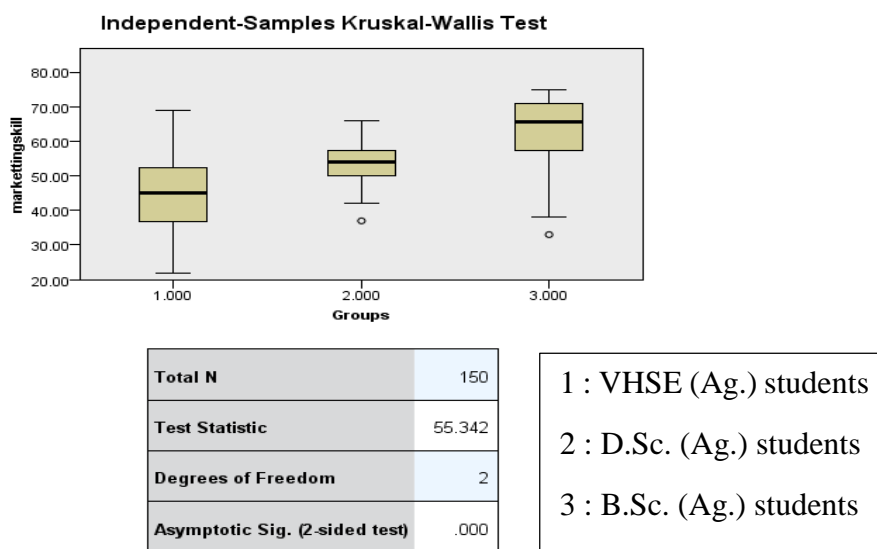
Figure 33 Box plot comparing marketing skills of three categories of agricultural students in Kerala

4. 4. 5 Overall entrepreneurial skills among agricultural students

Table 4. 36 Distribution of agricultural students according to their overall entrepreneurial skills

Sl.No.	Skills	Index		
		VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	General skills	80.74	71.92	88.22
2	Managerial skills	77.84	76.34	82.04
3	Product development skills	73.74	74.3	84.04
4	Marketing skills	59.73	71.52	83.52
	Overall entrepreneurial skills	**73.01**	**73.52**	**84.45**
	Category	**Above average**	**Above average**	**High**

Table 4. 36 highlighted the overall entrepreneurial skills of agricultural students from three categories namely VHSE (Ag.), D.Sc.(Ag.) and B.Sc.(Ag.). It could be inferred from the findings that B.Sc.(Ag.) students possessed high overall entrepreneurial skills with an index value of 84.45 followed by D.Sc.(Ag.) students and VHSE (Ag.) students with an index value of 73.52 and 73.01(Above average) respectively. It could be observed that there was only negligible difference in the overall entrepreneurial skills between D.Sc.(Ag.) students and VHSE (Ag.) students. In the case of VHSE (Ag.) students, general skills (80.74) ranked first among the entrepreneurial skills followed by managerial skills (77.84), product development skills (73.74) and marketing skills (59.73). Whereas managerial skills (76.34) was found to be the highest in the case of D.Sc.(Ag.) students followed by product development skills(74.3), general skills (71.92) and marketing skills(71.52). While general skills (88.22) was observed as the highest in the case of B.Sc.(Ag.) students followed by product development skills(84.04), marketing skills(83.52) and managerial skills(82.04).

As a part of the RAWE programme, B.Sc.(Ag.) students might have come across with several lectures on entrepreneurship by experts in Kerala. The practical knowledge acquired through the 'experiential learning programme' also contributed something on the entrepreneurial skills of agricultural students. The experience gained

over the entire B.Sc.(Ag.) course might have also moulded the students to achieve some prominent entrepreneurial skills. These are the probable reasons for this trend. The results were in line with the findings of Deepthi (2016). The other two categories namely D.Sc.(Ag.) students and VHSE (Ag.) students came under the category of above average in having overall entrepreneurial skills. Compared to B.Sc.(Ag.) students, these two categories of students had insufficient experience and inadequate practical exposure. That would probably contributed to have this findings.

4. 4. 6 Comparison of overall entrepreneurial skills of agricultural students in Kerala

Table 4. 37 Comparison of overall entrepreneurial skills of agricultural students in Kerala

Sl.No.	Mean Rank			Kruskal Wallis H value
	VHSE (Ag.)	**D.Sc. (Ag.)**	**B.Sc. (Ag.)**	
1	53.99	53.87	118.64	74.01

The results from the table 4. 37 indicated that the overall entrepreneurial skills of B.Sc. (Ag.) students were significantly higher than that of D.Sc.(Ag.) students and VHSE (Ag.) students. The exposure of B.Sc. (Ag.) students to training on entrepreneurship as well as knowledge and experience gained over these years especially during RAWE programme might have contributed to achieve higher overall entrepreneurial skills in the case of B.Sc.(Ag.) students.

The results from the table 4. 37 indicated that the overall entrepreneurial skills of B.Sc. (Ag.) students were significantly higher than that of D.Sc.(Ag.) students and VHSE (Ag.) students. The exposure of B.Sc. (Ag.) students to training on entrepreneurship as well as knowledge and experience gained over these years especially during RAWE programme might have contributed to achieve higher overall entrepreneurial skills in the case of B.Sc.(Ag.) students.

Independent-Samples Kruskal-Wallis Test	
Total N	150
Test Statistic	74.018
Degrees of Freedom	2
Asymptotic Sig. (2-sided test)	.000

1 : VHSE (Ag.) students

2 : D.Sc. (Ag.) students

3 : B.Sc. (Ag.) students

1. The test statistic is adjusted for ties.

Figure 34 Box plot comparing overall entrepreneurial skills of three categories of agricultural students

4. 4. 8 Principal component analysis

Principal component analysis is a dimension reduction method. It was used to identify the components which cause maximum variance to the entrepreneurial skills.

Table 4. 38 KMO test

KMO Test	
Kaiser-Meyer-Olkin Measure of sampling Adequacy	0.688

From the table 4. 38 it could be inferred that, the KMO value was more than 0.6. Hence the data is adequate for conducting principal component analysis.

Table 4. 39 Extraction communalities

Sl.No.	Statements	Extraction communalities
1	G1	0.709
2	G2	0.677
3	G3	0.601
4	G4	0.542
5	G5	0.486
6	G6	0.574
7	M1	0.696
8	M2	0.786
9	M3	0.706
10	M5	0.515
11	MK1	0.540
12	MK2	0.599
13	MK3	0.637
14	MK5	0.590
15	MK6	0.670
16	P1	0.675
17	P4	0.756

Extraction communalities are estimates of variance in each variable contributed by the factors in the factor solution. The variables which do not fit well with the factor solution is indicated by small values, and it should be dropped from the analysis. The average value of the communalities was observed as 0.632.

Table 4. 40 Variance explained

Component	Eigen value	Percentage of variance	Cumulative percentage
1	3.281	19.298	19.298
2	2.351	13.831	33.130
3	1.623	9.547	42.677
4	1.282	7.504	50.218
5	1.190	7.002	57.219
6	1.029	6.055	63.274
7	0.894	5.257	68.531
8	0.773	4.547	73.078
9	0.754	4.435	77.514
10	0.664	3.904	81.418
11	0.561	3.300	84.718
12	0.547	3.216	87.933
13	0.498	2.927	90.861
14	0.440	2.589	93.450
15	0.433	2.548	95.997
16	0.368	2.164	98.169
17	0.313	1.838	100.00

The variance explained is presented in the table 4.40. The variables with Eigen value more than one was extracted. It was found that only six variables had Eigen value more than one, they accounted for around 63% of the variance in the original variables.

The scree plot diagram is presented in the figure 35.It is clear from the scree plot that six components had Eigen value more than one. Hence these six principal components were extracted.
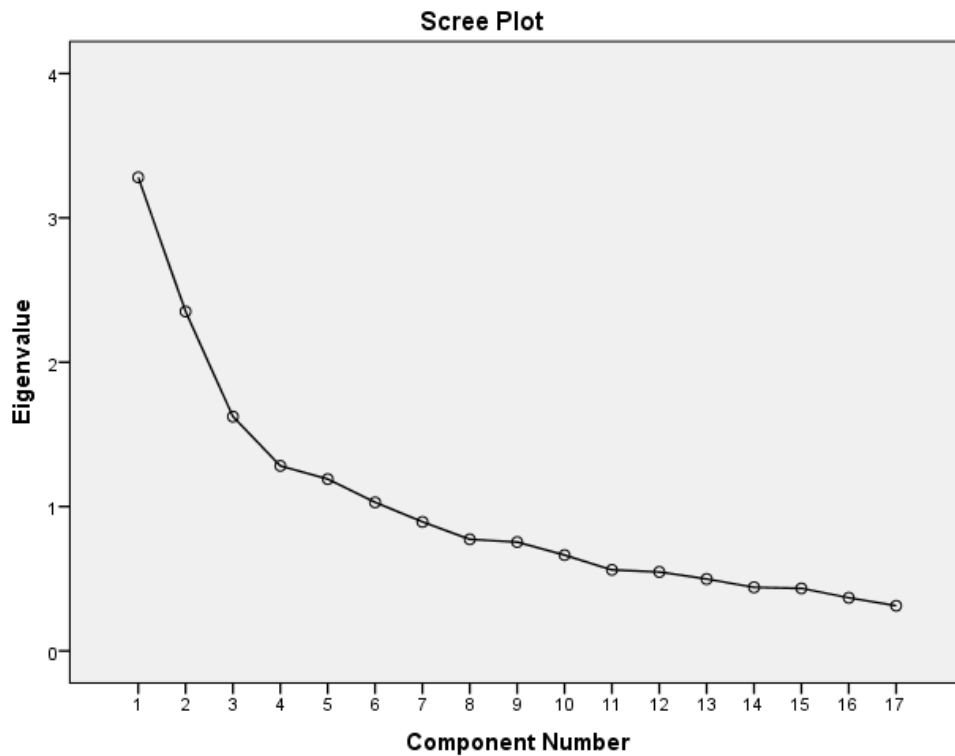
Figure 35 : Scree plot confirms the extraction of six components with eigenvalue more than 1

It could be inferred from the table 4.41 that six factors represented 63.27 per cent of the variance in the data. The first component comprising 5 statements (MK6, MK2, MK3, MK5, MK1) related to marketing skills represented 19.298 per cent of the variance. The second component, representing 13.831 per cent of the variance, consisted of three statements (G2, G4, G5) related to general skills. The third component consisting of three statements (G1, G3, G6) related to general skills represented 9.547 per cent of the variance. The fourth component comprised of three statements (M1, M3, M5) related to managerial skills represented 7.504 per cent of the variance. The fifth component consisted of two statements (M2, P1) related to marketing skills and product development skills represented 7.002 per cent variance. The sixth component comprised of only one statement (P4) related to product development skills represented 6.055 per cent of the variance. Hence it is evident from the table 4. 41 that marketing skills contributed maximum variance to the first principal

component hence marketing skill was identified as the most important entrepreneurial skill among the agriculture students.

Table 4. 41 : Rotated component matrix

Statements	Components					
	1	**2**	**3**	**4**	**5**	**6**
MK6	0.810					
MK2	0.743					
MK3	0.740					
MK5	0.691					
MK1	0.600					
G2		0.743				
G4		0.703				
G5		0.571				
G1			0.827			
G3			0.682			
G6			0.527			
M1				0.801		
M3				0.699		
M5				0.567		
M2					0.854	
P1					0.686	
P4						0.848

4. 5 Factors governing agri-business orientation of agricultural students

The results presented in the table 4. 42 pointed out that out of thirteen independent variables, only four variables namely training received by the students, achievement motivation, innovativeness and risk taking ability had positive and significant relationship (at 0.01 level of significance) with the entrepreneurial skill of VHSE(Ag.) students. It could be substantiated that attending training programmes on

entrepreneurship could impart entrepreneurial skills and students who had high innovativeness, risk bearing capacity and achievement motivation were more likely to be successful entrepreneurs.

Table 4. 42 The relationship between the independent variables and entrepreneurial skills of agricultural students

Sl.No.	Independent variables	Correlation coefficient		
		VHSE (Ag.)	D.Sc.(Ag.)	B.Sc.(Ag.)
1	Gender	-.0.176	0.00	0.087
2	income	-0.044	0.097	0.075
3	Father's occupation	0.022	-0.116	0.012
4	Mother's occupation	-0.078	-0.065	-0.405**
5	Leadership ability	0.156	**0.398	0.299**
6	Self-confidence	0.204	**0.355	0.541**
7	Mass media contact	0.248	0.204	0.306*
8	Training received	0.390**	-	-0.264
9	Achievement motivation	0.353**	**0.468	0.223
10	Innovativeness	0.401**	**0.428	0.086
11	Self-reliance	0.204	0.002	0.116
12	Risk taking ability	0.460**	0.223	0.202
13	Decision making ability	0.369	0.190	0.249

*Correlation is significant at the 0.05 level (2 tailed)

** Correlation is significant at the 0.01 level (2 tailed)

In the case of D.Sc.(Ag.) students the correlation analysis revealed that only four independent variables had significant and positive correlation with entrepreneurial skills namely leadership ability, self-confidence, achievement motivation and

innovativeness at 0.01 per cent level of significance. The leadership ability, self-confidence and achievement motivation of students could influence the entrepreneurial spirit existing among students. While parental occupation had a negative relationship with the entrepreneurial skills of D.Sc. (Ag.) students. It indicated that the occupational aspect had nothing to do with the entrepreneurial orientation of the students. It could be interpreted that it is not necessary to born in a business family to have enough entrepreneurial orientation.

The findings depicted in the table 4. 42 delineated that only three variables had positive and significant relationship with the entrepreneurial skills of B.Sc.(Ag.) students *viz.* leadership ability, self-confidence and mass media contact. Through frequent mass media contact students updated information about the scope and potential of entrepreneurship. Hence it could positively and significantly influence the entrepreneurial orientation. It was also observed that students who had high leadership ability and self-confidence were tend to have more entrepreneurial skills. While mother's occupation and training received by the students had negative correlation with entrepreneurial skills of students.

4. 4. 7 Probit analysis

Probit analysis was used to determine the individual factors which influence the students' probability to attain above average entrepreneurial skills. Marginal effect is the result of one independent variable on response variable keeping all other independent variables constant. From the table 4. 43, it could be inferred that the independent variables namely father's occupation, mass media contact, self-confidence training received, achievement motivation, innovativeness, risk taking ability and decision making ability had significant influence on students' probability to acquire above average entrepreneurial skill.

It was observed that for a unit change in the level of mass media contact there was 0.447 more probability to acquire above average entrepreneurial skill. The probability to acquire an above average entrepreneurial skill when there was a unit change in the level of training received was found to be 0.407. For the achievement motivation the marginal effect was observed as 0.200. It was concluded that the

probability to acquire above average entrepreneurial skill when innovativeness changes by one unit was identified as 0.474. In the case of risk taking ability and decision making ability the marginal effect was observed as 0.331 and 0.340 respectively. The marginal effect of father's occupation on entrepreneurial skill was found to be 0.064. While for a unit change in self-confidence the observed probability to aquire above average entrepreneurial skills was 0.186.

Table 4. 43 Probit analysis

Sl.No.	Variables	Coefficient	Standard error	P value	Marginal effect
	Constant	-12.46	1.67	<0.0001***	-6.906
1	Annual income of the family	0.380	0.25	0.129	0.145
2	Father's occupation	0.169	0.09	0.0634*	0.064
3	Mother's occupation	0.058	0.13	0.6617	0.022
4	Leadership ability	0.401	0.25	0.1132	0.153
5	Self-confidence	0.488	0.28	0.0846*	0.186
6	Mass media contact	1.171	0.23	<0.0001***	0.447
7	Training received	1.070	0.33	0.0015***	0.407
8	Achievement motivation	0.524	0.24	0.0292**	0.200
9	Innovativeness	1.243	0.28	<0.0001***	0.474
10	Self-reliance	-0.211	0.20	0.3044	-0.080
11	Risk-taking ability	0.867	0.25	0.0006***	0.331
12	Decision making ability	0.892	0.28	0.0016***	0.340

4. 6 Support system needed for promoting agripreneurship

4. 6. 1 Support system needed for promoting agripreneurship among VHSE (Ag.) students

The students were asked to prioritize the support system needed for promoting agripreneurship among them. Table 4. 44 indicated that entrepreneurial education was found to be the most vital support system needed by VHSE(Ag.) students, followed by

support from family and friends, agripreneurship awareness programmes and training programmes, establishment of entrepreneurship club and guidance centres, credit support from various institutions, government policies and schemes and finally basic infrastructure facilities.

Table 4. 44 Ranking of support system needed for promoting agripreneurship among VHSE (Ag.) students.

Sl.No.	Support system needed	Mean rank	Rank
1	Entrepreneurial education	2.20	1
2	Support from family and friends	3.32	2
3	Agripreneurship awareness programmes and training programmes	4.08	3
4	Establishment of entrepreneurship club and guidance centres	4.18	4
5	Credit support from various institutions	4.70	5
6	Government policies and schemes	4.74	6
7	Basic infrastructure facilities	4.78	7

Kendall's w=0.192   Significant at 1% level

The probable reason for this prioritisation would be the realization of importance of entrepreneurial education for imparting essential knowledge about agripreneurship and so as to mould the each and every student to become a successful entrepreneur in future. Moreover entrepreneurship education was not yet a part of school curriculum. Financial and moral support from family and friends could act as a fuel for igniting entrepreneurial spirit among the students. The results were in line with the findings of Rasli *et al*. (2013).

4. 6. 2 Support system needed for promoting agripreneurship among D.Sc.(Ag.) students

It is evident from the table 4. 45 that just like the VHSE (Ag.) students entrepreneurial education was ranked first regarding the support system needed for promoting agripreneurship among D.Sc.(Ag.) students. Support from family and friends was identified as the next needy support essential for D.Sc.(Ag.) students. Followed by government policies and schemes, basic infrastructure facilities, credit

support from various institutions, agripreneurship awareness programmes and training programmes and establishment of entrepreneurship club and guidance centres respectively.

Table 4. 45 Ranking of support system needed for promoting agripreneurship among D.Sc.(Ag.) students

Sl.No.	Support system needed	Mean rank	Rank
1	Entrepreneurial education	1.74	1
2	Support from family and friends	2.06	2
3	Government policies and schemes	4.04	3
4	Basic infrastructure facilities	4.20	4
5	Credit support from various institutions	4.96	5
6	Agripreneurship awareness programmes and training programmes	5.38	6
7	Establishment of entrepreneurship club and guidance centres	5.62	7

Kendall's w=0.513   Significant at 1% level

Apart from entrepreneurial education and support from family and friends, the government policies and schemes were observed as a vital support system for moulding the budding agripreneurs among D.Sc.(Ag.) students. This might be due to both the central and state government were taking special efforts to attract youth towards entrepreneurship and lift up their entrepreneurial potential by launching and implementing several entrepreneurship development programmes. The findings were on par with that of Abdullah and Samah (2014).

4. 6. 3 Support system needed for promoting agripreneurship among B.Sc.(Ag.) students

Table 4.46 delineated that entrepreneurial education was recognized as the most important support system for enhancing the entrepreneurial skills of B.Sc.(Ag.) students followed by support from family and friends, basic infrastructure facilities, government policies and schemes, credit support from various institutions, agripreneurship awareness programmes and training programmes and establishment of entrepreneurship club and guidance centres. Similarly VHSE (Ag.) students and

D.Sc.(Ag.) students also ranked entrepreneurial education as the first support system needed followed by support from family and friends. The results were in accordance with that of Setiawan (2014).

Table 4.46 Ranking of support system needed for promoting agripreneurship among B.Sc.(Ag.) students

Sl.No.	Support system needed	Mean rank	Rank
1	Entrepreneurial education	1.64	1
2	Support from family and friends	1.93	2
3	Basic infrastructure facilities	3.27	3
4	Government policies and schemes	4.18	4
5	Credit support from various institutions	5.00	5
6	Agripreneurship awareness programmes and training programmes	5.88	6
7	Establishment of entrepreneurship club and guidance centres	6.10	7

Kendall's w=0.692 which is significant at 1% level of significance

Thus it could be concluded that teaching entrepreneurial courses would be helpful for seeding entrepreneurial culture among students. Moreover the support received from friends, parents and relatives in terms of financial, physical, informational as well as moral support could nurture the young minds to achieve their entrepreneurial goals.

4.7 Suggestions and recommendations

The results of the study indicated that though the agriculture students had above average to high entrepreneurial skills, majority of them had moderately favourable attitude towards agripreneurship. A vast majority of the agriculture students preferred jobs in the public sector and surprisingly 'establishing own agribusiness' was found to be the least preferred career path among the students. Hence interventions are needed to encourage them to take up agripreneurship as their career path. Following recommendations are made to promote entrepreneurship among agriculture students based on the results of the study:

* **Internship programmes:** Introducing internship programmes for students who are interested in agripreneurship for a specific period to study the successful cases of agri based enterprises. Internship programmes in entrepreneurial education will facilitate the students to equip themselves with knowledge, skills and competency to identify business opportunities and manage agri business by themselves.

***Revising course curriculum**: The existing course curriculum may be revised by introducing more of practical classes to have hands on experience on agripreneurship. Special sessions on skill development programmes on prospective agri based enterprises may be organised to attract students to venture into agripreneurship. Skill development programmes will enhance the employability of agricultural graduates in starting their own agri business ventures.

* **Providing professional guidance:** An expert cell for promoting agripreneurship among students may be constituted to offer professional guidance to interested students.Professional guidance from experts will form a strong support and always motivate the students to keep engaged in agri business, get for proficient support to find new ventures according to the present trend in the market and prevent them from discontinuance when they face challenges in the business sector.

***Establishing agripreneurship clubs in the campuses:** Establishing agripreneurship club in the campuses with active defined functions and regular motivational programmes will definitely encourage students to choose agripreneurship as their career choice. Agripreneurship clubs can promote linkage with other supporting institutions for: financial assistance, utilising the benefits from government schemes, updating knowledge in their own field of interest, providing moral support to those who face any contingent situation, establishing market linkages *etc*.

Summary and conclusion

5. SUMMARY AND CONCLUSION

Entrepreneurship has the potential to contribute to a wide range of social and economic development such as employment generation, poverty reduction and improvements in nutrition, health and overall food security in the national economy. Due to the mounting rate of unemployment, the segment of agriculture graduates securing elite jobs in the public sector is declining gradually. There is an immense need to encourage and inculcate entrepreneurial skills among agricultural students in Kerala to improve their employability.

The present study was conducted among three categories of agricultural students. The student respondents comprised of final year RAWE students from College of Horticulture Vellanikkara, second year agriculture diploma students from Institute of Agricultural Science – RARS Pattambi and second year VHSE agriculture students from Government Vocational Higher Secondary School (Agriculture), Pudukkad. Fifty students from each category were randomly selected to form the respondents for the study and thus constituted a total number of 150 respondents. The independent variables were selected after judges rating and prepared the interview schedule.

The data were collected and tabulated and analysed using appropriate statistical tools such as frequency, percentage, arithmetic mean, standard deviation, composite index, quartile, correlation analysis, principal component analysis, probit analysis *etc.*

Salient findings of the study are presented below:

Socio-economic characteristics of the agricultural students:

❖ Majority of the agricultural students in Kerala were found to be female. More specifically 70 per cent of the VHSE (Ag.) students, 82 per cent of the D.Sc. (Ag.) students and 72% of the respondents from B.Sc.(Ag.) category were female.

❖ About 60 per cent of the VHSE (Ag.) students were from families of low income category, followed by 40 per cent students belonged to middle income category.

But none of the student respondents were from high income category families. In the case of D.Sc. (Ag.) students, majority (56%) of the students belonged to medium income category, and 40 per cent students had low annual income. Whereas only 4 per cent of the students were from high income category. While slightly more than half (54%) of the B.Sc.(Ag.) students belonged to middle income category, followed by 36 per cent students had low and 10 per cent students had high family annual income.

❖ Around 50% of the VHSE (Ag.) students' father's occupation came under 'others category' followed by 20 per cent of them each were farmers and employed in business sector. While only 10 per cent of the respondent's fathers were employed in service sector. Somewhat similar trend was observed among D. Sc. (Ag.) students. Below one- third (30%) of the students' fathers' were employed in 'others' category. Equal percentage (24%) of them were farmers and entrepreneurs respectively and 22 per cent of them were government servants. Whereas majority (32%) of the B.Sc.(Ag.) student's fathers were found to be government servants followed by 26 per cent of them were entrepreneurs, 24 percentage of them were employed in agriculture and allied sectors and 18 per cent of the fathers had employment status in 'others' category. Majority of the students' mothers were home makers.

❖ About 70 per cent of the VHSE (Ag.)students had medium level of exposure to mass media followed by 16 per cent with high and 14 of them had low mass media contact. While majority (66%) of the D.Sc. (Ag.) students had medium level of exposure to mass media, followed by 22 per cent with low and 12 per cent had high level of mass media contact. About 74 per cent of the B.Sc. (Ag.) students had medium level of mass media contact, followed by 20 per cent had high and only 6 per cent of them had low level of mass media contact.

❖ More than one- third (38%) of the VHSE (Ag.) students had participated in training on entrepreneurship while 62 per cent of them had not participated in training. Whereas none of the D.Sc.(Ag.) students had undergone any training

in entrepreneurship. While all the B.Sc.(Ag.) students had attended entrepreneurship development training programmes.

❖ About 44 per cent of the VHSE (Ag.) students had medium level of leadership ability, followed by 32 per cent students with high and low leadership ability each. In the case of D.Sc.(Ag) students, little less than half (46%) of them were belonged to medium category of leadership ability, while 40 per cent students were found to have high level of leadership ability and only 14 per cent students had low leadership ability. While more than half of the B.Sc.(Ag.) students(56%) had medium level of leadership ability followed by 30 per cent of the students with high and 14 per cent of the students had low level of leadership ability.

❖ Majority of the agricultural students wanted to become a government officer in the Department of Agricultural Development and Farmers' Welfare with a mean weightage score of 3.72, followed by aspiration for higher studies (3.72), government officer in non-agricultural sector (3.12), employment in agri-business companies (2.98), employment in banking sector (2.64), to become a professor/scientist was found to be the second last preference of students (2.60). While agripreneurship was observed as the least preferred career path with a mean weightage score of 2.40.

❖ Majority (64%) of the VHSE (Ag.) students had medium level of self-confidence, followed by 20 per cent students with high and 16 per cent of them had low level of self-confidence. While analysing the D.Sc.(Ag.) students, half (50%) of the students belonged to medium category, followed by 26 per cent with high and 24 per cent of them had low level of self -confidence. Whereas 40 per cent of the B.Sc.(Ag.) students had medium level of self-confidence, followed by 36 per cent of the student respondents had high and 24 per cent of them had low level of self-confidence.

❖ More than one-third (40%) of the VHSE(Ag.) students had medium level of achievement motivation, followed by 36 per cent students with high and 24 per

cent had high achievement motivation. In the case of D.Sc.(Ag.) students 64 per cent of them belonged to 'medium' category of achievement motivation, followed by 20 per cent with high and 16 per cent had low achievement motivation respectively. While more than half of the B.Sc. (Ag.) students (58%) had medium level of achievement motivation. Whereas 26 per cent of the B.Sc. (Ag.) students found to have high and 16 per cent of them had low achievement motivation.

❖ More than half of the (54%) VHSE (Ag.) respondents came under medium category, followed by 24 per cent with high and 22 per cent of them had high innovativeness. While 62 per cent of the D.Sc.(Ag.) students had medium level of innovativeness, followed by 20 per cent had low and 18 per cent had high level of innovativeness. Whereas 56 per cent of the B.Sc.(Ag.) students were in medium category of innovativeness, followed by equal percentage (22%) came under low and high categories of risk bearing ability.

❖ Little less than half of the VHSE (Ag.) students (48%) had medium level of risk taking ability, followed by 30 per cent of VHSE (Ag.) students with high and 22 per cent of VHSE (Ag.) students had low level of risk taking ability. Around 40% of the D.Sc.(Ag.) students had medium level of risk taking ability followed by 38 per cent with high and 22 per cent had low level of risk taking ability. While analysing the risk taking capacity of B.Sc. (Ag.) students, 46 per cent of them possessed medium risk taking ability followed by 30 per cent of them with high and 24 per cent of them had low level of risk taking ability.

❖ Below half of the VHSE (Ag.) students (48%) possessed medium level of decision making ability. The percentage of VHSE (Ag.) students who had high level of decision making ability was found to be 34 per cent and 18 per cent of the VHSE(Ag.) students had low level of decision making ability. While 62 per cent of the D.Sc.(Ag.) students found to have medium level of decision making ability, followed by 28 per cent D.Sc.(Ag.) students with high and 10 per cent had low level of decision making ability. About 56 per cent of the B.Sc.(Ag.) students possessed medium level of decision making ability, followed by 24 per

cent with high and 20 per cent had low level of decision making ability respectively.

Attitude of agricultural students towards agripreneurship:

❖ More than three-fourth of the VHSE (Ag.) students (76%) had moderately favourable attitude towards agripreneurship, followed by 12 per cent of them had less favourable and favourable attitude respectively. Whereas majority (68%) of the D.Sc.(Ag.) students had moderately favourable attitude towards agripreneurship,followed by 18 per cent of them were found with less favourable and 14 per cent had favourable attitude towards agripreneurship. In the case of B.Sc.(Ag.) students, more than three-fourth of the B.Sc.(Ag.) students (78%) had moderately favourable attitude followed by 16 per cent had favourable attitude and only negligible per cent (6%) of them had less favourable attitude towards agripreneurship.

Entrepreneurial skills of agricultural students

❖ **General skills:** General skill implies the skills needed for self-awareness, emotional maturity, creativity, ability and willingness to accept responsibilities. B.Sc.(Ag.) students possessed high general skills (88.22) followed by VHSE (Ag.) students and D.Sc.(Ag.) students with the index values of 80.74 and 71.92 respectively.

❖ **Managerial skills:** B.Sc.(Ag.) students had high managerial skills (82.04), while both the VHSE (Ag.) and D.Sc.(Ag.) students were found to have above average managerial skills with the index values 77.84 and 76.34 respectively.

❖ **Product development skills:** The product development skills was found to be highest among the B.Sc.(Ag.) students with an index value of 84.04. Whereas both the D.Sc. (Ag.) (74.3) and VHSE (Ag.) (73.74) students possessed above average product development skills.

❖ **Marketing skills :** B.Sc.(Ag.) students secured high marketing skills (83.52) followed by D.Sc.(Ag.) students (71.52) and VHSE (Ag.) students (59.73). While analysing the marketing skills of VHSE (Ag.) students, they had average

level of marketing skills whereas D.Sc.(Ag.) students were in above average category.

❖ **Overall entrepreneurial skills:** B.Sc.(Ag.) students possessed high overall entrepreneurial skills with an index value of 84.45 followed by D.Sc.(Ag.) students and VHSE (Ag.) students with an index value of 73.52 and 73.01 respectively. It was observed that there exists only negligible difference in the overall entrepreneurial skills between D.Sc.(Ag.) students and VHSE (Ag.) students.

❖ Marketing skill was identified as the most important skill that contributed maximum variance to the overall entrepreneurial skills

Factors governing agri-business orientation of agricultural students

❖ In the case of VHSE (Ag.) students only four variables namely training received by the students, achievement motivation, innovativeness and risk taking ability had positive and significant relationship (at 0.01 level of significance) with the entrepreneurial skills. While leadership ability, self-confidence, achievement motivation and innovativeness were positively correlated with the entrepreneurial skills of D.Sc.(Ag.) students. Whereas factors namely leadership ability, self-confidence and mass media contact had positive and significant correlation with the entrepreneurial skills of B.Sc.(Ag.) students.

❖ Probit analysis was used to determine the individual factors which influence the students' probability to attain above average entrepreneurial skills. For the individual variables namely occupational status of father, mass media contact, training received, achievement motivation, innovativeness, risk taking ability and decision making ability, the marginal effect was observed as 0.065, 0.450 , 0.413, 0.201, 0.472, 0.336 and 0.340 respectively

Support system needed for promoting agripreneurship among students

❖ In the case of VHSE (Ag.) students, entrepreneurial education was identified as the most needed support system essential for enhancing entrepreneurial orientation among students followed by support from family and friends,

agripreneurship awareness programmes and training programmes, establishment of entrepreneurship club and guidance centres, credit support from various institutions, government policies and schemes and finally basic infrastructure facilities.

❖ D.Sc.(Ag.) students also indicated that entrepreneurial education was the most vital support system needed for promoting agripreneurship among students. Support from family and friends was identified as the next needy support essential for D.Sc.(Ag.) students, followed by government policies and schemes, basic infrastructure facilities, credit support from various institutions, Agripreneurship awareness programmes and training programmes and establishment of entrepreneurship club and guidance centres respectively.

❖ Similar to that of VHSE (Ag.) students and D.Sc.(Ag.) students , B.Sc.(Ag.) students also ranked entrepreneurial education and support from family and friends as the first and second respectively followed by basic infrastructure facilities, government policies and schemes, credit support from various institutions, agripreneurship awareness programmes and training programmes and establishment of entrepreneurship club and guidance centres.

Future line of work

❖ More number of respondents can be included in order to comprehensively analyse the entrepreneurial skills among agricultural students

❖ A separate study can be conducted in other states of India to compare the entrepreneurial skills of agricultural students

❖ Similar research has to be conducted after stipulated period of time to understand the role of time lapse in influencing agripreneurship among students

❖ The present study was restricted to VHSE (Ag.) students, D.Sc.(Ag.) students and B.Sc. (Ag.) students. A similar study can be conducted by taking the same objectives among post graduates of agriculture and students of agricultural engineering.

❖ Due to the lack of time and other limitations some variables are missing. Thus by including some more variables a study can also be conducted in future.

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Appendices

Kerala Agricultural University

COMMUNICATION CENTRE

Mannuthy P.O., Thrissur, Kerala 680651

Email: ccmannuthy@kau.in   Tel/Fax: 04872370773

Mannnuthy,
20.11.2019

Dr. S. Helen
Professor & Major Advisor
Email: helen.s@kau.in
Mobile no: 9446142552

Dear Sir/Madam,

 I would like to bring your kind notice that Ms. Aysha Adhina M (Ad. No.2018-11-075) is committed to undertake a research study as part of her post graduate programme entitled 'Entrepreneurial skills among the agricultural students in Kerala' under my guidance. The main objectives of her study is to assess the various entrepreneurial skills of agricultural students, attitude of agricultural students towards agripreneurship, factors governing agri-business orientation among agricultural students and to examine the kinds of support system needed for getting students engaged in agripreneurship.

In the light of your vast knowledge and experience, we request you to be a judge for rating the relevancy of the variables enlisted in the enclosed appendix. I request you to indicate the appropriate variable to be included in the study by marking (√) in the relevant column, you can also suggest variables which you feel important for the study and also rate them under the appropriate column.

With utmost concern of your busy schedule, I request you to spare your valuable time for us. Your kind and quick response will help us to complete the study in time.

Thanking you

Yours faithfully,
Sd/-
S. Helen

Title of the study: **Entrepreneurial skills among the agricultural students in Kerala**

Objectives:

- To assess the various entrepreneurial skills of agricultural students
- To assess the attitude of agricultural students towards agripreneurship
- To identify the factors governing agri-business orientation among agricultural students
- To examine the kinds of support system needed for getting students engaged in agripreneurship

I.   **Independent variables**

Following independent variables are identified for the study: Please (√) mark the relevancy of the variables in the study in terms of MOR- Most Relevant, MR- More Relevant, R-Relevant, LR- Least Relevant and NR- Not Relevant against the appropriate column:

Sl. No.	Variables	MOR	MR	R	LR	NR
1	**Age:** Defined as the number of years completed by the student respondent at the time of interview.					
2	**Gender**: It refers to social or cultural distinctions associated with being male or female.					
3	**Domicile**: The domicile is the area where the student respondent live in. It can be rural, semi-urban or urban.					
4	**Family type**: Family is the basic unit of a society. It can be nuclear or joint family.					
5	**Land holding size :** It is the actual land possessed by the respondent's parent					
6	**Parental education**: It refers to the extent of formal education obtained by the parents of student respondents.					
7	**Parental occupation**: It is the source of income of parents.					
8	**Annual income of the family**: It is the total income earned by all the members of a family from major and subsidiary occupational components.					
9	**Educational medium of instruction upto schooling :** May be regional or English medium					

10	**Leadership ability**: It refers to the capability and strength of an individual to take initiatives in all circumstances and mould their followers for achieving some specific goals.					
11	**Career aspiration of students**: It indicates the choice or option of a student for his/her career future.					
12	**Self-confidence**: It is the belief or trust of an individual in his/her own capabilities.					
13	**Mass media contact**: It refers to the degree to which student respondents are exposed to mass media.					
14	**Training received**: It indicates the number of trainings attended by the students on agripreneurship development.					
15	**Academic records**: It is the academic performance of a student and it is expressed in terms of grade points.					
16	**Achievement motivation :** It refers to the urge to improve oneself in relation to a goal					
17	**Innovativeness:** It can be explained as the individual interest in finding and trying new things					
18	**Self-reliance :** It indicates the reliance on one's own powers and resources rather than those of others					
19	**Risk taking ability:** Defined as the degree to which an entrepreneur is oriented towards risk and uncertainty and has courage to face the problems in starting an enterprise.					
20	**Decision making ability:** Defined as the degree to which an entrepreneur justifies his/her choice from among the available alternative on the basis of scientific criteria.					

II. Dependent variables

Following dependent variables are identified for the study: Please (√) mark the relevancy of the variables in the study in terms of MOR- Most Relevant, MR- More Relevant, R-Relevant, LR- Least Relevant and NR- Not Relevant against the appropriate column:

Sl.No	Variables	MOR	MR	R	LR	NR
1	**Entrepreneurial skills:** It is operationalized as the overall skills in entrepreneurial activities possessed by an individual. **A. General skills:** The skills needed for self-awareness, emotional maturity, creativity, ability and willingness to accept responsibilities. **B. Product development skills:** The skills which are necessary to improve the existing product or service or formulate new product to satisfy the needs of society. **C.Managerial skills:** The skills related to organizing and managing the work on a day to day basis, team spirit, taxation, finances *etc.* **D. Marketing skills:** The skills related to identifying customers, demands, communication, negotiation, sales and ethical guidelines. **E. Others, if any please mention**					
2	**Attitude towards agripreneurship**: It refers to the positive or negative perception, belief or thoughts of an individual towards entrepreneurship in agriculture.					

Signature :

Name   :

Designation:

APPENDIX II

Relevancy indices of independent variables

Sl. No.	Variables	Relevancy indices
1	Age	76.77419
2	Gender	80.64516*
3	Domicile	72.25806
4	Family type	66.45161
5	Land holding size	65.88421
6	Parental education	69.67742
7	Parental occupation	80.06452*
8	Annual income of the family	85.19355*
9	Educational medium of instruction up to schooling	70.4215
10	Leadership ability	94.19355*
11	Career aspiration of students	96.12903*
12	Self-confidence	94.83871*
13	Mass media contact	81.93*
14	Training received	87.74194*
15	Academic records	56.77419
16	Achievement motivation	87.09677*
17	Innovativeness	85.80645*
18	Self-reliance	89.03226*
19	Risk taking ability	92.25806*
20	Decision making ability	92.25806*

*Variables selected for the study

APPENDIX III

Relevancy indices of dependent variables

Sl No.	Variable	Relevancy index
1	Entrepreneurial skills	
	A. General skills	81.29 *
	B. Managerial skills	87.09 *
	C. Product development skills	87.09 *
	D. Marketing skills	87.07 *
2	Attitude towards agripreneurship	90.96 *

*Variables selected for the study

Kerala Agricultural University

COMMUNICATION CENTRE

Mannuthy P.O., Thrissur, Kerala 680651

Email: ccmannuthy@kau.in   Tel/Fax: 04872370773

Mannnuthy,
9.03.2020

From
Dr. S. Helen
Professor & Major Advisor
Email: helen.s@kau.in
Mobile no: 9446142552

To
The Principal
Govt.Vocational Higher Secondary School, Pudukkad.

Dear Madam,

 I would like to bring your kind notice that Ms. Aysha Adhina M (Ad. No.2018-11-075) is committed to undertake a research study as part of her post graduate programme entitled 'Entrepreneurial skills among the agricultural students in Kerala' under my guidance. The main objectives of her study is to assess the various entrepreneurial skills of agricultural students, attitude of agricultural students towards agripreneurship, factors governing agri-business orientation among agricultural students and to examine the kinds of support system needed for getting students engaged in agripreneurship. In this regard, she is conducting survey for data collection among three groups of agricultural students from College of Horticulture Vellanikkara, Institute of Agricultural Science – RARS Pattambi and Govt.Vocational Higher Secondary School (Agriculture), Pudukkad.

Therefore, I request you to grant her permission to conduct survey among your students to collect data through an interview schedule.

Thanking you

Yours faithfully,

Sd/-

S. Helen

KERALA AGRICULTURAL UNIVERSITY
COLLEGE OF HORTICULTURE, VELLANIKARA, THRISSUR
DEPARTMENT OF AGRICULTURAL EXTENSION
INTERVIEW SCHEDULE
"Entrepreneurial skills among agricultural students in Kerala"

1. Name of the respondent   :
2. Address   :

3. Class of study   :
4. Name of institution   :

5. Gender   : Male / Female
6. Age   :

7. Parental occupation   :

Sl. No.	Occupation	Father	Mother
1	Farming and allied activities		
2	Services		
3	Business		
4	Home maker		
5	Others		

8.Leadership ability :

The statements related to your leadership ability are given below: Please indicate your response (√) on a three point continuum.

Sl. No.	Statements	Always	Sometimes	Never
1	I participate in group discussions on new farm practices			
2	Whenever I see or hear a new farm practice I do initiate discussion about it with my colleagues			
3	Fellow people regard me as a good source of information on new farm practices			
4	I do assign farm works to my family members			
5	I am comfortable making presentations or giving performance to varying audiences			
6	I am comfortable being assertive			
7	I am willing to be a follower			

9.Career aspiration :

Please indicate your response in the appropriate column by marking a tick (√).

Sl. No.	Career aspiration	Most preferred	Preferred	Least preferred	Not preferred
1	To go for higher studies				
2	To become government officer (Dept. Agriculture Development and Farmers' Welfare)				
3	To become government officer (Other than Dept. Agriculture Development and Farmers' Welfare)				
4	To be professor/scientist				
5	Employment in agribusiness companies				
6	Establish own agribusiness				
7	To become employee in banking sector				
8	Any other? Please mention:				

10.Self confidence :

Please indicate your response in the appropriate column by marking a tick (√) SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree

Sl.No.	Statements	SA	A	UD	DA	SDA
1	I feel that no obstacles can stop me from achieving the final goal					
2	I am generally confident of my own abilities					
3	I find myself always worrying about something or the other					
4	I get discouraged easily					
5	I usually work out things for myself rather than get someone to show me					
6	I don't have initiative					

11.Mass media contact

Sl. No.	Mass media	Frequency of contact		
		Regularly	Occasionally	Never
1	Radio			

2	News paper				
3	Internet				
4	Television				
5	Farm magazine				
6	Bulletins				
7	Books				
8	Films				
9	Others, specify				

12. **Training received** :

Have you attended any training programme on entrepreneurship development: Yes / No
If yes,

Title of training	Duration	Name of the agency, which provided training

13. **Achievement motivation :**

Please give your degree of consensus (√) to each of the following statement:

Sl. No.	Statements	SA	A	UD	DA	SDA
1	Work should come first even if one cannot get proper rest in order to achieve one's goals					
2	It is better to be content with whatever little one has, than to be always struggling for more					
3	No matter what I have done, I always want to do more					
4	I would like to try hard at something really difficult even if it proves that I cannot do it					
5	The way things are now-a-days discourage one to work hard					
6	One should succeed in occupation even if one has to neglect his family					

14. **Innovativeness :**

Please indicate your response in the appropriate alternative by marking a tick (√) SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree

Sl. No.	Statements	SA	A	UD	DA	SDA
1	I believe there are always new and better ways of doing things					

2	I find it difficult to come up with new ideas					
3	I would choose traditional way of doing things than go in for new methods					
4	I like to keep up-to-date information about the subjects of my interest					
5	I would prefer to wait for others to try out new practices first					
6	I would feel restless unless, I tryout an innovative method which I have come across					

15.Self -reliance :

How much of your future depends on yourself, please tick (√) mark in the appropriate option :

     a) 100 %
     b) 75-99 %
     c) 50-74 %
     d) 25-49 %

16.Risk taking ability :

Please indicate your response in the appropriate column by a tick (√) mark (SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

Sl.No.	Statements	SA	A	UD	DA	SDA
1	To achieve high returns, it is necessary to take more risk					
2	Compared to the average person, I would say I take more risks					
3	I would accept potential losses in order to pursue long –term investment growth					
4	I fear moving into a new undertaking I know nothing about					
5	An entrepreneur should invest in more than one enterprise to avoid greater risks associated with single enterprise					
6	It is better not to try new ideas unless others have done it with success					
7	Trying an entirely new method involves risk but it is worthy					

17.Decision making ability :

Please select your level of decision making ability by marking a tick (√) in the appropriate column (SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

Sl. No.	Statements	SA	A	UD	D	SDA
1	When faced with a new problem, I spent a lot of time trying to find out a solution					
2	I generally make decisions at last moment					
3	I don't have any confusion while taking a decision					
4	I am ready to change my ideas when convinced					
5	I would look out for a feedback of my decision or search for a better alternative					
6	I try to accept viewpoints of other members					

18. Attitude towards agripreneurship:

Please indicate your response in the appropriate column by marking a tick (√) (SA-Strongly Agree, A- Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

Sl.No.	Statements	SA	A	UD	DA	SDA
1	Agricultural education develops confidence among students to accept agricultural entrepreneurship as a profession					
2	Agriculture is a potential field for self-employment during the present period of extreme unemployment					
3	Self-employment in agriculture is an independent profession as it offers freedom					
4	There is no necessity for an educated unemployment youth to go for self-employment in agriculture as government jobs are meant for them					
5	Self-employment in agriculture is desirable, since one need not expect any sanction from any official					
6	It is unwise to select self-employment in agriculture as it needs more physical and mental efforts					
7	Sound family background in agriculture is a necessity for selecting self-employment in it					
8	Agriculture is the basis for other industries so selecting self-employment in agriculture is always worthy					
9	Self-employment in agriculture help one to become self-sufficient in life					
10	Since there are ample technologies available in agriculture one can make self-employment in agriculture easily					

		SA	A	UD	DA	SDA
11	From agri-business activities agriculture graduates can earn equivalent to a professional graduate					
12	Agriculture graduates have better conditions for entrepreneurship compared with other graduates					
13	Lack of employment opportunities in the public sector has doubled necessity for agripreneurship					
14	Entrepreneurship in agriculture is more difficult than other sectors					
15	Training on agripreneurship may create confidence to accept agripreneurship as a profession					
16	Awareness programmes on agripreneurship provide me knowledge about various agencies involved in agripreneurship					
17	There are many entrepreneurial opportunities in agriculture sector					
18	I have less aspiration towards agripreneurship					
19	Through entrepreneurship development programmes agriculture graduates can develop interest in agribusiness activities					
20	Agriculture students should think about the scope of agripreneurship					

19.Entrepreneurial skills:

Please indicate your response in the appropriate column by marking a tick (√) (SA-Strongly Agree, A-Agree, UD-Undecided, D-Disagree, SD-Strongly Disagree)

Sl. No.	Statements	SA	A	UD	DA	SDA
A	**General skills**					
1	I am a person who is ready to take responsibility					
2	I don't start anything without a clear vision and plan of action					
3	I have a strong desire to work independently					
4	I am good in team building					
5	When others see problems, I see opportunity					
6	I accept and act upon the good points made by others					
7	I anticipate what task needs to be done					
8	Once I start a project I pursue it inspite of challenges					
9	I persevere till I can achieve my dream					
10	I'm flexible and able to take advice					
B	**Managerial skills**					
1	I can easily delegate work to people					
2	I find new ways to solve problems					

3	I produce accurate, clear, error-free documents					
4	I know how to assemble, motivate and empower an effective team					
5	I change my communication style according to the circumstances					
6	I can persuade people by talking to them					
7	I can plan my work in advance and in detail					
8	I foresee opportunities and threats in uncertain situations					
9	I enjoy supervising people and monitoring their progress					
10	I'm good at organizing things and seeing tasks to completion					
C	**Product development Skills**					
1	I can handle heavy manual work without problems					
2	I always try to get new ideas for producing new product/service					
3	I am curious to learn new aspects					
4	I apply my skill to develop things differently					
5	I can easily imagine many ways to satisfy a need					
6	I am capable of imagining how we can make things work					
7	I want to build something that will be recognized publicly					
8	I am able to develop new product from the existing one					
9	I know how and where to find information and how to use it					
10	If I take something apart, I remember how I did it and can I put it together again					
D	**Marketing skills**					
1	I try to be the first or the best in my area of competency					
2	I know how to sell and can describe what selling involves					
3	I can convince selling a product to any customer					
4	I don't mind failing if I learn something in the process					
5	I believe making use of new technology is investment					
6	I am good in making professional contacts					
7	I am good in estimation and budgeting					
8	I am able to understand the psychology of a person					

9	I imagine how objects drawn on paper will look in reality					
10	I have a demonstrating talent for selling products					

20.Support System Needed:

Please indicate your response regarding kinds of support system needed for starting your own enterprise in agriculture.

Sl.No.	Statements	Yes	No	If yes prioritize by ranking
1	Entrepreneurial education			
2	Support from family and friends			
3	Agripreneurship awareness programmes and training programmes			
4	Establishment of entrepreneurship club and guidance centres			
5	Credit support from various institutions			
6	Government policies and schemes			
7	Basic infrastructure facilities			
8	If any other, please mention:			

Signature :

Name :

ENTREPRENEURIAL SKILLS AMONG THE AGRICULTURAL STUDENTS IN KERALA

By

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ABSTRACT OF THE THESIS

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Abstract

The mounting rate of unemployment is one among the most important issues of the Indian economy in the current era. Entrepreneurship is an essential strategy to solve the problems of unemployment prevailing in India. It is a fact that all the trained agriculture students cannot be employed in the public sector. Hence the interest of students towards agripreneurship must be rejuvenated to mould them to take up agripreneurship as their career option. In this context, agriculture students are expected to have entrepreneurial skills for promoting entrepreneurship among them. Therefore the present study was conducted to assess entrepreneurial skills among the agriculture students in Kerala.

Three categories of agricultural students from College of Horticulture, Vellanikkara, Institute of Agricultural Science – RARS Pattambi and Govt. Vocational Higher Secondary School (Agriculture), Pudukkad were purposively selected for the study. Fifty agricultural students from each group were randomly selected to form the respondents for the study. Attitude of agriculture students towards agripreneurship and entrepreneurial skills among the agricultural students were the dependent variables in the study.

The results showed that majority of the students from all the three categories were female. Majority of the VHSE (Ag.) students were from low income families, while majority of D.Sc.(Ag.) and B.Sc.(Ag.) students belonged to middle income category. Around 38 per cent of the VHSE (Ag.) students had participated in training on entrepreneurship. Whereas none of the D.Sc.(Ag.) students had undergone any training on entrepreneurship. While all the B.Sc.(Ag.) students had attended entrepreneurship development training programmes.

Majority of the agricultural students wanted to become a government officer in Department of Agriculture Development and Farmers' Welfare with a mean weightage score of 3.72, while agripreneurship was identified as the least preferred career option. Among the three categories of students, majority of the students came under medium category of leadership ability (VHSE (Ag.): 44%, D.Sc.(Ag.): 46% and B.Sc.(Ag.) : 56%). Majority of students from all the three categories *viz;* 40 % of the VHSE (Ag.) students, 64% of the D.Sc.(Ag.) students and 58% of the B.Sc.(Ag.) students had medium level of achievement motivation. It was observed that majority of the agriculture students had moderately favourable attitude towards agripreneurship.

The overall entrepreneurial skills of agriculture students were assessed through four dimensions *viz.;* general skills, managerial skills, product development skills and marketing skills. B.Sc.(Ag.) students possessed high general skills (88.22) followed by VHSE (Ag.) students and D.Sc.(Ag.) students with the index values of 80.74 and 71.92 respectively. It was concluded that B.Sc.(Ag.) students had high managerial skills (82.04), while both the VHSE (Ag.) and D.Sc.(Ag.) students were found to have above average managerial skills with the index values of 77.84 and 76.34 respectively. The product development skills were found to be the highest among the B.Sc.(Ag.) students with an index value of 84.04. Whereas both the D.Sc. (Ag.) (74.3) and VHSE (Ag.) (73.74) students possessed above average product development skills. B.Sc.(Ag.) students secured high marketing skills (83.52) followed by D.Sc.(Ag.) students (71.52) and VHSE (Ag.) students (59.73). While analysing the marketing skills of VHSE (Ag.) students, they had average level of marketing skills whereas D.Sc.(Ag.) students were in above average category of marketing skills.

The major findings of the study pointed out that B.Sc.(Ag.) students possessed high overall entrepreneurial skills with an index value of 84.45 followed by D.Sc. (Ag.) students and VHSE (Ag.) students with the index values of 73.52 and 73.01 respectively. It was observed that there existed only negligible difference in the overall entrepreneurial skills between D.Sc.(Ag.) students and VHSE (Ag.) students.

Training received by the students, achievement motivation, innovativeness, risk taking ability and decision making ability had positive and significant relationship with the entrepreneurial skills of VHSE (Ag.) students. While leadership ability, self-confidence, achievement motivation, innovativeness and risk taking ability were positively correlated with the entrepreneurial skills of D.Sc.(Ag.) students. In the case of B.Sc.(Ag.) students, factors namely occupational status of mother, leadership ability and self-confidence had positive and significant correlation with the entrepreneurial skills. Entrepreneurial education was identified as the mostneeded support system essential for enhancing entrepreneurial orientation among all the three categories of agriculture students followed by financial and moral support from family and friends.

The results of the study indicated that agripreneurship was the least preferred career path by majority of the agriculture students. Hence interventions are needed to motivate the students to take up agripreneurship as their career choice.