AoA UNDER WTO AGREEMENTS IN SPICE SECTOR IN KERALA - A STAKEHOLDER ANALYSIS

By
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THESIS

Submitted in partial fulfilment of the requirement for the degree of

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DECLARATION

I hereby declare that the thesis entitled **"AoA under WTO agreements in spice sector in Kerala – A stakeholder analysis"** is a bonafide record of research work done by me during the course of research and the thesis has not previously formed the basis for the award to me of any degree, diploma, associate ship, fellowship or other similar title, of any other university or society.

Vellanikkara
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CERTIFICATE

Certified that the thesis entitled **"AoA under WTO agreements in spice sector in Kerala – A stakeholder analysis"** is a record of research work done independently by **Ms Sajin.P.T** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, diploma, associate ship or fellowship to her.

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LIST OF ABBREVIATIONS USED

AMS - Aggregate Measurement of Support

AoA – Agreement on Agriculture

BEIC - British East India Company

EU – European Union

GATT - General Agreement on Tariffs and Trade

GSP - Generalized System of Preferences

IPSTA - International Pepper and Spice Trade Association

MFN - Most Favored Nation

NT - National Treatment

QRs - Quantitative Restrictions

SPS - Sanitary and Phyto-Sanitary

SSG - Special SafeGuard

TBT – Technical Barrier to Trade

TRIPS – Trade Related aspects of Intellectual Property Rights

UR - Uruguay Round

US – United States

WTO - World Trade Organization

INTRODUCTION

CHAPTER 1
INTRODUCTION

When you descend on the earth, the birds that are regular travelers leave their abode and flies upwards. Then men, who are engaged in agriculture or trade for their bread, embark happily on a journey for trade. As such, O goddess of wealth brings to the man who sits before the sacrificial pyre – the master of the sacrifices – fortune of a lifetime. (Rigveda, Ashtakom – 2)

The oldest spiritual scripture in the library of the mankind, the Vedas gives flashes of insight into the trade related activities of the people who lived along the banks of the river Sindhu. The civilization that emerged 2500 years before Christ on the banks of the river Sindhu existed for over a thousand years. The fertile soil that was washed down from the Himalayas by the river Sindhu paved the way for one of the greatest agricultural civilization of the ancient world namely the Harappan civilization.

When the people of Harappan culture became self sufficient, they distributed the leftovers among the town people who were engaged in other trade related activities. Thus before four thousand years along the lines of the Harappan civilization the idea of trade came into existence.

From 100 B.C, historians have recorded the arrival of the Arab traders through the Red sea, the Arabian Sea and the Persian Gulf to the major ports of Kerala for trade related activities. There are enough hints in the ancient texts of the Sangha period the Aka nanoor and Pura nanoor about Kodungalloor being a famous trading center. Italian traveler Pliny too records the town of Mussiris (Kodungalloor) in his book Historia Naturalis.

"Travels of Marco polo", which has no parallels in travelogues gives immense details about Kerala especially about Malabar and its spices. Another famous traveler of the medieval period Ibn Battuta, gives reference of the arrival of trading ships from China, Ceylon, Yemen and Persia to the ports of

Kozhikode.when Vasco-da-Gama discovered the sea route to India through the Cape-of-Good Hope in 1488, he was knowingly or unknowingly opening a new chapter in the trading history of Kerala with the European world.

Thus the importance that has been assigned to trade is obvious throughout the historical tradition of India. This is again revealed when the British developed an intense fervour to have trade with India through the establishment of East India Company in 1600. The British East India Company (BEIC) sent Capt. Williams Hawkins to India in 1609 to get concessions from the Mughal emperor for spices and textiles. Operating as a trading company initially, the British later on took the control and possession of most parts of India.

It is cognizable that the period of international trade had become well established when western world tried to deliver their manufactured produce in different countries. However, in 1930's and during the Second World War, the world had experienced the problems of extensive pattern of rigorous trade barriers. As a result, the idea of a liberal world trading system emerged after World War II among the allied power. The result of such an attempt was the General Agreement on Tariffs and Trade (GATT) that was signed by 23 nations on 30 October 1947,which agreed to continue extensive tariff negotiations for trade concessions. GATT came to effect from January 1, 1948 with more nations as members.

GATT was simply a multinational treaty that covered 80 per cent of the world trade. It was a decision making body with a code of rules for the conduct of international trade and a mechanism for trade liberalization. It was a forum where the contracting parties met from time to time to discuss and solve their trade problems and negotiated to enlarge their trade. Since its inception, seven rounds of global trade negotiations have taken place and the eighth in Punta Del Este (Uruguay) started in September 1986 and concluded on 15th April 1994. This was the most ambitious multilateral trade negotiation, popularly known as Uruguay round. The World Trade Organization (WTO) came into existence on 1 January 1995 marking the highest reform in the history of international trade. (Saravana, 2002).

The WTO is the only global international organization dealing with the rules of trade between nations. Agriculture was brought under the purview of multilateral trade negotiations for the first time in order to reduce the distortions in agriculture trade as well as for the gradual establishment of a fair and market oriented agriculture trading system. Thus, the Agreement on Agriculture (AoA) was finalized in this round. The areas of coverage of the agreement are: market access, domestic support, export competition and Sanitary and Phyto-Sanitary (SPS) measures. The GATT/WTO free trade system is based on Ricardo's theory of competitive advantage. Ricardo's theory espouses that all nations will be better off from free trade. If each country specializes in what they produce most efficiently and trade, it will result in benefit from the optimal allocation of resources. However, some have criticized this theory as being inadequate and self-serving. More over, the theory of comparative advantage fails to consider the non-trade issues such as food security, self-sufficiency and environment and labour (Kohli, 2001).

However, the role of WTO has moved far beyond its intended purpose as a trade organization. Globalization of economies and liberalization of trade have economic, ecological, ethical, technological dimensions. (GOK, 2003)

It is in this context that we have to critically examine the scenario of Indian agriculture that faces several challenges, internal and external. Internal challenges include those in farm production, processing industry and marketing. They are well recognized and need to be addressed urgently. External challenges are the challenges faced due to globalization. These external challenges are threatening to weaken our already emaciated agriculture sector. The process of globalization adopted by India is irreversible. Ignoring the challenges will be perilous because the livelihood of two – thirds of the population is dependent on agriculture and allied activities. Therefore, it is necessary to create conditions and also empower both agriculture and industry to face globalization with out getting blown away. (Chandrasekhar, 2002).

Kerala stands aside irrespective of its sensitivity to changes in the national and international trade environment of our country. More than 80 per cent of our

agricultural commodities are dependent on domestic and international market. The state accounts for 45 per cent of the plantation crops in the country that provide daily employment to nearly four lakh workers. Nearly ten per cent of its population depends upon plantation crops for their livelihood. Kerala is also the only state in the country having a substantial stake in all the four major plantation crops viz., tea, coffee, rubber and cardamom (GOK, 2003)

Spices sector is one of the key areas in which India has an inherent capacity to dominate the global market. Indian share in the world spice trade is estimated at 45 – 50 per cent export earning from agriculture and allied products. India is the largest producer, consumer and exporter of spices in the world. The position of Kerala is unique in the country's spice contribution. Kerala retains the lead in black pepper production in the country contributing 96 per cent of area and 97 per cent of production during 1999-2000.

Cardamom, the "queen of spices" enjoys premium preference in the international market. Kerala contributes 62.63 per cent of area and 81.62 per cent production of small cardamom in India during the triennium ending 2000. Ginger is one of the oldest known spices in the world and Indian ginger has high esteem in the global market because of its characteristic lemon like flavour. Kerala contributes 17.4 per cent of area and 17.98 per cent of production of ginger in India during the triennium ending 2000. Similarly, Kerala contributes 2.45 per cent of area and 1.39 per cent of production of turmeric in India during the triennium ending 2000. (Peter and Nybe, 2002).

Following the initiation of trade liberalization in farm products, Kerala's agriculture products have encountered unprecedented price crash. The char of this crisis has been borne by farmers possessing small and marginal farm holding, who constitute a major segment of the rural workforce. Their subsistence depends upon favourable market price. Hence we need to seek awareness within the ambit of the WTO agreement of reversing this adverse trend of not taking advantage of the opportunities of the agreement to expand and diversify our domestic market through trade. (GOK, 2003)

Though AoA has far reaching implications in the marketing of spices it is not clear as to how far the farmers, traders and development officers are conversant about the provisions of AoA and related aspects. Similarly how far the media are instrumental in developing perception about the WTO agreements among the key stakeholders is also an important area to be probed.

Against this background, the present study was formulated with the following specific objectives:

1. To analyze the level of knowledge of key stakeholders about WTO agreements
2. To analyze the perception of key stakeholders about the impact of WTO agreements on spices production and marketing
3. To analyze the role of media on the perception of stakeholders about WTO agreements
4. To suggest appropriate measures for utilizing the provisions of WTO agreement to the advantage of farmers.

Scope of the study

The global farm trade scenario started changing after the introduction of the multinational trading system under the AoA. So far the anticipated enlarged market access following the AoA is yet to materialize. Many inequities are obvious in AoA that proved to be an unequal trade bargain between industrialized and developing countries. Farming constitute the backbone of the livelihood security system of predominantly agriculture and rural economies. Ultimately when trade becomes free and fair, global competitiveness can be achieved only through domestic productivity, quality, and value- addition.

The media also have special responsibility in reporting on the various processes of WTO and their implications in the field of agriculture to the public at large. This is particularly warranted in a state like Kerala where newspaper readership and media coverage are so wide spread and the media are already highly sensitized to livelihood concerns.

The recommendations concerning the immediate and long-term action are needed on the part of all stakeholders starting with small producers, planters, traders, extending up to the state and central governments. The present study will help to throw light on some of these aspects in the spice sector.

Limitations of the study

As the investigation was undertaken by a student researcher, it has the usual limitation of time and resources. The study was confined to a limited area and sample size. Hence the findings have to be viewed in the specific context of the conditions prevailing in the area of the study and cannot be generalized for a wider geographical area. However, these findings will be applicable wherever similar conditions prevail. The study was also confined to spices sector and this necessarily shall not reflect the issues in the plantation sector.

Presentation of the study

The report of the study has been spread out under five chapters. While the first chapter deals with the introduction, the second chapter covers review of related studies in light of present investigation. The third chapter is related to the details of the methodology in the process of investigation, followed by the results and discussion presented in the fourth chapter. The fifth chapter gives a summary of the study followed by references and appendices.

REVIEW OF LITERATURE

CHAPTER 2
REVIEW OF LITERATURE

In this chapter an attempt has been made to present the theoretical and empirical information concerning the present investigation. The available review of literature is presented under the following headings.

2.1. World Trade Organization (WTO) – purpose and structure
2.2 Features of Agreement on Agriculture (AoA)
2.3 Implication of AoA in spice sector
2.4 Knowledge of respondents about WTO
2.5 Concept of perception and related factors
2.6 Relationship between knowledge level of respondents and selected characteristics
2.7 Relationship between perception of respondents and selected characteristics
2.8 Concept and methodology of content analysis
2.9 Conceptual framework of the study
2.10 Hypothesis set for the study

2.1. WORLD TRADE ORGANIZATION (WTO) – PURPOSE AND STRUCTURE

The creation of WTO on January 1, 1995 marked the highest reform of international trade after the Second World War. The WTO was the successor to the General Agreement on Tariffs and Trade (GATT). GATT was signed at the Geneva Conference in 1947 and came into effect from 1 January 1948. GATT was a multilateral trade agreement that sets rules for conduct of multilateral negotiations regarding the solution of trade problems and the gradual elimination of tariffs and other non-tariff barriers of trade. Eight rounds of trade negotiations were held under the aegis of the GATT, the last being the most significant one with Uruguay Round (UR). The UR negotiations on April 15, 1995 included trade in agriculture also. (Mishra and Bhardwaj, 2003)

The basic underlying philosophy of WTO is that open markets, non-discrimination and global competition in international trade are conducive to the national welfare of all the participating countries. In the WTO the principle of non-discrimination takes two forms: Most Favored Nation (MFN) and National Treatment (NT). A MFN state assures that there is non-discrimination between foreign suppliers, while NT assures that there is non-discrimination between foreign suppliers and domestic suppliers.

The first ministerial conference of WTO was held in Singapore in December,1996. The second ministerial conference held in Geneva in May,1998, carried forward the results of the Singapore ministerial meeting which established the work programme to examine trade related issues involving global commerce. The third ministerial conference held in Seattle from November 30 to December 3, 1999. Third ministerial conference ended in failure with the members of the WTO not being able to agree on an agenda for millennium round. There were a number of reasons for the failure of the Seattle ministerial conference to launch a new round. There were strong differences between the U.S and the E.U on the issues relating to agriculture liberalization. Developing countries were unwilling to accept inclusion of labour standards and environmental issues within the purview of the new round. Fourth ministerial conference known as "development round" was held in Doha. The fifth meet was in Cancun in Mexico from September10-14, 2003, which ended up in failure.

What is WTO?

WTO is the only international body dealing with the rules of the trade between nations. The WTO secretariat is located in Geneva. It has around 500 staff and is headed by a Director General. Currently, there are 148 members including developing and poor countries, developed (industrialized) countries and Cairns group. More than 100 members come under developing and least developed category.

Three main purposes of WTO

(1) The system's overriding purpose is to help trade flow as freely as possible. The rules have to be transparent and predictable.

(2) It serves as a forum for trade negotiations.

(3) Third important purpose is dispute settlement. Trade negotiation often involves conflicting interests. The most harmonious way to settle these differences is through some central procedure based on an agreed legal foundation.

WTO Structure

1.Highest authority: The ministerial conference

WTO belongs to its members. The countries make their decisions through various councils and committees whose membership consists of all WTO members. Top most is the ministerial conference, which has to meet at least once in every two years. The ministerial conference can take decisions on all matters under any of the multi lateral trade agreements.

2. Second level

Day to day work in between the ministerial conference is handled by three bodies.

(i) The General Council

(ii) The Dispute Settlement Body

(iii) Trade Policy Review Body

All the three consists of all WTO members. They report to the ministerial conference. The General Council acts on behalf of the ministerial conference on all WTO affairs. It meets as the Dispute Settlement Body and the Trade Policy Review Body to oversee procedures for settling disputes between members and analyze trade policies of members.

3.Third level: Councils for each broad area of trade

(i) The Councils for Trade in Goods (Goods council)

(ii) The Council for Trade in Services (Services council)

(iii) The Council for Trade Related Aspects of Intellectual Property Rights (TRIPS council)

This also consists of all WTO members. They respond to the General Council. The three also have subsidiary bodies. Six other bodies report to the General Council. The scope of their coverage is smaller and so they are

"Committees". They consist of all WTO members. Two more subsidiary bodies dealing with the plurilateral agreements (which are not signed by all WTO members) keep the General Council informed of their activities regularly.

4. Fourth level: Down to the nifty gritty.

Each of the higher-level councils has subsidiary bodies. At the General Council level, the Dispute Settlement Body also has two subsidiaries.

FEATURES OF AGREEMENT ON AGRICULTURE (AoA)

The Agreement on Agriculture lays the foundation for reducing distortions in agricultural trade and for the gradual establishment of a fair and market oriented agricultural trading system. The area of coverage of the agreement is:

2.2.1.Market access

2.2.2.Domestic support

2.2.3.Export competition

2.2.4.Sanitary and Phytosanitary measures.

2.2.1. Market access

2.2.1.1.Tariffication.

The agreement imposes new rules in regard to the use, for import control purposes, of non-tariff border measures such as quantitative import restrictions, variable import levels, minimum import prices, discretionary import licensing, non-tariff measures maintained through state trading enterprises and voluntary export restraints.

Members agreed to convert all their existing non-tariff measures in to tariff equivalents (tariffication process) and to replace them by tariff. As a result, market access for agriculture products are now governed entirely by tariff. Furthermore, these tariffs are to be reduced by an average of 36 per cent over a period of 6 years for developed countries and by 24per cent over a period of 10 years for developing countries. However, developing countries like India who had not converted its Quantitative Restrictions (QRs) into tariff were allowed to have ceiling bindings that were not subjected to these reduction commitments.

India had bound its tariff at 100per cent for primary products, 150per cent for processed products and 300per cent for edible oils except for certain items.

2.2.1.2.Current access and minimum access opportunities

The tariffication package also provides for the establishment of minimum access tariff quotas where current access is less than 3per cent of domestic consumption in the base period 1986-1988 rising to 5per cent by the end of the year 2000 for developed countries and 2004 for developing countries.

2.2.1.3.Special safeguards.

Member countries can involve the Special SafeGuard (SSG) clause to impose additional duties on tariff products if imports rise too rapidly or import prices fall too low.

2.2.1.4.Special treatment

Special treatment provisions allow a country under carefully defined conditions to maintain quantitative import restrictions on primary agriculture products and their worked and/or low prepared products (the so called designated products) up to the end of the implementation period.

2.2.2. Domestic support

2.2.2.1.Reduction Commitments

The agreement establishes a ceiling on the total domestic support that Governments may provide to agriculture producers. Expressed in monetary terms, this support is referred to as the Total Aggregate Measurement of support or total AMS. It covers all support provided on either a product specific or non-product specific basis that does not qualify for exemption.

The Total AMS is calculated as the sum of all AMS for basic agriculture products, all non-product specific AMS, and all equivalent measurements of support for agriculture products.

2.2.2.2.Types of subsidies

The Agreement on Agriculture categorizes subsidies into "green box" and "blue box" subsidies to which reduction commitments do not apply and "amber box" subsidies to which reduction commitments apply. The green box contains either support measures that have no or almost minimal trade distorting effects on

production. They include Government services, such as research, disease control, infrastructure and food security. They also include payments made directly to farmers that do not stimulate production, such as certain forms of direct income support, assistance to help farmer's restructure agriculture and direct payments under environmental and regional assistance programs. Blue box measures include direct payment to farmers where the farmers are required to limit production. The domestic support policies that distort market price such as price support, direct payments and non-exempt subsidies are put in amber box.

2.2.3. Export Competition

Distortions in international trade have also been caused by high levels of export subsidies. The WTO agreement has therefore placed certain export subsidies under discipline. The export subsidies subject to reduction commitments under the AOA are:

a) Direct subsidies by Governments or their agencies to exporters or producers or their associations.
b) Sale or disposal of exports by Governments or their agencies of non-commercial stocks at prices lower than the comparable price for the like product in the buyer's domestic market.
c) Payments on the export on the agriculture produce that are financed by virtue of governmental action
d) Subsidies to reduce the cost of marketing agriculture exports including handling, upgrading and other processing costs and the costs of international transport and the freight.
e) Subsidies on internal transport and freight charges for export shipments.
f) Subsidies on agriculture products contingent on their incorporation in exported products.

2.2.4. Sanitary and Phytosanitary (SPS) measures

The agreement of SPS deals with the application of food safety and animal and plant health regulations. To harmonize SPS measures to the widest extent possible, members are encouraged to base their measures on international standards, guidelines and recommendations developed by the relevant standard

setting international organization. However, members may maintain or introduce measures which result in higher standards provided there are scientific justifications

A sanitary or phytosanitary measure is any measure applied to protect animal or plant life or health from risks arising from the entry, establishment or spread of pests, diseases, disease carrying organisms or disease causing organisms; to protect human or animal life or health from risks arising from additives, contaminants, toxins or disease causing organisms in foods, beverages or feedstuffs, to protect human life or health from risks arising from disease carried by animals, plants or products thereof or from the entry, establishment or spread of pest or to prevent or limit other damage from the entry, establishment or spread of pests.

2.3. IMPLICATIONS OF AoA IN SPICE SECTOR

2.3.1.Market access

As the tariffs on spice and spice products in the pre-Uruguay Round period have been low and most spice producing countries have been exporting spices under special and preferential arrangement, the impact of the agreement on market access for spices may not be significant.

Except for consumer packs and ground spices in a few countries, most spices were imported at zero rates of duty under Generalized System of Preferences (GSP) and other preferential trade arrangements. The reduction in MFN tariffs, therefore, may not significantly improve market access.By contrast, the removal of quantitative restrictions and other non -tariff measures can be expected to have beneficial effect on market access.

As spice cultivation is highly labour intensive, developing countries may be able to obtain a higher share of the market by taking advantage of their low labour costs. Developing countries will also be able to continue their support measures for rendering freight and transportation charges. This will give their products a competitive tariff level (70per cent) that is comparable with WTO norms and most spice items have now been listed under the items kept free

import. After the removal of QRs, tariff rates are the only instrument for Indian trade policy.

The WTO agreement to reduce import tariffs has not brought any benefit to India, because they are already set at zero level by many developed countries. Rather the country has become a major spice importer under the QR free trade regime (Madan and Kannan, 2002).

2.3.2.Domestic support

Commitment to reduce domestic support (Total AMS) over specified periods are required. Domestic support measures with minimal impact on trade ("green box" measures) are excluded from reduction commitments. Calculations in the case of India indicate a negative total AMS.

In many developing countries direct input subsidies and investment, subsidies are targeted to low income and resource poor farmers. Under the WTO provisions, these subsidy programmes can be continued without violating them.

2.3.3.Export Subsidy

More than 50 per cent of our cost on exported spices (small cardamom) is accounted by freight and marketing costs. This has resulted in the withdrawal of producers from the export market and concentration on the domestic market. During the last couple of years, the WTO agreement provisions have caused discontinuance of the airfreight subsidization programme. Any drastic reductions in export subsidies for those sensitive commodities can considerably affect our export of this traditional high quality spice. (ITC, 1996)

2.3.4.Sanitary and Phytosanitary measures

Regulations of pesticide residues are likely to become the single most important non-tariff barrier to trade in spices. Pesticide residues are acquired in the pre-harvest stage and it is not possible to eliminate them completely during processing. It is obvious that most developed countries are contemplating the introduction of more stringent pesticide residue standards for the future. Environmental protection agencies and food safety enforcement agencies are increasingly prescribing stricter tolerance to have pesticide free spices.

Developing countries have been used to a certain type and level of usage

of pesticides (mostly obtained from developed countries). Some of the pesticides like DDT and BHC have long half-lives, so that their residue will remain in the soil for a long time. Until they do remain, strict limits on pesticide residues could affect the spice trade of these countries critically. Spice derivative industry (Oleoresin and essential oils) been the dynamic factor in our spice exports in recent years and the presence of suspected pesticide residues is a problem faced by these value added products. (ITC, 1996)

India got complaints from importing countries like Germany about detection of BHC residues in oleoresins of pepper and chilies exported from India Australia too had begun rejecting consignments on these grounds. Germany and Netherlands are the largest exporters of spice oleoresins in the European market and they have a strong temptation to utilize spice as a non-tariff barrier to deny India its share of value added exports.

Spice oils and oleoresins, which constitute 30per cent of the total export from India face 6per cent countervailing duty in USA, the major importer of these value added products, while there is no duty for import of whole spices. All these discourage the developing countries to develop their processing industry in which the developed country have monopoly for decades. (Madan and Kannan, 2002).

SPS measures affecting spices in major market

Almost all importing countries impose exorbitant rate of food safety standards that are enforced either at the port of entry or at the point of sale. Such regulations are because of the pressure from consumer groups and environmental activists. The food safety standards enforced by the major importing countries mainly cover macro cleanliness (maximum percentage of extraneous matter and foreign matter permissible in a product), microbial load (like salmonella and *E.Coli*), aflatoxins, trace metal contamination etc.

2.3.5.Technical Barrier to Trade (TBT)

Most of the mandatory standards in the TBT agreement fall in the category of sanitary and phytosanitary measures for agricultural products. However, labeling standards (including nutrition labeling standards) packaging standards (the one of biodegradable packaging material etc.) fall under the purview of the

TBT agreement. These standards are getting importance in the export trade. Environmental considerations have drastically altered packaging regulations in many countries. These create new problems for exporting countries at a low level of technology, as they need to import most of their packaging materials.

2.3.6.*Packaging*

Packaging and transportation continue to be a constraint for producing countries. Most spices are hygroscopic in nature and need specialized packaging.

2.3.7.Quality

Many spice-producing countries do not have internationally acceptable quality assurance systems, quality upgrade facilities, grading and processing facilities and scientific warehousing. The deterioration in quality because of unscientific handling, inadequate processing and storage has contributed significantly to low unit value realization.

2.4 KNOWLEDGE OF RESPONDENTS ABOUT WTO

Bloom *et al* (1956) defined knowledge as those behaviors and test situations that emphasized the remembering either by recognition or by recall of idea or phenomenon.

English and English (1958) defined knowledge as a body of understood information possessed by an individual or by a culture.

Knowledge has been measured by researchers using knowledge test developed for the purpose. Cronbach (1949) defined knowledge test as one in which procedure, apparatus and scoring have been so fixed that precisely the same test can be given at different time and places.

Knoll (1957) defined a standardized knowledge test as one which has been carefully constructed by experts according to the acceptable objectives or purposes and procedures for administering, scoring and interpreting scores which are specified in detail so that the results should be comparable and norms and averages for different age and status have been pre determined.

There are not much studies reported on the knowledge of farmers about WTO. Saravana (2002) found that more than two – fifth of the farmers

(41.11per cent) had medium level of knowledge on Indian agriculture under WTO. While 34.44per cent of farmers had low level of knowledge, about one-fourth (24.45per cent) and remaining had high level of Indian agriculture under WTO. The same study found that more than one-third of the beaurocrats and administrators (35.00per cent) had high knowledge on Indian agriculture under WTO, while 33.33per cent had medium level of knowledge and the remaining 31.67per cent had low level of knowledge on Indian agriculture under WTO.

2.5 CONCEPT OF PERCEPTION AND RELATED FACTORS

2.5.1. Definition

Bhatia (1965) had defined perception as a response to stimuli and interpreting the sensory input.

Kolasa (1970) defined perception as the selection and organization of material that stems from the outside environment at one time or the other to provide the meaningful entity we experience

Harrison (1972) stated that perception refers to the inferred psychological process that organizes, structures and interprets the incoming information.

Heimstra and Ellingstad (1972) considered perception as the process whereby sensory input is organized into meaningful experience. Meaningful experience is attained by identifying and categorizing the sensory input into separate classes based on various attributes of the stimuli.

Belcher (1973) described perception as the process by which sensory information is interpreted.

Perception is defined as the process by which people organize and interpret the sensory information they receive into a meaningful mental picture (Chung and Megginson, 1981)

According to Kaste and Rosenzweig (1982) perception is basic to understanding behavior because it is the means by which stimuli affect an organization and individual.

2.5.2. Studies on perception.

Muthukrishnan (1982) found that majority of the users (93 per cent) of bio gas plants has better reception towards the attributes of bio gas plants.

Sundaram (1986) reported that majority of the farmers (75per cent) had medium level of perception and 25 percent had low and high level of perception about the effectiveness of soil conservation practices.

Sihag and Malaviya (1990) conducted a study on perceived feasibility of introducing soakage pit in rural areas before and after exposure of technology on soakage pit in Hissar district of Haryana state. They revealed that the respondents had considerably improved their perception on feasibility of soakage pit after the exposure of the technology.

Langewar and Shirke (1991) in their study on perception about social forestry by farmers of Nagapur district (Maharastra) revealed that only one objective, namely helping rural population fulfilling their needs of fuel, fodder and small timber was perceived by majority of farmers (88.88per cent) in the case of social forestry programmes.

Sitaram (1997) observed that the farmers' perception of utility of agriculture development programmes through people's plan was depending on how effectively they make use of recommendations as described in the plan.

Santhosh (1999) found that 63 per cent of farmers perceived agriculture development programmes implemented through people's plan as useful to them, while 39per cent perceived it as least and not useful.

2.6 RELATIONSHIP BETWEEN KNOWLEDGE LEVEL OF RESPONDENTS AND SELECTED PERSONAL SOCIOECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS

An attempt is made to review the results of some of the studies on relationship between knowledge and the selected variables, a summary of which is presented.

Author and year	Category of respondent	Nature of relationship
2.6.1Age		
Yogananda (1992)	Coconut growers	Non-significant
Ravishankar (1995)	Potato growers	-do-
Hanumanaikar (1995)	Sunflower growers	Negatively significant
Krishnamoorthy *et al* (1995)	Farmers	Non-significant
Srinivasareddy (1995)	Mango growers	-do-
Raghavendra (1997)	Arecanut growers	Significant
Balasubramani (1997)	Rubber growers	-do-
Meeran & Jayaseelan (2001)	Shrimp farmers	Non-significant
Saravana (2002)	Farmers	-do-
2.6.2 Education		
Benki (1990)	Dairy farmers	Positively significant
Anantharaman (1991)	Cassava farmers	-do-
Angadi *et al* (1992)	Paddy growers	Non-significant
Govind (1992)	Rice farmers	-do-
Yogananda (1992)	Coconut growers	Positively significant
Jnanadevan (1993)	Coconut farmers	-do-
Sakharkar (1995)	Soyabean growers	-do-
Srinivasareddy (1995)	Mango growers	Significant
Vijaya (1995)	Ragi growers	-do-
Saravanakumar (1996)	Mango growers	-do-
Balasubramani (1997)	Rubber growers	-do-
Raghavendra (1997)	Areca nut grower	Positively significant
Gayathri (2000)	Farm women	Significant
Meeran & Jayaseelan (2001)	Shrimp farmers	Non-significant
Saravana (2002)	Farmers	Positively significant
2.6.3 Main occupation.		
Meeran & Jayaseelan (2001)	Shrimp farmers	-do-
2.6.4 Annual income		
Govind (1992)	Rice farmers	Non-significant
Ravishanker (1995)	Potato farmers	-do-

Raghavendra (1997)	Arecanut growers	Positively Significant
Gayathri (2000)	Farm women	Significant
2.6.5 Farm size		
Pandya & Vekaria (1994)	Banana growers	-do-
Patel *et al* (1994)	Sugarcane growers	-do-
Balasubramani (1997)	Rubber growers	-do-
Chandrasekhara (1999)	Coffee growers	-do-
2.6.6 Farming experience		
Nimje *et al* (1990)	Cotton farmers	Positively significant
Anantharaman (1991)	Cassava farmers	-do-
Sahukar (1991)	Farmers	Non-significant
Jaleel (1992)	Tribal farmers	Positively significant
Ramachandran (1992)	Rice farmers	Non-significant
Pandya & Vekaria (1994)	Banana growers	Significant
Patel et al (1994)	Sugarcane growers	-do-
Sekar & Alakesan(1994)	Groundnut cultivators	Positively significant
Rushdi (1995)	Ornamental fish farmers	-do-
Balasubramani (1997)	Rubber growers	Significant
Raghavendra (1997)	Arecanut growers	-do-
Chandrasekhara (1999)	Coffee growers	- do-
Meeran & Jayaseelan (2001)	Shrimp farmers	Positively Significant
Saravana (2002)	Farmers	-do-
2.6.7 Social participation.		
Benki (1990)	Dairy farmers	Significant
Bonny (1991)	Vegetable farmers	Positively Significant
Ravishankar (1995)	Potato growers	Non significant
Sreenivasareddy (1995)	Mango growers	-do-
Jayaraj (1997)	Cotton growers	Positively Significant
Mahandesh (2000)	Sericulture farmers	-do-
Meeran & Jayaseelan (2001)	Shrimp farmers	-do-
Saravana (2002)	Farmers	-do-
2.6.8 Economic motivation.		
Sheela (1991)	Dairy farm woman	Significant
Angadi et al (1992)	Paddy growers	Positive significant
Jnanadevan (1993)	Coconut farmers	-do-
Pandya & Vekaria (1994)	Banana growers	Significant

Hanumanaikar (1995)	Sunflower growers	Positively significant
Sakharkar (1995)	Soyabean Cultivators	Non-significant
Srinivasareddy (1995)	Mango growers	Non-significant
Saravanakumar (1996)	Mango growers	-do-
Chandran (1997)	Tapioca grower	-do-
Jayaraj (1997)	Cotton growers	Positively significant
Gayathri (2000)	Farmwomen	-do-
Mahandesh (2000)	Sericulture farmers	-do-
2.6.9. Personal guidance for better farming.		
Chandrasekaran (1981)	Small tea growers	-do-
Viju (1985)	Tribal farmers	Significant
Vijayan (1989)	Banana farmers	Positive significant
Anantharaman (1991)	Cassava farmers	-do-
Bonny (1991)	Vegetable farmers	-do-
2.6.10. Management orientation		
Balasubramani (1997)	Rubber growers	Highly significant
Chandrasekhara (1999)	Coffee growers	-do-
2.6.11. Information source utilization.		
Ramachandran (1992)	Rice farmers	Positively significant
Jnanadevan (1993)	Coconut farmers	-do-
Manoj (1998)	Vegetable growers	-do-
Mahandesh (2000)	Sericulture farmers	-do-

2.7 RELATIONSHIP BETWEEN THE SELECTED CHARACTERISTICS OF RESPONDENTS WITH THEIR PERCEPTION.

Author, Year	**Respondents**	**Nature of relationship**
2.7.1. Age		
Patel and Sundaraswamy (1986)	Extension personnel.	Significant
Nimbalkar & Pawar (1990)	Televiewers.	Non-significant.
Ratnakar & Reddy (1991)	Tribal farmers.	-do-
Patel (1994)	Extension personnel	-do-
Rajendra (1997)	Scheduled caste farmers	Negatively significant
2.7.2. Education		
Narayanappa (1991)	Small farmers	Positively significant
Rajendra (1997)	Scheduled caste farmers	-do-
2.7.3. Occupation		
Rajendra (1997)	Scheduled caste farmers	Non-significant

Somasundaram and Sekar (2000)	Farmers	Non-significant
2.7.4. Annual Income		
Balan (1987)	Farmers	Positively significant
Latha (1990)	Users of biogas technology	
Dikle et al (1992)	Farmers	Significant.
Rajendra (1997)	Scheduled caste farmers	Non-significant
2.7.5. Farm size		
Nimbalkar and Pawar (1990)	Televiewers	-do-
Ratnakar and Reddy (1991)	Tribal farmers	-do-
Dikle et al (1992)	Farmers	Significant.
Damodaran (1994)	Banana farmers	Positively significant
2.7.6. Farming experience		
Menon (1993)	Farmers	Non-significant.
2.7.7. Social participation		
Sundaram (1986)	Farmers	Significant
Latha (1990)	Users of biogas technology	Positively significant
Nimbalkar and Pawar (1990)	Televiewers	-do-
Sophia (1991)	Dry land farmers	Significant
Rajendra (1997)	Scheduled caste farmers	-do-
2.7.8. Economic motivation		
Balan (1987)	Farmers	Positively significant
Rajendra (1997)	Scheduled caste farmers	-do-
Padmaiah et al (1998)	Farmers	-do-
2.7.9. Management orientation		
Damodaran (1994)	Banana farmers	Significant
2.7.10.Information source utilization		
Ingale and Virkhare (1988)	Farmers	Non-significant

2.8 CONCEPT AND METHODOLOGY OF CONTENT ANALYSIS

2.8.1 Definition:

Waples and Berelson (1941) attempted to define descriptions of the content, to show objectively the nature and relative strength of the stimuli applied to the readers or listeners.

Kaplan and Goldsem (1943) remarked that the content analysis aims at a quantitative classification of a given body of content in terms of a system of categories devised to yield data relevant to specific hypothesis concerning that content.

Krippendorff (1980) defined content analysis as a research technique for making replicable and valid inferences from data to their content. Berelson (1952) provided a classic definition of content analysis as a "research technique for the objective, systematic and quantitative description of the manifest content of communication." The key to understanding content analysis and performing it completely lies in understanding the meaning of objective, systematic, quantitative and manifest content.

Abrahamson (1983) suggests that content analysis can be fruitfully employed to examine virtually any type of communication. Consequently, content analysis may focus on either quantitative or qualitative aspects of communication messages.

According to Kothari (2000), content analysis consists of analyzing the contents of documentary materials such as books, magazines, newspapers and the contents of all other verbal material that can be either spoken or printed. Content analysis prior to 1940s was mostly quantitative analysis of documentary material concerning certain characteristic that can be identified and counted. But since 1950s, content analysis is mostly quantitative analysis concerning the general impact or message of the existing document.

2.8.2. Steps for conducting Content Analysis.

Berg (1989) identified several sequential steps to conduct content analysis. Those are explained below:

2.8.2.1.Decide the levels and units of analysis.

When using a content analysis strategy to assess written prose, researchers must first decide at what level they plan to sample and what units of analysis will be counted. Sampling may occur at any or all of the following levels: - words, statements, sentences, paragraphs or entire articles. This must be related to the purpose of the study.

2.8.2.2.Adopt suitable and most appropriate sampling strategy

Any of the many conventional sampling procedures used in other data collection techniques such as simple random sampling, systematic sampling, stratified sampling or purposive sampling can be used in content analysis.

2.8.2.3.Develop the categories.

Seven major elements in written messages can be counted in content analysis.

(i) Words or terms
(ii) Themes
(iii) Characters
(iv) Paragraphs
(v) Items
(vi) Concepts
(vii) Semantics
(viii) A combination of these elements

(Berelson, 1952)

2.8.2.4. Units and categories

Content analysis involves the interaction of two processes-

a) Specification of the content characteristics (basic content elements) being examined

b) Application of explicit rules for identifying and recording these characteristics. The categories in to which one codes content items vary according to the nature of the research. The system of categories should be exhaustive and mutually exclusive. It is exhaustive if there is a category in which it places every relevant item that may be found in the content. Its categories are mutually exclusive if there is one and only one place to put an item within the system of categories.

2.8.2.5. Open coding

According to Strauss (1987), the analysis begins with a procedure he calls open coding. This procedure is described as an unrestricted coding of the data. With open coding one carefully and minutely read the documents line-by-line and

word-by-word to determine the concept and categories that fit the data. These concepts once uncovered are entirely tentative.

2.8.2.6.Decide whether to code for existence or frequency

After a certain number and sets of content elements are chosen for coding, decide whether to code for existence or frequency.

2.8.2.7.Decide what to do with irrelevant information

The researcher must decide whether irrelevant information should be ignored or used to reexamine and alter the coding scheme.

2.8.2.8.Analyze the results

Once the coding is done, the researcher examines the data and attempts to draw whatever conclusions and generalization are possible.

2.9 CONCEPTUAL MODEL OF THE STUDY

The conceptual model shows the relationship between selected characteristics of respondents with their knowledge about AoA and perception about the impact of AoA on spice production and marketing. The conceptual model designed for the study is presented in figure 1.

2.10 HYPOTHESES

1. There will not be any variation in the knowledge score and perception score of the farmers, traders and development officers.
2. There is no significant relationship between the selected characteristics of respondents with the dependent variables viz., knowledge and perception.

METHODOLOGY

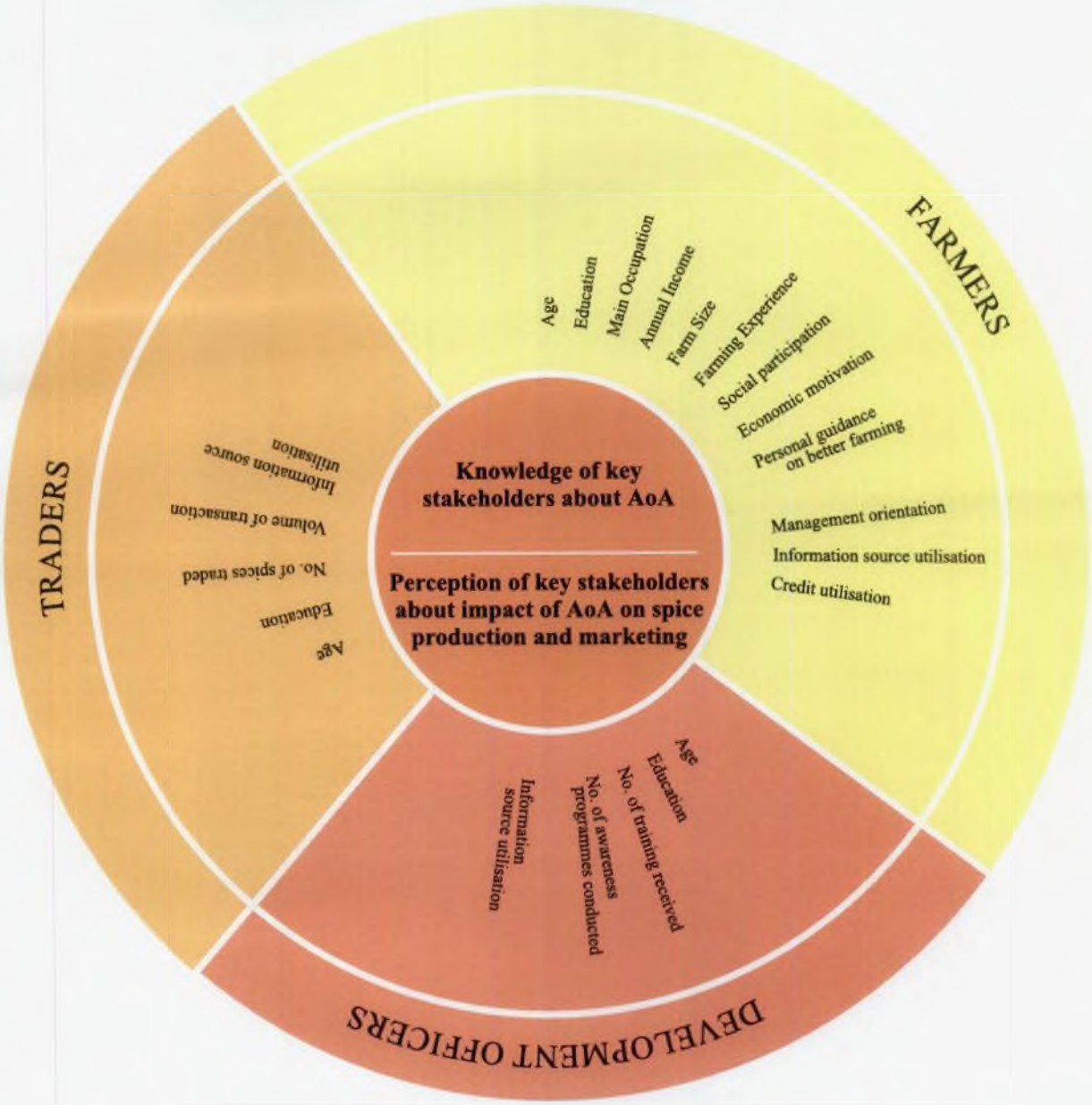

Fig. 1. Conceptual model showing the relationship between the selected characteristics of respondents with their knowledge and perception

METHODOLOGY

CHAPTER 3
METHODOLOGY

A general description of the materials and methods followed in conducting the research is furnished in this chapter under the following subheads:

3.1.SURVEY RESEARCH

3.1.1. Research Design

Based on the analysis of available literature and keeping in view the objectives of the study, it could be well inferred that most of the attributes included in the study were 'expost facto'in nature and offer little chance to be manipulated by the researcher. Therefore, 'expost facto' design was considered appropriate to be used for the study. According to Kerlinger (1986), 'expost facto' research is systematic enquiry to which the researcher does not have direct control over the independent variables because their manipulation have already occurred or because they are inherently not manipulable.

3.1.2. Locale of the study

The study was conducted in two districts of Kerala, Idukki and Ernakulam, the areas that are well known for spice cultivation. The selection of the study area was based on the following criteria:

1) Area and production under spices is maximum in Idukki district.

2)Spice trade is mainly concentrated in two districts of Idukki andErnakulam. Vandanmedu in Idukki and Mattancheri in Ernakulam are well known for spice trade.

3) Vandanmedu and Mattancheri are the spice export zones in Kerala.

4) Spice Board is situated in Ernakulam district.

A brief description of study areas is presented.

3.1.2.1. Ernakulam District

Ernakulam District consists of 15 Block Panchayats, viz., Allathoor, Kalamassery, North Paravoor, Nedumbassery, Njarakkal, Palluruthy, Vyttila, Ankamali, Koovappady, Keezhmadu, Vadavucodu, Muvattupuzha, Kothamangalam, Pampakkuda and Mulanthuruthy. Among these Block Panchayats, Kothamangalam is having maximum area under spices (1324 hectares) and hence this Block Panchayat was selected. This Block Panchayat consists of 10 Grama Panchayats namely Kothamangalam, Keerampara, Pallari, Karalangadu, Kottappady, Pyngattor, Nellikuzhy, Pindimana, Varappatty and Pothanikkad. Among these, Kavalangadu Grama Panchayat is having maximum area under spices (215 hectares) and hence this Grama Panchayat was chosen as the study area in Ernakulam.

The cropping pattern of Ernakulam consists of crops like rubber, coconut, spices, cocoa, pineapple, tapioca, nutmeg and vegetables.

3.1.2.2. Idukki District

Idukki district consists of eight Block Panchayats, Thodupuzha, Elandesom, Idukki, Kattappana, Nedumkandam, Devikulam, Adimali and Peerumedu. Kattappana has the maximum area under spices (17,582 hectares), and hence this Block Panchayat was selected. Kattappana consists of seven Grama Panchayats namely Erattayar, Kattappana, Ayyappancoil, Upputhara, Kanchiyar, Chakkupallam and Vandanmedu. Among this Kattappana Grama Panchayat has the maximum area under spices, which was selected as the study area in Idukki district.

The cropping pattern of Idukki consists of crops like spices including pepper, cardamom, ginger and turmeric and other crops like banana, tapioca and vegetables.

The location of the selected districts are shown in figure 2 and selected Grama Panchayats are given in Figure 3 and 4.

3.1.3. Selection of respondents

Three categories of key stakeholders involved in the spice sector were selected as respondents of the study. The key stakeholders are operationally defined as persons / agents directly involved in farming and marketing. The three categories of stakeholders selected were farmers, traders and development officers.

3.1.3.1. Selection of farmers

A list of the spice growing farmers especially those who cultivate pepper, cardamom, ginger and turmeric was collected from the respective Krishi Bhavans of the two selected Grama Panchayats. From this list 30 farmers were selected randomly from each Grama Panchayat as farmer respondents.

3.1.3.2. Selection of traders

Traders include village merchants, brokers, commission agents, retailers, wholesalers, co-operative marketing societies, auction agents and exporters. A list of traders involved in spice marketing was traced based on the following procedure. From the farmer respondents interviewed, a list of traders are prepared to whom the farmers indicated that they sold their produce. They included village merchants, brokers, commission agents and co-operative marketing societies. A list of wholesalers, exporters and auction agents were also collected from Spices Board and International Pepper and Spice Trade Association (IPSTA). From the final category wise lists obtained from different sources, 30 traders were selected with this number of traders in each category being proportionate to their number in the category using the procedure of simple random sampling.

Fig. 2 Location of the Study

Fig. 3

▲ Study Area in Ernakulam district

IDDUKKI

Fig. 4

▲ Study Area in Idukki district

3.1.3.3 Development Officers

Development Officers include extension officers from the Department of Agriculture, consisting of Assistant Directors, and Agricultural Officers and Spice Board Officials consisting of Assistant Directors, Field Officers and Farm Officers.

From the Department of Agriculture, a list of extension officers of Kattappana and Kothamangalam block were collected from the respective Assistant Director's Office. A list of Spices Board officials of Idukki and Ernakulam districts were also collected from the Spices Board.

Purposive selection was done so as to ensure adequate representation of all the categories of Development Officers. 30 respondents each were selected from both districts.

3.1.4. Selection of variables

The dependent variables for the study were knowledge about AoA and perception about the impact of AoA in spice production and marketing. Independent variable were selected based on the discussion with experts, review of literature and pilot study. The dependent variables were the same for all the three categories of respondent where as the independent variables varied. The dependent variables and independent variables selected are furnished.

3.1.4.1. Dependent variables

	Measurement procedure
3.1.4.1.1. Knowledge about AOA	Test developed for the study
3.1.4.1.2.Perception about the impact of AoA on spice production and marketing	Scale developed for the study

3.1.4.2. Independent variables

3.1.4.2.1 Farmers	
3.1.4.2.1.1 Age	Questions framed for the study
3.1.4.1.2.2 Education	Scale developed by Karippai (1988)
3.1.4.2.1.3. Main occupation	Scale developed by Menon (1993)
3.1.4.2.1.4. Annual income	Response items developed for the study

3.1.4.2.1.5. Farm size	Response items developed for the study
3.1.4.2.1.6. Farming experience	Response items developed for the study
3.1.4.2.1.7. Social participation	Scale developed by Karippai (1988)
3.1.4.2.1.8. Economic motivation	Scale developed by Thyagarajan (1981)
3.1.4.2.1.9. Personal guidance on better farming	Scale developed by Singh (1981)
3.1.4.2.1.10.Management orientation	Scale developed by Samantha (1977)
3.1.4.2.1.11.Informationsource utilization	Scale adopted by Ramachandran(1992)
3.1.4.2.1.12.Credit utilization	Response items developed for the study

3.1.4.2.2.Traders

3.1.4.2.2.1 Age	Questions framed for the study
3.1.4.2.2.2 *Education*	Scale developed by Karippai (1988)
3.1.4.2.2.3. Annual income	Response items developed for the study
3.1.4.2.2.4. Number of Spices traded	Response items developed for the study
3.1.4.2.2.5. Volume of transaction	Response items developed for the study
3.1.4.2.2.6. Information sources utilization	Scale adopted by Ramachandran (1992)

3.1.4.2.3.Development Officers

3.1.4.2.3.1 Age	Questions framed for the study
3.1.4.2.3.2. Education	Scale developed by Karippai (1988)
3.1.4.2.3.3. Number of trainings received	Response items developed for the study
3.1.4.2.3.4. Number of awareness programme conducted	Response items developed for the study
3.1.4.2.3.5. Information source utilization	Scale adopted by Ramachandran (1992)

3.1.5. Selection and operationalisation of variables and their measurement

3.1.5.1. Dependent Variables

3.1.5.1.1. Knowledge about AoA

Knowledge was operationalised as those behaviors and test situations that emphasized the remembering either by recognition or by recall of aspects related to AoA. Different researchers had measured knowledge by developing and standardizing items that reflect the knowledge. Bean (1953) defined items as " a

single task or question that usually cannot be broken down into smaller units". For the present study, a teacher made test was developed to measure the level of knowledge about AoA by the respondents. The steps followed in developing the knowledge test is presented below.

a. Identification of areas related to AoA

The major areas under AoA include,

(i) Market access

(ii) Domestic support

(iii) Export competition

(iv) Sanitary and phytosanitary measures

It was expected that the items prepared out of these areas will be able to measure the knowledge about AoA of the respondents.

b. Collection of items

The content of the knowledge test is composed of statements or items. All possible items related to the four areas under AoA were prepared from all available sources like newspapers, magazines and books as well as based on discussion with experts is the field of WTO.These items covering the universe of contents were selected keeping in mind the criteria as given by Singh (2003)

(i) The items should be phrased in such a manner that there is no ambiguity regarding its meaning for both the item written as well as the respondents on whom these are administered

(ii) The items should not be too easy or too difficult

(iii) It should have discriminating power, which means that it must clearly distinguish between those who possess the knowledge and those who do not

(iv) It should not be concerned with the trivial aspects of the subject matter, that is, it must only measure the significant aspect of knowledge or understanding

(v) As far as possible, it should not encourage guesswork by the respondents

(vi) It should not present difficulty in reading and understanding

(vii) It should not be such that it's meaning is depended on another item and or it can be answered by referring to another item

Based on these criteria, items have been prepared, after which they were reviewed and carefully edited. The final universe of content consisted of 32 items, which are of objective type. The items evoked dichotomous responses either true or false involving impersonal and objective assessment. A score of one is given for every correct answer and zero for incorrect answers. The total score was calculated by summing up the scores obtained for individual items. Thus there was the possibility of respondent to score a maximum of 32 for all correct answers and a minimum of zero for all incorrect answers.

c. Item analysis

Item analysis is a set of procedures that is applied to know the indices for truthfulness or validity of items (Singh, 2003). In other words, item analysis is a technique through which those items, which are valid and suited to the purpose, are selected. The main objectives of item analysis are:

1. Item analysis indicates which items are difficult, easy, moderately difficult or moderately easy. In other words, it provides an index of difficulty value to each item.
2. It also provides indices of the ability of the item to discriminate between inferior and superior. In other words, item analysis indicates the discrimination value of each item. This is known as item validity.
3. It sometimes also indicates why a particular item in the list has not functioned effectively and how this might be modified so that its functional significance can be increased.

The items, which were prepared initially, were administered to 30 respondents. The respondents consist of all the three categories of respondents namely farmers, traders and development officers. They were selected randomly from a non-sample area, with identical conditions of the study area.

The item analysis yields two kinds of information, namely item difficulty and item discrimination.

A. Calculation of item difficulty index

The first and foremost step in item analysis is to find out the difficulty value of the item or otherwise called index of difficulty of an item. The difficulty value of an item can be defined as the proportion or percentage of the individuals who answer the items correctly. The index of difficulty can be found out using the formula P = R/N, where P is the index of difficulty, R is the number of individuals who answer the item correctly. N is the total number of individuals who take the test.

In the present study, since the number of respondents who answered the items correctly were less, P values above 0.5 were considered for the final selection of items.

B. Calculation of discrimination index

Another important aspect in item analysis is to find out the index of discrimination or otherwise known as the item validity. Bean (1953) defined this as "the degree to which the single item separates the superior from the inferior individuals in the trait or group of traits being measured. From the point of view of discriminatory power, items fall under three categories.

(i) Positively discriminating items

(ii) Negatively discriminating items

(iii) Non-discriminating items.

A positively discriminating item is defined as one in which the proportion or percentage of correct answers is higher in the upper group. A negatively discriminating item is defined as one in which the proportion or percentage of correct answer is lower in the upper group. Likewise, a non-discriminating item is one in which the percentage or proportion of correct answer is equal or approximately equal in both the upper and lower group. After the item analysis, the items that come under negatively discriminating or non-discriminating categories are naturally dropped, since they do not make a positive contribution to the overall functioning of the test.

Marshall and Hales (1972) have suggested a very simple and quick method of determining the index of discrimination.

They have called this index the "Net D index of discrimination". They defined Net D as " an unbiased index of absolute difference in the number of discriminations made between the upper group and the lower group. This method demands the setting up of two extreme groups- one consisting of the upper 27per cent and other consisting of the bottom 27per cent of the respondents.

$$V = RU/NU - RL/NL$$

Where, V = Net D

RU & RL = Number of respondents giving correct answers in the upper group and in the lower group respectively. NU & NL = Number of respondents in the upper group and in the lower group respectively.

(Calculated difficulty indices and discrimination indices of the items are given in appendix II)

d. Method of scoring

Eight items were finally included in the knowledge test (The items are given in Appendix III). The respondents were given a score of one for every correct answer and a score of zero for incorrect answer. The knowledge score for each respondent was calculated by summing up the scores given for each item. The maximum score that could be obtained by a respondent is eight and the minimum zero.

3.1.5.1.2. Perception of key stakeholders about the impact of WTO on spice production and marketing

It is operationalised as the meaningful sensation and attribution of meaning by the key stakeholders regarding the impact of WTO agreements on spice production and marketing.

Perception of key stakeholders was measured using an arbitrary scale developed for the study. The scale consists of items that reflect the perception of the key stakeholders. All possible items were first collected based on the review of literature and discussion with subject matter specialists. Thus 32 items were collected and then subjected to pilot study. They were administered to 30 respondents from outside the sample area but with identical conditions. The items elicit dichotomous responses either agree or disagree. The items that poorly

reflect the perception as well as ambiguous ones were dropped to form the final schedule that consists of eight items. (The items are given in Appendix IV)

Method of Scoring

The items were subjected to either 'agree' or 'disagree' responses with the 'agree' responses getting a score of one and 'disagree' responses a score of zero. The scores, thus obtained for the item by each respondent were added to get the total score on perception for that respondent. Thus the maximum score that could be attained by a respondent is eight and the minimum zero.

3.1.5.2.Independent variables

3.1.5.2.1. Farmers

3.1.5.2.1.1. Age: Age was operationalized as the number of years completed by the respondent at the time of enquiry. In the present study it was measured by directly asking farmers the number of years completed at the time of interview.

3.1.5.2.1.2. Education: This indicated the level of formal education of the respondent, which was quantified using the procedure adopted by Karippai (1988), with some modifications.

Sl.No.	Category of response	Score
1	Illiterate	0
2	Functionally literate	1
3	Lower primary level	2
4	Upper primary level	3
5	High school level	4
6	Pre-Degree or its equivalent	5
7	Degree or its equivalent	6
8	Post graduate and above	7

3.1.5.2.1.3. Main occupation

This was operationally defined as the vocation from which the farmer derived major part of his income. Agriculture was assigned a higher score compared to other occupation. It was scored as follows:

Sl.No.	Category of response	Score
1	Agriculture	2
2	Service	1
3	Business	1
4	Others (Specify)	1

3.1.5.2.1.4. Annual Income

This was defined as the total earning of the respondent from both agricultural and non-agricultural sources in a year expressed in terms of rupees. The agricultural sources included income from cultivation of different crops and allied enterprises, while non-agricultural sources included income from service, business and such other vocations.

3.1.5.2.1.5.Farm size

Farm size was defined as the area of land in acres under cultivation; owned and cultivated by respondents.

3.1.5.2.1.6.Farming experience

Farming Experience was operationalised as the number of years since a farmer has been involved in cultivation in his land.

3.1.5.2.1.7.Social Participation

Sadamate (1978) defined social participation of the respondent as participation in social institutions as a member or as an office bearer. Social participation was operationalised in the study as the extent of involvement of an individual in any formal organization in his community. The scale used by Karippai (1988) was followed with some modification to suit this study. The social participation was measured in terms of the membership of the individual in the organization as well as his extent of participation in the various activities. The scoring pattern was done as follows:

1.Nature of membership

Member in any one organization (1)

Office bearer in one organization (2)

2. Extent of participation

Always (2)

Sometimes (1)

Never (0)

The total score that can be obtained by a respondent was eight and minimum zero

3.1.5.2.1.8. Economic Motivation

Economic motivation may be regarded as an indication of the degree of willingness of farmers for investment of his available potential resources in adopting farm innovations. It was operationally defined as the extent to which a farmer was oriented towards profit maximization and the relative value he placed on monitory gains. The procedure developed by Thyagarajan (1981) and adopted by Balan (1987) was used for measuring economic motivation. The scale consists of three sets of statements, each set having three short statements with weights 3,2 & 1 indicating different intensities of motivation from high to low. The forced choice method was followed to overcome familiar problems of personal biases and lack of objectivity of self-evaluation. This method forced the respondents to choose from the group of three short statements describing a particular personality characteristic, the one that most accurately described the respondent himself and also one that least accurately portrayed him. After obtaining the least choice for each of the three sets of statements, scoring was done by summing up ratios of weights of most like statements to weights of least like statements.

3.1.5.2.1.9. Personal guidance on better farming

Personal guidance on better farming was defined as the advice; help and assistance received by a farmer from different extension personnel for efficient utilization of resources and solving farming problems. Balan (1987) used the scale developed by Singh (1981) with slight modification for measuring personal guidance on better farming which was followed in this study.

The scale consists of 9 statements rated on a four point continuum viz; very much, much, not much and never with scores 3,2,1 & 0 respectively. The summation of the scores for different statements gave the total score for a

respondent on personal guidance. The maximum score that could be obtained by a respondent was 27 and minimum zero.

3.1.5.2.1.10. Management Orientation

Management orientation referred to the degree to which a farmer was oriented towards scientific farm management comprising planning, production and marketing of his farm enterprises.

Chari and Nandapurkar (1987) were of the opinion that farmers as the manager of agricultural enterprises are expected to maximize the profits. The scale developed by Samantha (1977) and adopted by Ramachandran (1992) was used to measure management orientation of farmers. The scale consisted of 6 statements, each for planning, production and marketing. A score of one was given for agreement and zero for disagreement. The total score obtained by an individual for all the statements was taken as his management orientation scores.

The maximum score that could be obtained was 18 and the minimum zero.

3.1.5.2.1.11. Information source utilization

Information source utilization was operationally defined as the use of various sources of information by the respondent in order to get information on agricultural technology. Here the 'source,'' individual' and 'channels' were collectively used as "information sources," since for practical purposes there is no clear-cut demarcation that could be made between 'source' and 'channel'. Based on discussion with field level functionaries, scientists and progressive farmers and traders, various sources of information utilized by farmers were identified and categorized under mass media sources, personal cosmopolite sources and personal localite sources. The procedure adopted by Ramachandran (1992), Govind (1992) and Manoj (1998) were followed with slight modification. The respondents were asked to indicate the frequency of use of these sources on a three point continuum viz, regularly, occasionally, and never with scores of 2,1,and 0 respectively. For extent of information, a three point continuum viz, adequate, somewhat adequate and inadequate with score of 2,1,and 0 respectively were scored by the respondents.

3.1.5.2.1.12. Credit Utilization

Credit utilization is operationally defined as the behaviour of respondent in utilizing the credit facilities for spice cultivation from institutional /non-institutional sources in adequate quantity and utilizing it for the right purpose without making default in repayment.

This variable was measured using an arbitrary scale developed for the study. The items and scoring pattern followed are as below:

a) Have you availed any loan for spice cultivation? Yes (1) /No (0)

b) Have you utilized the loan for spice cultivation itself? Yes (2) /Partially (1) / No (0)

c) Have you repaid / are you repaying the loan with out default? Yes (2) / Occasionally (1)/No (0)

3.1.5.2.2.Traders

3.1.5.2.2.1. Age: Age was operationalised and measured similar to that of farmers.

3.1.5.2.2.2. Education: Operationalised and measured as the same way as that of farmers.

3.1.5.2.2.3. Annual Income: It was operationalised and measured similar to that of farmers.

3.1.5.2.2.4. Number of Spices traded: This is operationalised as the number and type of spices that are dealt by the traders during buying and selling activities

3.1.5.2.2.5. Volume of transaction: This is operationalised as the volume of trading undertaken by the traders annually, converted to value in terms of rupees.

3.1.5.2.2.6.Information source utilization

This was operationalised and measured in the same way as that of farmers

3.1.5.2.3. Development Officers

3.1.5.2.3.1.Age: This was operationalised and measured similar to that of farmers.

3.1.5.2.3.2.Education: A slight modification of the scale by Kariappai (1988) was used with scores given as below:

Matriculate	- 1
Diploma	- 2
Degree or equivalent	- 3
Post graduate	- 4

3.1.5.2.3.3.Number of trainings received

It is operationalised as the trainings received by the development officers on WTO related aspects of spices including post harvest handling including cleaning, grading and packing and quality specification of various spice produces. For each, training received, a score of one was given.

3.1.5.2.3.4. Number of awareness programmes conducted

This is operationalised as programme conducted by the development officers on any of the WTO aspects related to spice production to enhance the awareness of farmers.

3.1.5.2.3.5.Information source utilization

It was operationalised and measured the same way as that of farmers.

3.1.6. Methods of data collection

The data for the present study were collected with the help of a structured and pre tested interview schedule. For the three different categories of respondents, three separate interview schedules were used. All the three schedules were initially prepared in English and then the schedules for farmers and traders were translated to Malayalam to make the data collection process easier. Before conducting the actual survey, pre testing of the interview schedules were also conducted. The researcher personally interviewed all the 120 respondents.

3.1.7.Statistical tools used

Data collected from the respondents were coded, compiled and analyzed using the following statistical techniques:

3.1.7. 1. Simple correlation Analysis

3.1.7.2. Chi – Square test

3.1.7.3. Multiple regression analysis

3.1.7. 1. Simple correlation analysis

Correlation indicates the linear relationship between two variables so that movements in one variable tend to be accompanied by movements in the second variable. Correlation coefficient is defined at the measurement of the degree of linear relationship between two variables. It indicates direction as well as closeness of relationship between two variables. It is denoted by the symbol 'r' which varies between +1 and –1

If r = +1, it shows a perfect positive correlation between the two variables.

r = -1 shows a perfect negative correlation

r = 0 shows no correlation

Numerical value of r shows the closeness of relationship between variables.The Karl Pearson's correlation coefficient is computed by the following formula.

$r = \sum xy / \sqrt{\sum x^2 \sum y^2}$ where x,y = deviations of the values of X and Y series from their respective means.

3.1.7.2.Chi – Square test

Chi – Square test is a non parametric test which measures the difference between observed frequencies and expected frequencies and throws light whether the difference between observed and expected frequencies is significant or not. One of the uses, of the test is in testing the association between two attributes. In such cases, the null hypothesis that the two attributes under study are not associated i.e., they are independent is taken. On this supposition, expected frequencies are computed and compared with observed frequencies to obtain the value of X^2.

X^2 is computed by the expression,

$X^2 = \sum (O-E)^2 / E$

Where, O = observed frequencies and E = expected frequencies

In the present study, X^2 is used to test the association between independent variables and dependent variables. If the probability is less than 0.05, the observed value of X^2 is significant at 5per cent level of significance.

3.1.7.3. Multiple regression analysis

Multiple regression is a statistical tool designed to study the behaviour of a dependent variable according to changes in the values of a number of independent variables. The dependent variable is denoted as Y and independent variables are designated as X1, X2, X3, X4. and so on. The regression equation is an equation for estimating the value of a dependent variable form the given values of a number of independent variables.

$$Y = a_1 + b_1 x_1 + b_2 x_2 + \ldots\ldots + bn\, xn$$

where ,

Y is the predicted value of the dependent variable from the known values of independent variables x_1, x_2 and x_3...

a_1 = is a constant

b_1 = indicates a change in Y for a unit change in x_1 when other variables (x_2, x_3, etc.) are included in the study but its effect is eliminated. The square of the multiple correlation coefficient is the coefficient of determination (R^2) that represent the proportion of the total variation explained by the independent variables in the regression equation together.

The main advantage of multiple regression is that it is employed for predicting the value of the dependent variable on the basis of given values of independent variables. The regression coefficient obtained from multiple regressions enables to know the average change in the value of the dependent variable corresponding to a change in the value of one independent variable while the effects of other independent variables included in the study are eliminated. Multiple regressions also enable to know which of the independent variables are positively correlated with the dependent variable and which are negatively correlated.

3.2. CONTENT ANALYSIS

3.2.1. Procedure adopted for content analysis

3.2.1.1.Levels and units of analysis

Articles on spices related to Agreement on Agriculture that appeared in the selected four newspapers for one year formed the unit of analysis. All the articles were accounted for doing the content analysis.

3.2.1.2.Selection of the newspapers

For the present study, four major dailies were selected among the several newspapers in Kerala. Three Malayalam dailies, namely Mathrubhumi, Malayala Manorama and Desabhimani were selected based on their highest circulation. One English daily, The Hindu,Business Line was the fourth daily that was selected on the basis of the importance it gives to trade related aspects of agriculture.

3.2.1.3.Universe of the newspapers

Each articles on AoA / WTO related to spice sector is accounted for analysis. All the issues of all the four selected newspapers for one year formed the universe. The period was from February 2002 to January 2003.

3.2.1.4.Sampling employed

Since all the articles related to spices and AoA were the unit of analysis sampling was not done for the present study.

3.2.1.5.Categorisation of the subject matter

The articles were thoroughly reviewed to determine the categories in which they can be put. The information contained in the articles were then categorized into:

3.2.1.5.1.General information

3.2.1.5.2.Crop wise information

3.2.1.5.1.General information

Information relating to AOA were considered as general category. Those articles which were related to AOA were coded in such a way as to include the main areas that could come under different sub categories like policy, technical

barrier and domestic support. The main theme of the article also forms another sub category.

Policy: Articles that portrayed principles and objectives which guide decision making on matters related to AoA which express broad intention or attitudes were regarded as policy article.

Technical barrier to trade: All tariff and non-tariff measures were considered as technical barrier to trade.

Support: Support given to the farmers by the government for production (Product specific subsidies) and that to inputs (Non-product specific subsidies) as well as various other support measures come under this category.

Theme: The main focus of the articles comes under this.

3.2.1.5.2.Crop wise information

The articles that covered details on specific spice crops were categorized as crops covered, production, post harvest technology, marketing, supply, demand, import, export and market price.

Crops covered: The spice crop about which the article dealt with belongs to this category.

Production: It dealt with cultivation aspects of the various spice crops that is covered under the article.

Post Harvest Technology: Under this comes news related to post harvest handling, cleaning, grading, packing and value addition or processing aspects of spices.

Marketing: Marketing includes the series of activities involved in moving the goods from the point of production to the point consumption. It covered aspects like procurement, transportation, auctioning, price fixation and distribution of commodities.

Supply: Supply referred to quantities of a product that will be offered for sale at different places at given time and in a given market.

Demand: Demand referred to the quantity of a product or services that the buyers are likely to purchase at different prices in a given market at given time.

Import: Goods or services purchased from other countries involving the use of foreign exchange.

Export: Any goods or services sold to a foreign country.

Market price: Price is the exchange value of a good or service expressed in terms of money, market price and prevailing price of various spices in domestic market as well as international market.

Coding was done for the frequency of various subjects that appeared in the articles.

3.2.1.6.Tabulation and Analysis of the data

Tables were formed to get meaning out of the data obtained by content analysis. Analysis was done for the following:

1. Total number of articles on spices and AOA that appeared in the four major dailies
2. Average number of articles per month for each daily
3. Contribution of articles by different authors
4. Emphasis given by these articles to different crops in different dailies.
5. Coverage on different areas of AOA in the general articles as well as the crop specific articles, which appeared in the different dailies.

3.2.2.Statistical tools used

3.2.2.1.Percentage Analysis

Percentage analysis was done to make simple comparisons wherever necessary.

RESULTS AND DISCUSSION

CHAPTER 4

RESULTS AND DISCUSSION

Keeping in view, the objectives of the study, the results are presented in the chapter under the following main heads:

4.1.Level of knowledge of respondents in spice sector about AoA

4.1.1.Farmers

4.1.2.Traders

4.1.3.Development Officers

4.2.Relationship of selected characteristics of the key stakeholders with their level of knowledge about AoA

4.2.1.Farmers

4.2.2.Traders

4.2.3.Development Officers

4.3.Relative importance of selected characteristics of farmers in explaining their knowledge about AoA

4.4. Variation in the knowledge score of three categories of respondents

4.5. Level of perception of key stakeholders about the impact of AoA on spice production and marketing

4.5.1.Farmers

4.5.2.Traders

4.5.3.Development Officers

4.6.Relationship of selected characteristics of key stakeholders with their perception about the impact of AoA on spice production and marketing.

4.6.1.Farmers

4.6.2.Traders

4.6.3.Development Officers

4.7.Relative importance of selected characteristics of farmers in explaining their perception about the impact of AoA on spice production and marketing.

4.8 Variation in the perception score of the three categories of respondent.

4.9 Content Analysis

4.9.1.Frequency of articles in various dailies

4.9.2. Contribution of authors in various dailies

4.9.3.General and crop specific articles

4.9.4. Coverage of different spice crops in the articles

4.9.5.Coverage of different areas related to spices in articles

4.10 Suggestions to utilize the provisions of AoA to the advantage of farmers

4.1 LEVEL OF KNOWLEDGE OF KEY STAKESHOLDERS IN THE SPICE SECTOR ABOUT AoA

4.1.1.Farmers

Table 1 presents an account of the distribution of the farmers based on their level of knowledge about AoA. It is seen from the table that among the farmers, 18.3 percent come under high knowledge level category whereas 60per cent and 21.66 per cent come under medium and low level of knowledge categories respectively.

Table 1.Level of knowledge of spice farmers about AoA

Sl.No.	Category	Score	Frequency	Percentage
1	Low	<1	13	21.66
2	Medium	1-3	36	60.00
3	High	≥4	11	18.33
Total			60	100.00

Even though the farmers are highly acquainted with the production aspects of spice crops, their knowledge level about AoA is not that prominent. Majority of the farmers come under low and medium level category. This could be due to several factors like low educational status, low economic motivation, and lack of proper guidance or low utilization of information sources.

4.1.2. Traders

The result in Table 2 revealed that 26.6 per cent of the traders come under high level of knowledge category. 53.3 per cent come under medium knowledge level category and 20.0 per cent come under low level category.

Table 2.Level of knowledge of traders about AoA

Sl.No.	Category	Score	Frequency	Percentage
1	Low	≤2	6	20
2	Medium	4-3	16	53.33
3	High	≥5	8	26.66
Total			30	100.00

Majority of traders comes under medium knowledge category. Even if the traders are more conversant with trading related activities their knowledge level about AoA is not high, this could be because of inadequate use of various sources of information.

4.1.3. Development Officers

The results in Table.3 revealed that 36.6 per cent of Development Officers come under high knowledge level category whereas more than 60 per cent come under medium knowledge category.

Table 3.Level of knowledge of Development Officers about AoA

Sl.No.	Category	Score	Frequency	Percentage
1	Low	≤1	0	0.00
2	Medium	3-2	19	63.33
3	High	≥4	11	36.66
Total			30	

Even though some of the Development Officers had high level of knowledge about AoA related areas; majority of them had only medium level of knowledge.

4.2 RELATIONSHIP OF SELECTED CHARACTERISTICS OF THE KEY STAKEHOLDERS WITH THEIR KNOWLEDGE ABOUT AoA

4.2.1. Farmers

The data in Table 4 revealed that out of 12 variables, 9 variables showed significant relationship with the knowledge of farmers about the AoA

It was seen that education, annual income, social participation, economic motivation, personal guidance on better farming, management orientation, and information source utilization had positive significant relationship whereas age and farming experience had negative significant relationship with their

knowledge. Main occupation ,farm size and credit utilization did not show significant relationship with the knowledge about AoA

Table 4.Association of the selected characteristics of farmers with their knowledge about AoA

Sl.No	Name of the Variables	Correlation coefficient (r)
1	Age	-0.348**
2	Education	0.560**
3	Main occupation	-0.213
4	Annual income	0.419**
5	Farm size	0.132
6	Farming experience	-0.364**
7	Social participation	0.459**
8	Economic motivation	0.403**
9	Personal guidance on better farming	0.498**
10	Management orientation	0.556**
11	Information source utilization	0.702**
12	Credit utilization	0.255

** Significant at 1per cent level of significance

Age has showed a negative significant relationship with the knowledge about AoA.The young farmers might have been more eager to know more about the recent developments in farming especially about problems of globalization and their impact. Their quest for acquisition of recent developments might have lead to this result. This result is in conformity with the findings of Hanumanaikar (1995).

Education showed positively significant relationship with the knowledge of farmers. Educated farmers must have been exposed to several information sources which might have resulted in increased knowledge. This finding is on par with the findings of Saravana (2002).

Annual income had positive significant relation with the farmers' knowledge. Increased income might have helped the farmers to invest more money in spice cultivation. Consequently, they might have been motivated to acquire more information about the current scenario of globalization and its impact in agriculture. This observation is in agreement with that of Raghavendra (1997).

Farming experience had negative significant relationship with knowledge about AoA.Even though more experience in farming is expected to have higher knowledge about farming, in the present case, this has not happened. As the farmers who had more farming experience were mostly elder farmers, their interest and enthusiasm to seek more knowledge about WTO and current issues might be less. This finding is in line with that of Sohal and Tyagi (1978).

The finding that positive significant relationships of social participation with the knowledge exists is quite logical. The participation of farmers in various small institutions provided a forum for better contact with different sources of information which might have resulted in acquiring more knowledge. This result is in conformity with that of Jayaraj (1997).

Economic motivation had positive significant relation with the knowledge of farmers. If a farmer is economically motivated to gain profits, naturally he will be keen in seeking and obtaining more information on all aspects related to farming. This finding is in conformity with the findings of Angadi (1992) and Pattnaik (1993).

Personal guidance on better farming had positive and significant relationship with knowledge. Personal contact with the extension personal and their guidance provided the farmers with scientific and need based information might have resulted in a favorable condition for increased knowledge development. This result is in par with the findings of Anatharaman (1991).

Management orientation was positively significant with the knowledge of farmers. Management orientation is the degree to which a farmer is oriented towards scientific farm management comprising planning, production and marketing of his enterprises. A farmer oriented towards these dimensions will naturally be an efficient manager. One of the important resources of management is knowledge and in this process, farmer managers might have acquired more knowledge. Thus, management orientation might have pushed the farmers to know and understand various information related to farming. Hence the significant relationship of management orientation with knowledge is quite

understandable. This observation is in agreement with the findings of Chandrasekhara (1999).

Information source utilization showed positive significant relationship with knowledge. It is a reality that the more a farmer is acquainted with the various information sources, the more will be the acquisition of knowledge. This finding is in line with the findings of Jnanadevan (1993) and Manoj (1998).

4.2.2. Traders

Table 5 revealed that of the five variables studied, four variables showed significant association with the knowledge of traders about AoA. These variables were education, number of spices traded, volume of transaction and information source utilization. Age did not exhibit any significant association with knowledge.

Table 5. Association of the selected characteristics of traders with their knowledge about AoA

Sl.No.	Name of the Variables	Chi-square value	Degrees of freedom	Probability
1	Age	9.703	6	0.1377
2	Education	24.684*	4	0.0001
3	Number of spices traded	7.789*	2	0.0204
4	Volume of transaction	26.533*	6	0.0002
5	Information source utilization	17.635*	4	0.0015

* Significant at 5per cent level of significance

Education and knowledge exhibited positive and significant association. As in the case of educated farmers, educated traders also might have inculcated a better understanding about relevant information related to spice trade, where in AoA is quite significant in the present context.

The number of spices traded and knowledge were also found to have positive and significant association. As the number of spices dealt by the traders tends to be more, their need and interest to become aware about the trading practices and various factors influencing trading of the different spices might also become more pronounced. Hence, such a result is quite logical.

Volume of transaction had a positive and significant association with knowledge. As the volume of trading is more, their risk in the business will be

rather high and hence they will be more keen to obtain more knowledge about the factors related to trading. Thus the result obtained is justifiable.

Information source utilization as in the case of farmers had shown a positive and significant affiliation with knowledge. Utilization of more number of information sources might have resulted in better knowledge.

4.2.3. Development Officers

The results in Table.6 revealed that out of the five variables only information source utilization had a significant association with the dependent variable viz., knowledge. Age, education, number of trainings received and number of awareness programmes conducted did not show any significant association.

Table.6 Association of the selected characteristics of Development Officers with their knowledge about AoA

Sl.No.	Name of the Variables	Chi-square value	Degrees of freedom	Probability
1	Age	3.431	4	0.4884
2	Education	0.305	2	0.8584
3	Number of trainings received	2.978	2	0.2256
4	Number of awareness programmes conducted	4.416	2	0.1099
5	Information source utilization	9.511**	4	0.0495

** Significant at 1per cent level of significance

The use of more information sources by the Development Officers might have resulted in gaining better understanding and knowledge about AOA and hence the observed finding.

4.3 RELATIVE IMPORTANCE OF SELECTED CHARACTERISTICS OF FARMERS IN EXPLAINING THEIR KNOWLEDGE ABOUT AoA

Correlation analysis was useful only to find the extent of the relationship between the variables. As a step further, an attempt was made to know the predictive value of the dependent variable on the basis of given values of independent variables.

Multiple regression analysis was employed to find out the behaviour of the dependent variables viz., level of knowledge according to changes in the values of the selected independent variables.

Table 7 presents the results of regression analysis of selected characteristics of farmers on knowledge about AoA. Since the F value (9.23) was more than the table value of F at 5 per cent level, the null hypothesis was rejected indicating that all the variables together contributed significantly to the variation in the level of knowledge of farmers about AoA

Table 7.ANOVA of multiple regression analysis of the selected characteristics of farmers with their knowledge about AoA

Sl.No.	Source	Sum of square	Degrees of freedom	Mean square	F
1	Regression	114.561	12	9.547	9.231*
2	Residual	47.575	46	1.034	
3	Total	162.136	58		

*Significant at 5per cent level of significance

Since the F value was significant, further analysis was done. The coefficient of determination (R^2) revealed that 71 per cent of the variation in the level of knowledge could be explained by the 12 variables. From the result in Table 8 it could be seen that out of the 12 independent variables only three were found to be significant in explaining the variation in the level of knowledge namely, education, planning orientation and information source utilization. There may be correlations among independent variables that would reduce the reliability of testing of significance of regression coefficients. Otherwise, significance using correlation would have been same as this. The three dimensions of management orientation namely planning orientation, production orientation and marketing orientation were taken into account separately to elucidate their contribution independently to the knowledge. The two variables which were found not significant were kept out.

Table 8.Result of multiple regression analysis of the selected characteristics of farmers with their knowledge about AoA

Sl.No.	Name of the Variables	Regression coefficient. 'Beta'	't' value
1	Age	0.254	1.463
2	Education	0.552	3.973
3	Annual income	0.093	0.976
4	Farming experience	0.137	0.823
5	Social participation	0.076	0.629
6	Economic motivation	0.102	0.997
7	Personal guidance on better farming	-0.079	-0.597
8	Planning orientation	0.193	1.955
9	Production orientation	0.084	0.739
10	Marketing orientation	-0.046	-0.460
11	Information source utilization	0.517	3.204
12	Credit utilization	-0.047	-0.424

* Significant at 5per cent level of significance

$R^2 = 0.71$

The significant contribution of education to the level of knowledge could be explained on the premise that the farmers who possess higher educational status are likely to seek more information related to farming as education acts as a catalyst in assimilating knowledge. Thus, the significant contribution of education to the level of knowledge is quite justifiable.

Planning orientation of farmers also contributed significantly to their level of knowledge. It is quite likely that those farmers who have an orientation towards planned crop production may seek all the information so that they can decide the future course of action on the basis of such relevant information that has an influence on farming. This is more so for spice crops where the process of production is very much determined by different forces about which the farmers shall have some knowledge.

Information source utilization was found to contribute significantly to the level of knowledge. Value added information is appropriately referred to as knowledge. A person's range of information is the knowledge which he possess. Hence, it is conspicuous that as the usage of various information sources become

extended, the level of knowledge also will have a corresponding escalation in the same direction

4.4 VARIATION IN THE KNOWLEDGE SCORE OF THE THREE CATEGORIES OF RESPONDENTS

Table 9 elucidated the following findings. There is significant variation in the knowledge score of farmers and extension personnel where as between farmers and traders as well as between traders and extension personnel there is no significant variation. This could be because of the fact that traders' knowledge could be in between that of the farmers and Development Officers.

Even though the farmers are well versed with the production aspects of spices, their level of knowledge about AoA and related aspects were comparatively less than that of extension personnel. This could be because the extension personnel are likely to obtain most of the recent developments due to their good educational status as well as the type of job they undertake. The high utilization of various information sources also might have contributed to the increased knowledge score.

Table 9.Test of significance of knowledge score of the three categories of respondents

Samples	t-value	Probability
Farmers vs. Traders	0.9871	0.3262
Farmers vs. Development Officers	2.9186*	0.0047
Traders vs. Development Officers	1.5022	0.1383

*Significant at 5% level of significance

4.5 LEVEL OF PERCEPTION OF KEY STAKEHOLDERS ABOUT THE IMPACT OF AoA ON SPICE PRODUCTION AND MARKETING

4.5.1. Farmers

Table 10 highlights the distribution of farmers based on their level of perception about the impact of WTO agreements on spice production and marketing. It could be seen that 23.3 per cent of farmers belonged to the high

level of perception category. 53.3 per cent and 23.3 per cent came under medium and low level category respectively.

Table 10.Level of perception of spice farmers about the impact of AoA on spice production and marketing

Sl.No.	Category	Score	Frequency	Percentage
1	Low	≤1	14	23.33
2	Medium	3-2	32	53.33
3	High	≥4	14	23.33
Total			60	100.00

It could be seen that most of the farmers come under medium level category. Low percentage of farmers with high level category might be because of the inadequate understanding of the impact of WTO agreement on spice production and marketing either as a result of poor utilization of information sources or low education status.

4.5.2. Traders

As observed from Table11, 20 per cent of traders came under high level of perception category. 60 per cent and 20 per cent belong to medium and low-level perception category respectively.

Table 11.Level of perception of spice traders about the impact of AoA on spice production and marketing.

Sl.No.	Category	Score	Frequency	Percentage
1	Low	≤1	6	20.00
2	Medium	4-3	18	60.00
3	High	≥5	6	20.00
Total			30	100.00

It could be seen that 80 per cent of traders belong to medium and low level of perception category. As the AoA is a recent phenomenon, the real understanding by the traders of its various aspects may take quite some more time.

4.5.3. Development Officers

Table 12 revealed that 36.6 per cent of Development Officers came under high level perception category where as 63.3 per cent came under medium level perception category.

Table 12.Level of perception of Development Officers about the impact of AoA on spice production and marketing

Sl.No.	Category	Score	Frequency	Percentage
1	Low	≤1	0	0.00
2	Medium	3-2	19	63.33
3	High	≥4	11	36.66
Total			30	100.00

Though it was expected that Development Officers will have better perception about the impact of AoA, the same was not found to be true. Majority of the Development Officers belonged to medium perception category. Naturally this is reflected in the low perception about the impact of AoA by the farmers and traders among whom these Development Officers work.

4.6 RELATIONSHIP OF SELECTED CHARACTERISTICS OF KEY STAKEHOLDERS WITH THEIR PERCEPTION ABOUT THE IMPACT OF AoA ON SPICE PRODUCTION AND MARKETING.

4.6.1. Farmers

Table 13 revealed that out of the 12 variables, 9 variables showed significant relationship with the perception of farmers about the impact of WTO Agreements on spice production and marketing. Among this, 7 variables showed positive significant relationship. These are education, annual income, social participation, economic motivation, personal guidance on better farming, management orientation and information source utilization. Age and farming experience showed negative significant relationship.

Age exhibited negative significant relation with perception of farmers about the impact of AoA on spice production and marketing. It is a fact that the younger farmers perceive things more realistically and appropriately. One reason could be that young farmers take up farming mostly out of their interest. Hence, they might develop a vision to look at things most realistically and thus obtained a better perception of the environment.

Table 13. Association of the selected characteristics of farmers with their perception about the impact of AoA on spice production and marketing

Sl.No	Name of the Variables	Correlation coefficient (r)
1	Age	-0.278*
2	Education	0.494**
3	Main occupation	-0.242
4	Annual income	0.348**
5	Farm size	0.140
6	Farming experience	-0.307*
7	Social participation	0.356**
8	Economic motivation	0.277*
9	Personal guidance on better farming	0.464**
10	Management orientation	0.640**
11	Information source utilization	0.714**
12	Credit utilization	0.245

* Significant at 5per cent level of significance

** Significant at 1per cent level of significance

Education exhibited positive significant relationship with the perception of farmers. Perception by definition is attributing meaning to sensations. Education helps to broaden the vision and helped them to attribute proper meaning to their environment.

Annual income was found to have positive and significant relationship with perception. Social participation had positive and significant relation with the perception of farmers. Participation in social institution might have provided opportunity for better interaction with various sections of people resulting in broadening their knowledge. In this process they also might have gained better insight. Parvathy (2000) has found similar association between social participation and perception of women.

Farming experience had negative significant relation with the perception of farmers. Even though more experience in farming could enhance the knowledge of farmers about production, which in turn produces a real understanding of the things. This did not happen in the case of perception about AOA. As the more experienced farmers are elder farmers, they might not have the real interest to know about the current developments in the field.

A positive and significant relationship between economic motivation and perception was noticed. The more a person is economically motivated, the more will be his orientation towards profit maximization. As a result, he may try to acquire more information on farm related aspects with a view to obtain more perception. This finding agree, with the earlier observations of Padmaiah *et al*(1998).

Management orientation also had a positive and significant relation with perception. A higher level of management orientation implied a better involvement in all the activities related to farming, especially planning, production and marketing domains. Thus a higher level of management orientation naturally related to a higher level of perception also.

Personal guidance on better farming provides the farmers with functional and purposive information on scientific farming through dialogues and discussions that in turn resulted in better perception.

Information source utilization had a significant and positive correlation with perception. It is quite natural that the more one utilizes the different information sources, the more will be the awareness about the events and hence the result. This result is in contrast with the findings of Ingale and Virkhare (1988). This may be because of the variation in information sources each has selected for the study as well as the type of farmers selected.

4.6.2. Traders

Table 14 indicated that out of the five selected characteristics, four variables viz., education, number of spices traded, volume of transaction and information source utilization exhibited significant association with the perception of traders. Age did not show any significant association.

Table 14. Association of the selected characteristics of traders with their perception about the impact of AoA on spice production and marketing

Sl.No.	Name of the Variables	Chi-square value	Degrees of freedom	Probability
1	Age	12.021	6	0.0615
2	Education	23.900*	4	0.0001
3	Number of spices traded	7.973*	2	0.0186
4	Volume of transaction	31.636*	6	0.0000
5	Information source utilization	19.906*	4	0.0005

* Significant at 5per cent level of significance

Education had a positive and significant association with the perception. Educational status of traders might have resulted in the proper interpretation of events around them. The number of spices traded and perception also had shown a positive and significant association. Thus traders who dealt with more number of spices, might have attempted to obtain more information and in this process their understanding and experience of more stimuli by means of better interpretation of sensation will also be high.

Another finding of the study was the positive and significant association of volume of transaction and perception of traders. As the volume of trade is high, the risks associated with this also will be on a higher side. To reduce the risks associated with trading, the traders tried their level best to get themselves exposed to some information thus resulted in a better perception. As in the case of farmers, information source utilization had positive and significant association with perception of farmers.

4.6.3. Development Officers

The results in Table 15 indicated that out of the five variables selected, only information sources utilization had significant association with perception.

Table 15. Association of the selected characteristics of Development Officers with their perception about the impact of AoA on spice production and marketing

Sl.No.	Name of the Variables	Chi-square value	Degrees of freedom	Probability
1	Age	5.083	4	0.2789
2	Education	3.340	4	0.5026
3	Number of training received	1.736	2	0.4198
4	Number of awareness programme conducted	6.763	2	0.0640
5	Information source utilization	8.342*	2	0.0154

* Significant at 5per cent level of significance

A positive and significant association between information source utilization and perception might be due to the proper use of various information sources by the Development Officers had resulted in a meaningful experience of the events around them as in the case of farmers

4.7 RELATIVE IMPORTANCE OF SELECTED CHARACTERISTICS OF FARMERS IN EXPLAINING THEIR PERCEPTION ABOUT THE IMPACT OF AoA IN SPICE PRODUCTION AND MARKETING

The data in Table.16 showed the result of regression analysis of perception with the independent variables. The findings revealed that the F value (13.15) was significant, indicating that all the variables together contributed significantly to the variation in the perception about the impact of spice production and marketing.

Table 16.ANOVA of multiple regression analysis of the selected characteristics of farmers on perception about the impact of AoA on spice production and marketing

Sl.No.	Source	Sum of square	Degrees of freedom	Mean square	F
1	Regression	97.197	12	8.100	13.152*
2	Residual	28.329	46	0.616	
3	Total	125.525	58		

* Significant at 5per cent level of significance

The coefficient of determination (R^2) revealed that 77 per cent of the variation in the perception was explained by the 12 variables. From the table 17, it is seen that out of the 12 independent variables only three were found to be significant in explaining the variations in perception, namely education, planning orientation and information source utilization.

Table 17.Result of multiple regression analysis of the selected characteristics of farmers with their perception about the impact of AoA on spice production and marketing

Sl.No	Name of the Variables	Regression coefficient. 'Beta'	't' value
1	Age	0.281	1.843
2	Education	0.488	4.009*
3	Annual income	0.031	0.373
4	Farming experience	0.025	0.623
5	Social participation	-0.077	-0.731
6	Economic motivation	-0.060	-0.667
7	Personal guidance on better farming	-0.037	-0.318
8	Planning orientation	0.295	3.402*
9	Production orientation	0.007	0.066
10	Marketing orientation	-0.008	-0.087
11	Information source utilization	0.807	5.703*
12	Credit utilization	-0.229	-2.350

* Significant at 5 per cent level of significance

$R^2 = 0.77$

There may be correlations among independent variables that would reduce the reliability of testing of significance of regression coefficients. Otherwise, significance using correlation would have been same as this. It could be logically concluded that with the educational status, the farmers were able to attain a meaningful experience of the events related to farming. A significant contribution of planning orientation to the perception was on the basis of their interest upon the future course of action using all the relevant information and has

extended, the level of knowledge also will have a corresponding escalation in the same direction

4.4 VARIATION IN THE KNOWLEDGE SCORE OF THE THREE CATEGORIES OF RESPONDENTS

Table 9 elucidated the following findings. There is significant variation in the knowledge score of farmers and extension personnel where as between farmers and traders as well as between traders and extension personnel there is no significant variation. This could be because of the fact that traders' knowledge could be in between that of the farmers and development officers.

Even though the farmers are well versed with the production aspects of spices, their level of knowledge about AoA and related aspects were comparatively less than that of extension personnel. This could be because the extension personnel are likely to obtain most of the recent developments due to their good educational status as well as the type of job they undertake. The high utilization of various information sources also might have contributed to the increased knowledge score.

Table 9.Test of significance of knowledge score of the three categories of respondents

Samples	t-value	Probability
Farmers vs. Traders	0.9871	0.3262
Farmers vs. Development Officers	2.9186*	0.0047
Traders vs. Development Officers	1.5022	0.1383

*Significant at 5 percent level of significance

4.5 LEVEL OF PERCEPTION OF KEY STAKEHOLDERS ABOUT THE IMPACT OF AoA ON SPICE PRODUCTION AND MARKETING

4.5.1. Farmers

Table 10 highlights the distribution of farmers based on their level of perception about the impact of WTO agreements on spice production and marketing. It could be seen that 23.3 per cent of farmers belonged to the high

Table 19. Frequency of articles in selected dailies (Month wise)

Name of the newspaper	Number of articles /month(February 02 to January 03)													
	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Total	Aver -age
Mathrubhumi	10	6	12	8	5	4	6	6	7	7	9	4	84 (30%)	7
Malayala Manorama	0	2	14	3	6	5	2	1	1	2	3	1	40 (14%)	3
Deshabhimani	0	0	0	1	4	6	2	7	7	1	1	4	33 (12%)	3
Business Line	12	11	9	14	8	6	9	14	8	15	9	7	122 (44%)	10

Note: Figures in parentheses indicate proportion of articles in each daily to the total number of articles in four dailies

Table 20.Contribution of authors in selected dailies

Name of the newspaper	Bureau	Editorial	Authors having more than ten article		Other authors		Total
			Name	Number of articles	Number of authors	Number of articles	
Mathrubhumi	30 (36%)	1	Lilibet Bhanuprakash	41 (49%)	7	12 (14%)	84
Malayala Manorama	13 (32.5%)	3	M.D.Varghese	20 (50%)	4	4 (10%)	40
Deshabhimani	25 (76%)	2	-	-	4	6 (18%)	33
Business Line	13 (10.7%)	5	G.K.Nair	51 (44.8%)	30	53 (43.4%)	122

Note: Figures in parentheses indicate proportion of contribution of authors, bureau and editorial to the number of articles published by each daily.

less for Malayala Manorama & Deshabhimani. Among Malayalam dailies, Mathrubhumi had covered more number of articles per month.

b) Out of the total number of articles appeared in the four dailies, maximum proportion (44 per cent) was in Business Line. Among Malayalam dailies, the proportionate distribution for Mathrubhumi was 30per cent whereas the same for Malayala Manorama and Deshabhimani were 14 per cent and 12per cent respectively.

4.9.2. Contribution of authors in selected dailies

The salient observations on the contribution by different authors is illustrated in Table 20.

1) In the case of Mathrubhumi, out of the total number of articles, the highest proportion (49 per cent) was provided by Lilibet Bhanuprakash.

2) In Malayala Manorama, the highest percentage (50 per cent) was contributed by M.D. Varghese.

3) As far as Deshabhimani is concerned, the maximum proportion of the articles (76 per cent) was made by the Bureau.

4) The highest proportion of the articles (41.8 per cent) in Business Line was contributed by G. K. Nair.

4.9.3. General and crop specific articles

The results of the general and crop specific articles in the selected dailies are depicted in Table 21.

Table 21. General and crop specific articles in selected dailies

Name of the newspaper	General articles	Crop specific articles	Total
Mathrubhumi	12 (14%)*	72 (86%)*	84
Malayala Manorama	9 (22.5%)*	31 (77.5%)*	40
Deshabhimani	15 (45%)*	18 (55%)*	33
The Hindu Business Line	45 (37%)*	77 (63%)*	122

* Proportion of general and crop specific articles to the total number of articles in each daily

All the four dailies covered articles specific to spice crops than general articles which take care of various aspects of AoA. Business Line has covered more articles on general aspects compared to other dailies.

4.9.4.Different crops covered in the articles

The Table 22 elucidated the following observations:

1) In all the four dailies, pepper was the major spice crop covered (32 per cent) than any other spice crop.

2) Mathrubhumi & Business Line provided information on crops like turmeric, cardamom, ginger other than pepper. Even though Vanilla is emerging as a new potential spice crop, the coverage given to Vanilla was not adequate.

3) Among the four dailies Mathrubhumi covered more articles on spice crops in general (41per cent) followed by Business Line (37.9per cent).

4.9.5. Coverage of different areas in the articles in the selected dailies

The salient findings as portrayed in Table 23 are:

1) Out of the total frequency of the topics covered by Mathrubhumi the maximum proportion (29per cent) was related to marketing aspects. It covered procurement, transportation, auctioning, price fixation and distribution of commodities. Reaching close to this, market price also shared 27per cent, which include the prevailing price of various spices in the domestic as well as international markets.

2) In the case of Malayala Manorama, the maximum share (25per cent) of the topics covered was about market price followed by marketing (24.1per cent). In Deshabhimani also the frequency of the category that happened to be mentioned maximum was market price (16.7per cent) followed by marketing and export (14.8per cent). In Hindu Business Line this trend is reversed, wherein marketing has got prime importance (19.7 per cent) followed by market price (13.8per cent).

From results in Table 24 the following conclusions are drawn :

1)For production aspects, more coverage was given by the Business Line (46per cent). Among malayalam dailies, both Mathrubhumi and Malayala Manorama contributed equally (24per cent) to the total frequency of the topics covered.

Table 22. Different crops covered in the articles in selected dailies

Name of the newspaper	Articles under Spice crops							
	Spices (General)	Pepper	Turmeric	Cardamom	Ginger	Vanilla	Others	Total
Mathrubhumi	38 (39.2%)	31 (32%)	4 (4.1%)	11 (11.3%)	7 (7.2%)	-	6	97 (41%)
Malayala Manorama	19 (59.4%)	11 (34.4%)	-	-	1 (3.1%)	1 (3.1%)	-	32 (13.5%)
Deshabhimani	14 (77.8%)	4 (22.2%)	-	-	-	-	-	18 (7.6%)
The Hindu Business Line	12 (13.3%)	49 (54.4%)	11 (12.2%)	17 (18.9%)	-	1 (1.1%)	-	90 (37.9%)
Total								237

Note: Figures in parentheses indicate proportion of distribution of individual spice crops to the total coverage of spice crops in each daily

Table 23. Coverage of different areas in the articles in selected dailies

Name of the newspaper	Areas of coverage (frequency of coverage of areas)											
	P	V.A	M	Supply	Demand	Import	Export	M.P	Policy	T.B	D.S	Total
Mathrubhumi	12 (5%)	-	68 (29%)	7 (3%)	25 (11.3%)	17 (7.2%)	31 (13.3%)	62 (27%)	7 (3%)	2 (0.8%)	1 (0.4%)	232
Malayala Manorama	12 (10.7%)	1 (0.8%)	27 (24.1%)	6 (54%)	11 (9.8%)	8 (7.1%)	15 (13.4%)	28 (25%)	3 (2.7%)	1 (0.8%)	-	112
Deshabhimani	3 (2.8%)	-	16 (14.8%)	9 (8.3%)	10 (9.3%)	15 (13.9%)	16 14.8(%)	18 (16.7%)	13 (12%)	3 (2.8%)	5 (4.6%)	108
The Hindu Business Line	23 (5.6%)	10 (2.5%)	80 (19.7%)	32 (7.9%)	52 (12.8%)	30 7.3(%)	46 (11.3%)	56 (13.8%)	23 5.7(%)	30 (7.3%)	25 (6.1%)	407

P – Production
V.A – Value addition
M - Marketing
M.P – Market price
T.B - Technical barrier
D.S - Domestic support

Note: Figures in parentheses indicate proportion of frequency of various areas to the total areas covered by each daily.

Table 24. Areas of coverage in the articles in selected dailies

Name of the newspaper	Area of coverage (number of articles under each area)										
	P	V.A	M	Supply	Demand	Import	Export	M.P	Policy	T.B	D.S
Mathrubhumi	12 (24%)	-	68 (35.4%)	7 (12.9%)	25 (25.5%)	17 (24.2%)	31 (28.7%)	62 (37.8%)	7 (15.2%)	2 (5.5%)	1 (3.22%)
Malayala Manorama	12 (24%)	1 (9.09%)	27 (14.13%)	6 (11.1%)	11 (11.2%)	8 (11.2%)	15 (13.8%)	28 (17.07%)	3 (6.52%)	1 (2.7%)	-
Deshabhimani	3 (6%)	-	16 (8.3%)	9 (16.6%)	10 (10.2%)	15 (21.4%)	16 (14.8%)	18 (10.9%)	13 (28.2%)	3 (8.3%)	5 (16.12%)
The Hindu Business Line	23 (46%)	10 (90.9%)	80 (41.8%)	32 (59.2%)	52 (53.06%)	30 (42.8%)	46 (42.5%)	56 (34.14%)	23 (50%)	30 (83.3%)	25 (80.6%)
Total	50	11	191	54	98	70	108	164	46	36	31

P – Production
V.A – Value addition
M - Marketing
M.P – Market price
T.B - Technical barrier
D.S - Domestic support

Note: Figures in parentheses indicate proportion of areas in each daily to the total coverage of areas in all dailies

2) In the case of Post Harvest Technology, only Malayala Manorama and Business Line covered this topic. While 90.95per cent was afforded by Business line, only 9.1per cent was contributed by Malayala Manorama.

3) Aspects related to marketing are covered more by Business Line. Among Malayalam dailies, Mathrubhumi contributed more on this aspect. Topics like supply, demand, import and export were again provided more by Business line. In the case of malayalam dailies, Mathrubhumi covered more of these aspects except for supply that was covered more by Deshabhimani. Mathrubhumi followed by Business line analyzed market price more. The general aspects related to AoA (Policy, Technical barrier & Domestic support) were given highest coverage in Business line. Among Malayalam. dailies Deshabhimani stood first in this aspect.

Interrelationship of information source utilization with knowledge and perception of respondents

A general analysis of the use of newspapers by the three categories of respondents with their knowledge indicated that majority of respondents subscribing newspapers on which the content analysis was done were under high and medium knowledge level category. Majority of farmers and Development Officers subscribed Mathrubhumi, Malayala Manorama or Deshabhimani where as traders also subscribed Hindu Business line. Among the farmers, 25 per cent subscribed Mathrubhumi, 18.3per cent subscribed Malayala Manorama and 5per cent subscribed Deshabhimani. In the case of traders, it was 30per cent, 13.3per cent, 3.3per cent for Mathrubhumi, Malayala Manorama and Deshabhimani respectively.10per cent of them also subscribed Business line also. Among Development Officers, 30per cent subscribed Mathrubhumi where as 16.6per cent and 3.3per cent subscribed Malayala Manorama & Deshabhimani respectively.

Correspondingly, the utilization of these newspapers by the respondents can be compared with their level of perception too. The respondents again were under high and medium category. This observation unveiled that information source utilization, especially print media like newspaper has a positive impact on the level of knowledge and perception by the three categories of respondents on which the survey research was conducted.

4.10. SUGGESTIONS TO UTILIZE THE PROVISIONS OF AoA TO THE ADVANTAGE OF FARMERS

Based on the findings of the study, the following issues emerged:

Majority of the respondents fell under low and medium knowledge category. Even though the farmers and traders are well versed with production and marketing aspects of spices, their level of knowledge about AoA and related areas were less. Similarly their level of perception about the impact of AoA was also less. This may be due to the lack of enough educational activities by the extension personnel to provide appropriate knowledge. This became more clear when a probe is made in to the number of awareness programmes conducted by the extension personnel about the AoA and related aspects. It was almost nil or negligible in some cases. Similarly, the information source utilization by the three categories of respondents is not found adequate. Exporters and auction agents solely used more informative sources like Hindu Business line that covered more about AoA and related aspects. From the content analysis, it was clear that even the coverage about these aspects by the various dailies were less compared to production aspects. This could be another reason for the low level of knowledge and perception of the three categories of respondents.. From this point as well as from the constraints probed during interview, the suggestions that could be made are:

4.10.1. Role of media

The coverage by the media about AoA and related issues should be considerably enhanced since it will have a direct impact on the people in a state like Kerala where newspaper readership and media consumption is so widespread and effective. This will result in a better awareness and understanding about the dispute of globalization, delicate issues of WTO provisions etc that will help farmers and traders to mitigate its impact in some way. The media should also cover aspects related to quarantine measures, sanitary and phytosanitary measures and codes alimentarious standards of food safety.

4.10.2. Quality improvement.

The increasing quality consciousness and consequent rigorous insistence on phytosanitory stipulations especially pesticide residue is a major threat to expanding the export markets for spices. Hence it is necessary to improve the sanitary conditions under which they are produced and processed. The Commission on WTO Concerns in Agriculture under the chairmanship of Prof. M.S.Swaminathan advocated to launch a ***Quality literacy movement*** and to train at least two men and two women members of every Panchayat as ***Quality Managers***. The different stakeholders of farming are to be well acquainted with the quality parameters of various spices like microbial contamination, trace metal contamination and pesticide residue. For this various extension activities are to be called for, making them aware of the advantage of selection of quality production material and adoption of modern drying, processing and packaging technologies. It is important that information on existing SPS measures and on proposed measures are made available on a regular and timely basis to all the stakeholders. Promotion of organic spice cultivation is important to overcome the problems raised by SPS measures. The increasing demand for organic spices and spices with zero residue levels underscores the need to evolve IPM strategy and use of bio pesticides with the consent of all the stakeholders. All these issues necessitate the demand for an immediate quality awareness campaign starting from the grass root level.

4.10.3. Value-addition.

Profitability enhancement through value addition should be encouraged. An effective strategy for the promotion of agro-processing industries to supplement value to raw spices will give a momentum in its export basket. Farmers' organizations have to be encouraged and supported for initiating value – added ventures to enable them to secure high share of income.

4.10.4.Training

From the present study, it was proved beyond doubt that the training received on AoA by extension personnel as well as farmers and traders are not

adequate. Training is an important component for imparting knowledge and skill of the different stakeholders on various issues related to AoA.

The content of training has to be dynamic and they have to be delivered appropriate to these categories. The message that farmers can add more value to the product by improving the quality and sanitation levels shall be highlighted. Traders must also shall equipped to specify quality and sanitation levels in their purchasing specifications. Development personnel must be able to help both farmers and traders in this process. In this way they can play an integral part in the overall strategy for improvement.

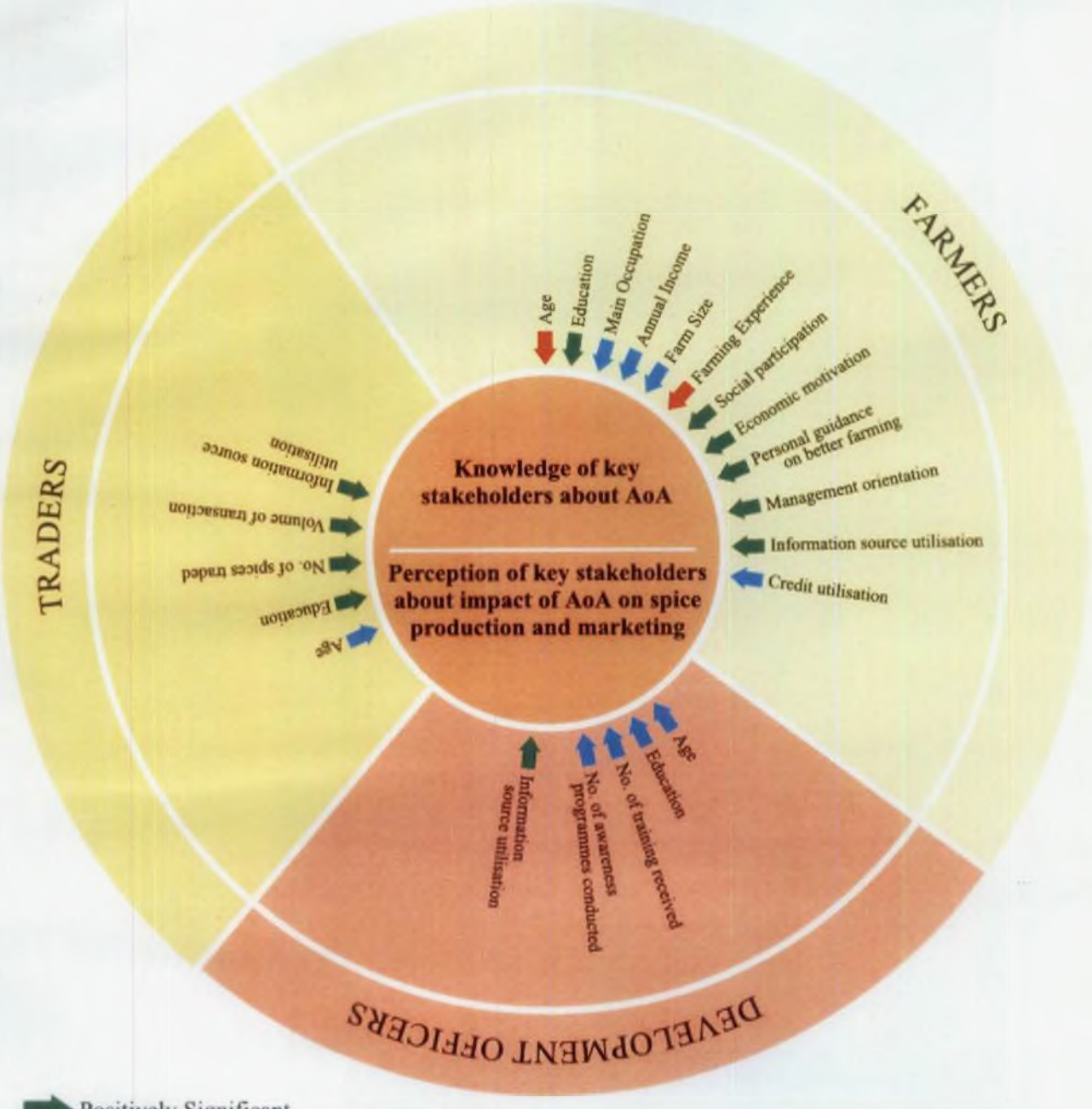

Fig. 5.Empirical model showing the relationship between the selected characteristics of respondents with their knowledge and perception.

SUMMARY

CHAPTER 5
SUMMARY

There are those who say we live in a new world. In many ways, we do. Yet, as the saying goes: *the more the things change, the more they stay the same*. The statement aptly describes the new WTO free trade system. With the promises of rich eluding most of the world, a growing anti-globalization resistance had arisen. Many of its most vocal critics have stated that the current WTO system is simply colonization re-packaged. The WTO is a lop-sided institution with the world's industrial giants deriving an unwarranted degree of influence. As such, it has been increasingly questioned over the lack of equity between developed and developing nations.

The process of globalization adopted by India is irreversible and hence the country cannot wish away the challenge. Ignoring the challenges will be perilous because the livelihood of two – thirds of the population is dependent on agriculture and allied activities. Therefore, it is needed to create conditions and also empower both agriculture and industry to face globalization with out getting blown away.

Kerala stands aside irrespective of its sensitivity to changes in the national and international trade environment of our country. More than 80 per cent of our agriculture commodities are dependent on home and international market. Spice sector is one of the key areas in which India has an inherent capacity to dominate the global markets. The position of Kerala is unique in the country's spice contribution

Following the initiation of trade liberalization in farm products, Kerala's agriculture products have encountered unprecedented price crash. The char of this crisis has been borne by farmers having small and marginal farm holding, who constitute a major segment of the rural workforce. Their subsistence depends upon favourable market price. Hence we need to seek awareness with in the ambit of the WTO agreement of reversing this adverse trend of taking advantage

of the opportunities of the agreement to expand and diversify our domestic market through trade.

Though AoA has far reaching implications in the marketing of spices it is not clear as to how far the farmers, traders and Development Officers are conversant about the provisions of AoA and related aspects. Similarly how far the media are instrumental in developing perception about the WTO agreements among the key stakeholders is also an important area to be disclosed. It is in this perspective that the present study was formulated with the following objectives:

1. To analyze the level of knowledge of key stakeholders about WTO agreements
2. To analyze the perception of key stakeholders about the impact of WTO agreements on spices production and marketing
3. To analyze the role of media on the perception of the stakeholders about WTO agreements
4. To suggest appropriate measures for utilizing the provisions of WTO agreement to the advantage of farmers

'Expost facto'research design was adopted for the study. A pre-tested, structured and standardized interview schedule was used for data collection. The study was conducted in two districts of Kerala, namely Idukki and Ernakulam. From among the 15 Block Panchayats of Ernakulam, Kothamangalam was selected, from which Kavalangad Grama Panchayat was chosen as the study area in Ernakulam district. Idukki consists of eight blocks and Kattappana block was selected from this, and the selected Grama Panchayat from this block was Kattappana.

Three categories of key stakeholders were selected as respondents of the study. They are farmers, traders and Development Officers.60 farmers were selected randomly from the selected Grama Panchayats. As for traders, 30 traders were selected randomly from the two districts. In the case of Development Officers purposive selection was carried out from both the districts to form the

third category of respondents.30 Development officers from Spice Board and Department of Agriculture was selected.

The dependant variables for the study were knowledge about AoA and perception about the impact of AoA in spice production and marketing. The dependant variables were same for all the three categories of respondent where as the independent variables varied.

For the present study, a teacher made test was developed to measure the level of knowledge about AoA by the respondents,. Perception of key stakeholders was measured using the schedule developed for the study. As regards the selected independent variable, either adopted scales or schedules developed for the study were used for measuring them.

To study the role of media on influencing perception, content analysis was done to analyze and interpret the various parameters of the different news items. The selected dailies were Mathrubhumi,Malayala Manorama, Deshabhimani and Hindu Business line . The news items pertaining to WTO in the spice sector which appeared for one year was subjected to content analysis

Data analysis was carried out using appropriate statistical tools like arithmetic mean, simple correlation analysis, chi – square test, Multiple regression analysis and percentage analysis. Salient finding of the study are presented below:

- Among the farmers 18.33 percent only belonged to high knowledge level category, whereas 60 per cent and 21.66 per cent came under medium and low level of knowledge categories respectively.
- 26.6 per cent of the traders came under high level of knowledge category. 53.3 per cent came under medium knowledge level category and 20.0 per cent came under low-level category.
- 36.6 per cent of Development Officers had high knowledge level ,whereas 60 per cent came under medium knowledge category.
- Out of the 12 variables selected, 9 variables showed significant relationship with the knowledge of farmers about the AoA. It was seen that education, annual income, social participation, economic motivation, personal guidance on better farming, management orientation and information source utilization

had positive significant relationship whereas age and farming experience had negative significant relationship with their knowledge. Main occupation,farm size and credit utilization did not show significant relationship with the knowledge about AoA.

- Of the 5 variables studied, four variables showed significant association with the knowledge of traders about AoA. These variables were education, number of spices traded and volume of transaction and information source utilization. Age did not exhibit any significant association with knowledge.
- Out of the five variables studied in the case of Development Officers, only information source utilization had a significant association with the dependent variable viz., knowledge. Age, education, number of trainings received and number of awareness programme conducted did not show any significant association with knowledge.
- The results of regression analysis of selected characteristics of farmers on knowledge about AoA showed that all the variables together contributed significantly to the variations in the level of knowledge of farmers about AOA. 71 per cent of the variation in the level of knowledge could be explained by the 12 variables.
- There was significant variation in the knowledge score of farmers and extension personnel where as between farmers and traders as well as between traders and extension personnel there was no significant variation.
- 23.3 per cent of farmers belonged to the high level of perception category. 53.3 per cent and 23.3 percent came under medium and low level category respectively.
- 20 per cent of traders came under high level of perception category. 60 per cent and 20 per cent belong to medium and low-level perception category respectively.
- 36.6 per cent of Development Officers came under high-level perception category where as 63.3 per cent came under medium level perception category.

- Out of the 12 variables,9 variables showed significant relationship with the perception of farmers about the impact of WTO agreements on spice production and marketing. Among this, 7 variables showed positive significant relationship. They were education, annual income, social participation, economic motivation, personal guidance on better farming, management orientation and information source utilization. Age and farming experience showed negative significant relationship.
- Out of the five selected characteristics, four variables exhibited significant association with the perception of traders viz, education, number of spices traded, volume of transaction and information source utilization. Age did not show any significant association.
- Out of the five variables selected, only information source utilization had significant association with perception
- Result of regression analysis of perception with the independent variables indicated that all the variables together contributed significantly to the variation in the perception.77 percent of the variation in the perception were explained by the 12 variables.
- There was significant variation in the perception score of the farmers with that of extension personnel whereas among farmers and traders as well as among extension personnel and traders there was no significant variation in the perception score.
- The average number of articles published in a month in Mathrubhumi, Malayala Manorama, Deshabhimani and The Hindu Business Line were 7, 3, 3 and 10 respectively. Thus the month wise number of articles is more in the case of Business Line and less for Malayala Manorama andDeshabhimani. Among Malayalam dailies, Mathrubhumi had covered more number of articles related to WTO in a month.
- Out of the total number of articles related to AoA appeared in the four dailies, maximum proportion (44 per cent) was in Business Line. Among Malayalam dailies, the proportionate distribution for Mathrubhumi was 30 per cent

whereas the same for Malayala Manorama andDeshabhimani were 14 per cent and 12 per cent respectively.

- In the case of Mathrubhumi, out of the total number of articles, the highest proportion (49 per cent) was contributed by Lilibet Bhanuprakash. In Malayala Manorama the highest percentage (50 per cent) was written by M.D. Varghese.As far as Deshabhimani is concerned, the maximum proportion of the articles (76 per cent) was contributed by the Bureau. The highest proportion of the articles (41.8 per cent) in Business Line was contributed by G. K. Nair.
- All the four dailies covered articles specific to spice crops than general articles that take care of various aspects of AOA. Business Line has covered more articles on general aspects compared to other dailies.
- In all the four dailies,pepper was the major spice crop covered (32 per cent) compared to other spice crops. Mathrubhumi and Business Line provided information on turmeric, cardamom, and ginger other than pepper. Even though Vanilla is emerging as a new potential spice crop, the coverage given to Vanilla was not adequate. Among all the four dailies,Mathrubhumi covered more articles on spice crops in general (41 per cent) followed by Business Line (37.9 per cent).
- Out of the total frequency of the topics covered by Mathrubhumi, the maximum proportion (29 per cent) was related to marketing aspects. It included procurement, transportation, auctioning, price fixation and distribution of commodities. Reaching close to this, market price also shared 27 per cent, which covered the prevailing price of various spices in the domestic as well as international markets. In the case of Malayala Manorama , the maximum share (25 per cent) of the topic covered was about market price followed by marketing (24.1 per cent). In Deshabhimani also the frequency of the topic that appeared more was market price (16.7 per cent) followed by marketing and export (14.8 per cent). In Business line,this trend is reversed and marketing has got prime importance (19.7 per cent) followed by market price (13.8 per cent).

- For production aspects, more coverage was given by the Business line (46 per cent). Among malayalam dailies,both Mathrubhumi and Malayala Manorama contributed equally (24 per cent) on production. In the case of post harvest technology, only Malayala Manorama and The Business line covered this topic. Aspects related to marketing were covered more by Business Line. Among malayalam dailies, Mathrubhumi contributed more on this aspect. Topics like supply, demand, import and export were again provided more by Business line. In the case of Malayalam dailies Mathrubhumi shared more on these aspects except for supply that was covered more by Deshabhimani. Mathrubhumi followed by Business line analyzed market price more. The general aspects related to AoA (policy, technical barrier and domestic support) were given highest coverage in Business line. Among malayalam dailies, Deshabhimani stood first on this.
- A general analysis of the use of newspapers by the three categories of respondents with their knowledge indicated that majority of respondents subscribing newspapers on which the content analysis was done fell under high and medium knowledge level category. Farmers and Development Officers subscribed Mathrubhumi, Malayala Manorama or Deshabhimani where as traders subscribed Business Line also. Among the farmers, 25 per cent subscribed Mathrubhumi, 18.3 per cent subscribed Malayala Manorama and 5 per cent subscribed Deshabhimani. In the case of traders it was 30 per cent, 13.3 per cent, 3.3 per cent for Mathrubhumi, Malayala Manorama and Deshabhimani respectively.10 per cent of them also subscribed Business line. Among Development Officers,30 per cent subscribed Mathrubhumi where as 16.6 per cent and 3.3 per cent subscribed Malayala Manorama and Deshabhimani respectively. These respondents again fall under high and medium level of perception category.

Based on the findings of the study, important suggestions were made on following aspects:

1) Role of media

2) Quality improvement.

3) Value-addition

4) Training

Implications of the study

The results emanating from the study on knowledge of respondents about AoA and perception about the impact of AoA on spice production and marketing provide deep insight to the stakeholders of farming on how to enhance their present condition. The content analysis of the three dailies also could bring out some critical issues related to the coverage of areas about AoA. Even though the media have given adequate coverage to production, marketing aspects related to AoA and general impact were not given enough priority. As the print media has direct impact on the people in a State like Kerala, where newspaper reading is quite high, this necessitate the role of media for better understanding and awareness about globalization. This will help them to mitigate the impact of globalization on rural economy especially on farmer's produce.

Suggestions for future research

The present study has several limitations, including time and resources. The study was confined to a limited area and sample size. In order to make it more objective and comprehensive it would be more appropriate if the study could cover more area and sample size .In that case the results could be generalized for a wider geographical area.

The study was also confined to spice sector. A more extensive study covering plantation sector as a whole will also be suited to present day conditions. A study covering the trading aspects of all market oriented agricultural crops grown in Kerala may also be undertaken.

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* Originals not seen

APPENDICES

APPENDIX I

"AoA under WTO agreements in Spice sector in Kerala – A Stakeholder Analysis"

INTERVIEW SHEDULE

District:

Block:

Gramapanchayat:

FARMERS

1. Name of the respondent :
2. Address :
3. Age in completed years :
4. Education
   - Functionally literate :
   - Lower primary level :
   - Upper primary level :
   - High school level :
   - Pre-degree or its equivalent :
   - Degree or equivalent :
   - Post graduate :
5. Main occupation
   - Agriculture :
   - Service :
   - Business :
   - Others :
6. Annual Income :
7. Farm size :
8. Farming Experience :

9. Cropping pattern

Crops	Area	Production	Productivity
1. 2. 3.			

10. Method of sale by farmer :

11. Social participation

Sl.No	Organization	Nature of membership		Extent of participation		
		Member (2)	Office bearer (1)	Always (2)	Sometimes (1)	Never (0)
1. 2. 3. 4.	Co-operative society Farmer's organization Socio-cultural organization Any other (specify)					

12. Economic motivation

Below are given 3 sets of statements. From each set select 2 statements, one 'most like' and other 'least like'

I. a) All I want from my farm is to make just a reasonable living for the family

b) In addition to making reasonable amount of profit the enjoyment in farming life is also important for me

c) I would invest in farming to the maximum to gain large profits

II. a) I would not hesitate to borrow any amount of money in order to run the farm properly

b) Instead of growing new cash crops which cost more money I follow routine farming practices

c) It is not only monetary profit but also the enjoyment of work done which gives me satisfaction for my hard work in the farming

III. 1.I hate to borrow money on principles even when it is necessary for properly running the farm

2. My main aim is maximizing monetary profit in farming by growing cash crops in comparison to growing of crops which are simply consumed by my family

3. I avoid excessive borrowing of money for farm investment

13.Personal guidance on better farming

Statements	Very Much (3)	Much (2)	Not much (1)	Never (0)
Indicate your responses to the following statements in the appropriate column 1. Extend to which you discussed your farming problems with the extension personnel during last 2 years 2. The extent to which the extension personnel visited your crop in the last 2 years 3. The help you have received in determining the most suitable cropping patterns for your farm 4. The advice you have received for proper use of fertilizer to different crops of your farms 5. The advice you have received for efficient water use in farm 6. The assistance you received in identifying the disease of the crops and prescribing control measures 7. The assistance you received in listing soil 8. The advice you received about proper storage of farm produce 9. The advice you received in getting the additional returns on the use of new inputs				

14. Management Orientation

a) **Planning Orientation**	A (1)	D (0)
(Give your agreement / disagreement)		
1. Each year one should think afresh about crop to be cultivated in each type of land		
2. It is not necessary to make prior decision about the variety of crops to be cultivated		
3. The amount of seeds, fertilizers, PP chemicals need for raising a crop should be assessed before cultivation		
4. It is now necessary to think ahead of the costs involved in raising a crops		
5. One need not consult any agrl. expert for planning		
6. It is possible to increase income through farm production		
b) **Production Orientation**		
1. Timely planting of a crop ensures good yield		
2. One should use as much fertilizers as he likes		
3. Determining fertilizer done by soil listing saves time		
4. For timely weed control one should even use suitable herbicides		
5. Seed rate should be given as recommended by the specialists		
6. With low water rates one should use as much irrigation water as possible		
c) **Marketing Orientation**		
1. Market is not so useful to a farmer		
2. A farmer can get good price by grading his produce		
3. Processing facilities can help a farmer to get better price for his produce		
4. One should sell his produce to the nearest market irrespective of price		
5. One should purchase his inputs from the shop where his relatives purchase		
6. One should grow those crops which have more market demand		

15. Any quality improvement mechanism ?

Packaging/Grading/Value addition

Details:

16.Information sources utilization

Information source	Frequency			Extent of information		
	Regularly (2)	Occasionally (1)	Never (0)	Adequate (2)	Some (1)	Inadequate (0)
1.**Mass media** Campaigns Television Radio Film Field trips News papers Farm publications Others(specify)						
2.**Personal cosmopolite sources** Scientist Agricultural officers Spice board officials Agricultural assistants Others(specify)						
3.personal localite sources Neigbours Friends Family members Relatives others(specify)						

17. Credit utilization

a)Have you availed any loan for spice cultivation? Yes / No
(1) (0)

If yes,

b)Have you utilized the full amount for spice cultivation itself? Yes / Particularly / No
(2) (1) (0)

c)Have you repaid / are you repaying the loan without defaults? Yes /Occasionally / No
(2) (1) (0)

18. Constraints

Constraints		Rank
Production	Pests and diseases	
	Lack good varieties	
	High cost of cultivation	
	High labour charge	
	Lack of Irrigation	
Marketing	Price fluctuation	
	Monopolized export	
Processing	High cost	
Others		

"AoA under WTO agreements in Spice sector in Kerala – A Stakeholder Analysis"

INTERVIEW SHEDULE

District:

Block:

Gramapanchayat:

TRADERS

1. Name of the respondent :
2. Address :
3. Age in completed years :
4. Education
   - Functionally literate :
   - Lower primary level :
   - Upper primary level :
   - High school level :
   - Pre-degree or its equivalent :
   - Degree or equivalent :
   - Post graduate :
5. Main occupation
   - Trading :
   - Service :
   - Business :
   - Others :
6. Annual Income :
7. Number of spices traded :
8. Volume of transaction :

9. Marketing linkages

   From when you receive the product :

   To whom you sell the product :

10. Are you satisfied with present marketing system. (YES/NO)

11. Are you satisfied with the prices at which you sell the produce (YES/NO)

12. Information sources utilization

Information source	Frequency			Extent of information		
	Regularly (2)	Occasionally (1)	Regularly (2)	Occasionally (1)	Regularly (2)	Occasionally (1)
1.**Mass media** Campaigns Television Radio Film Field trips News papers Farm publications Others (specify)						
2.**Personal cosmopolite sources** Scientist Agricultural officers Spice board officials Agricultural assistants Others(specify)						
3. **Personal localite sources** Neighbors Friends Family members Relatives Others (specify)						

13. Constraints

Constraints		Rank
Marketing	Price fluctuation	
	Monopolized export	
Processing	High cost	
Others (specify)		

"AoA under WTO agreements in Spice sector in Kerala – A Stakeholder Analysis"

INTERVIEW SHEDULE

District:

Block:

Gramapanchayat:

DEVELOPMENT OFFICERS

1. Name of the respondent :
2. Address :
3. Age in completed years :
4. Education

   Degree or equivalent :

   Post graduate :

5. Designation
6. Number of trainings received

   Have you undergone any training in relation to WTO. Yes / No

   If yes specify

7. Number of awareness programme conducted for farmers on WTO

8. Whether your professional knowledge or training is adequate to work with farmers

   Yes / No.

   If yes, indicate your needs

9. Have you made any effort to understand more about WTO. Yes / No

   If yes, specify the efforts

10. *Information sources utilization*

Information source	Frequency			Extent of information		
	Regularly (2)	Occasionally (1)	Regularly (2)	Occasionally (1)	Regularly (2)	Occasionally (1)
Television						
Radio						
Film						
Field trips						
Campaigns						
Seminars						
Meetings						
News papers						
Farm publications						
Books						
Others(specify)						

11. In your opinion, what are the constraints faced by the farmer in spice sector in Kerala? List out

APPENDIX II

DIFFICULTY INDICES AND DISCRIMINATION INDICES OF THE ITEMS OF KNOWLEDGE TEST

Sl.No.	Frequency of correct answers given by each group of respondents (N = 10 for each)		Total frequencies of correct answers N = 30	Difficulty indices (P)	Discrimination indices (V)
	RU	RL			
1	3	2	5	0.1	0.25
2	0	0	0	0	0
3	3	2	5	0.1	0.25
4	0	0	0	0	0
5*	5	3	8	0.2	0.4
6*	6	3	9	0.3	0.45
7	4	3	7	0.1	0.35
8	3	2	5	0.1	0.25
9	0	0	0	0	0
10	0	0	0	0	0
11*	6	4	10	0.2	0.5
12	0	0	0	0	0
13*	6	3	9	0.3	0.45
14	5	4	9	0.1	0.45
15*	6	2	8	0.4	0.4
16	3	2	5	0.1	0.25
17	0	0	0	0	0
18*	6	2	8	0.4	0.4
19	3	2	5	0.1	0.25
20	3	2	5	0.1	0.25
21*	6	3	9	0.3	0.45
22	2	1	3	0.1	0.15
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	0	0
27	4	3	7	0.1	0.35
28	4	3	7	0.1	0.35
29	0	0	0	0	0
30	2	1	3	0.1	0.15
31	4	3	7	0.1	0.35
32*	6	2	8	0.4	0.4

* Items selected for the test

APPENDIX III

ITEMS SELECTED FOR KNOWLEDGE TEST

1. Green box support includes research expenditure, training and extension expenses
2. The level of agriculture subsidies in India is above the WTO's prescribed norms
3. The product coverage of the AoA does not include primary agriculture commodities such as rubber, jute, coir, sisal etc.
4. Market access for agriculture products is now governed entirely by tariffs
5. Almost all importing countries have strict food safety standards that are enforced either at the port of entry or at the point of sale
6. AoA was established in the Uruguay Round of negotiations.
7. AoA envisages conversion of Quantitative Restrictions to tariffs
8. The AoA lays the foundation for reduction of import duties in agriculture trade

APPENDIX IV

ITEMS SELECTED TO MEASURE PERCEPTION

1. The long-term objective of the AOA is to establish a market-oriented agriculture trading system
2. It is harmful to our farmers to import goods from foreign countries
3. There is no discrimination between members under WTO
4. Developing countries like India are finding it difficult to have access to the market- of agriculture products in the international market
5. WTO brings about trade liberalization in agriculture to the desired extent
6. High export subsidization given by developed countries are having "trade distorting" effects
7. The SPS measures will result in restrictive trade between member countries
8. Regulation on pesticide residues are likely to become the single most important non- tariff barrier to trade in spices

AoA UNDER WTO AGREEMENTS IN SPICE SECTOR IN KERALA - A STAKEHOLDER ANALYSIS

By
SAJIN. P. T.

ABSTRACT OF THE THESIS

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ABSTRACT

The AoA under WTO has special significance to Kerala agriculture where in 70 per cent of the cropped area is occupied by crops such as coconut, tea, cashew, coffee, rubber, spices etc most of which involve international trade. Most of Kerala's cash crops have strong international competitors. Though AoA has far reaching implications in the marketing of spices, it is not clear as to how far the farmers, traders and development officers are conversant about the provisions of AOA and related aspects. With this in mind, the present study was undertaken with the main objective of analyzing the level of knowledge of keystakeholders about AoA and the perception of key stakeholders about the impact of WTO agreements on spices production and marketing.

The study was conducted in two districts of Kerala viz, Idukki and Ernakulam, the areas that are well known for spice cultivation. Three categories of stakeholders namely farmers, traders and development officers which altogether constituted 120 numbers formed the respondents. The data were collected using pre-tested and well-structured interview schedule and suitable statistical techniques were employed in the analysis of data.

From the study it was observed that most of the respondents were under low and medium knowledge categories. The influence of selected characteristics of respondents on their knowledge about AoA and perception about the impact of AoA on spice production and marketing was studied. The results of regression analysis of selected characteristics of farmers showed that 71 per cent of the variation in their level of knowledge and 77 per cent of the variation in their perception could be explained by all the selected variables together.

The variation in the knowledge score and perception score of the three categories of respondents was also studied. There was significant variation in the knowledge score as well as perception score of traders and extension personnel where as between farmers and traders as well as between traders and extension personnel there was no significant variation.

A study on the role of media showed that all the four major dailies studied have covered more on aspects related to production and marketing of spices and a little coverage was given to AoA related aspects. A general analysis of the use of newspapers by the three categories of respondents indicated that majority of respondents subscribing these newspapers fell under high and medium knowledge level and perception category. As the print media has direct impact on the people in a state like Kerala, where newspaper reading is quite high the role of media for better understanding and awareness about globalization is quite critical.

The study, it is believed, would provide deep insight to the stakeholders on farming, on how to enhance their present condition. The content analysis of the four major dailies also could bring out some critical issues related to the coverage of areas about AoA.