# PERCEPTION OF SCHOOL STUDENTS OF KERALA ON AGRICULTURE AND ITS IMPLICATIONS

By

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# THESIS

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*for the degree of*

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# DECLARATION

I hereby declare that this thesis entitled **"Perception of school students of Kerala on agriculture and its implications"** is a bonafide record of research work 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 any other similar title, of any other university or society.

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# CERTIFICATE

Certified that this thesis, entitled **"Perception of school students of Kerala on agriculture and its implications"** is a bonafide record of research work done independently by **Miss. Razia Fathima (2013-11-144)** 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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# TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## LIST OF APPENDICES

## LIST OF SCHOOLS INCLUDED IN THE STUDY

| Schools | Background | District | Syllabus |
|---|---|---|---|
| R. V. S. M Higher Secondary School | Rural | Alappuzha | State |
| T. D. Higher Secondary School | Urban | Alappuzha | State |
| Thanveer Central School | Rural | Alappuzha | CBSE |
| Matha Senior Secondary School | Urban | Alappuzha | CBSE |
| Government S.M.T higher secondary school | Rural | Thrissur | State |
| J.P.E. H.S.S , Thrissur | Urban | Thrissur | State |
| Bharatiya Vidya Bhavan, Wadakkancherry | Rural | Thrissur | CBSE |
| Bharatiya Vidya Bhavan, Poochatty | Urban | Thrissur | CBSE |

# INTRODUCTION

# CHAPTER I

# INTRODUCTION

*"Everything can wait except agriculture"*

*- Pandit Jawaharlal Nehru*

Even after six decades of independence, agriculture remains as the backbone of Indian economy contributing to 13.7 per cent of our GDP (CSO, 2013) and employing 65 percent of population (Tyagi, 2012). But, the demography of Indian agriculture is changing fast. Sharma (2007) opinioned that agriculture seems to have lost its sheen completely if the rising incidence of farmer suicides and the growing debt burden on farmers are indicators to be considered. The nation is losing more than 2,000 farmers every single day and that since 1991, the overall number of farmers has dropped by 15 million (Sainath, 2013). In a National Sample Survey Organization (NSSO) survey (2005), more than 40 per cent of farmers expressed their bitterness with the occupation saying that if given a chance they would like to quit farming. This has several implications for the future of Indian agriculture and India's food security.

India might very well be at the 'tipping point' of the de growth in its agricultural population. The rapid growth and diversification of developmental activities has resulted in much needed expansion of employment opportunities, but at the same time, has triggered rural to urban migration. This trend has inadvertently resulted in shift of farm labour to nonfarm sectors. With growing urbanization, better literacy standards and greater skill attainment by rural youth, India's agriculture

growth might take a steep turn downwards thus changing the nature of farming in the country drastically. There is growing disenchantment among the rural youth towards agriculture as a vocation and they find it much lucrative to migrate to cities to do even menial jobs. Most of the educated youth in India finds agriculture as an unattractive preposition; especially the way it is practiced traditionally by their parents.

The large scale migration of rural youth from farming to urban areas has caused concern among the agricultural policy makers, since, such a trend, if not checked, is likely to affect agricultural activities in the future. The exodus of youth from agriculture means fewer small-scale farmers tomorrow, potentially drastically changing the profile of farming.

The survival of this vital industry depends on educating and encouraging the next generation of decision-makers. A key target audience is the school students. These students should be on the focus of the educational efforts regarding agriculture and food processing because, as the next generation of consumers, the political and social decisions of the today's students will have the power to change the agricultural industry. Many will soon be voters who will participate in societal decisions, and ultimately, they will provide economic, social and political leadership.

Thus, there is a need to inculcate the spirit of farming in our newer generation at a very younger age. Getting the opportunity to know what is agriculture and its importance at school level itself would empower the youth with knowledge, skills and enthusiasm to pursue agriculture with new vigour. World over, administrations, agricultural universities and NGOs with civic sense who have realized this are conducting studies on children's awareness on agriculture, agri business and allied activities. Greater thrust is being given to devise programs and projects to awaken the coming generations to the practice and business of agriculture.

In India, children get hardly any exposure to agriculture through a curriculum predominated by arts and science. Earlier this did not matter much, as Indian lifestyles were solidly embedded in an agricultural background. But as times have changed, so have lifestyles. This is all the more pronounced in Kerala, the state with highest degree of urbanization in India. The decadal rate of urbanization in Kerala is estimated to be 82 percent (GOI, 2011). Urbanization of the population of the state has contributed to inaccurate perceptions and low awareness about agriculture. Even children from rural areas seems to be unfamiliar with plucking vegetables from a plant, fruits grown on trees or tending of plants in a kitchen garden. It is a very precarious situation, which can lead to the newer generations being raised sans a consciousness about agriculture, which will bring long lasting repercussions on the future of this country. Experience from the ongoing RKVY project initiated by KAU in 2010, on *Boosting vegetable production through technology dissemination for food and nutritional security,* which has a component of establishing nutritional gardens in selected schools of the state, reinforces this information.

There have been many attempts from the part of our government to make our children agriculturally literate but many of them failed to provide the desired results. It is important to assess what is the awareness level and perception of our younger generation regarding agriculture because, a responsible agriculture, meeting food security needs without depleting its resources, can become a reality only if our younger generation imbibes the spirit of agriculture in its true sense, and gets actively engaged in shaping the sector's future. If our agriculturally literate youth choose to live in villages and launch a new agriculture movement, based on the integrated application of science and social wisdom, our untapped demographic dividend will become our greatest strength. It is in this context, this study is proposed to be conducted among school children, to assess their awareness on agriculture, and to evaluate their attitude towards agriculture as a production process and a business.

## Objectives of the study

This study aims to address four key specific objectives regarding the perception of Kerala's school students towards agriculture:

1. To analyse the levels of awareness among higher secondary students about components of agriculture
2. To assess perception of students and teachers on agriculture
3. To identify the factors governing the perception of students on agriculture
4. To examine existing interventions and arrive at recommendations for the future.

## Scope of the study

Many studies have been done researching the current agricultural scenario of our nation, exploring why there is agricultural de-growth, but we have failed to assess what is the mindset of our society, especially the younger generation of today towards agriculture as a job and a career option. No studies have been done so far in India assessing the awareness and perception of our school children regarding agriculture. In this study, the major factors contributing to the perception of students will be assessed along with the perception of teachers about agriculture as an occupation for prospective youth. In addition, the awareness of children on various components of agriculture ranging from production to processing will be analysed.

## Limitations of the study

The study was a part of master's research work and was conducted in Thrissur and Alappuzha Districts of Kerala state. The study has inherent limitations of resources such as time, finance and researcher's experience. Thus the student researcher was forced to confine the study to a feasible level in terms of sample size, location etc. Another limitation of the study was the background of the students, as it was not possible to assure whether the students' background is related to the individual school where they study. Regardless of the limitations, efforts were made to conduct the study in a systematic and objective way as possible. The present study sampled only two districts and respondents from only four schools from were covered from each district. Still an attempt has been made to assess the perception level of both teachers and students of today regarding agriculture.

## Presentation of the thesis

The thesis is presented in six chapters. The first chapter is an introductory section highlighting the objectives, scope and limitations of the study. The second chapter provides the review of literature regarding in line to the objectives of the study. The third chapter is the methodology that was followed in carrying out the research. The fourth chapter deals with the salient research findings of the study and the fifth chapter includes discussion. The sixth chapter covers summary, and conclusions of the study.

# REVIEW OF LITERATURE

# CHAPTER II

# REVIEW OF LITERATURE

Any scientific endeavour becomes valid and concrete when it is supported by pertinent studies conducted earlier in its regard. Review of such efforts, either theoretical or empirical, would help to outline the new problem areas and develop a conceptual framework for the study. Keeping this in mind, a comprehensive review of the available literature having direct or indirect bearing on this study has been carried out in accordance with the objectives of this study. It is presented under the following sub-headings:

2.1 Perception of youth on agriculture

2.2 Factors affecting perception of youth on agriculture

2.3 Need for agricultural literacy

2.4 Global examples of interventions to improve awareness of youth on agriculture

2.5 Case studies of ongoing initiatives in India to attract youth towards agriculture.

## 2.1. Perception of youth on agriculture

As per the study conducted by Nwagwu (1976) among the school students of Nigeria, it was reported that despite being an agricultural country with, at the time, a strong 'back to the land' campaign by government, students expressed no desire to

farming and the stated preference for any involvement in agriculture was as an agricultural officer.

The reports by Farm Bureau Federation (1983) indicated that most of today's elementary school children across the world are at least two generations away from firsthand knowledge of agriculture.

Betts and Newcomb (1986) studied urban student perceptions about careers in agriculture. They concluded that students "were only partially accurate" in their perceptions of areas of study and "were generally uncertain as to what careers related to agriculture are like." The study indicated that students perceived agriculture as science-oriented, but they lacked the knowledge of its importance as an industry and the career potential.

Mallory & Sommer (1986) conducted studies to assess perception of school students on agriculture and reported that many high school students, unaware of the prospects of agriculture, rate agricultural jobs low in terms of stability, a secure future, and earning power. They, through their studies, also found that the high school students equate agriculture with farming alone, or in some cases did not even know the meaning of the word.

Richardson (1990), as a part of the research conducted among American citizen's, reported that the students have little general knowledge of agriculture, social or economic impacts of agriculture, human health issues related to agriculture, or understanding of agriculture's relationship with the environment. Food comes from the supermarkets and clothes are made in a factory is the general mentality of the youth and they do not realize the value or the impact of agriculture on their daily life.

As per the studies conducted by Curtis *et al.,* (1991) among the students of Colombia, it was found that inner city students believe that persons working in agriculture should have an agricultural background, will work outdoors, have opportunity for advancement, and can learn the skills needed for employment on the job.

Krueger and Riesenberg (1991) reported that students often have misperceptions of the agricultural industry and agricultural careers and farming as a profession.

Williams and White (1991), conducted a survey among students of Oklahoma to determine their agricultural literacy and found that even the students enrolled in agricultural education were found to have lacked a basic understanding of the food and fiber system, its importance in everyday life, agricultural history and current economic, environmental and social issues in the field of agriculture.

Akinwunmi (1997) in the studies conducted in Nigeria reported that youths' interest in farming activities is diminishing; this particularly applies to female students in higher institutions. Female students naturally dislike farm work, because they consider farm work as being laborious that involves a lot of drudgery; female students in their characteristics manner prefer works that are very easy, therefore, they would not like to engage in exercises or activities such as farm work. According to them, a major constraint is that most female students look at farming activities as the physical work, and that stress is involved in agriculture.

Leising *et al.,* (1997) reported that with the recent improvements to technology, students are becoming less connected to their actual food source and more distant from their agricultural roots.

According to Blackburn(1999), current generations of children and youth often see agriculture only in terms of narrow stereotypes - a farmer, a cow, and/or a tractor , with the stereotypical farmer only visualized as an old man that "wears bib overalls and chew on straw" (Holz-Clause and Jost, 1995).

Nordstrom *et al.*, (1999) found that students without agricultural experiences are having a perception that raising farm animals is harmful to the environment. They also showed negative responses to the facts that agricultural products are beneficial to society, that farmers try to keep the environment clean and free from residue and that there are adequate laws and regulations protecting the environment.

Gliem and Gliem (2000) reported that in addition to a poor image, students often did not perceive any future value in enrolling in agricultural education courses or pursuing it as a profession.

Youth tend to misunderstand what food animals are or what products we derive from these animals, and have the idea that food simply comes from the store (Trexler *et al.*, 2000).

In a study conducted in Ghana, Okorley (2001) reported that only 20% of the final year university agricultural students surveyed indicated a definite willingness to enter agribusiness as a self-employment venture.

According to the findings by Boleman and Burrell (2003), most children of today are raised far removed from the principles of production agriculture. Youth today have limited knowledge about agriculture, many believing that milk comes merely from the grocery store rather than understanding that it comes from a cow. The same youth will be our future leaders, governmental decision makers, and

business people who will be faced with the agricultural issues and future issues that may arise with the birth of new technologies.

Olatunji (2005) observed that the implementation of the agricultural education programme in Nigeria has been besetted by several obstacles including negative attitude to agricultural science among students and discouragement of students who express interests in agriculture by parents and lack of guidance in agriculture.

Vandenbosch (2006) reported that in the developing countries, only a few students opt to take agriculture as an examinable subject at secondary level; and only one out of four (25%) intend to seek an agricultural occupation following graduation .

Juma (2007) while studying the attitude of younger generation towards farming reported that youth regard farming as a 'dirty activity' due lack of proper facilities. This has resulted to the fact that agriculture is regarded as an employer of the last resort to young people.

According to Man (2007), youth in Malaysia have a negative acceptance towards agriculture and that new trends and ways to run the agriculture are required in order to attract the interests of youth and enhance their participation in agriculture.

As per the studies conducted by Sharma (2007), in 14 locations in 13 states across India, there is a good amount of evidence showing the rising trend in withdrawal among youth from farming. The trend is stronger in regions with low value of agricultural production per capita and in villages close to towns. At the individual or household level, the trend is stronger among higher caste, better educated and youth with non-farm skills.

As per the survey conducted by Overbay and Broyles (2008), among students attending the 2006 Virginia Governor's School for Agriculture, it was reported that the students had a misunderstanding about agricultural careers, and they considered them risky and physically demanding. The students were found to prefer public service careers than agricultural careers as they perceived agriculture careers as being low-waged and mainly involving manual labor.

Aphunu and Atoma (2010) reported that while the contribution of youth towards attaining food security cannot be underestimated, their apparent lukewarm attitude towards agriculture was a source of concern and challenge to the development of agricultural extension. As per studies conducted by them in Nigeria, about 69.3 of the youth included in the study expressed unfavourable attitude towards agriculture.

According to Ganpat and Webster (2010), young people see agriculture as an unsatisfactory employment option unless they see instant economic gains or are taking over a family business and youth rarely understand or appreciate the value of agriculture or the impact this industry can have on their immediate lives and future.

Many young people are choosing not to pursue livelihoods in the agriculture sector, especially as farmers, since they finds the sector unattractive, which may have implications for national and international efforts to drive economic growth through investments in agriculture. (Leavy and Smith, 2010).

Pinda (2010) said that many youths are shunning agriculture and taking refuge in urban areas due to difficulties they encounter in the sector. Farming by using a hoe is almost a torture to the youths.

According to Mathivha (2012), urban-based youth see agriculture as alienating from youth popular culture and of low status, offering little opportunity for making money and only reserved for the elderly and the poor in rural areas

As per the studies conducted by Ayanda *et al.,* (2012) in Nigeria, they found that agriculture remains unattractive to the youth leading to their movement to other sectors of the economy to grab better life and in recent times, migration of young and vibrant people to cities in search of greener pastures has reduced availability of labour force for agricultural production in Nigeria.

Dalrymple (2012) reported a lack of interest among todays youth towards agricultural careers and revealed that it was due to the perception that agricultural careers involved labor intensive work that yield low monetary returns

**2.2 Factors affecting perception of youth on agriculture**

May (1969), based on his study concluded that people base their perceptions on past experience and knowledge; therefore, if a person has limited knowledge and experience about a topic, then he or she cannot accurately perceive it.

According to Fishbein and Ajzen (1975), students' and parents' personal experiences, observations, knowledge, and values about agriculture affect their attitudes about agriculture, which in turn affect their beliefs, intentions and decisions to participate.

Sinclair and Lillis (1980) stated that an attitude to agriculture predominantly was influenced by huge differentials in level and security of earnings between the

modern and traditional sectors of employment and even the most charismatic teachers could hardly overcome this factor.

Washington and Rodney's (1984), as per their study among school children, reported that parents tended to steer students away from agricultural and natural resources careers. In addition, they noted that there seemed to be a lack of information about agriculture and natural resources at the secondary school level.

According to Schuster & Costantino (1986), the sources of influence related to exposure to agriculture included prior experiences, relatives in agricultural work, radio broadcasts, TV programs, and literature. They also reported that parents with an agriculture background, more often than not, have a significant impact on a student's choice in attending an agriculture college and to turn into the same profession.

Townsend (1990) believed that a pre secondary agricultural education program can build a positive attitude with students that will let them develop into positive leaders.

Knight (1987) reported that the perception that success in life is associated with the acquisition of a college degree, and vocational courses are for the "less able" or "less academically talented" students often deter students from enrolling in agriculture related courses.

Ellibee (1990), as a part of the study conducted among the school students of USA, concluded that urban students have little interaction with agriculture, which inhibits their perception and knowledge of agriculture compared to their rural counterparts.

Krueger and Riesenberg (1991) found that students often have misperceptions of the agricultural industry and agricultural careers. Brown (1991) found a positive change in both knowledge and perceptions about agriculture after middle school students in Missouri had received six to eighteen weeks of related instruction.

Hoover and Scanlon (1991) reported the image of the agriculture profession and perceived future value of agricultural education as the obstacles in attracting students towards agriculture.

In a study conducted by Wright *et al.*, (1992) about agricultural awareness of eleventh grade students in rural schools of Missouri, they concluded that students studying agriculture in schools with an agricultural education program have greater knowledge about agriculture. They also found that students in schools with an agricultural program have a greater knowledge about agriculture

Cano and Bankston (1992) reported that youth enroll in agricultural related programs as a result of the influence of friends or relatives, or interest in the development of leadership skills and self-confidence.

Donnermeyer and Kreps (1994) found that students already exposed to agriculture tended to enroll in agriculture majors more often than students without exposure and family and friends of students have been considered an influential factor in choosing agriculture major. They also concluded that the reputation of the college and faculty, facilities available, geographical location, cost of tuition, and financial incentive in form of scholarships also affects a student's decision whether or not to enroll for an agriculture course and pursue it as a profession.

Rawls *et al.*,( 1994) in their study to measure the attitude of students to pursue agriculture as a career concluded that job considerations including the

nature of work, availability and location of job, income and prestige of career also impact students' choice of agriculture as a profession.

In a study conducted by Stewart and Sutphin (1994) on whether gender and ethnicity affects student's perception on agriculture, it was concluded that there were no significant differences in how male and female students perceive the integration of agriculture and other academic courses, nor were there ethnic differences in perception.

A study conducted by Wright *et al.,* (1994) in rural Missouri found a positive correlation between agricultural literacy and a positive perception towards agriculture. The more educated an individual, the fewer negative stereotypes the individual developed about agriculture.

Frick *et al.,* (1995) used two pilot groups to study both the agricultural knowledge and perceptions of inner-city high school students of USA. The study concluded that respondents from smaller cities and towns were found to be more knowledgeable than their counterparts from larger population centers regarding agriculture. It was also reported that respondents had the most positive perception about the natural resources concept area and were the least positive about the agricultural policy concept area.

Scofield (1995) reported that students and and parent's experiences with the agriscience courses have the potential to influence their attitudes toward agriculture and subsequent career decisions.

Talbert and Larke (1995) recommended that efforts should focus on biotechnology, communications, ecology, media portrayal, and/or urban horticulture

to expand minority students' perceptions of agriculture, as well as build career knowledge and self-confidence.

Bryceson (1996) opinioned that because of investment in primary and secondary education, 'many of the youth now remaining in the countryside are more educated than their parents' generation and are often less satisfied with a strictly agrarian work life.

Williams and Wise (1997) conducted a study among the students and teachers of schools in Iowa and found that when teachers held relatively high perception scores of sustainable agriculture, their students did as well and they concluded that a teacher's agricultural knowledge base, stereotypes, and background can influence what their students learn as well as contribute/hinder agricultural stereotype development.

Reis and Kahler (1997) found that parents, teachers, friends, and former agricultural education students were the most influential people for students' decision to enrol in agricultural courses and the role played by parents in decision making is most prominent.

A teacher's agricultural literacy and agricultural perceptions can influence their classroom environment. A study conducted among primary school teachers in Chicago found that their perception of nature influenced whether or not their students were given the chance to experience natural areas (Simmons, 1998).

According to Dyer and Breja (2000), the major obstacles to the successful recruitment of students into agriculture programs are those associated with scheduling difficulties, guidance counselor support, competition from other programs and

activities, image of agriculture, access to students, administrative support, and teachers having interest and time to recruit.

Osborne and Dyer (2000) found parents as the most influential factor that determines whether or not the students need to pursue an agricultural career. They, as a part of survey conducted among students in Illinois, reported that though the parents of students enrolled in a beginning agri science course had a positive attitude toward agricultural careers, the parents were uncertain as to whether or not they would encourage their student to pursue agriculture as a profession.

Wildman and Torres (2001) studied the influence of five factors on a student's selection of an agricultural major. These factors included: 1) exposure to agriculture, 2) family and friends, 3) college of agriculture recruitment activities, 4) professionals and 5) job considerations.The five principal factors of influence , according to Wildman & Torres that are considered influential in selecting an agriculture major by the students of U.S.A include:

- exposure to agriculture
- family and friends
- college of agriculture recruitment activities
- professionals
- job considerations

Dyer *et al.,* (2002) in their study on factors influencing students enrolm ent in agriculture colleges, reported that prior experience in agriculture and enrolment in high school agriculture programs were the strongest predictors of student retention in colleges of agriculture.

Riedmiller (2002) stated that the quality of a school garden or agricultural learning material is the single most important factor influencing the knowledge, skills, and attitudes of youth learning about agriculture

Studies done by Mann and Kogl (2003) revealed that bigger profits garnered through farming will be an impetus for creating positive attitude of the people, especially the younger generation, towards farming and this will boost their acceptance towards farming.

Morrell (2003) reported that 3rd and 4th graders who had the opportunity to participate in a three-hour field experience where students were exposed to information about forestry and forest products showed an increase in student knowledge after participating in this experience (Morrell, 2003).

Dennis and Thomas (2004) reported that high school students' knowledge and perceptions about agriculture can be influenced by a number of factors and these factors include the media, family, involvement in agricultural clubs

According to Adrian *et al.,* (2005) constructs of knowledge, attitude support and belief plays a significant role in enhancing youths' acceptance towards farming.

Esters and Bowen (2005) identified factors that influenced the career choice behaviors of students who graduated from an urban agricultural education program. The researchers found that parents and friends had the largest influence on career choice. Specifically, graduates indicated that their mother or female guardian had the most influence on their career choice. High school educational experiences and work experiences were indicated by graduates who choose agriculture careers as the experiences that had the most impact. Graduates who did not choose a career in

agriculture indicated having other career interests, a lack of interest in agriculture, and a lack of career opportunities as their main reasons for not pursing a career in agriculture.

McLarty (2005) reported that education will have an impact on people's acceptance towards farming. He noted that university graduates were surprisingly found to not get actively involved in agriculture.

A study done by Pense *et al.,* (2006) comprising Illinois twelfth grade students reported of more agricultural knowledge among students living in rural areas (versus urban) and among students enrolled in agriculture programs (versus those who were not enrolled in these programs).

According to Adisa and Adekunle (2007), the expectation of financial or material gains, parental factor, peer group influence and location of school farms were significantly related to students' involvement in agricultural activities.

Platt *et al.,* (2008) based on their studies concluded that hands-on experiences with agriculture have been shown to create a significant increase in a student's knowledge and interest in agriculture

Outley (2008) in his study 'Perceptions of agriculture and natural resource careers among minority students in a national organization' found that minority students identified career perceptions and social status as barriers to pursuing careers in agriculture, as well as a lack of information about career opportunities Such perceptions may influence underrepresented groups' participation in agriculture, contributing to a workforce population disproportionate to that of the general public.

According to Perry (2009), youth aspirations related to agriculture is largely influenced by the status and prestige it confers and economic benefits.

As per Smith *et al.,* (2009), the agricultural stereotypes held by the teacher can influence his or her students. The community environment also provides numerous opportunities for social interaction. A community that is centered on its local farming and agricultural industry could promote very different agricultural perceptions than a community thriving on a computer manufacturing industry. He also reported that agricultural education classes and agriculturally related clubs are found to be significantly correlated with a high agricultural perception score and the students considering a career in the field of agriculture. They also compared the differences in agricultural literacy and stereotypes among students based on location (rural versus urban) and education (whether or not the school had an agriculture program). The pilot study found the presence of an agriculture program to be associated with less traditional stereotypes about agriculture. As per the work conducted by Smith (2009) on High School Students' Perceptions of Agriculture and Agricultural Careers in New York state, the students indicated that the environment mostly influenced their agricultural perceptions. This was followed by television and movies, friends and relatives, and school and home as influential factors.

Mangal (2009), in his study conducted in Caribbean islands, reported that parents do not encourage children to get involved in agriculture due to the general negative perception of farming.

Ganpat and Webster (2010), in a study conducted among schhol students in West Indies found that the major reason for the high age of the farmer population in the country is that young persons are not entering the industry in meaningful numbers. The view of farming as dirty work, lack of financial support or credit, limited infrastructure and market access in rural areas, belief that agriculture is for

uneducated people, the negative stigma attached to agriculture, difficulty in getting credit, unstable product prices, and low level of technology applied contributes to the negative attitude of youth and adults towards agriculture. The widely reported drudgery, hard work and little financial rewards associated with agriculture seem to be the major deterrents to young person's entering the sector.

Sandys (2011) reported that in the Pacific and sub-Saharan Africa, agricultural activities are often used in schools as a punishment, thus contributing to its negative perception by the youth. In Uganda, for example, agriculture has remained unattractive to the youth partly because schools administer agricultural-related punishments to errant and indisciplined children. Sandys further argues that these cases portray agricultural-related activities as deserving for wrongdoers hence limiting the youth enthusiasm to pursue livelihoods in agriculture.

Tafere and Woldehanna (2012) observed that the lack of interest of the youth in agriculture has two main aspects.One is that young people tend to harbour 'occupational aspirations' beyond the farm, because non-agricultural careers promise to be less back-breaking, more stable and more remunerative. The other aspect is that the youth are unable to pursue agriculture for lack of access to, or control over, productive assets, especially land.

Studies by Rayfield *et al.*, (2013) revealed that parents and guardians were the most influential people in students' decisions to enrol in a major within the College of Agriculture and Life Sciences. The Internet was indicated as the most influential recruitment source and "agriculture and life sciences related hobbies" were reported most frequently as an influence on respondents' decision to major in the College of Agriculture and Life Sciences.

## 2.3 Need for agricultural literacy

In 1988, the National Research Council's Committee on Agricultural Education in Secondary Schools proposed that an agriculturally literate person would understand the food and fiber system in relation to its history, economic, social, and environmental significance (National Research Council, 1988). Agricultural literacy was defined by the National Research Council as the goal of education about agriculture and agriculturally literate people were defined as those who have some knowledge of food and fiber production, processing, marketing and the practical knowledge needed to care for their outdoor environments, which include lawns, gardens, recreational areas and parks The council mentioned that agricultural literacy should be of importance to everyone in the United States. They also recommended that all students should receive at least some systematic instruction about agriculture beginning in kindergarten or first grade and continuing through twelfth grade. The National Research Council has also recommended that all students in kindergarten through 12th grade should receive some standard instruction about agriculture. Lessons in agriculture-related topics should be incorporated into existing courses rather than taught in separate courses.

According to the National Academy of Sciences' Committee on Agricultural Education (1988), achieving the goal of agricultural literacy will produce informed citizens able to participate in establishing the policies that will support a competitive agricultural industry in this country and abroad.

Mawby (1990), in his study conducted in U.S.A, noted that by educating citizens about the wise management of food supplies and related renewable resources, we can anticipate more knowledgeable decision-making about agriculture in the future.

and should be provided for all students, not only those enrolled in vocational agriculture courses. In order to increase youth interest in agriculture, educators must include parents, school personnel, and policy makers in the educational process (Russell, 1993).

There exists a general belief among educators, as well as scientists, that people must be scientifically and agriculturally literate in order to make wise and informed economic and political decisions about the use of renewable resources (Cardwell, 1994).

Wright *et al.*, (1994) reported that students studying agriculture in schools with an agricultural education program have greater knowledge about agriculture.

According to Holz-Clause & Jost (1995), the promotion of agricultural interest among youth can ultimately lead to not only a more agriculturally aware society but also a workforce to support agricultural practices that allow society to thrive.

Terry and Lawver (1995) reported that it is vital that the young generation should have an accurate perception and understanding of agriculture and how agriculture impacts the society, the economy, and the environment.

World Bank (1995) observed that in India, there is only little emphasis in the curriculum on preparing the agricultural graduate for better career in agriculture or agribusiness outside government jobs.

Howell & White (1996) after a study conducted in Oklahoma reported that without a basic standard of agriculture across the entire population, there is a risk that that people will most likely learn agricultural issues from those who are not accurately versed on the industry or its impacts on the community

A Texas study of the needs teachers have for implementing programs of agricultural literacy revealed that almost all of the fourth grade teachers surveyed had an inaccurate perception of agriculture (Terry, Herring, & Larke, 1990).

The studies conducted by Braverman and Rilla (1991) among the crop extension directors, school superintendents, and district superintendents of California, on issues related to agricultural literacy clearly reported that the majority of those surveyed felt there was inadequate public knowledge in and about agriculture. There was a need to promote vocational skills in agriculture and agricultural literacy and the most critical agricultural literacy issues were food safety, land use, water policy, and the role of agriculture in society and the economy.

Frick *et al.,* (1991) in the *Journal of Agricultural Education*, reported one of the first conclusive agricultural literacy definitions: "Agricultural literacy can be defined as possessing knowledge and understanding of our food and fiber system... An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture. An agriculturally literate population aids in ensuring that citizens make intelligent and informed decisions concerning agricultural policies that benefit society.

According to Tisdale (1991), agriculturally literate people can make personally informed decisions about agriculture related topics such as food safety, genetic engineering and pesticides versus non-pesticide issues. Those without this basic understanding react without reason, frightened for themselves and their families.

Williams and White (1991), in their study conducted in U.S.A, pointed out that if agricultural educators expected our nation's youth to understand American agriculture, information related to agriculture must be "included in the day-to-day curriculum". Caulder (1991) noted that education about agriculture was too important

and should be provided for all students, not only those enrolled in vocational agriculture courses. In order to increase youth interest in agriculture, educators must include parents, school personnel, and policy makers in the educational process (Russell, 1993).

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According to Nordstrom *et al.,* (1999), lack of agricultural literacy can create poor images of agriculture, skepticism of food safety and animal production methods, and a reluctance of students to enroll in agricultural curriculum.

A study was conducted by Igo and Frick (1999) in U.S.A to assess the food and fiber knowledge of selected students in kindergarten through eighth grade before and after receiving instruction. It was discovered that while students at each grade had some prior knowledge of food and fiber systems, it was possible to increase student knowledge about agriculture by infusing instruction into the classroom. Additionally, this study highlighted that it was possible to infuse education about agriculture into core academic learning using thematic areas as a guide for instruction. A positive relationship was discovered between the number of connections teachers made to the food and fiber systems and increases in student knowledge.

Balschweid and Thompson (2000) noted that the integration of academic principles into agricultural and natural resources can provide a context necessary for students in the 21st century to understand the world they live in.

Balschweid (2001) determined the perception of agriculture by high school students who have attended the traditional biology classes that were taught using animal agriculture as the context. He found that over 90% of the students reported that they agreed or strongly agreed that participating in the biology class which used agriculture as the context helped them understand the relationship between science and agriculture. He thus opinioned that including agriculture as a topic in the curriculum will help the students to develop a positive attitude towards agriculture.

Boleman & Burrell (2003) reported that most of today's children are raised far removed from the principles of production agriculture and the same youth will be our future leaders, governmental decision makers, and business people who will be faced with the previously discussed agricultural issues and future issues that may arise with the birth of new technologies. Thus there is an increasing need for today's children to be agriculturally literate.

Adebayo *et al.*, (2006) noted that despite their (youths) rich rural life, farming background and experience, rural youths are yet to actively and productively participate in the development of a nation's agricultural sector

Wagler *et al.*, (2008) in their study to test an educational swine curriculum geared toward fifth grade classrooms in Indiana, opinioned that agricultural industries must remain important if the world is to continue to sustain a growing population and with the need for increased agriculture production comes the need for agricultural literacy.

Dunlap and Webster (2009) suggested that although young people need education and training to prepare them to become viable agriculturalists and leaders of the future, more importantly, they must receive support and access to resources to enable them to become a part of this equation.

Professor Ben White from the International Institute of Social Studies, while addressing the 'Young People, Farming and Food' conference in Ghana (2012) said that "the mounting evidence suggest that young men and women are increasingly uninterested in farming or in rural futures and if this is the case, then there is no argument against a future agriculture based on large-scale, capital intensive, labour displacing corporate farming."

## 2.4 Global examples of interventions to improve awareness of youth on agriculture

The enthusiasm of youth for new technologies facilitated the initiation of rural youth programmes in USA, leading to the birth of the 4-H clubs in 1914. These clubs which were well recognized as an innovative way to introduce new agriculture technologies to rural communities, now have become important partners of the Cooperative Extension Service in USA especially on promotion of youth involvement in agriculture. Similarly, in European Union and in other developed countries, the young Farmers Associations are active since long, For instance, the National Federation of Young Farmers' Clubs (NFYFC) is one of the largest rural youth organisations in the UK.

In 1981, the USDA marked the start of the Agriculture in the Classroom program. The program was developed with the overall intent to teach youth about the importance and overall function agriculture has in society (Farm Bureau Federation, 1983).

Leising and Zilbert (1994) developed a systematic curriculum framework identifying what students should know or be able to do with regard to agriculture. The Food and Fiber Systems Literacy (FFSL) framework explained what an agriculturally literate high school graduate should comprehend. Using a series of standards in five thematic areas, the framework delineated the necessary components for understanding the way food and fiber systems relate to daily life. A positive relationship has been established at the kindergarten through eighth grade levels utilizing the Food and Fiber Systems Literacy framework when the food and fiber knowledge of students was assessed using instruction based upon the framework (Igo & Frick, 1999).

National Forum on Agricultural Education in Urban Schools was an important initiative that was started at Iowa State University in 1995, with a view to "generate enthusiasm and create an environment for developing more urban centered agricultural education programs and assist professionals currently working in urban programs". The goals of the Forum included:

- To provide the opportunity for leaders involved in education in agriculture located in non-traditional settings to share their program successes and challenges and develop a professional network.
- To discuss educational and career opportunities and how to communicate these opportunities to students.
- To design strategies to increase the number of educational programs in agriculture in urban settings with a view to attract urban students to agriculture
- To provide research that will assist schools in determining future curriculum choices.
- To assist schools in developing marketing plans for their agricultural programs. (Martin, 1995)

Junior master gardener programme (JMG) is a youth gardening programme that was developed at Texas A&M University that aims at incorporating areas related to gardening with school curriculum and also provides an opportunity for youth to develop responsibility and leadership skills. A series of activities were specifically chosen for third grade students and utilized for assessment of attitude towards science horticulture and environment. (Welsh *et al.*, 1999)

As per the studies conducted by Osborn and Dyer ( 2000 ) ,students enrolled in the BSAA courses and their parents, (a one-semester Biological Science Applications in Agriculture (BSAA) and Physical Science Applications in Agriculture (PSAA)

course for secondary students in Illinois) hold positive attitudes toward agricultural technologies and agriculture as a career field. Both groups believe agriculture is a scientific field with numerous career opportunities.

The Venezuelan government launched a program in 2003 entitled "*Vuelta al Campo*" (Return to the countryside) with its central goal as community based agrarian reform which brings the youngest population of the country to the fields to foster the upmost production possible. This programme was launched with a vision that by returning to the land, the nation's youth will adapt idealism of growth and stability that is often associated with communal success.

Shweitzer (2005) reported of a citizenship program in U.S - *Engaging Youth, Serving Communities,* which was an initiative to encourage youth to become involved with local issues and to address community needs; one of which was sustainable agricultural development, thus introducing farming to youth as an opportunity to engage in their community and perhaps develop long-term interest in agriculture.

The National Future Farmers of America Program is a privately funded organization that started in 1928 to educate students about the various aspects of the agricultural profession. They provide students and educators with resources about agricultural development to "prepare students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems.(FFA, 2005)

The United States Department of Agriculture (USDA) is taking many initiatives to inculcate the spirit of farming among children. In addition to education and training-based programs, the USDA website includes a link for kids with activities on the subject of farming. Questions referring to different characteristics of farming are asked to children inorder to educate them about the different aspects of sustainable

agriculture. The USDA also began a program called Agriculture in the Classroom, which was aimed at providing training and teaching materials for elementary teachers to incorporate agricultural concepts into their instruction. The overall goal of the program was to teach children where food and fiber comes from and the importance of agriculture to the economy (USDA, 2008).

*Growingpower.org*, a non-profit training center, foster programs for youth through after school and job training programs and teach college students on-site at their farms in Milwaukee and Chicago. The goals for the program were to grow food, grow minds, and to grow community (Growing power, 2008 )*The National Farm Transition Network of USA* fosters next generation farmers and ranchers by introducing them to experienced producers who are ready to retire (NISF, 2008).

The Caribbean Agriculture Forum for Youth (CAFY) was established in 2002 to promote youth involvement in the agriculture community in the region. There are several successful agricultural youth programs in the region such as the 4H movement (a youth based organization designed to teach youth through the concept of "learning by doing"), the teaching of agricultural science in secondary schools, and the Youth Apprenticeship Program in Agriculture (YAPA) in Trinidad. (World Bank, 2008).

An example of a government-backed program for youth in schools is *Agriculture in the Classroom*, whose goal is "to help students gain a greater awareness of the role of agriculture in the economy and society as a whole so that they may become citizens who support wise agricultural policies" (AITC). By bringing awareness to younger generations to promote an understanding of agriculture, they also inspire youth to enter the agricultural sector professionally. AITC holds a variety of workshops and state programs each year for public and

private school teachers, curriculum coordinators, school counselors, pre-service teachers and other officials (AITC, 2009).

The Houston Livestock Show and RodeoTM (HLSR) has provided opportunities for youth to be involved in agricultural activities that create an awareness of the importance of agriculture. In 1997, HLSR designated a part of the show as an agricultural awareness center to enable youth to participate in activities focused on agriculture. The exhibition was named "*AgVenture*" that aims to expose youth to areas of agriculture and illustrates the impact of agriculture on everyday activities using interactive experiences (HLSR, 2011).

In India, the recently initiated "The Young Farmers Association (YFA), Punjab" is involved in promoting and modernizing agriculture. The YFA, has started a programme called the Future Farmers Foundation (FFF) to encourage the youth to take up farming as a viable and lucrative occupation to increase farm income, while maintaining sustainability in agriculture.

The Youth in Agriculture Programme (YIAP) is a Government of Ghana (GOG) agricultural sector initiative with an objective of motivating the youth to accept and appreciate farming/food production as a commercial venture, thereby taking up farming as a life time vocation. The YIAP has the task and responsibility of mobilizing the youth to take up farming and its other related activities as life time vocation. This programme has the following objectives

- Making youth accept farming as a commercial business venture
- Generate appreciable income to meet farmers domestic and personal needs
- Youth will improve their standard of living-through improved income.

- Youth will be motivated to stay in rural areas, as inputs will be delivered at their farm gate, on credit basis and interest free
- Produce enough food crops, meat and fish using modem methods.

In the United States, the *New Entry Sustainable Farming Project* works to strengthen local food systems by supporting new farmers. The farmer training program helps young farmers learn what it takes to run a small farm operation from business planning to specialized advanced workshops in livestock and healthy food.

In Kenya, Uganda, Antigua, and Barbuda, *the Junior Farmer Field and Life Schools* (JFFLS) foster market demand for sustainable food while also providing youth with tools to begin growing their own sustainable food. JFFLS goal is to empower vulnerable youth and provide them with skills needed for long-term food security. The strength of the JFFLS is its unique learning methodology and curriculum, which combines agricultural, life and entrepreneurship skills in an experiential and participatory learning approach uniquely suited to rural communities and low literacy levels.

Express News Service (2013) reported that children of today are far away from the realities that affect their day-to-day life like environmental issues, waste management, transportation and civic issues. To address this very gap, the Green School Programme was launched in schools in Pune

## 2.5 Case studies of ongoing initiatives in India to attract youth towards agriculture.

### 2.5.1 Krishi Vigyan Kendra (KVKs):

Imparting need based vocational training to farmers, farm women & rural youth to change their knowledge, skill & attitude as a result uplift the standard of living, is the main mandate of the KVKs. These KVKs organized 65,314 training programmes under capacity building with the participation of 18.8 lakh farmers/farm-women, rural youth and extension personnel during 2012-13. Besides this, 8,486 skill -oriented training courses(both on-campus and off-campus)were organized exclusively for 1.91rural youth, of which 69,163 (36.1%)were young women. These trainings were organized on various vocations viz.crop production and management, post-harvest technology and value addition, nursery management, livestock, fisheries, income generation activities, capacity building and group dynamics etc.

### 2.5.2 ARYA(Attracting and Retaining Youth in Agriculture):

The Indian Council of Agricultural Research (ICAR) has constituted a seven-member expert committee, to suggest ways of attracting youth to agriculture. The committee is working on issues such as providing training to farm youth on innovative and sustainable agricultural practices to help make agriculture a profitable venture. This would involve a series of activities, including exploring opportunities in secondary agricultural operations such as value addition of crops and hiring, and servicing of mechanized farm implements. This is going to be an important strategy of the ICAR focused on rural youth mobilization for agricultural transformation during 12thplan (ICAR Reporter (October-December-2012))

### 2.5.3 National Rural Livelihood Mission (NRLM):

NRLM aims at creation of opportunities for both wage employment and skill development for the rural youth, who lack skills in many areas of agricultural production and processing. National Skill Development Mission and the National Skill Qualification Frame work are, thus, aggressively pushing the agenda of skill development to build the capacity of rural youth so that they are meaningfully employed in rural areas itself. Thus, need based experiential skill learning supported by public sector banks/organizations in rural areas is the key to strengthen the Rural Self Employment Training Institutes(RSETIs) being set up in all districts under NRLM to assist such youth(Likhi, 2013). NRLM requires suitable decentralized convergence of skill development programs run by multiple central ministries including the National Skill Development Corporation (NSDC).

### 2.5.4 Agricultural Skill Council of India (ASCI):

Considering the need for skilling the work force in agricultural sector, the Agricultural Skills Council of India (ASCI) has been recently proposed by National Skill Development Corporation (NSDC), which could be one ideal institution to train rural youth. The ASCI proposes to train, certify and accredit 56.5million workforce comprising of farmers, wage workers, entrepreneurs and extension workers, over 10 years through its training partners.

### 2.5.5 ASEAN-India Farmers Exchange:

The Ministers of the ASEAN (The Association of South East Nations) concerned over the small number of young farmers' involvement in the agriculture sector, agreed on the importance of promoting innovation and entrepreneurship among young farmers to achieve more sustainable agriculture development in the

region. This initiative is expected to create greater awareness among the young and innovative farmers on the promising career in the agriculture sector. The 1st Exchange Visit was conducted in Malaysia inconjunction with the 2012 ASEAN Farmers' Week and the Malaysian Agriculture, Horticulture and Agro-tourism (MAHA) International in November 2012, followed by the 2nd Exchange Visit conducted in India during December 19-30, 2012, wherein, farmers' delegation from nine ASEAN member states participated.

# MATERIALS AND METHODS

# CHAPTER III
# MATERIALS AND METHODS

A well designed and clearly laid down research methodology is useful because it determines the validity and quality of the study. The methodology provides a description and rationalization of various methods involved in carrying the research. Detailed description of the methods and procedures that are essential for addressing the objectives set forth in this study have been provided in this section as follows:

3.1 Research design of the study

3.2 Locale of study

3.3 Selection of respondents

3.4 Selection and operationalisation of the variables

3.5 Methods of data collection

3.6 Statistical tools used

## 3.1 Research design of the study

According to Kerlinger (1983), a research design is a strategy of investigation conceived so as to obtain answers to the research questions. The research design in this study is exploratory in nature. Exploratory research is defined as the initial research into a hypothetical or theoretical idea. Exploratory research is conducted when the researcher does not know how and why certain phenomenon occurs. Here, the hypothetical solutions or actions are explored and evaluated by the decision-maker.

## 3.2 Locale of study

### Selection of districts

Alappuzha and Thrissur districts of Kerala, which lies respectively in southern and central region of the state were purposively selected for the study so as to get a representative sample of the whole state. From each district, one urban school each with CBSE and state syllabus and one rural school each with CBSE and state syllabus was selected. Thus a total of eight schools were selected.

## 3.3 Selection of respondents

In this study, students of plus one class were selected from each of these schools as respondents. The students of eleventh grade were selected specifically for operational ease, as they will be relatively free to respond to the survey. They are also at the door step of entering into a professional career, and in this stage it was important to know their level of awareness and perception regarding agriculture.

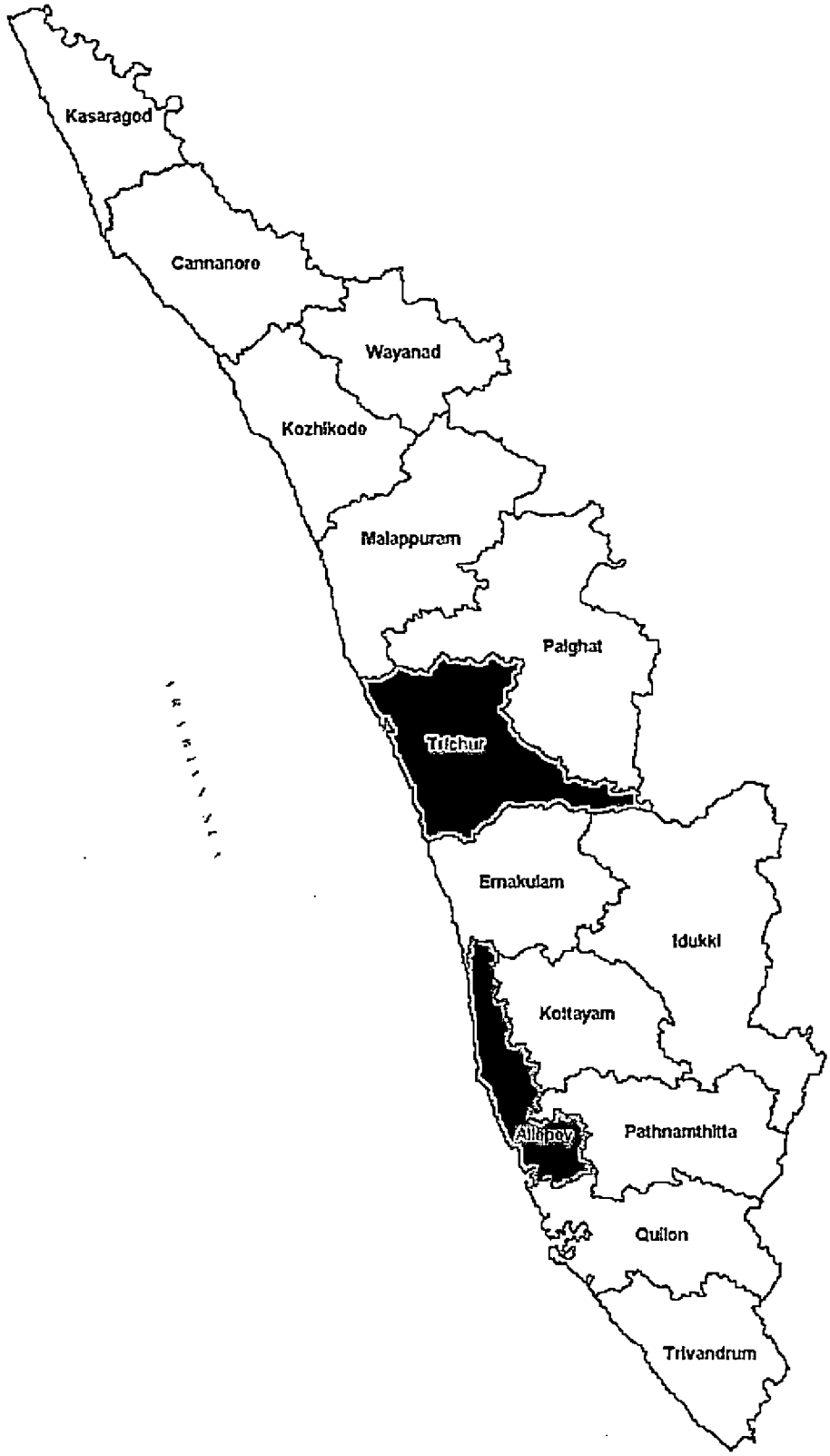
From the selected eight schools, the entire students of one division, randomly selected, formed the respondents. Thus, three hundred and ninety three students were surveyed. In addition, a total of fifty four teachers from all these schools were randomly selected as it is important to know their awareness on agriculture and perception about agriculture as an occupation for prospective youth.

## 3.4 Selection and operationalisation of the variables

### Selection of variables

The awareness of students about the major crops grown in Kerala, the basics of production, processing and plant protection aspects of crops, agri businesses,

# MAP SHOWING LOCALE OF THE STUDY



perception of students about agriculture as an occupation and a business, awareness of teachers about basics of agriculture and perception of teachers about agriculture were studied in detail.

For student respondents, eleven independent variables related to awareness and perception on agriculture and aimed at answering the research objectives were selected subsequent to consultation with experts in the field. In order to measure the dependent variable awareness, hundred statements or questions covering various dimensions *viz.*, awareness on major crops grown in Kerala; crop characteristics, seeds/planting materials and varieties; land preparation and planting; manuring and intercultural operations; pest and disease management; harvesting; processing; nutritional aspects; and agribusiness were prepared. The questions were subsequently given to 40 selected judges including extension scientists and other experts in the field for final relevancy rating. They were requested to rate each question based on the degree of relevancy attached to them with regard to its ability to express concerned domains.

Ratings were given for each statement under each dimension as given below:

**Table 1: Scoring procedure followed in judges rating**

| | **Weightages** |
|---|---|
| Highly relevant | 4 |
| Relevant | 3 |
| Least relevant | 2 |
| Irrelevant | 1 |

The final questions for the questionnaire were selected based on the criterion of mean relevancy score, which was obtained by summing up the weightages obtained by the questions and dividing it by the number of judges responded. Those questions eliciting a score more than the mean was selected for the study.

To measure the awareness of teachers about the basics of agriculture, a questionnaire containing 15 questions comprehensively covering various dimensions were prepared.

To measure the independent variable perception, twenty perception statements were formulated for students and to measure the perception of teachers about agriculture as an occupation for prospective youth, seventeen perception statements were initially selected and relevancy rating was conducted for these statements by giving it to 30 judges for judges rating. Finally, seven statements to measure the perception of students and eight statements to measure the perception of teachers were included in the questionnaire. The students and teachers were asked to examine the perception statements critically and to record their extent of agreement on a four point likert type scale ranging from strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD).

**Table 2: Summary list of variables and their measurement procedure**

| Sl.no | Variables | |
|---|---|---|
| **Independent variables** | | |
| 1. | Gender | Developed for the study |
| 2. | Background | Developed for the study |
| 3. | Nature of land area | Developed for the study |
| 4. | Crops grown | Developed for the study |

| | | |
|---|---|---|
| 5. | Type of dwelling | Pachauri (2004) |
| 6. | Rural contact | Collado *et al.*, (2015) |
| 7. | Purpose of rural contact | Developed for the study |
| 8. | Familiarity with faming | Developed for the study |
| 9. | Participation in extracurricular activities | Developed for the study |
| 10. | Garden in home | Thorp and Townsend (2001) |
| 11. | Income from agriculture | Grant (2002) |
| **Dependent variables** | | |
| 1. | Awareness | Developed for the study |
| 2. | Perception | Developed for the study |

**Measurement of independent variables:**

The operational definition and scoring for the independent variables has been conceptualized as follows :

### 3.4.1 Gender

It is operationalised as whether the respondent is male or female and accordingly they were put into two categories as:

**Table 3: Gender scoring procedure**

| Category | Code |
|---|---|
| Male | 1 |
| Female | 2 |

### 3.4.2 Background

Background denotes the specific place or region to where the person was born or belongs to, or is currently living. It is defined as whether the respondent belonged to rural or urban area and accordingly they were categorised as :

**Table 4: Background scoring procedure**

| Category | Code |
|---|---|
| Rural | 1 |
| Urban | 2 |

### 3.4.3 Nature of landed property

It is operationally defined as the ecological characteristics / natural features of the land area owned by the respondents family, and was categorised as:

**Table 5: Nature of landed property scoring procedure**

| Category | Code |
|---|---|
| Home only | 1 |
| Home + Homestead / Home + wetland / Home + garden land | 2 |
| Home + Homestead + Wet land/ Home + Homestead+ garden land/ Home + wetland + garden land | 3 |
| Home + Homestead + wetland + Garden land | 4 |

### 3.4.4 Crops grown

It is operationally defined as the number and type of crops cultivated by the respondents' family in their homestead/ field. The crops were categorised based on their type as :

**Table 6: Crops grown scoring procedure**

| **Category** |
|---|
| Paddy |
| Coconut |
| Vegetables |
| Banana |
| Other fruit crops |
| Tuber crops |
| Rubber |
| Others if any |

The respondents were asked to indicate the crops cultivated with a tick mark and based on the number of crops grown the score was given- score 0 was given if no crops were being cultivated, a score of 1 was given if only one type of crop was grown (eg., coconut only), score 2 was given if two to four types of crops were grown and score 3 was given if five or more crops were being cultivated .

Thus, based on the number of different types of crops grown, the respondents were again categorized.

**Table 7: Scoring procedure of respondents according to number of crops grown**

| Category | Code |
|---|---|
| No crops grown | 0 |
| Only one crop grown | 1 |
| Two to four crops grown | 2 |
| Five or more crops grown | 3 |

### 3.4.5 Type of dwelling

It is conceptualised as the place of living or the place of residence of the respondents. The categorisation and scoring procedure as followed by Pachauri (2004) was adopted with some modifications as :

**Table 8: Type of dwelling scoring procedure**

| Category | Code |
|---|---|
| Independent own house | 1 |
| Flat | 2 |
| Rented house | 3 |
| Others | 4 |

### 3.4.6 Rural contact

It is defined as the frequency with which the respondents visits rural areas for different purposes.

Müller *et al.*,(2009) reported that youngsters from rural areas and having more contact with such areas are more pro-environmental than those in urban ones. The categorization and scoring procedure as done by Collado *et al.*, (2015) was followed with some modifications as:

**Table 9: Rural contact scoring procedure**

| Category | Code |
|---|---|
| Always | 5 |
| Frequently | 4 |
| Sometimes | 3 |
| Once a year | 2 |
| Rarely | 1 |

### 3.4.7 Purpose of rural contact

Purpose of rural contact is operationalised as the intention or reason or objective of visiting the rural area and was categorised as:

**Table 10: Purpose of rural contact scoring procedure**

| Category | Code |
|---|---|
| Home/native place | 1 |
| Ancestral home | 2 |
| To visit relatives/ friends | 3 |
| Visit for recreation | 4 |
| Others | 5 |

### 3.4.8 Familiarity with farming

It is defined as the frequency with which the respondent takes part in activities related to farming/gardening and the extent of the respondent's acquaintance with or knowledge of agriculture. The categorization was done accordingly as:

**Table 11: Familiarity with farming scoring procedure**

| Category | Code |
|---|---|
| Frequently | 3 |
| Sometimes | 2 |
| Rarely | 1 |

### 3.4.9 Participation in extracurricular activities

Extracurricular activities is defined as those activities that fall outside the realm of the normal curriculum of school or university education, performed by students. Participation in extracurricular activities denotes the extent to which the respondent gets involved in extra activities outside the school curriculum but which imparts knowledge and skill. The extracurricular activities were categorised accordingly as :

**Table 12: Participation in extracurricular activities scoring procedure**

| Category |
|---|
| NCC ( National Cadet Corps) |
| NSS ( National Service Scheme) |
| Social Club |
| Agricultural Club |
| Eco-club/nature club |

| |
|---|
| Science club |
| Debate |
| Music/dance |
| Others if any |

The respondents were asked to indicate whichever extracurricular activities they used to participate in and based on the number of such activities the score was given. A score of zero was given if they were not participating in any extracurricular activity, score 1 was given if they were actively participating in one activity (eg., debate only), score 2 was given if they were involved in two or more extracurricular activities. Accordingly, the respondents were categorised as:

**Table 13: Scoring procedure of respondents according to number of extracurricular activities**

| Category | Code |
|---|---|
| No participation in extracurricular activities | 0 |
| One extracurricular activity | 1 |
| Two or more extracurricular activities | 2 |

### 3.4.10 Garden in home

It is operationalised as the nature and number of different types of gardens grown in the respondents' home or living area.

Thorp and Townsend (2001) reported that gardening experience allow children to have "close, personal experiences with the earth". It also helps the children in

learning how to grow food, how to harvest it, how to preserve it and how to prepare it, and to do so with due respect for the environment.

Accordingly, categorisation and scoring was done as follows :

**Table 14: Garden in home scoring procedure**

| Category |
|---|
| Ornamental garden |
| Kitchen garden |
| Nutritional garden |
| Indoor garden |
| Terrace garden |
| Others if any |

The students were asked to specify the gardens grown in their home and accordingly, based on the number of different types of garden, the scoring was done. Accordingly, the respondents were classified again as:

**Table 15: Scoring procedure of respondents according to number of garden types in home**

| Category | Code |
|---|---|
| No garden at home | 1 |
| Ornamental/ kitchen/ indoor/ medicinal garden | 2 |
| Any of the above two types of garden | 3 |
| Three or more types of garden | 4 |

### 3.4.11 Monthly income from agriculture

It is operationalised as the earning of the respondents family from different agricultural sources including agriculture, animal husbandry, fisheries, poultry, apiary, mushroom food processing and other allied sectors, in a particular month to support the households basic needs.

The scoring procedure as used by Grant (2002) was adopted with certain modifications as:

**Table 16: Monthly income scoring procedure**

| Sl. No. | Monthly income from agriculture (Rs) | Code |
|---|---|---|
| 1. | Less than 5000 | 1 |
| 2. | Between 5000 and 10000 | 2 |
| 3. | Between 10000 and 25000 | 3 |
| 4. | Above 25000 | 4 |

For respondents who do not have any agricultural sources of income, a code of zero was given while preparing the master table.

### Measurement of dependent variable

There are two dependent variables included in the study *viz.*, awareness and perception of respondents regarding agriculture.

### 3.4.12 Awareness on agriculture

Awareness on agriculture is conceptualised an understanding of the basic concepts and knowledge of the respondents regarding the complex food and fiber systems involved in farming.

Knobloch,(1997) defined agricultural awareness as "experiencing or exploring agriculture as it relates to the subject matter being studied or context of life being lived; the ability to identify the connections of agriculture to areas of study or life".

According to Balschweid *et al.,* (1997) awareness on agriculture encompasses knowledge on a wide array of topics including production of plant and animal products, the economic impact of agriculture, its societal significance, agriculture's important relationship with natural resources and the environment, the marketing and processing of agricultural products, public agricultural policies, the global significance of agriculture, and the distribution of agricultural products.

To test the awareness of students on agriculture, 50 questions including open – ended questions, yes/no questions and multiple choice questions were included in the questionnaire. These questions were formulated with a view to assess the awareness of respondents on various aspects of agriculture including basic awareness on crops, awareness about the basics of production, processing and plant protection aspects of crops and agribusiness. To test the awareness of teachers on agriculture, 15 questions including multiple choice, open – ended and yes/no questions were used.

### 3.4.13 Perception on agriculture

This is operationally defined as the way and manner in which agriculture is regarded, understood and interpreted by the respondent.

According to Bhatia (1965), perception is a response to stimuli and interpreting the sensory input. The major processes are those of hearing, seeing, amelling and the like. Theodorson and Theodorson (1970) defined perception as the selection, organization and interpretation by an individual of specific stimuli in a situation according to prior learning activities, interests and experiences.

Perception of student respondents involved in the study was measured using a likert type scale that consists of seven statements. The extent of agreement or disagreement was recorded as strongly agree (SA), agree (A), Disagree (D) and strongly Disagree (SD).

Thompson and Russell (1993) reported that the decisions of individuals to select agriculture as a field of study or to become actively engaged in an agricultural career may be predicted by examining their perceptions about agriculture .

In this study, an arbitrary scale to measure the perception of student respondents was formulated and employed as follows :

**Table 17: Scale to measure perception of students on agriculture**

| Sl.no | Statements | Options |
|---|---|---|
| 1 | Agriculture is a decent job in the society | SA / A / D / SD |
| 2 | Farmer is a respectable person in the society as he provides food for others | SA / A / D / SD |
| 3 | Farming occupation is meant for less privileged in the society | SA / A / D / SD |

| | | |
|---|---|---|
| 4 | It is better for educated youth to engage in service/ industrial sector than earning a living through agriculture or agri based enterprises | SA / A / D / SD |
| 5 | Agri business enterprise is a promising area for youth with an aptitude towards agriculture | SA / A / D / SD |
| 6 | Agriculture as an occupation is a good option for rural youth only | SA / A / D / SD |
| 7 | The farmers must concentrate more on remunerative crops like rubber than cultivating paddy or coconut | SA / A / D / SD |

*SA- Strongly Agree, A-Agree, D-Disagree, SD- Strongly Disagree

The respondents were asked to state their extent of agreement or disagreement for each of statement and a score of one to four was given for strongly agree, agree, disagree and strongly disagree respectively. In the case of negative statement, the scoring was reversed. Scores for each of the respondent was obtained by summation of scores for all six statements. Score ranges from seven to twenty eight.

To assess the perception of teachers about agriculture as a promising enterprise for prospective youth, teachers at secondary and senior secondary school level was surveyed. The arbitrary scale consisting of eight statements employed to assess the perception of teachers is as given:

**Table 18: Scale to measure perception of teachers on agriculture**

| Sl. No | Statements | Options |
|---|---|---|
| 1 | Agriculture is not remunerative enough for recommending as an occupation for today's youth | SA / A / D / SD |

| | | |
|---|---|---|
| 2 | Agri based enterprises are highly risk oriented and have unpredictable prospects | SA / A / D / SD |
| 3 | Youth should explore the immense possibilities offered by agri business | SA / A / D / SD |
| 4 | More and more youth should come to agriculture and agri related enterprises | SA / A / D / SD |
| 5 | Agriculture as an occupation is not a good option for today's educated urban youth | SA / A / D / SD |
| 6 | Agriculture as an occupation is not a good option for educated rural youth | SA / A / D / SD |
| 7 | Agri based enterprises should be taken up as a subsidiary occupation by every one possible | SA / A / D / SD |
| 8 | It will be good if an agri based experiential learning module is incorporated in the school curriculum | SA / A / D / SD |

*SA- Strongly Agree, A-Agree, D-Disagree, SD- Strongly Disagree

### 3.5 Methods of data collection

The data was collected using a well structured and pre-tested questionnaire prepared for the study. A draft questionnaire was prepared and pre-tested by conducting a pilot study in non sample area and this helped to make appropriate changes in the final questionnaire which is to be distributed among the respondents involved in the study. The data was collected within a span of three months from December 2014 to February 2015.

### 3.6 Statistical tools used in the study

The collected data was scored, tabulated and analysed using Statistical Package for Social Sciences (SPSS version 16). The statistical tests used for analysis and interpretation of data included :

1. Descriptive statistics such as frequency and percentages
2. ANOVA (Analysis Of Variance)
3. Kruskal- Wallis test
4. Simple correlation
5. Canonical correlation
6. Step wise regression
7. Principal component analysis

#### 3.6.1 Descriptive statistics

Simple percentage and frequencies were worked out to find out the distribution of students according to different variables. The results of independent variables selected for the study were interpreted using this analysis.

Classification of sample population into different categories of awareness was calculated as follows.

| Values | Range(scores) | Category |
|---|---|---|
| ≥ mean | ( ≥ mean + standard deviation ) | High |
| Between | ( ≥ mean + standard deviation ) + (≤ mean-standard deviation ) | Medium |
| ≤ mean | ( ≤ mean - standard deviation ) | Low |

### 3.6.2 ANOVA( Analysis of Variance)

Analysis of variance was done to assess how the respondents from the eight different schools included in the survey differed in terms of their awareness levels on different components of agriculture. This was done by comparing the mean values. It will assist to study the pattern of variation in awareness levels between respondents from different school background and syllabus.

### 3.6.3 Kruskal- Wallis test

The Kruskal-Wallis test which is a nonparametric test was used to determine if there are statistically significant differences between the awareness level of respondent groups of teachers from the different schools included in the study.

### 3.6.4 Simple correlation

Simple correlation was used to assess the strength and direction of relationship between the set of independent variables with the two dependent variables awareness and perception.

### 3.6.5 Canonical correlation

A canonical correlation analysis was done between the dependent variables awareness and perception and the independent variables. This was done to assess the percent of variance in each original dependent variable as explained by the canonical independent variables.

### 3.6.6 Step wise regression

Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the t-statistics of their estimated coefficients. This was done to evaluate which are the independent variables necessary to predict the awareness and perception of students regarding agriculture.

### 3.6.7 Principal component Analysis

Principal components analysis (PCA) is a variable-reduction technique used to reduce a larger set of variables into a smaller set of 'articifial' variables, called 'principal components', which account for most of the variance in the original variables. It uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components.

# RESULTS

# CHAPTER IV
# RESULTS

This chapter highlights the results of the study as per the prescribed methodology. The results have been presented in a way to directly address the objectives of the study as follows:

**4.1** Analysing the levels of awareness among higher secondary students about components of agriculture.

**4.2** Assessing the perception of students and teachers on agriculture.

**4.3** Identifying the factors governing the perception of students on agriculture.

**4.4** Examining existing interventions and arriving at recommendations for future.

## 4.1 Analysing the levels of awareness among higher secondary students about components of agriculture.

The first objective of the study was to assess the awareness of higher secondary school students on different components of agriculture which include the major crops grown in Kerala, planting material, land preparation, fertilizer application, pest and disease management, harvesting, processing and food security.

### 4.1.1 Awareness of students on major crops grown in Kerala

This was measured using a questionnaire having fifteen questions. The respondents were classified into categories having high, medium and low awareness on basic crops grown in Kerala based on mean and standard deviation value.

**Table 19: Distribution of respondents based on awareness on major crops grown in Kerala (N=393)**

| Sl. No. | Category | Range(score) | Frequency | Percentage |
|---|---|---|---|---|
| 1 | Low awareness | ≤ 18.74 | 79 | 20.10 |
| 2 | Medium awareness | 18.75 - 31.88 | 245 | 62.34 |
| 3 | High awareness | ≥ 31.89 | 69 | 17.56 |
| **Total** | | | **393** | **100** |

It was observed that out of the total respondents, 62.34 per cent had medium awareness about the basics of major crops grown in Kerala. Nearly 20 per cent of the respondents had low awareness, whereas 17.5 per cent recorded high awareness on crops grown in the state. When the respondents were asked whether they had seen some of the commonly grown crops in Kerala like tamarind, cocoa, betel wine, poovan banana, karpooram mango, nutmeg etc., more than 50 per cent of the respondents admitted that they had never come across majority of these crops. This is a clear indication of the gap in knowledge on the significance of agriculture among the school children, which might also explain the decreasing interest of the youth in Kerala towards agriculture as a career.

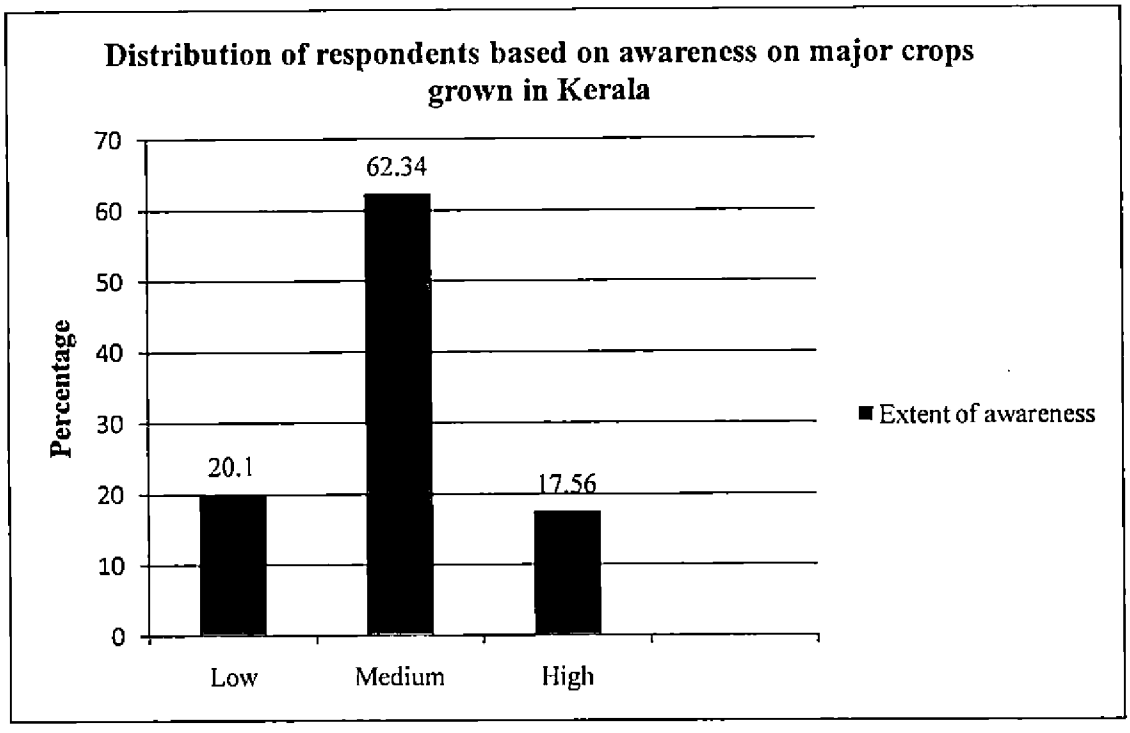



**Fig 4.1. Graph showing distribution of respondents based on awareness on major crops grown in Kerala**

Based on the location of the school and the syllabus of the academic curriculum, the awareness level of student respondents on the crops commonly grown in Kerala was analysed separately as given in table 20.

**Table 20: Classification of school students based on location and syllabus scheme**

| Sl. No. | Category | Range(score) | Frequency | Percentage |
|---|---|---|---|---|
| **Students in state syllabus – Rural** | | | | |
| 1 | Low awareness | ≤ 18.74 | 0 | 0 |
| 2 | Medium awareness | 18.75 - 31.88 | 27 | 28.13 |
| 3 | High awareness | ≥ 31.89 | 69 | 71.87 |
| | **Total** | | **96** | **100** |

| | | | | |
|---|---|---|---|---|
| **Students in state syllabus – Urban** | | | | |
| 1 | Low awareness | ≤ 18.74 | 6 | 5.77 |
| 2 | Medium awareness | 18.75 - 31.88 | 98 | 94.23 |
| 3 | High awareness | ≥ 31.89 | 0 | 0 |
| | **Total** | | **104** | **100** |
| **Students in CBSE syllabus – Rural** | | | | |
| 1 | Low awareness | ≤ 18.74 | 10 | 10.20 |
| 2 | Medium awareness | 18.75 - 31.88 | 87 | 88.78 |
| 3 | High awareness | ≥ 31.89 | 1 | 1.02 |
| | **Total** | | **98** | **100** |
| **Students in CBSE syllabus – Urban** | | | | |
| 1 | Low awareness | ≤ 18.74 | 63 | 66.32 |
| 2 | Medium awareness | 18.75 - 31.88 | 32 | 33.68 |
| 3 | High awareness | ≥ 31.89 | 0 | 0 |
| | **Total** | | **95** | **100** |

It was found that there exists huge variation in the awareness level of students from rural and urban background and also between students from state and CBSE syllabus. Regarding the crops grown in Kerala, 71.87 per cent of the students under state syllabus in rural areas exhibited high level of awareness whereas nearly 28 per cent had medium awareness. It was also noted that while 94.23 per cent of the students under state syllabus from urban areas exhibited medium awareness, none of the sampled respondents exhibited high awareness level. Only 1.02 per cent of the students from rural CBSE school exhibited high awareness on crops commonly grown in our state, while a majority amounting to 66.32 per cent of the urban CBSE school students were found to have low awareness regarding the crops grown in Kerala.

Of the fifteen questions intending to assess the awareness of students on crops grown in Kerala, eight were of dichotomous type, and analysis of the students' response to these questions is done below (Table 21):

**Table 21: Awareness of students on major crops grown in Kerala (N=393)**

| Sl. No | Questions/ statements | Frequency of response (in per cent) | |
|---|---|---|---|
| | | Yes | No |
| 1. | Have you seen paddy so far? | 96.18 | **3.82** |
| 2. | Have you ever heard / came across the two types of jackfruit- varikka and koozha? | 29.51 | 70.49 |
| 3. | Is cashew apple the real fruit of cashew? | **70.99** | 29.01 |
| 4. | Do you know about any rice growing seasons in Kerala? | 2.04 | **97.96** |
| 5. | Do you know about any non pungent chilli variety? | 49.36 | 50.64 |
| 6. | Could cabbage and cauliflower be grown in every season in Kerala? | 63.87 | 36.13 |
| 7. | Is yam a sturdy and upright growing plant? | 36.90 | **63.1** |
| 8. | Do you know which are the monsoon seasons beneficial to agriculture in Kerala? | 19.85 | **80.15** |

It was found that about 3.82 per cent of the students sampled haven't seen paddy in real so far, whereas close to 98 per cent of the respondents expressed their lack of knowledge about rice growing seasons in Kerala. It was also noted that 36.90 per cent of the students believed that yam, a crop commonly grown in our homesteads, was a sturdy and upright growing plant. Over 80 per cent of the

respondents were found to be unaware of the monsoons beneficial to our agriculture. These results reiterate earlier observations on the frequency of distribution of respondents across different categories based on their scores on awareness. The younger generation seems to be disconnected from agriculture, and this is a matter of great concern as far as development of agriculture as a prospective career is concerned.

Further, an attempt was done to compare the awareness level of students by employing ANOVA (Table 22)

**Table 22: Comparison of awareness of students undergoing different syllabi in rural and urban locations**

| | RSD1* | USD1 | RCD1 | UCD1 | RSD2 | USD2 | RCD2 | UCD2 | Mean value |
|---|---|---|---|---|---|---|---|---|---|
| **Crops grown in Kerala** | 2.26 | 1.57 | 1.64 | 1.21 | 0.27 | 1.81 | 1.55 | 1.20 | **1.69** |
| **Planting material** | 0.76 | 0.53 | 0.45 | 0.30 | 0.75 | 0.43 | 0.49 | 0.38 | **0.52** |
| **Land Preparation** | 0.70 | 0.53 | 0.48 | 0.30 | 0.70 | 0.50 | 0.50 | 0.32 | **0.51** |
| **Fertiliser application** | 0.68 | 0.48 | 0.51 | 0.30 | 0.67 | 0.46 | 0.49 | 0.32 | **0.49** |
| **Pest and disease management** | 0.83 | 0.20 | 0.64 | 0.45 | 0.83 | 0.64 | 0.69 | 0.48 | **0.66** |
| **Harvesting** | 0.60 | 0.30 | 0.26 | 0.23 | 0.58 | 0.29 | 0.31 | 0.28 | **0.35** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Processing** | 0.74 | 0.62 | 0.48 | 0.44 | 0.73 | 0.46 | 0.60 | 0.41 | **0.56** |
| **Food Security** | 0.41 | 0.42 | 0.22 | 0.41 | 0.44 | 0.23 | 0.45 | 0.21 | **0.35** |
| **Mean value** | **0.87** | **0.65** | **0.58** | **0.47** | **0.87** | **0.60** | **0. 64** | 0.45 | |

[ **Note** : ***RSD1**- Rural State Syllabus School of District 1, **RSD2**- Rural State Syllabus School of District 2, **USD1**- Urban State Syllabus School of District 1, **USD2**- Urban State Syllabus School of District 2, **RCD1**- Rural CBSE Syllabus School of District 1, **RCD2**- Rural CBSE Syllabus School of District 2, **UCD1**- Urban CBSE Syllabus School of District 1, **UCD2**- Urban CBSE Syllabus School of District 2

*District 1- Alappuzha, District 2- Thrissur ]

Comparing the means of the eight sampled schools and their awareness on different components of agriculture using ANOVA, it was found that generally, the students exhibited the highest degree of awareness on the major crops grown in Kerala, with a mean value of 1.69. It was also noted that significant variation exist among the respondents from different schools with regard to their awareness on agriculture. Students of state school in rural area of Thrissur district exhibited highest degree of awareness on the major crops grown in Kerala, with a value of 2.27 closely followed by students of state syllabus from rural school of Alappuzha district with a value of 2.26. Students of urban CBSE schools of Thrissur and Alappuzha districts showed lowest awareness on crops grown with a value of 1.20 and 1.21 respectively.

### 4.1.2 Awareness of students on the basics of production, processing and plant protection aspects of crops.

It is evident from Table 22 that the sampled students exhibited high awareness on the major crops grown in Kerala followed by awareness on the crop pests and diseases with a mean value of 1.69 and 0.66 respectively. They were also found to have higher awareness regarding the value addition of crops, whereas the mean

values for awareness on components like planting material, land preparation and fertilizer application were found to be 0.52, 0.51, and 0.49 respectively. Lower awareness was recorded on harvesting aspect of crop and food security

It was found that the awareness level of students varied from school to school. Students from the rural school of Alappuzha district under state syllabus recorded highest scores on awareness on components of agriculture, closely followed by rural students in state syllabus from Thrissur district. The awareness levels of respondents from urban schools under state syllabus schools and rural schools under CBSE syllabus of both the districts were found to be close to each other with the means ranging from 0.584 to 0.645. It is also worthwhile to note that the lowest awareness level was recorded for students from urban CBSE schools of Thrissur and Alappuzha districts with a mean value of awareness 0.449 and 0.470 respectively.

**Table 23: Percentage distribution of respondents according to awareness on basics of production, processing and plant protection aspects of crops grown**

| **1. Awareness on planting material** | | | | |
|---|---|---|---|---|
| Sl. No. | School background | Low awareness (<1.37) | Medium awareness (1.38 - 3.80) | High Awareness (>3.80 ) |
| 1 | Rural state school of Alappuzha | 6.7 | 31.1 | 62.2 |
| 2 | Urban state school of Alappuzha | 16 | 60 | 24 |
| 3 | Rural CBSE school of Alappuzha | 22 | 58 | 20 |
| 4 | Urban CBSE school of Alappuzha | 36 | 60 | 4 |
| 5 | Rural state school of Thrissur | 0 | 35.3 | 64.7 |
| 6 | Urban state school of Thrissur | 25.9 | 63 | 11.1 |
| 7 | Rural CBSE school of Thrissur | 25 | 64.6 | 10.4 |
| 8 | Urban CBSE school of Thrissur | 11.1 | 84.5 | 4.4 |

| **2. Awareness on land preparation** | | | | |
|---|---|---|---|---|
| Sl. No. | School background | Low awareness (<1.37) | Medium awareness ( 1.37-3.80 ) | High awareness ( >3.80 ) |
| 1 | Rural state school of Alappuzha | 2.2 | 51.1 | 46.7 |
| 2 | Urban state school of Alappuzha | 14 | 70 | 16 |
| 3 | Rural CBSE school of Alappuzha | 18 | 70 | 12 |
| 4 | Urban CBSE school of Alappuzha | 42 | 52 | 6 |
| 5 | Rural state school of Thrissur | 3.9 | 47.1 | **49** |
| 6 | Urban state school of Thrissur | 18.5 | 63 | 18.5 |
| 7 | Rural CBSE school of Thrissur | 18.8 | 68 .7 | 12.5 |
| 8 | Urban CBSE school of Thrissur | **46.7** | 51.1 | 2.2 |
| **3. Awareness on fertilizer application** | | | | |
| Sl. No. | School background | Low awareness ( < 1.28) | Medium awareness ( 1.28-3.50 ) | High awareness ( > 3.50) |
| 1 | Rural state school of Alappuzha | 0 | 46.7 | **53.3** |
| 2 | Urban state school of Alappuzha | 24 | 62 | 14 |
| 3 | Rural CBSE school of Alappuzha | 24 | 58 | 18 |
| 4 | Urban CBSE school of Alappuzha | **60** | 38 | 2 |
| 5 | Rural state school of Thrissur | 3.0 | 64.7 | 31.4 |
| 6 | Urban state school of Thrissur | 22.2 | 72.2 | 5.6 |
| 7 | Rural CBSE school of Thrissur | 14.6 | 72.9 | 12.5 |
| 8 | Urban CBSE school of Thrissur | 60 | 35.6 | 4.4 |

**4. Awareness on pest and disease management**

| Sl. No. | School background | Low awareness ( < 2.20) | Medium awareness (2.20- 4.50) | High awareness ( > 4.50 ) |
|---|---|---|---|---|
| 1 | Rural state school of Alappuzha | 4.4 | 66.7 | 28.9 |
| 2 | Urban state school of Alappuzha | 14 | 68 | 18 |
| 3 | Rural CBSE school of Alappuzha | 18 | 6 | 14 |
| 4 | Urban CBSE school of Alappuzha | **54** | 46 | 0 |
| 5 | Rural state school of Thrissur | 0 | 68.6 | **31.4** |
| 6 | Urban state school of Thrissur | 16.7 | 75.9 | 7.4 |
| 7 | Rural CBSE school of Thrissur | 20.8 | 72.9 | 6.3 |
| 8 | Urban CBSE school of Thrissur | 44.4 | 46.7 | 8.9 |

**5. Awareness on harvesting**

| Sl. No. | School background | Low awareness ( < 0.64) | Medium awareness (0.64– 2.90) | High awareness ( >2.90 ) |
|---|---|---|---|---|
| 1 | Rural state school of Alappuzha | 0 | 26.7 | **73.3** |
| 2 | Urban state school of Alappuzha | 18 | 68 | 14 |
| 3 | Rural CBSE school of Alappuzha | **20** | 62 | 18 |
| 4 | Urban CBSE school of Alappuzha | 18 | 78 | 4 |
| 5 | Rural state school of Thrissur | 0 | 37.3 | 62.7 |
| 6 | Urban state school of Thrissur | 18.5 | 66.7 | 14.8 |
| 7 | Rural CBSE school of Thrissur | 18.8 | 75 | 6.2 |
| 8 | Urban CBSE school of Thrissur | 15.5 | 75.6 | 8.9 |

| **6. Awareness on processing** | | | | |
|---|---|---|---|---|
| Sl. No. | School background | Low awareness ( < 1.5) | Medium awareness ( 1.5 – 4 ) | High awareness (>4) |
| 1 | Rural state school of Alappuzha | 0 | **84.4** | 15.6 |
| 2 | Urban state school of Alappuzha | 4 | **84** | 12 |
| 3 | Rural CBSE school of Alappuzha | 8 | **84** | 8 |
| 4 | Urban CBSE school of Alappuzha | 24 | 74 | 2 |
| 5 | Rural state school of Thrissur | 5.9 | 76.5 | 17.6 |
| 6 | Urban state school of Thrissur | 24.1 | 70.4 | 5.5 |
| 7 | Rural CBSE school of Thrissur | 25 | 70.8 | 4.2 |
| 8 | Urban CBSE school of Thrissur | **28.9** | 71.1 | 0 |
| **7. Awareness on food security** | | | | |
| Sl. No. | School background | Low awareness ( < 0.5) | Medium awareness (0.5 – 1.9) | High awareness ( >1.9 ) |
| 1 | Rural state school of Alappuzha | 13.4 | 53.3 | 33.3 |
| 2 | Urban state school of Alappuzha | 12 | 50 | 38 |
| 3 | Rural CBSE school of Alappuzha | 14 | 38 | **48** |
| 4 | Urban CBSE school of Alappuzha | **24** | 30 | **46** |
| 5 | Rural state school of Thrissur | 7.8 | 54.9 | 37.3 |
| 6 | Urban state school of Thrissur | **24.1** | 38.9 | 37 |
| 7 | Rural CBSE school of Thrissur | 20.8 | 47.9 | 31.3 |
| 8 | Urban CBSE school of Thrissur | 22.2 | 48.9 | 28.9 |

It is evident from the above table that the highest awareness level on various components of agriculture is exhibited by the students of rural schools under state syllabus. With regard to awareness on planting material of crops grown in Kerala,

rural students under state syllabus from Thrissur district have more awareness, compared to students from other schools. About 36 per cent of the students sampled from urban CBSE school of Alappuzha district falls into the category of low awareness on planting material.

Nearly half of the rural students under state syllabus of Thrissur district was found to possess high awareness on land preparation in agriculture, but generally speaking, majority of the total students sampled for the study from all the schools showed medium awareness. However, 42 per cent of the students from urban CBSE schools of Alappuzha district exhibited low awareness on this component.

On analysing the awareness of on fertilizer application, it was found that over 50 per cent of the students sampled from rural state school under state syllabus of Alappuzha district had high awareness, whereas the lowest awareness level was reported from the students of urban CBSE school of the same district (60 per cent).The awareness level with regard to pest and disease management was found to be medium for majority of the sampled respondents. The highest awareness level in this component was exhibited by the rural students under state syllabus of Thrissur district which comes to around 31 per cent, whereas 54 percentage of the sampled population from urban CBSE school of Alappuzha district exhibited low awareness.

Analysis of awareness on harvesting aspect showed that while three – fourth of the students from rural school under state syllabus of Alappuzha district had high awareness, the maximum number of respondents possessing low awareness in this regard was found to be from rural school under CBSE syllabus of the same district (20 per cent). Regarding the processing component of agriculture majority of the sampled respondents fell into the category of medium awareness, while the respondents having low awareness on harvesting was found to be more in urban CBSE school of Thrissur district, as much as 30 per cent of the students failed to

secure good score on awareness level in this school. While considering the component food security, it was found that close to half of the sampled students from rural CBSE school and urban CBSE school of Alappuzha district scored the highest awareness level in this regard.

### 4.1.3 Awareness of students on agribusiness

Responses to questions on agribusiness and agribusiness ventures in Kerala showed that though 87 respondents accounting to 22.14 per cent of the sampled population replied that they had heard about the term 'agribusiness', they did not have even the slightest idea of what it meant. For the rest of the students, the term 'agribusiness' was a new one. It was also noted that only 9.9 per cent of the 393 children included in the study could correctly explained the term agribusiness and listed out some of the agribusiness ventures.

### 4.1.4 Awareness of teachers on basics of agriculture

The teachers were classified into categories having high medium and low awareness based on the mean and standard deviation value as follows:

**Table 24: Distribution of sample population of teachers according to awareness about basics of agriculture (N=64)**

| Sl.No | Category | Range(Score) | Frequency | Percent |
|---|---|---|---|---|
| 1 | Low awareness | ≤5.97 | 4 | 6.25 |
| 2 | Medium awareness | 5.97-8.15 | 55 | 85.94 |
| 3 | High Awareness | ≥8.16 | 5 | 7.81 |
| | **Total** | | **64** | **100** |

Table 24 shows that majority of the teachers had medium awareness with regard to the basics of agriculture, that accounts to about 85.9 per cent, whereas 7.8 per cent of the sample respondents was found to have high awareness and about 6.25 per cent was found to exhibit medium awareness in this regard.

The awareness of teachers on the basics of agriculture was assessed using questionnaire consisting of 12 questions, the responses of which are given below in Table 25.

**Table 25: Awareness of teachers on basics of agriculture - a percentage analysis (N = 64)**

| Sl.No | Questions/ statements | Frequency of response (in per cent) | |
|---|---|---|---|
| | | Correct answer | Wrong answer |
| 1. | Which are the monsoon seasons beneficial to agriculture in Kerala? | 43.8 | **56.2** |
| 2. | Is cashew apple the actual fruit of cashew? | 75 | 25 |
| 3. | Can you state the rice growing seasons in Kerala? | 37.5 | **62.5** |
| 4. | Could paddy be grown in uplands too? | 96.9 | 3.1 |
| 5. | Is it true that cowpea could be grown in any season? | 45.3 | **54.7** |
| 6. | Is it necessary to manure coconut palms every summer? | 42.2 | **57.8** |
| 7. | Do you think spiders are the enemy of rice seedlings? | 60.9 | 39.1 |
| 8. | Is it true that the duration between two successive | 45.3 | **54.7** |

| | | | |
|---|---|---|---|
| | harvesting of nuts from coconut palm is 60 days? | | |
| 9. | Can we harvest elephant foot yam after 6 months of planting? | 81.2 | 18.8 |
| 10. | Is maida obtained from maize? | 81.2 | 18.8 |
| 11. | Is it from the tender nuts of coconut that we could obtain toddy? | 76.6 | 23.4 |
| 12. | From where sago is made? | 20.3 | **79.7** |

Table 25 provides the results of analysis of the responses given by teachers to various questions provided in the questionnaire. It was found that, over half of the sampled population of teachers didn't know about the monsoon seasons beneficial to Kerala's agriculture, whereas 62.5 per cent of them expressed their inability to correctly state the rice growing seasons in Kerala. Another important aspect to be noted out of this analysis was that close to 55 per cent of the teachers sampled did not have any idea regarding the manuring and harvesting aspects of coconut, the tree after which our state is famous.

In order to determine whether there are any statistically significant differences in the awareness level of teachers from the different schools included in the study, a Kruskal Wallis test was done and the results are presented in Table 26.

**Table 26: Awareness level of respondent group of teachers from different schools**

| Sl. No | School group | Mean rank |
|---|---|---|
| 1 | Rural state school | 50.53 |
| 2 | Urban state school | 22.84 |
| 3 | Rural CBSE school | 36.28 |
| 4 | Urban CBSE school | 20.34 |

*$\chi^2(2) = 28.861, p = 0.0001$

The table above shows how the awareness level of teachers varied according to background and syllabus. The Kruskal-Wallis test showed that there was a statistically significant difference in the awareness level of teachers from different schools, as evident from mean rank score of 50.53 for rural school under state syllabus, 22.84 for urban school under state syllabus, 36.28 for rural school under CBSE syllabus and 20.34 for urban school under CBSE syllabus.

## 4.2 Assessing the perception of students and teachers on agriculture

Perception statements intending to assess the perception of students and teachers on agriculture were developed and a four point likert type scale was used to obtain the responses.

### 4.2.1 Perception of students about agriculture as an occupation and a business

The perception of students on agriculture was studied using a questionnaire consisting of seven statements, and an analysis of the perception of students was done as given in Table 27.

**Table 27: Perception of students about agriculture – distribution of responses (in percentage)**

| Sl. No | Perception statements | SA | A | DA | SDA |
|---|---|---|---|---|---|
| 1. | Agriculture is a decent job in the society | 49.1 | 48.6 | 2.3 | - |
| 2. | Farmer is a respectable person in the society as he provides food for others | 57.3 | 36.1 | 6.6 | - |
| 3. | Farming occupation is meant for less privileged in the society | **5.3** | **31** | 46.3 | 17.3 |
| 4. | It is better for educated youth to engage in service/ industrial sector than earning a living through agriculture or agri based enterprises | **11.2** | **32.8** | 45.5 | 10.4 |
| 5. | Agri business enterprise is a promising area for youth with an aptitude towards agriculture | 47.1 | 43.8 | 8.4 | 0.8 |
| 6. | Agriculture as an occupation is a good option for rural youth only | 5.1 | **42.5** | 40.5 | 12 |
| 7. | The farmers must concentrate more on remunerative crops like rubber than cultivating paddy or coconut | **17** | **35.1** | 37.4 | 10.4 |

Table above provides the results of perception of students on agriculture as an occupation and a business. It reveals that majority of budding generation still considers agriculture as a decent job in the society that confers respect to the persons involving in this activity. 57.3 per cent of the respondents strongly agreed that farmer is a respectable person in the society as he provides food for others. 36 per cent

agreed to this statement and a miniscale proportion (6.6 per cent) disagreed with the statement.

A negative perception that farming occupation is meant for less privileged sectors in the society was found in close to 36 per cent of the sampled respondents. It was also noted that a major section of our students had a negative opinion regarding educated youth engaging in agriculture sector. While 32.8 per cent agreed to the statement that it is better for educated youth to engage in service/industrial sector than earning a living through agriculture, 11.2 per cent strongly agreed to it. However, close to 50 per cent of the students were found to think about agriculture as a good occupational option for only the rural youth.

The table also reveals the perception of students on agribusiness enterprise. Close to 90 per cent of the respondents strongly agreed/ agreed about agribusiness enterprise as a promising area for youth with an aptitude towards agriculture. Another important perception of students regarding agriculture is that today's children are more interested in the commercial value of the crops produced. While 17 per cent of the students strongly agreed that farmers must concentrate more on remunerative crops like rubber than cultivating paddy or coconut, 35.1 per cent agreed to it.

### 4.2.2 Perception of teachers about agriculture as an occupation for prospective youth

It was important to assess how teachers perceived agriculture as an occupation for today's educated youth, and thus the perception rating of teachers was analysed using a questionnaire consisting of eight statements, and a percentage analysis was done as presented in Table 28.

**Table 28: Perception of teachers about agriculture - distribution of responses (in percentage)**

| Sl. No. | Statements | SA | A | DA | SDA |
|---|---|---|---|---|---|
| 1 | Agriculture is not remunerative enough for recommending as an occupation for today's youth | - | 6.2 | 42.2 | 51.6 |
| 2 | Agri based enterprises are highly risk oriented and have unpredictable prospects | 29.7 | 56.2 | 14.1 | - |
| 3 | Youth should explore the immense possibilities offered by agri business | 14.1 | 85.9 | - | - |
| 4 | More and more youth should come to agriculture and agri related enterprises | 50 | 50 | - | - |
| 5 | Agriculture as an occupation is not a good option for today's educated urban youth | - | 1.6 | 67.2 | 31.2 |
| 6 | Agriculture as an occupation is not a good option for educated rural youth | - | - | 67.2 | 32.8 |
| 7 | Agri based enterprises should be taken up as a subsidiary occupation by every one possible | 31.2 | 64.7 | 4.1 | - |
| 8 | It will be good if an agri based experiential learning module is incorporated in the school curriculum | 29.7 | 54.7 | 15.6 | - |

The above table gives a summary of perception of teachers on agriculture. It was found that majority of the sampled population of teachers found agriculture as a remunerative occupation suitable for today's younger generation and about 86 per cent of them believe it as necessary for our youth to explore the immense opportunities offered by the agribusiness sector. About 50 per cent of the teachers

were found to have a strong opinion that there is an increasing need for more youth to get involved in agriculture. At the same time, about 29.7 per cent of the sampled respondents were found to consider agribusiness enterprises as highly risk oriented sector that has unpredictable prospects. About 31.2 per cent strongly agreed to the idea of promoting agri based enterprises as a subsidiary occupation that could taken up by every one possible, whereas 4.1 per cent of the population expressed their disagreement to it. While 29.7 per cent of the teachers showed high agreement with the incorporation of agri based experiential learning module into the school curriculum, about 15.6 per cent of the respondents disagreed with this idea, maybe because it consumes a lot of time and requires hard work from the part of both teachers and students.

## 4.3 Identifying the factors governing the perception of students on agriculture.

As understood from the review of literature, several personal and socio economic factors have been found to influence the perception of students on agriculture. The distribution of students based on their perception on various domains of agriculture also warranted a detailed analysis of the factors influencing their perception.

### 4.3.1 Personal, socio-economic and psychological characteristics of students

Personal, socio economic and psychological characteristics such as gender, background, nature of land, crops grown, type of dwelling, rural contact, purpose of rural contact, familiarity with farming, participation in extracurricular activities, garden in home and monthly income from agriculture were measured in this study.

#### 4.3.1.1 Gender

Distribution of respondents based on gender is given in Table 29:

**Table 29: Distribution of respondents based on gender**

| Sl. No | Gender | Frequency | Per cent |
|---|---|---|---|
| 1 | Male | 147 | 37.4 |
| 2 | Female | 246 | 62.6 |
| | **Total** | **393** | **100** |

It is evident from the above table that majority of the respondents were females representing 62.6 per cent, whereas 37.4 per cent were males.

#### 4.3.1.2 Background

As evident from the difference in perception of students hailing from rural and urban background, distribution of students based on the nature of presence of their dwelling termed as background was found and presented on Table 30:

**Table 30: Distribution of respondents based on background**

| Sl. No | Background | Frequency | Per cent |
|---|---|---|---|
| 1 | Rural | 194 | 49.4 |
| 2 | Urban | 199 | 50.6 |
| | **Total** | **393** | **100** |

It was observed that 50.6 per cent of the students hailed from urban background while students from rural areas constituted 49.4 percentage which means more or less equal distribution of rural and urban students in the sample population.

#### 4.3.1.3 Nature of landed property

Assuming that exposure to agriculture could be influenced by the possibility of being exposed to agricultural operations and availability of land, the distribution of students based on the purview of landed property was analysed (Table 31).

**Table 31: Distribution of respondents based on nature of landed property**

| Sl. No. | Nature of land | Frequency | Per cent |
|---|---|---|---|
| 1 | Home only | 100 | 25.4 |
| 2 | Home + homestead / Home + wetland / Home + garden land | 153 | 38.9 |
| 3 | Home + homestead + wetland / Home + homestead + garden land / Home + wetland + garden land | 97 | 24.7 |
| 4 | Home + homestead + wetland + garden land | 43 | 10.9 |
| | **Total** | **393** | **100** |

The table above revealed that nearly a quarter of the respondents lived in a home surrounded a few cents of land, without any homestead. 38.9 per cent possessed either homestead or wetland or garden land where as 24.7 per cent had a combination of these three types of land assets. The rest 10.9 per cent belonged to the category that possessed home along with homestead, wetland and garden land.

### 4.3.1.4 Crops grown

Assuming that perception on agriculture could be influenced by the extent of involvement of respondent and family in farming activities, the number of crops grown in the students household was assessed as given in Table 32:

**Table 32: Distribution of respondents based on number of crops grown**

| Sl. No | Number of crops grown | Frequency | Per cent |
|---|---|---|---|
| 1 | No crops grown | 21 | 5.3 |
| 2 | Only one crop grown | 33 | 8.4 |
| 3 | Two to four crops grown | 270 | 68.7 |
| 4 | Five or more crops grown | 69 | 17.6 |
| | **Total** | **393** | **100** |

It is evident from Table 32 that two to four crops were being grown in majority of the households represented by 68.7 per cent of the sampled students. It was also observed that no crops were being grown in the households of 5.3 per cent of the students included in the study, while 8.4 per cent of them had one crop grown and 17.6 per cent had five or more crops grown in their houses.

Further, an attempt was done to assess which were the crops mainly cultivated by the respondents family (Table 33).

**Table 33: Distribution of respondents based on type of crops grown**

| Sl. No | Type of crops grown | Frequency | Per cent |
|---|---|---|---|
| 1 | Paddy | 31 | 7.8 |

| | | | |
|---|---|---|---|
| **2** | Coconut | 321 | 81.7 |
| **3** | Banana | 203 | 51.7 |
| **4** | Vegetables | 186 | 47.3 |
| **5** | Tuber crops | 109 | 27.7 |
| **6** | Rubber | 167 | 42.4 |

As evident from table 33, coconut was found to be the major crop cultivated in the households of the respondents that accounted to about 81.7 per cent followed by banana (51.7 per cent) and vegetables (47.3 per cent). 42.4 per cent of the households had rubber whereas 27.7 per cent had tuber crops. The important factor to be noted is that paddy, the staple food of our state, was being grown only in 7.8 per cent of the sampled students' households.

#### 4.3.1.5 Type of dwelling

The distribution of respondents according to the type of dwelling they live in is given in Table 34:

**Table 34: Distribution of respondents based on type of dwelling**

| Sl. No. | Type of dwelling | Frequency | Per cent |
|---|---|---|---|
| 1 | Independent own house | 348 | 88.5 |
| 2 | Flat | 26 | 6.6 |
| 3 | Rented house | 19 | 4.8 |
| | **Total** | **393** | **100** |

The results indicated that almost 89 per cent of the respondents lived in independent own house whereas nearly 7 per cent lived in flat and 4.8 per cent in rented house. The more number of independent own houses denotes the well off

position of people living in Kerala when compared to other states. It could be also noted that a new culture of living in flats is growing in Kerala.

#### 4.3.1.6 Rural contact

Since the frequency of rural contact be directly linked with the frequency of exposure to agricultural activities, distribution of respondents according to this purview was assessed as given below:

**Table 35: Distribution of respondents based on frequency of rural contact**

| Sl. No | Rural contact | Frequency | Per cent |
|---|---|---|---|
| 1 | Always | 204 | 51.9 |
| 2 | Frequently | 53 | 13.5 |
| 3 | Sometimes | 93 | 23.7 |
| 4 | Once a year | 19 | 4.8 |
| 5 | Rarely | 24 | 6.1 |
| | **Total** | **393** | **100** |

Table 35 indicated that over half of the respondents always visited rural areas (51.9 per cent). 13.5 per cent of them had got frequent contact with rural area whereas rarely visited rural localities, not even once in a year.

#### 4.3.1.7 Purpose of rural contact

Distribution of the student population based on purpose of contact is given in Table 36.

**Table 36: Distribution of respondents based on purpose of rural contact**

| Sl. No. | Purpose of rural contact | Frequency | Per cent |
|---|---|---|---|
| 1 | Home/ native place | 199 | 50.6 |
| 2 | Ancestral home | 73 | 18.6 |
| 3 | To visit friends/relatives | 97 | 24.7 |
| 4 | Visit for recreation | 24 | 6.1 |
| 5 | Others | - | - |
| | **Total** | **393** | **100** |

It could be observed that about 50 per cent of the students included in the study resided in rural areas and thus always had rural contact, whereas about 18.6 per cent visited rural areas so as to see their grandparents. While 24.7 per cent indicated visiting friends and relatives as the reason for their rural contact, 6.1 per cent visited rural areas for recreational purpose.

#### 4.3.1.8 Familiarity with farming

Since familiarity with farming assumes an important role in development of a positive attitude and perception of students towards agriculture, the same was analysed as given in Table 37 below:

**Table 37: Distribution of respondents based on familiarity with farming**

| Sl. No. | Familiarity with farming | Frequency | Per cent |
|---|---|---|---|
| 1 | Frequently | 59 | 15.0 |
| 2 | Sometimes | 217 | 55.2 |
| 3 | Rarely | 117 | 29.8 |
| | **Total** | **393** | **100** |

Majority of the students were found to be engaged in farming activities only sometimes. While 15 per cent of the respondents frequently got involved in farming activities, 29.8 per cent of them had rarely engaged in such activities.

#### 4.3.1.9 Participation in extracurricular activities

McNeal (1995) indicated that extracurricular participation provide previously marginalized students with access to a more "elite" stratum of the student population and exposes the students to peers who have better attitudes and awareness toward the school activities, nature and environment.

Thus the extracurricular participation of students was assessed and distribution of students based on their participation in extracurricular activities is presented in the table below:

**Table 38: Distribution of respondents based on participation in extracurricular activities**

| Sl. No. | Extent of participation in extracurricular activities | Frequency | Per cent |
|---|---|---|---|
| 1 | No participation | 176 | 44.8 |
| 2 | One extracurricular activity | 143 | 36.4 |
| 3 | Two or more extracurricular activities | 74 | 18.8 |
| | **Total** | 393 | 100 |

It was observed from Table 38 that about 4.9 per cent of the students had never participated in any of the extracurricular activities including NCC, NSS, social club, agricultural club, eco club, science club, debate, music, dance etc. 36.4 per cent

was found to be involved with at least any one of these activities, while 18.8 per cent had participated in two or more extracurricular activities.

#### 4.3.1.10 Garden in home

Since exposure to gardening activities has the potential to influence students awareness and perception on agriculture in several positive ways, distribution of students based on the number of different types of garden in home was found out as presented below(Table39).

**Table 39: Distribution of respondents based on number of garden in home**

| Sl. No | Garden in home | Frequency | Per cent |
|---|---|---|---|
| 1. | No garden at home | 47 | 12 |
| 2. | Ornamental/kitchen/indoor/medicinal garden | 228 | 58 |
| 3. | Any of the two above types of garden | 77 | 19.6 |
| 4. | Three or more types of garden | 41 | 10.4 |
| | **Total** | **100** | **393** |

The table above revealed that 12 per cent of the students did not have garden in their home, whereas 58 per cent had at least any one of the gardens *viz.*, ornamental or kitchen or indoor or nutritional garden. Two types of gardens were grown by about 19.6 per cent of the sampled students, whereas three or more types of gardens were grown in 10.4 per cent of their residences.

Further, the distribution of respondents according to type of garden grown in home was also assessed (Table 40).

**Table 40: Distribution of respondents based on type of garden in home**

| Sl. No. | Type of garden | Frequency | Per cent |
|---|---|---|---|
| 1 | Ornamental garden | 272 | 69.2 |
| 2 | Kitchen garden | 89 | 22.6 |
| 3 | Terrace garden | 126 | 32.1 |
| 4 | Medicinal garden | 9 | 2.3 |
| 5 | Indoor garden | 11 | 2.8 |

It is evident from the table that the major share of type of garden was accounted by ornamental garden representing 69.2 per cent, followed by terrace garden ( 32.1 per cent) and kitchen garden (22.6 per cent). Medicinal garden was being found to grow in 2.3 per cent of the students' houses and indoor garden constituted a share of 2.8 per cent.

#### 4.3.1.11 Monthly income from agriculture

Assuming that data on monthly income from agriculture could give a clear picture of the extent of dependency of the students' family on agriculture and allied sectors as a source of income, which could indirectly influence the students perception on agriculture, the distribution of students based on the purview of monthly income from agriculture was attempted.

**Table 41: Distribution of respondents based on monthly income from agriculture**

| Sl. No. | Monthly income from agriculture (Rs) | Frequency | Per cent |
|---|---|---|---|
| 1 | No income from agriculture | 260 | 66.2 |
| 2 | Less than 5000 | 64 | 16.3 |
| 3 | Between 5000 and 10000 | 43 | 10.9 |
| 4 | Between 10000 and 25000 | 22 | 5.6 |
| 5 | Above 25000 | 4 | 1.0 |
| | **Total** | **100** | **393** |

Table 4.23 revealed that about 66.2 per cent of the student's family did not depend on agriculture as a primary or secondary source of income. About 16.3 per cent of them earned an amount less than Rs 5000 per month from agricultural sources, while 10.9 per cent earned between Rs 5000-10000 per month. This table further indicated that an amount between Rs 10000-25000 per month was earned by 5.6 per cent of the respondents family from agricultural sources. Only 1 per cent of them were found to obtain monthly amount above Rs 25000 from agriculture and allied sources.

### 4.3.2. Relationship between awareness, perception and the personal and socio economic characteristics of the students

In order to quantify the strength of relationship between the independent variables with the dependent variable awareness and perception, correlation analysis was carried out.

**Table 42: Correlation between awareness and independent variables**

| Sl. No. | Factors / variables | Correlation coefficient |
|---|---|---|
| 1 | Gender | 0.125* |
| 2 | Background | -0.568** |
| 3 | Nature of land area | 0.460** |
| 4 | Crops grown | 0.409** |
| 5 | Type of dwelling | -0.125* |
| 6 | Rural contact | 0.547** |
| 7 | Purpose of rural contact | -0.516** |
| 8 | Familiarity with farming | 0.425** |
| 9 | Participation in extracurricular activities | -0.295** |
| 10 | Garden in home | 0.424** |
| 11 | Income from agriculture | 0.427** |

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

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

A Spearman's rank-order correlation was run to determine the relationship between dependent variable awareness and 11 independent variables. There was a strong, positive or negative correlation between all the independent variables with the dependent variable, which was found to be statistically significant.

Nine variables were found to be statistically significant at 1 % level and two variables at 5 % level. The variables background of the respondent, type of dwelling, purpose of contact, and participation in extracurricular activities were found to be negatively but significantly correlated with awareness, whereas all other independent variables were found to be significantly positively correlated with awareness.

**Table 43: Relationship between perception and independent variables**

| Sl. No. | Factors / variables | Correlation coefficient |
|---|---|---|
| 1 | Gender | 0.162** |
| 2 | Background | -0.412** |
| 3 | Nature of land area | 0.306** |
| 4 | Crops grown | 0.250** |
| 5 | Type of dwelling | -0.162** |
| 6 | Rural contact | 0.414** |
| 7 | Purpose of rural contact | -0.412** |
| 8 | Familiarity with farming | 0.228** |
| 9 | Participation in extracurricular activities | -0.210** |
| 10 | Garden in home | 0.318** |
| 11 | Income from agriculture | 0.330** |

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

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

The Spearman's rank-order correlation analysis between dependent variable perception and 11 independent variables revealed that there existed a strong, positive or negative correlation between all the independent variables with the dependent variable perception, which was statistically significant. All the variables were found to be positively or negatively significantly correlated with perception at 1 per cent level of significance.

The variables background, type of dwelling, purpose of contact and participation in extracurricular activities were found to be negatively correlated with perception while all the other independent variables including gender, land area, crop

grown, rural contact, familiarity with farming, garden in home and income from agriculture were found to be positively correlated with perception.

With a view to assess the relationship between the dependent set of variables *viz.*, awareness and perception of students on agriculture with the independent set of variables, a canonical correlation analysis was done. This analysis was carried out between two sets of variables with the dependant variables namely awareness and perception forming one set and all the independent variables namely gender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of contact, familiarity with farming, participation in extracurricular activities, garden in home and income from agriculture forming the second set. The canonical correlation analysis yielded a canonical R value (Rc=0.691) and squared correlation value $R^2C = 0.477$ and the same were found to be highly significant as revealed by Chi square value of 271.35 (p=0.0000). The significant canonical correlation revealed the strong relationship between the independent set of variables with the dependant set.

### 4.3.2.1 Analysis of the contribution of independent variables towards the dependent variables

To find out the contributory factors affecting the dependent variables, a stepwise regression analysis of the dependent variables namely awareness and perception on the vector of explanatory variables *viz.*, gender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of contact, familiarity with farming, participation in extracurricular activities, garden in home and income from agriculture was conducted separately.

**Table 44: Factors affecting awareness - results of stepwise regression**

| Sl. No. | Variables | B value | Significance |
|---|---|---|---|
| 1 | Background | -12.261*** | 0.000 |
| 2 | Background | -9.906*** | 0.000 |
| | Garden in home | 2.939*** | 0.000 |
| 3 | Background | -8.693*** | 0.000 |
| | Garden in home | 3.587*** | 0.000 |
| | Participation in extracurricular activities | -2.565*** | 0.000 |
| 4 | Background | -6.713*** | 0.000 |
| | Garden in home | 3.371*** | 0.000 |
| | Participation in extracurricular activities | -2.805*** | 0.000 |
| | Familiarity with farming | 3.223*** | 0.000 |
| 5 | **Background** | **-6.123*** ** | **0.000** |
| | **Garden in home** | **2.787*** ** | **0.000** |
| | **Participation in extracurricular activities** | **-2.997*** ** | **0.000** |
| | **Familiarity with farming** | **3.026*** ** | **0.000** |
| | **Income from agriculture** | **1.155** ** | **0.036** |
| Dependnt variable : Awareness | | | |

*** Significant at 1 % level

** Significant at 5 % level

The stepwise multiple regression analysis revealed that the variables background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture were the key factors affecting the dependent variable awareness [ $F(5,387) = 58.524$, $p < .0.001$], whereas all the other independent variables were excluded. The multiple correlation coefficient at step 5

was 0.682, which indicated that approximately 46.5% of the variance of awareness of students could be accounted for by the independent variables background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture.

Thus the regression equation for predicting awareness of students on agriculture was written as follows:

Predicted awareness = 43.66 – 6.12*** x background + 2.79*** x garden in home – 2.30*** x extracurricular activities + 3.03*** x familiarity with farming + 1.12** x income from agriculture (adjusted $R^2$ = 0.458)

**Table 45: Factors affecting perception – results of stepwise regression**

| Sl. No. | Variables | B value | Significance |
|---|---|---|---|
| 1 | Background | -2.152*** | 0.000 |
| 2 | Background | -1.725*** | 0.000 |
| | Income from agriculture | 0.434*** | 0.003 |
| 3 | Background | -1.442*** | 0.000 |
| | Income from agriculture | 0.579*** | 0.000 |
| | Participation in extracurricular activities | -0.522*** | 0.000 |
| **4** | **Background** | **-1.408*** ** | **0.000** |
| | **Income from agriculture** | **0.578*** ** | **0.000** |

| | | | |
|---|---|---|---|
| | **Participation in extracurricular activities** | **-0.495*** ** | **0.001** |
| | **Gender** | **0.637*** ** | **0.008** |
| Dependent variable : Perception | | | |

*** Significant at 1 % level

Table 45 indicated the results of stepwise multiple regression analysis carried out to evaluate which were independent variables necessary to predict the perception of students on agriculture. The variables background, income from agriculture, participation in extracurricular activities and gender were found to be the key explanatory factors affecting perception of students [ $F(4,388) = 5.218$, $p < .001$]. At step 4, the multiple correlation coefficient was 0.481, indicating that approximately 23.2% of the variance of dependant variable perception could be accounted for by the independent variables background, income from agriculture, participation in extracurricular activities and gender. Thus the regression equation for predicting perception of students on agriculture was written as given:

Predicted perception = 21.69 – 1.41*** x background + 0.58*** x income from agriculture – 0.495*** x participation in extracurricular activities + 0.637*** x gender

**4.3.2.2 Principal component analysis of the personal and socioeconomic factors affecting awareness and perception on agriculture**

A principal component analysis was conducted to emphasize the variations and bring out the strong patterns in the data set of independent variables of sampled respondents from 8 schools. The results are as follows:

**Table 46 : Correlation matrix**

| | RSTDA | USTDA | RCBDA | UCBDA | RSTDT | USTDT | RCBDT | UCBDT |
|---|---|---|---|---|---|---|---|---|
| RSTDA | 1.000 | 0.652 | **0.957** | 0.449 | **0.999** | 0.545 | **0.996** | 0.474 |
| USTDA | 0.652 | 1.000 | 0.781 | **0.877** | 0.650 | **0.985** | 0.642 | **0.877** |
| RCBDA | **0.957** | 0.781 | 1.000 | 0.595 | **0.952** | 0.692 | **0.944** | 0.623 |
| UCBDA | 0.449 | **0.877** | 0.595 | 1.000 | 0.453 | **0.915** | 0.442 | **0.996** |
| RSTDT | **0.999** | 0.650 | **0.952** | 0.453 | 1.000 | 0.546 | **0.997** | 0.478 |
| USTDT | 0.545 | **0.985** | 0.692 | **0.915** | 0.546 | 1.000 | 0.539 | **0.914** |
| RCBDT | **0.996** | 0.642 | **0.944** | 0.442 | **0.997** | 0.539 | 1.000 | 0.470 |
| UCBDT | 0.474 | **0.877** | 0.623 | **0.996** | 0.478 | **0.914** | 0.470 | 1.000 |

* *[ Note : RSTDA – Rural state school in Alappuzha District, USTDA - Urban state school in Alappuzha District, RCBDA – Rural CBSE school in Alappuzha district, UCBDA - Urban CBSE school in Alappuzha district, RSTDT- Rural state school in Thrissur District, USTDT - Urban state school in Thrissur District, RCBDT – Rural CBSE school in Thrissur district, UCBDT - Urban CBSE school in Thrissur district. ]

Tabachnick & Fidell (2001) reported that if there are few correlations above 0.3 it is a waste of time carrying on with the analysis but if there are more number of correlations above 0.3 and possible clustering, it shows the high chance of obtaining the results in PCA. The correlation matrix indicated the correlation existing between the respondents from the different schools, but the highest correlation values were found to be between schools from rural background irrespective of syllabus, and between the schools from urban background. The Kaiser-Meyer-Olking (KMO) statistic was found to be 0.636 greater than 0.600 and the Bartlett's test was found to be significant, p = 0.000, which is less than $p < .05$. KMO is used for assessing sampling adequacy and evaluates the correlations and partial

correlations to determine if the data are likely to coalesce on components (i.e. some items highly correlated, some not).

**Table 47 : Total variance explained**

| Component | Initial Eigenvalues | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | **6.122** | 76.530 | 76.530 | 3.969 | 49.613 | 49.613 |
| 2 | **1.656** | 20.698 | 97.228 | 3.809 | 47.615 | **97.228** |
| 3 | 0.171 | 2.135 | 99.363 | | | |
| 4 | 0.041 | 0.513 | 99.876 | | | |
| 5 | 0.007 | 0.092 | 99.968 | | | |
| 6 | 0.002 | 0.026 | 99.994 | | | |
| 7 | 0.000 | 0.004 | 99.998 | | | |
| 8 | 0.000 | 0.002 | 100.000 | | | |

Eigen values refer to variance accounted for in terms of number of "items worth "of variance each explains. Each Eigen value represents the amount of variance that has been captured by one component. The above table clearly depicted that only the first two components had eigen values above 1 and together, these together explained 97.2 per cent of total variability in data.

**Table 48 : Rotated component matrix**

| | **Component** | |
|---|---|---|
| | 1 | 2 |
| RSTDA | **.965** | |
| RCBDT | **.964** | |
| RSTDT | **.963** | |

| | | |
|---|---|---|
| RCBDA | **.880** | .441 |
| UCBDA | | **.961** |
| UCBDT | | **.951** |
| USTDT | .325 | **.923** |
| USTDA | .453 | **.860** |

From table 48, it is evident that high component loading on first component was for rural state syllabus schools and rural CBSE syllabus schools of the two districts, and for the second component, high factor loadings was observed for the urban CBSE and state syllabus schools. The two components were identified to be those representing urban and rural nature.

Thus, a principal component analysis with varimax rotation was conducted to assess how the eight schools could be clustered based on the independent variables included in the study. The schools were rural state syllabus school, urban state syllabus schools, rural CBSE syllabus school and urban CBSE syllabus school of both Alappuzha and Thrissur districts. Two components were rotated, based on the Eigen values over 1 criterion. After rotation, the first component accounted for 49.6% of the variance, and the second component accounted for 47.62% of the variance. Table 47 displays the items and component loadings for the rotated components, with loadings less than 0.70 omitted to improve clarity. Then a component plot in rotated space was obtained (Figure 4.2), which gives one a visual representation of the loadings plotted in a 2-dimensional space. The plot shows how closely related the items are to each other and to the two components. This plot of the component loadings shows that students from rural state school of district Alappuzha (RSTDA), rural CBSE school of district Alappuzha (RCBDA), rural state school of district Thrissur (RSTDT), rural CBSE school of district Thrissur (RCBDT) behave in a similar manner when taking into account the independent variables , whereas students in rural state school of district Thrissur (RSTDT), rural CBSE school of district

Thrissur (RCBDT), urban state school of district Thrissur (USTDT), urban CBSE school of district Thrissur (UCBDT) responded in a similar way when considering the independent variables.

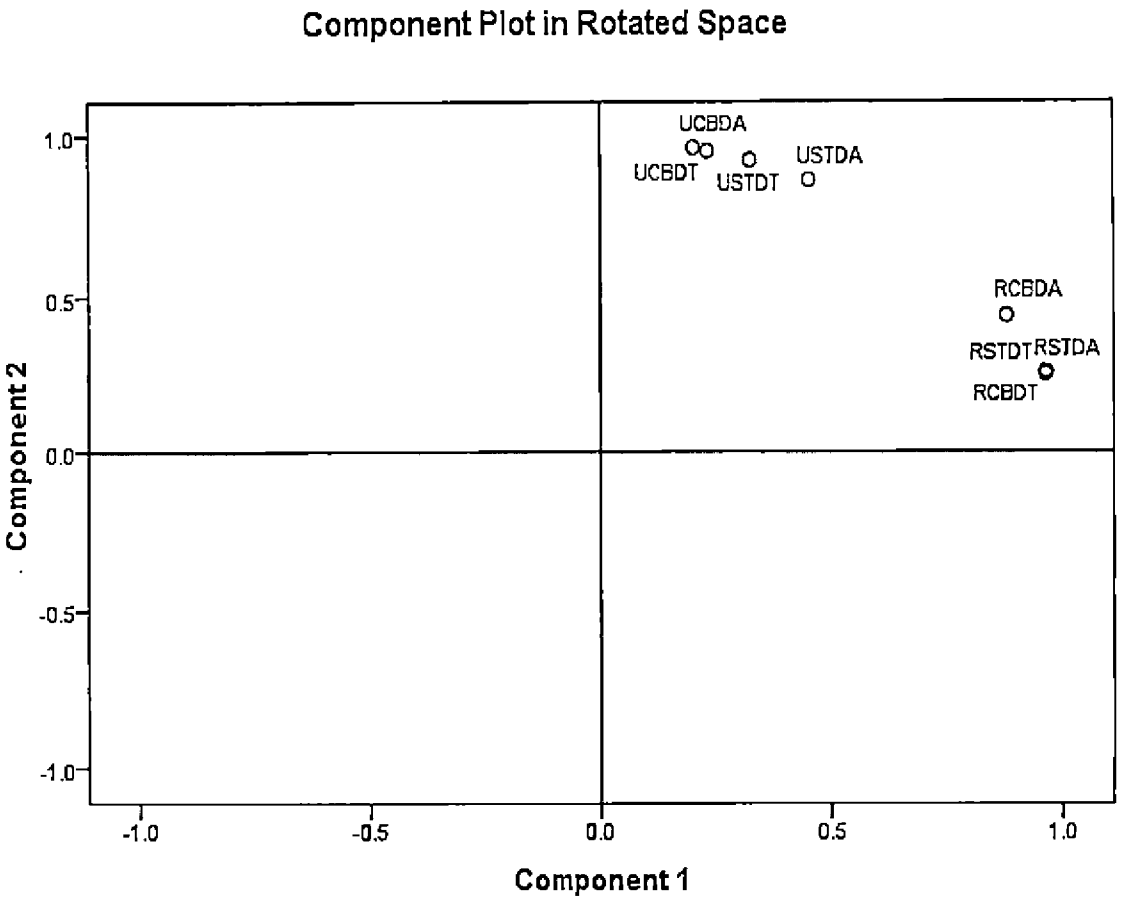



**Fig 4.2: Component plot in rotated space that showed rural-urban divide with respect to awareness and perception on agriculture**

## 4.4 Examining existing interventions and arriving at recommendations for future.

With a view to examine the effectives of initiatives by our government and other agencies aimed at improving the 'agricultural literacy' of our state, the existing interventions were assessed. Also suggestions to improve the awareness and perception level of the budding generation on agriculture were sought from the teachers of the schools sampled.

### 4.4.1 Suggestions of teachers for improving awareness of students on agriculture

The suggestions outlined by the teachers sampled as a part of this survey, to improve awareness of students on agriculture are presented as below:

**Table 49: Suggestions of teachers for improving awareness of students on agriculture**

| Sl. No. | Suggestions | Weightage | Rank |
|---|---|---|---|
| 1. | Interactive session of students with successful farmers should be organised by every school so as to help students realize that farming, when done systematically and scientifically, could be a profitable venture. | 54 | I |
| 2. | Agriculture should be made a necessary subject to be studied in the school curriculum and it must be done in such a way that students gets hands on training experience in the activities related to agriculture. | 51 | II |
| 3. | Provide financial and technical assistance to schools to implement school vegetable garden on a large scale where all the students in the school can participate during their leisure time. | 49 | III |

| | | | |
|---|---|---|---|
| **4.** | Organise training programmes, field visits, demonstration etc at school level itself which helps in building the confidence of children to engage in agriculture and allied sectors. | 47 | **IV** |
| **5.** | Provide trainings to children to start agri based enterprises like mushroom cultivation, bee keeping, ornamental fish culture etc at their homes which not only improves their attitude towards agriculture, but also acts as a small but additional source of income. | 46 | **V** |
| **6.** | Increasing the awareness level of students about the plenty of job opportunities offered by this sector – including farm production, agribusiness management and marketing, agricultural research and engineering, food science, processing and retailing, banking, education, landscape architecture, urban planning etc | 44 | **VI** |
| **7.** | A realization that agriculture is a respectable job in the society must be developed in the students at a very younger age | 43 | **VII** |
| **8.** | New training approaches for students should be established, focusing not only on agriculture but on "sustainable socio-economic entrepreneurship", including the development of human skills (e.g. cultural, social, technical, organizational and economic) and the linking of agriculture to industry and services. | 40 | **VIII** |
| **9.** | The young farmers must be given recognition similar to the one given for professional graduates like doctors, architects etc. | 38 | **IX** |

### 4.4.2. Ongoing initiatives in Kerala to promote the interest of students in agriculture.

There are a number of attempts in Kerala intended to inculcate the spirit of farming among our children, though many of these failed to give the desired results. Case studies of some of the successful programs in this area are included as follows:

**1. Mathrubhumi SEED project**

Student Empowerment for Environmental Development, SEED is a novel project launched in 2009, which aims to make school children aware of the importance of environmental protection and to make such activities part of their daily life. This initiative is a combined effort by Mathrubhumi, a leading newspaper in Kerala, and Federal bank and aims to create awareness among the growing student community on environment protection and enable them to protect the water, air and soil. The objectives of this programme includes to develop a richer, greener and cleaner globe for the future generation and to create awareness among the student community on environment protection and enable them to protect water, air and soil and to develop a new green culture by assembling upper primary schools, high schools and higher secondary schools in the state of Kerala. The target group of SEED comprises students in the age group of 10-17 years across 38 Education Districts spread in 14 Revenue Districts in the State of Kerala. It organises programmes like *Keram kakkan kuttikkoottam*, seasons watch, distribution of vegetable seeds to school children encouraging school vegetable gardening etc. This programme is an immensely successful venture currently present in our state, which aims to improve the awareness and attitude of children towards environment and agriculture.

**2. Mukulam from CARD-Krishi Vigyan Kendra in Pathanamthitta**

This programme launched by the KVK, Pathanamthitta is an educational tool to create awareness among school children to grow crops in their school gardens as a supplemental instruction to their regular studies. The programme, launched in the year 2010, aims to provide a platform for students for showcasing their talents in nurturing nature and building awareness of their role in contributing to the nation's food security. Upper primary, high school and higher secondary levels that have eco-clubs functioning for the last two years with 25-30 members each and5-10 cents of cultivable land formed the part of the programme. The best school is awarded a cash price of Rs. 5000 and a rolling trophy and citation. The institute organised a variety of programmes such as seminars, students meet, quiz competition, drawing cum painting competitions and traditional food fest. It also supported the participating schools with technology training, planting materials, seeds, organic inputs and garden tools, so that school clubs put in their effort to develop a garden in five cents of land. Besides participating in every activity, the school gardeners cultivated a variety of vegetables, fruit crops and medicinal garden — all grown organically. Club members in relay maintained the garden and attended to the plants in a scheduled manner before and after school hours. The programme instilled a sense of responsibility in the younger generation to conserve nature and contribute to food security.

**3. School vegetable garden project by Kerala government.**

This is an appreciable step from the part of government to inculcate the spirit of farming in today's generation. Under this project, the seeds are provided by the Kerala Horticulture Mission to the schools to start a vegetable garden and krishi bhavans provide the necessary technical support and inputs like about 50 kg of organic manure free for every participating school. The programme involves children right from growing the vegetables to preparing and eating fruits of their labour. The

children spend free hours and interval time in the vegetable garden tending the plants, thus getting more aware and attracted to agriculture.

### 4.4.3. Specific case studies out of respondent groups

**Case Study 1:**

**School : R.V.S.M higher secondary school, Prayar, Alappuzha District**

This school which is located near to the coastal tracts of Alappuzha is an exemplary example of how school vegetable gardens could be set up and successfully maintained with the participation of both teachers and students. The NSS unit of this school decided to undertake farming activities and launched a programme named 'Haritham' in 2015 that aimed to promote kitchen garden in every student's household. Under this programme, vegetable seeds were distributed to every NSS volunteer in the month of February, just before the summer vacations began. They were entrusted with the task of raising kitchen gardens in their households. A committee of teachers evaluated these kitchen gardens at the end of May, and the best student farmers were awarded with prizes. In addition, under the leadership of the NSS unit, the school has also set up a school vegetable garden in an area of 50 cents leased land.

An analysis of the awareness level of students from this school on agriculture was done and the students were categorised as given in Table 50.

**Table 50: Distribution of rural students under state syllabus of Alappuzha district based on awareness on agriculture**

| Sl.No | Category | Range(Score) | Frequency | Percentage |
|---|---|---|---|---|
| 1. | Low awareness | ≤55.5 | 3 | 6.7 |
| 2. | Medium awareness | 55.6-65.4 | 24 | 53.3 |
| 3. | High awareness | ≥65.5 | 18 | 40 |
| **Total** | | | **45** | **100** |

The results indicated that around 53 per cent of the students sampled possessed medium awareness on agriculture whereas 40 per cent of them exhibited high awareness. Low awareness level was shown by only 6.7 per cent of the students sampled. This shows that the school vegetable garden has got a positive influence on the awareness level of children on agriculture. This school had the highest awareness level among all the schools included in the study, as substantiated by the highest ANOVA value of 0.871.

**Case study : 2**

**School: Bharatiya Vidya Bhavan, Wadakkancherry**

This school is located 19 km away from Thrissur town and owns a good school vegetable garden to ensure participation of students from the upper primary section in maintaining them. This helps the students to get acquainted with the farming activities at a young age itself and helps in developing a positive attitude

towards farming. In addition, the students were also given the opportunity to visit the field of a local farmer cultivating vegetable in the land adjacent to the school plot, which proved to be beneficial for the children as they got to know the various phases and activities in cultivating selected crops.

**Table 51: Distribution of rural students under CBSE syallabus in Thrissur district based on awareness on agriculture**

| Sl.No | Category | Range(Score) | Frequency | Percentage |
|---|---|---|---|---|
| 1. | Low awareness | ≤36.8 | 5 | 10.4 |
| 2. | Medium awareness | 36.9-47.2 | 27 | 56.3 |
| 3. | High awareness | ≥47.3 | 16 | 33.3 |
| **Total** | | | **48** | **100** |

An analysis of the student community from this school showed that about 56 per cent of them had medium awareness and 33.3 per cent had high awareness on agriculture. This school had the highest awareness level among all the CBSE schools included in the study, as substantiated by the highest ANOVA value of 0.635 and is definitely an indication of how hands on experience in farming could positively influence the awareness of our younger generation on agriculture.

### 4.4.4 Content of the syllabus on agriculture in the streams of higher secondary education selected for the study

An analysis of the content of syllabus on agriculture in the stream of higher secondary education was done as a part of this study. In Kerala, the CBSE and state syllabus curriculum follows the same text book in higher secondary level. Since the students of plus one science stream were included in the survey, an analysis of the

content of text books in higher secondary level (including plus one and plus two) was done. It was found that in the subject biology, the total number of pages in the text book when combining classes plus one and plus two comes to 632 pages and out of this , only 16 pages are having content related to agriculture. This means the topic agriculture has got only 2.5 per cent coverage when analysing the content of biology textbook in the stream of our higher secondary education.

# DISCUSSION

# CHAPTER V

# DISCUSSION

This chapter seeks to provide discussion based on the each result obtained from the study. The discussion has been presented based on the thematic areas of the objectives and very much aligned to each other. Thus, the discussion is outlined as follows :

**5.1** Analysing the levels of awareness among higher secondary students about components of agriculture.

**5.2** Assessing the perception of students and teachers on agriculture.

**5.3** Identifying the factors governing the perception of students on agriculture.

**5.3** Examining existing interventions and arriving at recommendations for future.

## 5.1 Analysing the levels of awareness among higher secondary students about components of agriculture.

The levels of awareness of the higher secondary school students regarding agriculture was analysed in this study which included students from both rural and urban background, and also from CBSE and state syllabus schools.

### 5.1.1 Awareness of students on major crops grown in Kerala

Table 19 brings forth the details of distribution of the sampled respondents according to awareness about major crops in Kerala. From the total 393 students

sampled, nearly 20 per cent of the respondents had low awareness, while 62 per cent was found to have medium awareness and 17 per cent belonged to high awareness category. The result indicates that majority of the students, in general, possessed only medium awareness with regard to major crops grown in Kerala. This is because the budding generation of Kerala gets very less opportunities only to get acquainted with agriculture. They even barely know about the basic aspects like which are the major crops that could be grown in Kerala condition, from where and how our food is made etc.

Table 20 provides the results of classification of students based on location and syllabus scheme. From the results, it could be observed that there exists variation in awareness level of sampled students based on their school background and syllabus. It could be noted that nearly 72 per cent of the rural students under state syllabus exhibited higher awareness, whereas about 94 per cent of the urban students under state syllabus were found to possess medium awareness on agriculture. In the case of students following CBSE curriculum, nearly 89 per cent of the respondents studying in rural CBSE school exhibited medium awareness, and 66 per cent of them under urban CBSE schools showed low awareness on agriculture. The difference in awareness level between students from state and CBSE curriculum is thus well evident.

The Kerala curriculum framework of 2007 prepared by the State Council of Educational Research and Training (SCERT) Kerala, envisaged that every child studying under state syllabus should gather a comprehensive idea about agriculture, bio diversity and ecosystem by the end of upper primary stage. The syllabus was modified accordingly with an aim to create a generation that can construct knowledge and resolve issues in the field of agriculture, and thus the state syllabus curriculum is giving students more opportunity to know nature and land by virtue of their activity based learning modules (ABL Modules), which is a recent approach introduced under

the Sarva Shiksha Abhiyan scheme. Whereas the awareness of CBSE students regarding agriculture is mostly limited to the science exhibitions, featuring agriculture as a subtopic. Their rich syllabus and hectic schedule provides them with only little leisure time to get involved in activities related to nature and biodiversity. Moreover, the CBSE schools of the state being predominantly run by managements, their main aim will be to make the students excel in their classes and to obtain good marks in academics, rather than spending time on activities like school vegetable gardening. The rural nature of the schools denotes that the children studying there will predominantly be from rural regions of the state, where still agriculture is being practiced, whereas the urban school students, being mostly belonging from urban areas, their 'busy world' seldom provides them with opportunities to get acquainted with agriculture. Frick *et al.,*(1995) in a study done in U.S.A, also reported that respondents from smaller cities and towns with rural background were found to be more knowledgeable than their counterparts from larger population urban centers regarding agriculture.

A frequency analysis on awareness of students on major crops grown in Kerala indicates that today's children are getting far away from the basics of agriculture(Table 21). Close to 98 per cent of the respondents failed to state the rice growing seasons in Kerala, and nearly 4 per cent of them never had seen paddy in real so far. About 80 per cent of them were found to be unaware of the monsoons beneficial to agriculture in Kerala. Questions on crops like yam, chilli, jackfruit, vegetables etc also yielded more frequency of wrong answers. Since 1970's, the state has witnessed a steady decline in the area under paddy. In the last four decades, rice fields have reduced by 76 per cent from 8.75 lakh ha in 1970 to 2.08 lakh ha in 2012 (Directorate of economics and statistics, GOK, 2012). Thus today's children barely gets the 'fortune' of seeing a paddy land or paddy grains in real. They seldom might have heard the terms like njattuvela, Virippu, Mundakan seasons of growing rice etc. About 64 per cent of them believes cabbage and cauliflower as a crop that could be

grown year round in Kerala. This shows the unawareness of today's children about the nature of crops, and they lack the realization that every crop has got a particular time period/season during which only it could be grown. It was also found that 63 percent of the respondents thought of yam as a sturdy and upright growing plant .The lack of awareness on monsoon season denotes the lack of interest of today's generation to know nature, to observe and experience it. These results reiterate earlier observations on the frequency distribution of respondents across different categories based on their scores on awareness. The younger generation seems to be disconnected from agriculture, and this is a matter of great concern as far as development of agriculture as a prospective career is concerned.

### 5.1.2 Awareness of students about the basics of production, processing and plant protection aspects of crops.

On comparing awareness of students undergoing different syllabi in rural and urban locations on various components of agriculture using ANOVA (Table 22), it was found that students exhibited the highest mean value on the crops grown in Kerala(1.69), and the lowest on food security(0.35). This could be explained with the reason that the respondents were fairly familiar with the major crops cultivated in Kerala when compared to other components like planting material of crops, land preparation, fertilizer application etc. Even the term 'food security' may be a new one to the students as Kerala, though not self sufficient in food production, because of the economically well-off position enjoyed by a major share of people in this state, majority of its inhabitants have most likely, only known abundance and wealth, and never might have faced with the issue of lack of food to eat or food insecurity. The children of today are no longer aware of the link between food and agriculture. Their food comes from the supermarket where there is always abundance and an enormous

array of choice. In their perception, food has completely lost its link with the fields where it comes from and with that it has lost its link with agriculture.

It is also evident that the highest awareness levels on various components of agriculture were shown by rural students under state syllabus of Alappuzha and Thrissur District and the lowest awareness level was recorded by the urban students under CBSE syllabus of both districts(Table 22). This indicates the presence of a rural-urban divide with regard to awareness on agriculture. Ellibee (1990), in a study conducted among school students in U.S.A, also reported that urban students have little interaction with agriculture, which inhibits their perception and knowledge of agriculture compared to their rural counterparts.

Table 23 gives the results of percentage distribution of respondents according to awareness on basics of production, processing and plant protection aspects of crops grown in Kerala. Regarding the aspects of awareness on planting material, land preparation and pest and disease management, the maximum number of respondents exhibiting high awareness level was found to belong to the rural school under state syllabus in Thrissur district implying the Government S.M.T higher secondary school at Chelakkara. This could be explained with the fact that Chelakkara is a remote village located about 35 km away from the suburbs of Thrissur city, and the people in Chelakkara region still depend on agriculture and other small scale and cottage industries to a great extent as a primary or secondary source of livelihood. Naturally, the students from these regions will have an understanding about the major aspects of agriculture. The maximum number of respondents exhibiting highest awareness on the components *viz.*, fertilizer application, harvesting and processing was found to be from the rural school under state syllabus of Alappuzha district-ie., R.V.S.M higher secondary school. This school is located near to the remote coastal line of Alappuzha district and has started various agriculture related activities including school

vegetable garden, and promoting kitchen garden at every home under the guidance of NSS unit in this school. Naturally, the students of this school were found to have a high awareness regarding many aspects of agriculture.

On analysing the component food security, it was found that the respondents from CBSE schools excelled in answering the questions related to this component. This could be because they are exposed to various components of agriculture including food security by various chapters in the CBSE curriculum over various years like the chapter ' improvement in food resources' which is taught in class IX.

The difference in awareness level between the students in the two districts selected for this study could be a reflection of the characteristics of the specific locations selected for the study. Since the schools selected in Alappuzha district had close proximity to a vast area of agricultural tract, this could have reflected in the trends explained above.

The above results show distinct difference between rural and urban classes in awareness on difference aspects of agriculture. This could obviously be attributed to the lack of exposure of the urban population to the process of agricultural production. This also shows that majority of the urban students are getting increasingly alienated from this vital primary activity. Pense et al., (2006) reported similar views in his study comprising Illinois twelfth grade students, where more agricultural knowledge was found for students living in rural areas (versus urban) and among students enrolled in experiential learning based programmes in agriculture (versus those who were not enrolled in these programs).

### 5.1.3 Awareness of students about agribusiness

The survey results showed that only nearly 22 per cent of the respondents sampled have heard about the term agribusiness and only 9.9 per cent of them could correctly explain what the term and gave examples for agribusiness ventures. This observation is clearly an indication of the lack of awareness on agribusiness, which is known to be a prospective area of reputation and entrepreneurship. The younger generation is not oriented to this emerging field and this is likely to affect the sustainability of agriculture as a livelihood option for our youth in future. Also, students lack of awareness about this highly potential area indicates too little focus given on our school curriculums on agricultural/agri business activities at different levels of education from elementary school up to higher education in universities.

### 5.1.4 Awareness of teachers about basics of agriculture

It was found that majority of the teacher's possessed medium awareness on agriculture (Table 24). It is to be noted that out of the 12 questions asked to assess the awareness of teachers on agriculture, six questions draw more than 50 per cent wrong answers. In the remaining questions too, more than 20 per cent of the teachers answered wrongly. This is a definite indication of how even the adult generation has started to move away from agriculture. Also it was found that the teachers from rural state school ranked first on comparing the mean value of awareness followed by those from rural CBSE schools. This shows that the adults living in rural areas have got a more inclination towards agriculture. A teacher's background and experience play significant role in teaching students about agriculture, and developing a appositive attitude in them towards agriculture. The low awareness of teachers on aspects related to agriculture will certainly act as a barrier in improving the students awareness on agriculture.

## 5.2 Assessing the perception of students and teachers on agriculture.

On assessing the perception of students on agriculture ( Table 27), it was noted that though majority of them believed agriculture as a decent job in the society, a negative perception that farming occupation is meant for the less privileged in the society was found in about 36 per cent of the sampled respondents. Close to 45 per cent of the respondents either strongly agreed/agreed with the statement that it is better for educated youth to engage in non agricultural sectors to earn a living. Also over 50 per cent of them agreed/strongly agreed it as better for farmers to cultivate cash crops like rubber rather than cultivating paddy or coconut. Man and Kogl (2005) reported that bugger profits garnered through farming will be an impetus for creating positive attitude among younger generation towards farming. There is a general mentality existing that agriculture is a good occupation for the rural youth only. All this denotes the negative perception of today's generation towards agriculture. Agriculture is no longer viewed as a profitable activity in Kerala, and having educated with so many degrees on hand, the younger generation feels that they are fit for corporate jobs or self business rather than involving in agriculture/ agribusiness activities. The opening up of employment opportunities in the Gulf region resulted in the exodus of workers from Kerala and the decline of the agriculture sector to a great extent, and today, no parent of our state nurtures the dream of their child becoming a farmer or entering into agribusinesses. Overbay and Broyles(20008), in a study conducted in Virginia, similarly reported that students were found to prefer public service careers than agricultural careers as they perceived agriculture careers as being low-waged and mainly involving manual labor.

Table 28 presents us with the results of perception of teachers about agriculture as an occupation for prospective youth. It was found that, in general, the teachers sampled had a positive perception regarding agriculture as a profession. Many of the teachers believed agriculture as a remunerative occupation suitable for today's youth.

They agree that it is necessary for our younger generation to explore the immense opportunities offered by the agribusiness sector. Close to 95 per cent of the sampled respondents agree/strongly agree to the idea of promoting agri based enterprises as a subsidiary occupation that could be taken up by every one possible and over 80 per cent of them approved the idea of incorporating agri based experiential learning module in the school curriculum. The implication is that most of the teacher's has got a positive perception towards agriculture. They understand the importance of agriculture as a sector that holds high potential in the development of our nation. The finding that majority of the teachers considers agriculture as a necessary experiential learning based subject to be included in school curriculum implies that they perceive agriculture as a subject enabling the youth to appreciate the role that farmer and agriculture plays in our daily life. This result is in conformity with the studies conducted by Muchiri *et al.,* in Kenya (2013). But *Terry et al.,*( 1990), as a part of their study on the need of implementing agricultural literacy programmes among teachers, reported that almost all of the teachers surveyed had an inaccurate and negative perception on agriculture.

The teachers having direct interaction with the students, they can influence the student's perception on agriculture and hence can bring about a positive change in the attitude of students regarding agriculture. The teachers having positive perception on agriculture is a good sign as it may result in them encouraging the students to take up agricultural courses in future, and can also organise agricultural activities in school level like starting a school vegetable garden, creating awareness on organic farming, encouraging children to have a kitchen garden at home etc.

## 5.3 Identifying the factors governing the perception of students on agriculture.

The distribution of students based on various personal and socio economic factors affecting perception was analysed a detailed discussion of the results obtained is done below:

### 5.3.1 Personal, socio-economic and psychological characteristics of students

The personal, socio-economic and psychological characteristics of students were useful for the study because they can positively or negatively influence the awareness and perception of students on agriculture. The variables gender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of contact, familiarity with farming, participation in extracurricular activities, and monthly income from agriculture enables an in-depth analysis of the respondents.

Distributions of students based on gender showed that majority of them were females accounting to 62.6 per cent (Table 29). This gives a true representation of Kerala state where the population of females is more than males. The state is known to be unique in terms of its sex ratio among all other states and union territories of our nation. The number of women per thousand men in Kerala is 1084 ( SRS statistical report, 2012).

Analysis of background of the respondents showed almost equal distribution of rural and urban students in the sample population (Table 30). This also is a direct reflection of the trends in rural and urban classification of population in Kerala. According to the Census report of 2011, the state has 52.30 per cent rural population and 47.70 per cent urban population. The decadal decline of rural population was – 25.96%, whereas the urban population has grown by 92.72%. The huge rate of growth of urban population indicates the increased rate of urbanization in the state.

It was observed that close to 40 per cent of the respondents sampled posses a home along with home stead/wetland/garden land as landed property and a quarter of them lives in a house surrounded by a few cents of land whereas nearly a quarter of them were found to live in a house surrounded by only few cents of land (Table 31). The state of Kerala is very unique as far as settlement pattern is concerned. It differs widely from the rest of the nation where the hamlets are surrounded by hectares and hectares of field or open areas which lie between the hamlets of habitation, whereas in Kerala, in most of its parts, it is a continuous spread of habitation without much open lands or field separating the houses. The settlement pattern itself gives the colour of urbanization in the state.

Regarding the distribution of respondents based on crops grown (Table 32), it was found that two to four crops were being grown in nearly 70 per cent of the students households whereas there are houses where no crops were being cultivated, not even in kitchen garden, or terraces, and in nearly 10 per cent of the respondents cases, only one crop is being grown. It was also found that paddy is no longer a major food crop cultivated in Kerala, as only 7.8 per cent of the households of the sampled respondents were found to have paddy cultivation. Coconut, vegetables and banana were grown in over 50 per cent of the students households. An interesting fact to be noted is that rubber, a recently introduced cash crop, has emerged as a major cultivated crop in the state as it was found that over 40 per cent of the respondents had rubber cultivation in their home.

The results imply the fact that agriculture is no longer a part of and parcel of Kerala livelihoods. Kerala is not self sufficient even in the case of paddy production. The rise in income from non agricultural sources, plenty of job opportunities in construction and industrial sector both in India and abroad, fragmentation of land, demand for land for non agricultural purposes, high wages and high cost of living, all resulted in a generation that is moving too far away from agriculture.

The State Economic Survey 2014 reported that the contribution of agriculture to the Gross State Domestic Product (GSDP) has steadily declined from 36.8 per cent in 1980-81 to a mere 8.95 per cent in 2013-14. According to the State Planning Board (2011) data, the state is producing only about 12 per cent of its total requirement for rice. Similar is the trend with all other food crops cultivated in Kerala. In 1960-61, the state contributed to nearly 70 per cent of the country's coconut production. In 2011-12, it was at 42 per cent and it dropped further by 2.3 per cent the next year. It should also be noted that the area under cash crops is increasing while the area under food crops is reducing. The State Agriculture Department's data shows that eight perennial cash crops - rubber, cardamom, tea, coffee, pepper, coconut, areca nut and cashew nut—account for 65 per cent of the state's cultivated area, while food crops, such as paddy, tapioca and minor millets, are confined to just 12 per cent. In 2002-03, rubber was grown in 4.76 lakh hectares of land and it increased to 5.39 lakh hectares in 2011-12 (Department of agriculture, 2013). This is a straight implication of the increased preference for 'cash yielding' cash crops.

Table 34 provides data on the type of dwelling of the respondents. Majority of them owns their own house or flat while only a small number of the students, close to 5 per cent, were found to live in rented house. This denotes the comparative well off position of the people living in Kerala compared to other states. The land reforms, increased education, opening up of employment opportunities in the Gulf region, increased salary all lifted the standard of living of the public in the state. Kerala is also known as the sate with least number of homeless people accounting to about 0.04 per cent (Census report, 2011). Kerala has a very high Human development Index and the state's inhabitants are 'richer' when compared to other states of the nation, and it is this richness that enables majority of the population to construct their own houses.

It was noted that over half of the respondents always had rural contact, whereas 6.1 per cent of them rarely visited the rural areas. About half of the respondents resided in rural localities, while others visited rural areas to visit grandparents, friends, relatives and for recreation. The study data clearly provides an insight to the distribution of rural households in Kerala. As per the Census report (2011), out of the total 112 lakh households in the state, about 58.6 lakh is located in rural areas.

On assessing the familiarity of the respondents with farming (Table 37), it was found that about 55 per cent of them sometimes get engaged in farming activities while close to 30 per cent were found to rarely involve in activities related to farming. Only 15 per cent of the students were found to be frequently familiar with agriculture related activities. This clearly indicates the negative mindset of today's generation towards agriculture. Younger generation access to better education and blue and white collar job (many of them low-paid) found agriculture and related jobs strenuous and menial. This self denial of the land-related activities by the youngsters in the state has added to the decline of land area under agriculture in Kerala( Shaharban and Shabna, 2015).

The extent of participation of students in extracurricular activities showed that about 45 per cent of them never took part in extracurricular activities. This could be because of the tight academic schedule and the difficult syllabus at the higher secondary level that leaves the children with less time to engage in such activities. It wass important to assess the extracurricular activities of the students as it not only improve students' self-esteem, self-perception, grades and health, but engaging them in activities related to nature like nature club, eco club, science exhibitions etc provides them with the opportunity of learning by doing.

Distribution of students based on garden in home indicated that 12 per cent of them did not grow any type of garden at home, whereas close to 60 per cent had atleast a single type of garden in their home (Table 39). Distribution of students based on the type of garden grown in home revealed that ornamental garden was being grown in about 70 per cent of the households, whereas in about one –fourth of the respondent's residences, kitchen gardening was being practiced. Terrace gardening was found to be followed in 32 per cent of the households. The shrinking acreage under agriculture in the state and the staggering dependence on imported vegetables and other food items have put Kerala at the bottom of the list of states on the basis of food security. The realization that majority of the vegetables imported from other states to Kerala are poisoned with all sort of chemical pesticides resulted in our households to start terrace gardening or kitchen gardening in whatever space available to them, which thereby helps them to meet the family nutrition needs by growing fruits and vegetables. This new movement which emerged recently will certainly have a positive influence on the awareness and perception of budding generation on agriculture in the long run.

Regarding the monthly income from agriculture, it was found that about 66 per cent of the sampled students family didnot have any income from agriculture, i.e., they were not dependant on agriculture as a primary or secondary source of income. About 16 per cent of them were found to earn an amount less than Rs 5000 per month from agriculture and allied sectors, while 10.9 per cent earned between Rs 5000 and Rs 10000 per month. An amount greater that Rs 25000 per month as income from agricultural sources was received by only 1 per cent of the sampled respondents families (Table 41). These results agree with the general agrarian scenario of our state. The agriculture in Kerala has undergone significant structural changes in the form of decline in share of GSDP from 26.9 percent in 1990-91 to 9.1 percent in 2011-12, indicating a shift from the agrarian economy towards a service sector

dominated economy. According to the Situation Assessment Survey conducted by National Sample Survey Organization (NSSO) in 2013, as opposed to 57.8 per cent of national households declaring themselves as agricultural, 27.3 per cent did so in Kerala. And out of these agricultural households in the state, nearly two-thirds were found to earn income from activities other than agriculture.

### 5.3.2 Relationship between awareness, perception and the personal and socio economic characteristics of the students

The results of non parametric correlation revealed that all the variables including gender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of rural contact, familiarity with gardening, participation in extracurricular activities, garden in home and income from agriculture, were having relationship to the awareness and perception of students regarding agriculture.

Table 42 and 43 provides the results of relationship between the eleven independent variables with the two dependant variables – awareness and perception on agriculture respectively. It was found that gender has positive and significant relationship with awareness on agriculture at 5 per cent level of significance and with perception on agriculture at 1 per cent level of significance, which means female children has got more awareness and perception regarding agriculture. This is a general phenomenon existing because even in this modern era, nearly all the tasks connected with food production and food preparation continue to be left to women. In a farm family, women spend most of their time working on the farms to feed the household. Shouldering this responsibility leads them to learn more about soil, plants, and trees. The results obtained is a contradiction with the observations made by Akinwunmi and Williams(1997), where they in their studies conducted in Nigeria

reported that youth's female students look at farming activities with a more negative mindset and their interest in farming activities is diminishing.

There exist a significant and negative relationship between the background of the respondents and their awareness and perception on agriculture at 1 per cent level of significance. This denotes that those from urban background have got lower awareness on agriculture and also they tend to exhibit a more negative perception regarding agriculture. This is because the rural children will have an opportunity to get familiarized with agricultural activities in their localities but today's urban children, owing to their urban nature, seldom gets the opportunity to know and understand agriculture and its importance in our everyday life. Thus urban students are increasingly getting alienated from this vital activity. Ellibee (1990) reported that urban students have little interaction with agriculture, which inhibits their perception and knowledge on agriculture, compared to their rural counterparts.

Nature of landed property had a positive and significant relationship with both awareness and perception at 1 per cent level of significance. It implies that with the advent of possessing landed property like homestead, wetland and garden land along with home, the awareness and perception of children regarding agriculture varies in a positive manner. It is only natural that a child brought up in an agrarian family will have more understanding about the components of agriculture and the processes involved in food production, thus building a positive perception and awareness on farming.

Regarding the crops grown in the students household, it was found that this variable has got a positive and significant relationship with awareness and perception of students on agriculture at 1 per cent level of significance. This means, the students

who were more exposed to the cultivation of different types of crops showed a positive awareness and perception towards farming. The children in households where farming is being followed in one way or other can appreciate and recognize the noble work done by a farmer in providing us with food to eat, and may develop a positive perception towards agriculture as a profession. Schuster and Constantino (1986) reported that an agricultural background will have a significant impact on the students choice to turn to same profession.

Type of dwelling was found to have a negatively significant relation with both awareness and perception regarding farming at 1 per cent level of significance, which implies that children living in rented households and flats had low awareness and perception. This is true since in most cases, the people living in rented houses show less interest to cultivate crops in and around their place of living as neither the house, nor the landed property belongs to them. There is a chance for them to quit or change the residence at any time, and thus many will not care to engage in intensive farming activities in rented households. The children living in flats never get a chance to know nature and agriculture unless they heeds an occasional visit to the rural localities. There is little space left in the flats to grow vegetables/ fruits and though they can be grown on balconies and available spaces, many in their hectic and busy life schedule in cities, will not take effort to do it.

Rural contact had a significant and positive relation with awareness and perception on agriculture but the purpose of rural contact was found to be significantly negatively correlated with the awareness and perception of students at 1 per cent level of significance. This implies that those students residing in rural areas and always maintaining a rural contact has got more agricultural awareness and perception. It is true as those urban residents occasionally paying a visit to grand

parents, friends or other relatives will not get the time and chance to know agriculture more closely when compared with the rural residents.

The variable familiarity with farming was found to have significantly positive relation with awareness and perception at 1 per cent level of significance, which denotes that students who frequently go involved in farming activities possessed more positive awareness and perception on agriculture. The children, who frequently gets acquainted with farming activities will be more familiar with agriculture, its components, the processes and techniques involved. They will be more agriculturally literate and enthusiastic to learn about agriculture.

On assessing the participation of students in extracurricular activities, it was found that there exists a negatively significant relationship between participation in extracurricular activities with the dependent variables awareness and perception. For students with more extent of participation in extracurricular activities, the awareness and perception on agriculture was found to be less and this could be because since the students were involved in extracurricular activities in addition to the academic activities, there is a possibility of dearth of time for them to get acquainted with activities related to agriculture.

Garden in home has a significantly positive correlation with the students awareness and perception on agriculture at 1 per cent level of significance which means, the more the number of garden in home *viz.*, ornamental/ kitchen/ indoor/ medicinal gardens, more positive is the awareness and perception of students on agriculture. Garden in home provides the children with an opportunity to gain hands on experience in nurturing a plant, bringing them more close to nature. It helps in developing in them, a more positive attitude towards agriculture.

There exists a significant positive correlation between the monthly income from agriculture and the student's awareness and perception on agriculture. This denotes that children from families who were more dependent on agriculture as a primary or secondary source of income had more awareness and perception. It is natural since these children understands the ways of farming well, and accepts it as a profitable activity into which they preferably could get involved in future.

Canonical correlations of the independent set of variables with dependent set namely awareness and perception on agriculture proved that significant relation exist between all these two sets of variables. 47.7 per cent of the variation in awareness and perception of students on agriculture was explained by the set of 11 independent variables.

On analysing the results of step wise regression, it was noted that the variables background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture were only necessary to explain the awareness of sampled students about agriculture. These five factors were found to predominantly influence the awareness level of students. Similarly, it was also noted that perception of children regarding agriculture could be well explained by the independent variables background, participation in extracurricular activities, income from agriculture and gender. The results implies that the combination of the independent variables background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture could predict the variations in dependent variable awareness, whereas a combination of the independent variables background, participation in extracurricular activities, income from agriculture and gender could predict the variation in dependent variable perception.

The results of principal component analysis yielded a correlation matrix wherein the rural schools of the two districts were found to be significantly correlated with each other whereas high correlation existed between the urban schools too, irrespective of the syllabus followed in these schools. The component plot in rotated space clearly depicts the close relationship between the varied background of schools- rural and urban. It could be interpreted from the 2 dimensional diagram that the respondents from the urban CBSE schools of both the districts behave in a similar manner when considering the independent variables, and differs significantly in their characteristics from the rural CBSE schools of the respective districts. The urban school under state syllabus of Thrissur district loaded a bit more on the first component( that denotes urbanness) when compared with the urban school under state syllabus of Alappuzha district, which implies more urban nature from the state school respondents of Thrissur district. This is because, the urban state school from Thrissur included for the survey is located at the core heart of the city and the respondents are completely urbanised in nature. Alappuzha, being a coastal district, some form of agriculture and allied activities like coir and cottage industry, fishing etc are still prevalent even in the urban pockets of Alappuzha, and thus the children tend to have more orientation towards agriculture. Similarly, the students from rural CBSE school of Aalppuzha district was found to load comparatively low on component one (denoting ruralness) and loaded highly on component two (that denotes urbanness) which implies more of urban nature in their rural life. This could be because, the majority of respondents from this school mostly are children of NRI's and were either born or brought up abroad for at least a few years. Thus they have low connections with the village around them. Similar results were reported by Pense et al., (2006) that more agricultural knowledge is among students living in rural areas ( compared with urban).

## 5.4 Examining existing interventions and arriving at recommendations for future.

Table 49 provides a detailed information on the suggestions elicited by teachers to improve the awareness and perception of students on agriculture. Ranks were assigned to each of the suggestions based on the weightage scores obtained and it was found that majority of the teachers considered it as necessary to organise interactive session of school students with successful farmers so as to develop a positive attitude in students towards agriculture. The suggestion to include agriculture as a mandatory subject in the school curriculum ranked second followed by the suggestion to provide financial and technical assistance to schools to implement school vegetable garden on a large scale.

Specific case studies out of respondent groups were done based on the students from rural school under state syllabus from Alappuzha District and urban school under CBSE syllabus from Thrissur district. These two schools had school vegetable garden programmes implemented successfully and the high awareness level of students from these schools on agriculture when compared with the students from other schools reiterated the fact that providing hands on experience in farming could positively influence the awareness and perception of students on agriculture. Reidmiller (2002) reported that the quality of a school garden or agricultural learning material is the single most important factor influencing knowledge, skills and attitude of younger generation about agriculture.

An analysis of the content of syllabus on agriculture in the stream of higher secondary education indicated low coverage on the topics related to agriculture in the school curriculum. On analysing the extent of coverage of agricultural topics in the plus and plus two books in science stream, it was found that the topics on agriculture has got only 2.5 per cent coverage. This could be the major

reason accounting for the general low awareness and perception of students on agriculture. Perrit and Morton (1990) reported that a pre secondary agricultural education will help in developing a positive association and attitude of students towards agriculture. Wright et al., reported that students studying in schools with a n agricultural education program had greater knowledge about agriculture.

**5.5 Policy implications and recommendations for improving the perception and awareness of students on agriculture**

**5.5.1** Agricultural Science should be made compulsory among secondary school students to boost knowledge of agriculture among youths.

**5.5.2** Experiential learning modules in which visit to farmers field and cultivated areas should be incorporated in the school curriculum.

**5.5.3** The facilities of SMART class should be better utilized with involvement of agricultural experts or guest teachers to take the students on a visual tour of trends in agriculture in the state in a phased manner.

**5.5.4** The teachers especially science teachers should be given periodical orientation and updating on agriculture and allied activities.

**5.5.6** Agricultural clubs should be made a mandatory part of every school.

**5.5.7** Since the rural-urban divide among students is very pronounced, efforts to give special orientation and hands on exposure to students in urban schools should be taken

**5.5.8** Enhancement of youth's knowledge of basic farming activities through establishment of Agricultural Training Centers and strengthening of existing ones.

**5.5.9** Incorporating hands on experience based learning programmes on agriculture in the CBSE curriculum

**5.5.10** Changing of peoples negative attitude towards farming through proper orientation and public education

**5.5.11** Since there exist a rural urban divide with regard to awareness and perception of students on agriculture, efforts must be taken to improve the levels of awareness and perception of both rural and urban students on agriculture.

# SUMMARY AND CONCLUSION

# CHAPTER VI

## SUMMARY AND CONCLUSION

In this study the awareness level of students about the basics of crops grown in Kerala, and various other components of agriculture including production, processing and plant protection aspects was studied along with their perceptions on agriculture. In addition, the awareness level of teachers and their perception regarding agriculture as a career option for prospective youth of today was also assessed.

In Indian economy, agriculture still retains its primary importance in terms of value creation and employment generation. But the recent trends suggest the increasing withdrawal of farmers especially the young generation from agriculture. The younger generation of today, if properly guided can act as catalysts of accelerated agricultural and rural development.

In today's highly technological, urbanized world there is less priority placed on agriculture in the school system (Holloway, 2004). Today's urban children often lack the opportunity to learn about farming, or how the science of agriculture affects them daily. Confined within the strict schedules of classes, structured activities and tuitions, children today seem to be far away from the primary activity for man's survival, namely growing of food. In order to make our children agriculturally literate, it is important to assess where they stands in terms of agricultural awareness and what are their perceptions regarding agriculture as a profession and a career option.

The present study was conducted to comprehensively assess the situation in Kerala – what our children of today, the future leaders policy makers think of agriculture, and their perceptions about this sector.

Specifically, the study objectives were;

1. To analyse the levels of awareness among higher secondary students about components of agriculture
2. To assess perception of students and teachers on agriculture
3. To identify the factors governing the perception of students on agriculture
4. To examine existing interventions and arrive at recommendations for the future.

The study was conducted in Alappuzha and Thrisuur districts of Kerala targeting students from one urban CBSE and one rural CBSE school along with one urban state and rural state school from each district. Hence eight schools were selected and from these schools, the entire plus one students of one division, randomly selected, formed the respondents. Thus, three hundred and ninety three students were surveyed. In addition, a total of fifty four teachers from all these schools were randomly selected as it is important to know their awareness on agriculture and perception about agriculture as an occupation for prospective youth.

Selection of variables was largely based on getting parameters that would assist in analysing the factors governing the perception of students on agriculture. The data was collected using a well structured and pre tested questionnaire developed for the study. Gender, gender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of contact, familiarity with farming, participation in extracurricular activities, garden in home and income from agriculture were the independent variables included in the study.

Statistical package for social sciences (SPSS version 16) was used to tabulate, analyse and interpret the data. The statistical tests used in the study includes :

percentage analysis, Factorial ANOVA, simple correlation, canonical correlation, Step wise regression, Kruskal Wallis test and Principal component analysis.

The salient findings of the study were :

- There exists huge variation in the awareness level of students from rural to urban background and also between respondents from state and CBSE syllabus
- The results of Kruskal Wallis test showed that there exists statistically significant difference in awareness level among teachers from different schools having different background and syllabus
- On analysing the perception of students on agriculture, the salient features that came up include, close to 36 percent of the sampled respondents have a negative perception that farming occupation is meant for the less privileged in the society
- 44 per cent of the student's felt it as better for educated youth to engage in industrial/service sector than earning a living through agriculture
- About 84 per cent of the teachers felt it as necessary to incorporate the agri based experiential learning module into the school curriculum
- The simple correlation analysis between the independent variables included in the study with the dependent variables awareness and perception separately revealed that there exist strong, positive or negative correlation between them
- To assess the relationship between the dependent set of variables with the independent set of variables, a canonical correlation analysis was done . The result implies that 47.7 per cent of variance in awareness and perception of students on agriculture was explained by the independent set of variables included in this study

- Multiple regression analysis revealed that background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture were the key factors affecting awareness whereas background, income from agriculture, participation in extracurricular activities and gender were found to be the key explanatory factors affecting perception of students

- The Principal component analysis denoted the close relationship between the two sets of schools- rural and urban, irrespective of their syllabus, and indicated the existence of a rural-urban divide with regard to the awareness and perception on agriculture

- Interactive session of students with successful farmers should be organised by every school so as to help students realize that farming, when done systematically and scientifically, could be a profitable venture. Was the suggestion ranked one by the teachers to improve the awareness and perception of students on agriculture, followed by a suggestion to incorporate agriculture as necessary subject to be studied in the school curriculum.

- An analysis of the content of text books in higher secondary level (including plus one and plus two) was done. It was found that in the subject biology, the total number of pages in the text book when combining classes plus one and plus two comes to 632 pages and out of this , only 16 pages are having content related to agriculture. This means the topic agriculture has got only 2.5 per cent coverage when analysing the content of biology textbook in the stream of our higher secondary education.

**Suggestions for future line of work**

- Assessing the awareness level and perception of higher grade students especially the professional students on agriculture
- Assessing the variation in awareness level and perception of students belonging to different agro climatic zones of Kerala
- Device methodology to assess the aptitude of School children towards agriculture

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# APPENDICES

## APPENDIX I-QUESTIONNAIRE FOR STUDENTS

**Perception of school students of Kerala on agriculture and its implications**

**By Razia Fathima**

1. Name of the respondent:
2. Gender ( Male / Female ) :
3. Whether belonging to rural / urban area

   a) Rural ☐ b) urban ☐
4. Father's Name :
5. Mothers' Name :
6. Educational and occupational status of parent

| | Educational Qualification | Occupation | Annual income |
|---|---|---|---|
| Father | | | |
| Mother | | | |

7. Number of family members :
8. Details of land area:

| | | Area |
|---|---|---|
| Home | | |
| Homestead | | |
| Agricultural land | Wet land | |
| | Garden land | |

9. Details of crops grown

| Crops | cultivated in your homestead/field or not(Yes/ No) |
|---|---|
| Paddy | |
| Coconut | |
| Vegetables | |
| Banana | |
| Other crops if any | |

10. Type of dwelling

a) independent own house ☐ b) flat ☐ c) rented house ☐ d.) other ☐

11. ( i ) Contact with rural area

a ) Always ☐ b) Frequently ☐ c) Sometimes ☐

d) once in a year ☐ e) Rarely ☐

( ii ) Purpose of contact

a) Home/ Native place ☐

b) Ancestral Home ☐

c) To visit relatives / friends ☐

d) Visit for recreation ☐

e) Others ☐

12. Familiarity with farming/ gardening

a) Frequently ☐ b) Sometimes ☐ c) Rarely ☐

13. Participation in extra-curricular/ social activities at school

a) NCC ☐ b) NSS ☐ c) Social club ☐ d) Agricultural club ☐

e) Eco-club/ Nature club ☐ f) Science club ☐ g) Debate ☐ h) Music/dance ☐

14. Do you have any garden in your home? If yes please do specify

a) Ornamental ☐

b) Kitchen ☐

c) Nutritional ☐

d) Indoor ☐

e) Terrace ☐

f) Others if any ☐

15. Do you have any of the following sources of income?

| | Average income / month |
|---|---|
| Agriculture | |
| Animal Husbandry | |
| Fisheries | |
| Poultry | |
| Apiary | |
| Mushroom | |
| Food Processing | |

**I. Awareness about major crops grown in Kerala**

1. Have you seen paddy so far?
2. Have you seen the following trees / crops?
   a) Kudampuli ☐
   b) Tamarind ☐
   c) Cocoa ☐

d) Betel vine ☐

3. Have you seen the following varieties of banana?

a) Robusta ☐

b) Nendran ☐

c) Chenkadali ☐

d) Poovan ☐

e) Palayankodan ☐

f) Njalipoovan ☐

g) Monthan ☐

4. Which of the following pulse crops can you identify?

a) Black gram ☐ b) Cowpea ☐ c) Green gram ☐

d ) Green pea ☐ e) Red gram ☐

5. Have you heard about the two types of jackfruit? If yes, please do state them

6. Is cashew apple the actual fruit of cashew?

7. Do you know about any rice growing seasons in Kerala?

8. Which of the following mango varieties you have came across? Indicate with a tick mark

a) Alphonso ☐

b) Neelum ☐

c) Moovandan ☐

d) Karpooram ☐

e) Mulgoa ☐

f) Kilichundan ☐

g) Priyoor ☐

9. Which of the following vegetable crops have you seen?

a) Winged bean ☐

b) Bhindi/ ladies finger ☐

c) Brinjal ☐

d) Drumstick/ Moringa ☐

e)Chekkurmanis/madhuracheera/Vallicheera ☐

10. Do you know any non pungentchilli variety? If yes, name the variety

11. Are cabbage and cauliflower regularly grown in Kerala?

12. Is yam a sturdy and upright growing plant?

13. Which of the following spices could you identify?

a) Cinnamon ☐

b) Pepper ☐

c) Clove ☐

d) Vanilla ☐

e) Cardamom ☐

e) Nutmeg ☐

14. Which of the following medicinal plants have you come across?

a) Kacholam ☐

b) Thippali ☐

c) Karinochi ☐

d) kattarvazha ☐

e) brahmi ☐

f) koovalam ☐

g) asoka ☐

15. Which are the monsoon season's beneficial to agriculture in Kerala? Indicate with a tick mark

a) South East monsoon ☐

b) North East monsoon ☐

c) South West monsoon ☐

d) North West monsoon ☐

e) East West monsoon ☐

**II. Awareness about the basics of production, processing and plant protection aspects of crops**

**A. Crop charecteristics, seeds/planting materials and varieties**

16. What is the planting material for ginger and turmeric?

    a) Stem cuttings ☐

    b) Root cuttings ☐

    c) Rhizomes ☐

17. Is it true that pepper plants could be raised from pepper berries?

18. Do you agree that 'Uma' is a variety of rice?

19. Is it true that brinjal fruit has got green colour when immature and attains violet colour when it gets mature?

20. If a coconut adult palm's top portion is removed, will it grow again?

**B. Land preparation and planting**

21. Do you think that pandals could be used for growing pumpkin?

22. Is it true that cowpea could be grown in any season?

23. Could rice be grown in uplands too?

24. Do you think pepper could be intercropped with tapioca?

25. Could coconut be propagated through tissue culture seedlings?

**C. Manuring and intercultural operations**

26. Is it necessary to manure coconut palms every summer?

27. Do you think that the immature vegetables are covered with newspaper to make them grow bigger in size?

28. Do you know the reason for tying stone at the edge of snake gourd? If yes, state the reason

29. Is it true that coconut could give high yield without proper management practices?

30. Do you agree that vegetables are recommended to be grown in kitchen garden as they could be grown without proper irrigation?

**D. Pest and disease management**

31. Do you think spiders are the enemy of rice seedlings?

32. Have you seen large black beetles (known as rhinocerousbeetle ) that attacks coconut?

33. Bunchy top of banana results in

    a) Early bunching of banana ☐

    b) retarded growth ☐

    c) toppling down ☐

    d) accelerated growth ☐

34. Is it true that aphid attack in cowpea won't result in economic damage?

35. Have you ever seen closely any crop pest?

**E.Harvesting**

36. Is it true that the duration between two successive harvesting of nuts from coconut palm is 60 days?

37. Could we harvest elephant foot yam after 6 months of planting?

38. Is it true that rubber tapping should be done in after noon to obtain maximum latex flow?

39. What is the duration of rice crop?

40. After fruit setting, will the mango fruit takes 4 months to fully mature and ripen ?

**F. Processing**

41. Is maida obtained from maize?

42. Do you know what is copra? If yes, please do give the answer

43. Is it from the tender nuts of coconut that we could obtain toddy?

44. Is it true that ground nut oil is obtained from ground nut shell?

45. Is butter made from ghee?

**G. Nutritional aspect**

46. Which among the following is a rich source of protein?

a) Grains ☐

b) Fruit crops ☐

c) Pulses ☐

47. Which drink is said to have high potassium content and anti oxidants?

a) water melon juice ☐

b) coconut water ☐

c) rice gruel water ☐

48. Which traditionally growing fruit crop is said to have the potential to ensure food security?

a) Mango ☐

b) Papaya ☐

c) Jack fruit ☐

d) Coconut ☐

**III. Awareness about Agribusiness**

1. Have you heard about the term ' agri business' ?
2. Do you know what is agribusiness?

   If yes, could you list out some of the agri business enterprises?

**IV. Perception of students about agriculture as an occupation and a business**

| Statements | Strongly agree | Agree | Disagree | Strongly disagree |
|---|---|---|---|---|
| Agriculture is a decent job in the society | | | | |
| Farmer is a respectable person in the society as he provides food for others | | | | |
| Farming occupation is meant for less privileged in the society | | | | |

| | | | | |
|---|---|---|---|---|
| It is better for educated youth to engage in service/ industrial sector than earning a living through agriculture or agri based enterprises | | | | |
| Agri business enterprise is a promising area for youth with an aptitude towards agriculture | | | | |
| Agriculture as an occupation is a good option for rural youth only | | | | |
| The farmers must concentrate more on remunerative crops like rubber than cultivating paddy or coconut | | | | |

## APPENDIX II-QUESTIONNAIRE FOR TEACHERS

### Perception of school students of Kerala on agriculture and its implications

Name of the teacher :

Subject of specialization :

**I. Awareness of teachers about the basics of agriculture**

1. Which are the monsoon season's beneficial to agriculture in Kerala? Indicate with a tick mark

   a) South East monsoon ☐

   b) North East monsoon ☐

   c) South West monsoon ☐

   d) North West monsoon ☐

   e) East West monsoon ☐

2. Is cashew apple the actual fruit of cashew?
3. Do you know about any rice growing seasons in Kerala?
4. What is the planting material for ginger and turmeric?

   a) Stem cuttings ☐

   b) Root cuttings ☐

   c) Rhizomes ☐

5. Do you agree that 'Uma' is a variety of rice?
6. Have you seen sowing/transplanting of paddy so far?
7. Could paddy be grown in uplands too?
8. Is it true that cowpea could be grown in any season?
9. Is it necessary to manure coconut palms every summer?
10. Do you think spiders are the enemy of rice seedlings?

11. Is it true that the duration between two successive harvesting of nuts from coconut palm is 60 days?

12. Can we harvest elephant foot yam after 6 months of planting?

13. Is maida obtained from maize?

14. Is it from the tender nuts of coconut that we could obtain toddy?

15. From where sago is made?

    a) rice gruel water ☐

    b) rice flour ☐

    c) tapioca ☐

    d) wheat flour ☐

**II. Perception of teachers about agriculture as an occupation for prospective youth**

| **Statements** | **Strongly agree** | **Agree** | **Disagree** | **Strongly disagree** |
|---|---|---|---|---|
| Agriculture is not remunerative enough for recommending as an occupation for todays youth | | | | |
| Agri based enterprises are highly risk oriented and have unpredictable prospects | | | | |
| Youth should explore the immense possibilities offered by agri business | | | | |
| More and more outh should coe to agriculture and agri related enterprises | | | | |
| Agriculture as an occupation is not a good option for today's educted urban youth | | | | |
| Agriculture as an occupation is not a good option for educted rural youth | | | | |
| Agri based enterprises should be taken up as a subsidiary occupation by every ne possible | | | | |
| It will be good if an agri based experiential lear4ning module is incorporated in the school curriculum | | | | |

III. Are there any interventions in school at present ( like school vegetable garden, agriculture clubs etc) to improve the students aptitude towards agriculture? If yes, to what extent have you succeeded in making the students awre about agriculture?What are the major problems you faced while implementing the programme

IV. Give your valuable suggestions for improving awareness of students on agriculture

## APPENDIX III: INTRODUCTORY LETTER TO JUDGES FOR JUDGES RATING

KERALA AGRICULTURAL UNIVERSITY
COLLEGE OF HORTICULTURE

**Department of Agricultural Extension**

---

Dr. Jayasree Krishnankutty M

Associate Professor

Vellanikkara

21.09.2014

Dear Sir/Madam,

Attached with this is a list of questions/statements to assess the awareness and perception of students and teachers on agriculture, compiled by my student, Razia Fathima, as a part of her thesis work.. Her work entitled, 'Perception of school students of Kerala on agriculture and its implications' tries to comprehensively assess the awareness and perception of today's younger generation on agriculture. The questions/statements presented here are so chosen to cover all the aspects of awareness and perception related to the objectives of the study.

I would like to request you to spare a little of your valuable time to go through them and rate them according to their relevance so as to formulate the final questionnaire. The objectives of the study are given overleaf.

Thank you in advance

With best regards

Jayasree Krishnanakutty

## APPENDIX IV: PERCEPTION STATEMENT FOR STUDENTS - JUDGES RATING RESULTS

| Sl. No | Perception statements | Total Score | Rank Order |
|---|---|---|---|
| 1 | Agriculture is a decent job in the society | 112 | I |
| 2 | Farmer is a respectable person in the society as he provides food for others | 112 | II |
| 3 | Farming occupation is meant for less privileged in the society | 110 | III |
| 4 | It is better for educated youth to engage in service/ industrial sector than earning a living through agriculture or agri based enterprises | 109 | IV |
| 5 | Agri business enterprise is a promising area for youth with an aptitude towards agriculture | 109 | IV |
| 6 | Agriculture as an occupation is a good option for rural youth only | 108 | V |
| 7 | The farmers must concentrate more on remunerative crops like rubber than cultivating paddy or coconut | 108 | V |
| 8 | Every school should have a vegetable garden on their own where the students and teachers can work together | 101 | VI |
| 9 | Secondary school agriculture enables students develop skills necessary for self-reliance and self-employment | 98 | VII |
| 10 | Learning agriculture promotes students career opportunities | 98 | VII |
| 11 | Products from students agricultural projects lowers the schools food expenses | 96 | VIII |
| 12 | Agriculture should be taught to all students regardless of whether they wish to join farming after leaving school | 95 | IX |
| 13 | Teaching agriculture in secondary school ensures that schools take an active part in rural development | 95 | IX |
| 14 | Agriculture is an activity done by rural farmers for providing food to urban dwellers | 93 | X |
| 15 | Agriculture is necessary but in modern life, it is difficult to practice | 92 | XI |
| 16 | Profitability of agriculture cannot be raised beyond a level | 90 | XII |
| 17 | Farming is a profession that involves lot of stress and hard work | 88 | XIII |
| 18 | There are not many job opportunities in the field of agriculture | 88 | XIII |
| 19 | More coverage should be given to agriculture as a syllabus in school curriculum | 87 | XIV |
| 20 | There is no big harm in using chemicals to control crop pests and diseases | 84 | XV |

## APPENDIX V: PERCEPTION STATEMENT FOR TEACHERS - JUDGES RATING RESULTS

| Sl. No | Perception statements | Total Score | Rank Order |
|---|---|---|---|
| 1 | Agriculture is not remunerative enough for recommending as an occupation for today's youth | 111 | I |
| 2 | Agri based enterprises are highly risk oriented and have unpredictable prospects | 109 | II |
| 3 | Youth should explore the immense possibilities offered by agri business | 109 | III |
| 4 | More and more youth should come to agriculture and agri related enterprises | 109 | IV |
| 5 | Agriculture as an occupation is not a good option for today's educated urban youth | 107 | IV |
| 6 | Agriculture as an occupation is not a good option for educated rural youth | 106 | V |
| 7 | Agri based enterprises should be taken up as a subsidiary occupation by every one possible | 105 | V |
| 8 | It will be good if an agri based experiential learning module is incorporated in the school curriculum | 103 | VI |
| 9 | Participation of students in agricultural activities promotes good relations among the members of the school and the surrounding community | 98 | VII |
| 10 | Secondary school agriculture enables students develop skills necessary for self-reliance and self-employment | 98 | VII |
| 11 | Learning agriculture promotes students career opportunities | 95 | VIII |
| 12 | Agriculture should be taught to students of all academic abilities | 92 | IX |
| 13 | Agriculture should be taught to all students regardless of whether they wish to join farming after leaving school | 92 | IX |
| 14 | Agriculture projects in the school promote better understanding among the learners on what has been taught in the classroom | 92 | IX |
| 15 | Products from students agricultural projects lowers the schools food expenses | 91 | X |
| 16 | Learning agriculture helps students to contribute to economic development in the community | 90 | XI |
| 17 | Teaching agriculture in secondary schools makes the youth have positive attitude towards manual work | 89 | XII |

# APPENDIX VI : CANONICAL CORRELATION STATISTICS

| Canonical Analysis Summary | | | |
|---|---|---|---|
| Canonical R: .69080 | | | |
| Chi²(22)=271.35 p=0.0000 | | | |
| | Left Set | Right Set | |
| No. of variables | 11 | 2 | |
| Variance extracted | 42.5565% | 100.000% | |
| Total redundancy | 17.9083% | 36.9283% | |
| Variables: 1 | VAR1 | NEWVAR12 | |
| 2 | VAR2 | NEWVAR13 | |
| 3 | VAR3 | | 2 |
| 4 | VAR4 | | 2 |
| 5 | VAR5 | | 2 |
| 6 | VAR6 | | 2 |
| 7 | VAR7 | | 2 |
| 8 | VAR8 | | 2 |
| 9 | VAR9 | | 2 |
| 10 | VAR10 | | 2 |
| 11 | NEWVAR11 | | 2 |

| NEWVAR12 | NEWVAR13 |
|---|---|
| 0.108123 | 0.155444 |
| -0.59063 | -0.41548 |
| 0.467223 | 0.305454 |
| 0.407667 | 0.256197 |
| -0.06377 | -0.08855 |
| 0.52031 | 0.382437 |
| -0.50785 | -0.39143 |
| 0.442019 | 0.230598 |
| -0.24676 | -0.18222 |
| 0.465395 | 0.31879 |
| 0.428166 | 0.331467 |

# PERCEPTION OF SCHOOL STUDENTS OF KERALA ON AGRICULTURE AND ITS IMPLICATIONS

**By**

**RAZIA FATHIMA**

**(2013-11-144)**

## ABSTRACT OF THE THESIS

***Submitted in partial fulfillment of the requirement***

***for the degree of***

## MASTER OF SCIENCE IN AGRICULTURE

(AGRICULTURAL EXTENSION)

**Faculty of agriculture**

**Kerala Agricultural University, Thrissur**

**DEPARTMENT OF AGRICULTURAL EXTENSION**

**COLLEGE OF HORTICULURE**

**VELLANIKKARA, THRISSUR-680656**

**KERALA, INDIA**

**2015**

# ABSTRACT

With growing urbanization, better literacy standards and greater skill attainment by rural youth, our younger generation is moving away from agriculture.In India, children get hardly any exposure to agriculture through a curriculum predominated by arts and science.This is all the more pronounced in Kerala, the state with highest degree of urbanization in India. In this background, the present study entitled 'Perception of school students of Kerala on agriculture and its implications' was taken up in the Department of Agricultural Extension, college of Horticulture, Vellanikkara, during 2013-15 to assess the awareness level and perception of today's children on agriculture.

Survey was conducted among higher secondary school students of Alappuzha and Thrissur districts of Kerala. From each district, one urban school each with CBSE and state syllabus and one rural school each with CBSE and state syllabus were selected. Thus a total of eight schools were selected, and from these schools, the entire students of one division, randomly selected, formed the respondents. Hence, three hundred and ninety three students were surveyed. In addition, a total of sixty four teachers from all these schools were randomly surveyed as it is important to know their awareness on agriculture and perception about agriculture as an occupation for prospective youth.

The results revealed that there exists huge variation in the awareness level of students from rural to urban background and also between respondents from state and CBSE syllabus. The ANOVA analysis done proved that the highest level of awareness on agriculture, was exhibited by the students from rural state syllabus school of Alappuzha District closely followed by the students from rural state syllabus school of Thrissur district. The lowest awareness level was recorded for students from urban CBSE schools of Thrissur and Alappuzha districts with a mean value of awareness as 0.449 and 0.470 respectively.

The results of Kruskal Wallis test showed that there exists statistically significant difference in awareness level among teachers from different schools, with teachers from rural state syllabus schools having the highest awareness with a mean value of 50.53 and from the urban CBSE schools having low awareness with a mean value of 20.34.

On analysing the perception of students on agriculture, the salient features that came up include, close to 36 percent of the sampled respondents have a negative perception that farming occupation is meant for the less privileged in the society, and 44 per cent of the student's felt it as better for educated youth to engage in industrial/service sector than earning a living through agriculture. Nearly 48 per cent of the students think about agriculture as a good occupation only for the rural youth. The analysis of perception of teachers revealed that though all of them believe that it is necessary for our youth to explore the immense opportunities offered by our

agribusiness sector, close to 86 per cent of them consider agribusiness enterprises as highly risk oriented having unpredictable prospects. About 84 per cent of the teachers included in this study felt it as necessary to incorporate the agri based experiential learning module into the school curriculum.

The simple correlation analysis between the independent variables included in the study ( namelygender, background, nature of landed property, crops grown, type of dwelling, rural contact, purpose of contact, familiarity with farming, participation in extracurricular activities, garden in home and income from agriculture)with the dependent variables awareness and perception separately revealed that there exist strong, positive or negative correlation between them. With a view to assess the relationship between the dependent set of variables with the independent set of variables, a canonical correlation analysis was done. The canonical correlation analysis yielded a canonical R value (Rc=0.691) and squared correlation value $R^2C$ = 0.477 and the same were found to be highly significant as revealed by Chi square value of 271.35 ($p < .001$).

To find out the contributory factors affecting the dependent variables awareness and perception, a stepwise regression analysis of the two dependent variables on the vector of independent variables was conducted separately. The analysis revealed that background, garden in home, participation in extracurricular activities, familiarity with farming and income from agriculture were the key factors affecting awareness whereas background, income from agriculture, participation in extracurricular activities and gender were found to bethe key explanatory factors affecting perception of students.

A principal component analysis was conducted to assess how the eight schools surveyed could be clustered based on the independent variables included in the study.The analysis yielded a correlation matrix wherein the rural schools of the two districts were found to be significantly correlated with each other. High correlation existed between the urban schools too.The component plot in rotated space clearly depicted the close relationship between the two sets of schools- rural and urban, irrespective of their syllabus, and indicated the existence of a rural-urban divide with regard to the awareness and perception on agriculture.

## APPENDIX VII: PHOTOS DURING DATA COLLECTION IN SCHOOLS IN ALAPPUZHA AND THRISSUR DISTRICTS

**Collecting responses from students of R.V.S.M Prayar**

**A class on terrace gardening as a part of the survey at Matha Higher Secondary School, Alappuzha**


**Survey at T.D.H.SS, Alappuzha**

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**Survey at Thanveer higher secondary school, Alappuzha**

**Collecting responses of students from S.M.T Higher secondary school, Chelakkara**

**Survey at J.P.E.H.S.S Thrissur**

**Survey at Bharatiya, Vidya Bhavan, Poochatty**



**Survey at Bharatiya Vidya Bhavan, Wadakkancherry**