

## Consumer Perception and Adaptability towards the New Concepts and Technology in Agriculture Industry

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### Abstract

Consumer behavior in the Agriculture Industry is the basic instinct to be studied, when appropriately linked with the Consumer Perception. Because the behavior of purchase is directly linked with the Perception of the consumers. Consumer perception plays a very vital role. Farmers do the purchase of Agricultural products under the influence. The Influence may be again subdivided into many factors again like the influence of own experience whilst using the products, influence of the retails channel in the purchase model, influence from opinion leaders, influence from the key market share holding organizations.

The Purchase influence defines the consumer behavior in the sector. This affects the usage of new technology in the fields. The pesticides which have a major market share are the Red triangle and Yellow triangle molecules. Green and Blue Triangle molecules are gaining space in the purchase bucket but only in the crops which are produced for exports, where the pesticide residual obligation exists for the fruits in order to be exported. The research intends to identify the consumer behavior linked to the above all mentioned factors. On prima facie the research tries to interpret the link between Consumer Awareness and Consumer Perception and behavior in Agriculture sector.

**Keywords:** Agriculture, Consumer Behavior, Consumer Perception, Pesticides, Organic Farming.

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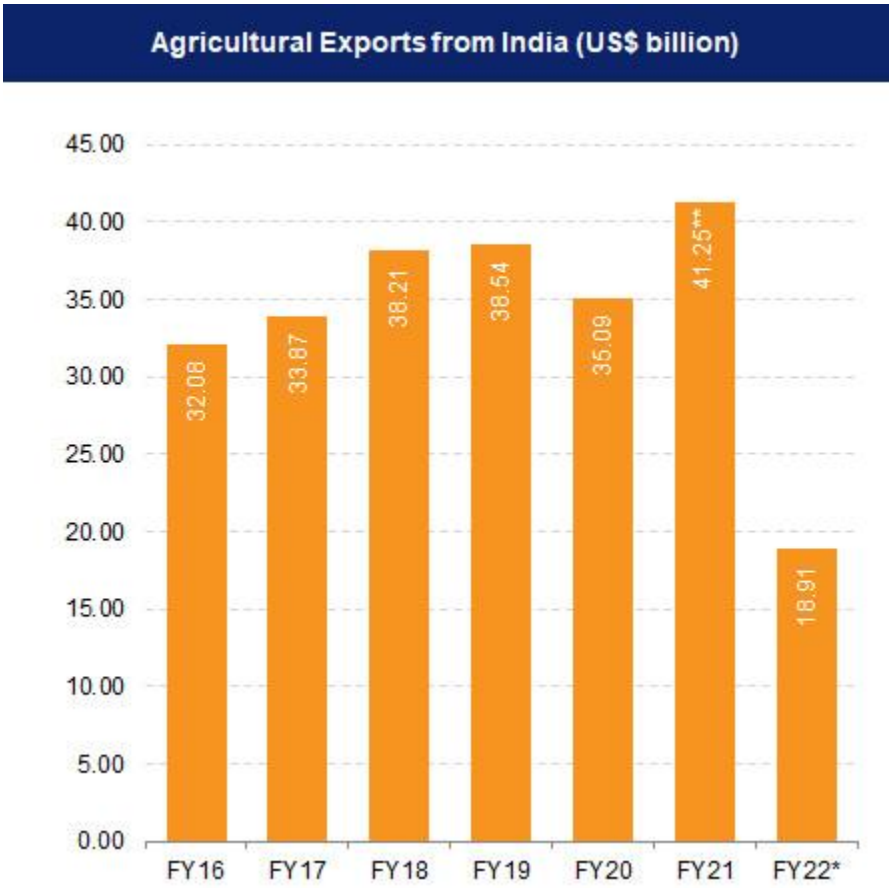
### Introduction

Agriculture is one among the foremost necessary sectors of Indian economy, which accounts for nearly twenty.19 % of India's gross domestic product, providing employment to one-half of the force of the country. in line with Inc42, the Indian agricultural sector is expected to extend to US\$ twenty-four billion by 2025. Demand for agricultural inputs and its allied services is increasing within the country at a awfully quick pace. several schemes square measure being launched by the govt. and that they square measure serving to in developing the organic clusters and creating out there the chemical free inputs to farmers. the whole farming production in 2020-21 calculable to a record 334.60 million Tone, that is a rise of concerning fourteen.13 million Tone (4.4%) over that achieved in 2019-20. Production of Fruits calculable to be 102.48 million Tone, compared to 102.08 Million Tone achieved in 2019-20. As per the estimates of previous year in 2022 its once more about to rise on top of the estimates expected in last year. Higher the increase, a lot of the utilization of Agri inputs for the assembly. This favorable situation can see immense demand in particularly pesticides to be used. The agriculture business in Republic of India has been white into seventeen major sectors, together with farming, agriculture instrumentation, fertilizers, pesticides, deposition, cold chain, food process, dairy farm market, gardening, apiculture, sericulture, seeds, fisheries, poultry, agriculture, animal feed, and bio-agriculture

India is that the world's second-largest producer of rice, wheat, sugarcane, cotton, groundnuts and fruits & vegetables. It conjointly created twenty fifth of the world's pulses, as of last decade, until 2019. The organic food section in Republic of India is predicted to grow at a CAGR of 100% throughout 2015-25 and is calculable to achieve Rs. 75,000 large integers (US\$ ten.73 billion) by 2025 from Rs. 2,700 large integer (US\$ 386.32 million) in 2015. The processed market in Republic of India is predicted to grow to Rs. 3,451,352.5 large integer (US\$ 470 billion) by 2025, from Rs. 1,931,288.7 large integer (US\$ 263 billion) in FY20 on the rear of presidency initiatives like planned infrastructure value US\$ one trillion and Pradhan Mantri Kisan Sampada Yojna. The food process business employs concerning one.77 million individuals. the arena permits 100% FDI beneath the automated route.

The sector has conjointly recorded a pointy increase in investments with additive FDI influx of US\$ ten.94 billion between Apr 2000-December 2021. Republic of India exported key processed food merchandise like pulses, processed vegetables, processed fruits and juices, groundnuts, guar gum, cereal preparations, polished merchandise, alcoholic beverages and oil meals. The excellent Economic

Partnership Agreement (CEPA) between { | Republic of India |Bharat |Asian country| Asian nation } and also the UAE can strengthen India's food professional India is predicted to realize the bold goal of doubling farm financial gain by 2022. The agriculture sector in Republic of India is predicted to come up with higher momentum within the next few years thanks to multiplied investment in agricultural infrastructure like irrigation facilities, deposition and cold storage. moreover, the growing use of genetically changed crops can possible improve the yield for Indian farmers. Republic of India is predicted to be independent in pulses within the coming back few years thanks to combined effort of scientists to induce early maturing kinds of pulses and also the increase in minimum support worth.



**Figure A 1**  
**Figure 1 – Agriculture Exports from India**

People’s behavior is predicated on what reality is, not on reality itself.

Factors that influence perception --

Factors within the influencer-

A. Attitude – Is dependent on individuals.

B. Motives --- Motive for victimization agriculture molecule by the patron could also be explanation for persecutor natural event within the field; that we are able to refer as imperative motive to manage the pests. There is often another motive supported previous expertise as use of molecule for safety measure for the pests.

C. Interests --- the most interest is to shield the crop from obtaining destroyed by the pests. In order that most yield are often achieved within the year.

D. Expertise – the most interest is to shield the crop from obtaining destroyed by the pests, in order that most yield of the merchandise are often achieved within the year.

Expectations – once the pesticides square measure used the results of the pesticides produce to the expectations within the observer.

**Review of Literature**

Chun-Chieh ma (2022) have stated that looking at the trend of green product consumption, farmers and the markets are more inclined

towards selling green products and by doing so they have in situation developed the promotion of environmentally friendly knowledge of food and agricultural education. The research has been on combined on function of food and agricultural education. The study has explored the relationship between product knowledge, purchase intention from the perspective farmers, the green perceived value and agricultural education.

Ait Hou Mohammad (2021) have stated that in order to define acceptable offers according to their stations and prospects, as well as to promote the image of original products by moderating their particularity according to consumer requirements, not only the scientific community, but also the professional community have been working on the analysis and evaluation of consumer perception, as a process able of relating and clarifying the factors impacting the consumer's purchase decision, which are frequently characterized as a black box. The analysis of consumer perception, as it has been conducted in several areas and has approved its utility.

Hasan Ali Mughal (2021) have opined that food consumption in today's world has changing patterns which are evolving constantly with the changes in social values, the advances in technology and the lifestyle of consumers. But still sustainability is the main considerable criteria in the heart of organic agriculture and as the consumption patterns are increasing so is the food provisioning systems.

Garnett M Broad (2021) has opined that in their study about local food consumers in New York City in order to explore the perceptions and to understand the perceptions about good food. Respondents did not have an actual understanding of buying behavior which was perception based. They have expressed the link between perceptions and buying behavior and the learning more of information about CEA remains very limited.

Carola Grabitus (2020) have stated that Urban agriculture offers a promising opportunity to provide an access directly to fresh produce close to urban residents. This ultimately enhances dietary quality and even food diversity. But urban agriculture will be only successful if it is accepted and is perceived positively by the stakeholders who are in its close proximity. So, it is very important to account for consumer perception. The research provides analysis of consumer perception in regards to urban farming which caters to the success of urban agriculture.

Katelyn Berndt (2019) has stated that consumer perceptions of the agriculture industry are increasingly important as the alternative labelling and the nonconventional options becoming more common. He has stated that the background has an appreciable impact on consumer perceptions of agriculture.

Care (2012) stated that crop production in India has grown up at a CAGR of three.4% throughout the amount 2004-05 to 2011-12. One amongst the most reasons that may be attributed to the expansion in agricultural productivity is management over pests – weeds, insects and pathogens mistreatment crop protection product. Pesticides ar the last input within the agricultural method however ar vital for property development of agriculture. Over the years, Indian chemical business has developed considerably and India has emerged because the sixth largest producer of pesticides within the world following USA, Brazil, Japan, France and China. Despite the very fact that considered use of pesticides will stop crop losses and supply economic edges to the farmers, the chemical consumption per square measure in India is much below world average. This can be for the most part thanks to the shortage of awareness among the farmers, fragmented land holdings, farmers' money inability to shop for the requisite pesticides etc.

India's per capita chemical consumption of 600gm is much below its major Asian peers - fourteen weight unit in China and 12Kg in Japan. The domestic market has large growth potential attributable to the low level of consumption. With increasing target scaling of productivity and preventing crop losses to feed a billion –plus population with restricted natural resource, the reliance on chemical is barely getting to rise, it's projected to over double to \$5 billion by 2017 on higher incomes and higher awareness among farmers, in step with [FE, (2012)].

According to Bharatbook (2012), per square measure consumption of chemical is low in India at 381 grams when put next to the planet average of five hundred grams. Low consumption will be attributed to fragmented land holdings, lower level of irrigation, dependence on monsoons, low awareness among farmers regarding the advantages of usage of pesticides etc. Rice is that the highest pesticides overwhelming crop. Of the overall pesticides' consumption, 25.9% is consumed by rice. State is that the highest pesticides overwhelming state (23%) followed by geographical region & geographical area.

According to AN business study, each one rupee spent on chemical for the groundnut crop saves crop losses price Rs.26. Similarly, the payment and profit magnitude relation in mustard is 1:12, whereas in paddy it's 1:7. Some business specialists opine those chemical makers face adversity because the information registration method for a molecule is cumbersome and takes loads of your time thanks to bureaucratic procedure. (FE, 2012).

The Indian chemical business is additionally probably to maneuver towards the worldwide product combine, with a rise within the use of herbicides and fungicides, Exports can still stay the expansion driver.

According to marketing research Reports (2012), India's agrochemicals consumption is one amongst the bottom within the world with per square measure consumption of simply zero.58kg compared to United States (4.5kg/ha) and Japan (11 kg/ha). The key reasons for low usage are low buying power of farmers, lack of awareness regarding crop protection edges and poor reach and accessibility of crop protection chemicals. The domestic market is predicted to grow at V-day annually until FY15. Exports are set to grow at a CAGR of 15 August 1945 throughout identical amount. India is that the fourth largest producer of agrochemicals globally, once u. s., Japan and China. The Agrochemical business accounts for about two of the overall Indian industry.

A.P. Banjo (2012) opined farmers ought to be subjected to coaching by the agriculture extension officers as however they ought to adapt integrated tormenter management thus on take profit and adopt the preventive measures on the farm. more studies ought to be meted out to establish the symptoms of chemical and chemical usage.

Godfrey (2003) says it is tougher to place over a positive message than a negative one, particularly within the face of crisis that play into the hands of single crisis teams. Everyone concerned within the food business contains a responsibility, however should work along so as to be effective. As AN business one mustn't trust influence of solely retailers, Producers ought to perceive the shoppers' desires.

Chi Hain (2012) have opined organic food consumption is increasing attributable to issues over environmental and health problems related to food product. the rise in shoppers' interest in organic foodstuff has been attributed among different problems to the growing demand for food free from pesticides and chemical residues. The main barrier for organic food is that the indiscriminate use of pesticides having long residual effect.

Bronnenberg (2011), in his study has opined that the variation within which shopper has lived within the past permits the user to isolate the potential casual result of past experiences on the present purchases, holding constant the availability – aspect factors. The complete preferences produce massive entry barriers and advantage for incumbent companies and might make a case for the first mover advantage over the long amount for the persistence of the companies.

Dr. Firdaus Abdullah (2012), on their study pointed that the corporate ought to place priority on understanding growing markets. The business gets stricken by dynamical perceptions and preferences of the customers. Managers ought to gain high advantage within the volatile competitive markets. but the native customers preference is extremely essential, so as for the corporate to stay active within the market and to stay competitive.

### **Description of Problem**

The Research intents to understand why farmers use more of pesticides which are in Yellow and to some extent in red triangle. The residual effect has a tremendous impact not only on human health but also on the animals who do consume the fodder.

Consumer awareness comes through perception. Consumer perception is one of the most important parameters which influence the buying behavior of an individual. Consumer perception in Agribusiness is dependent on many factors.

### **Description of the Research**

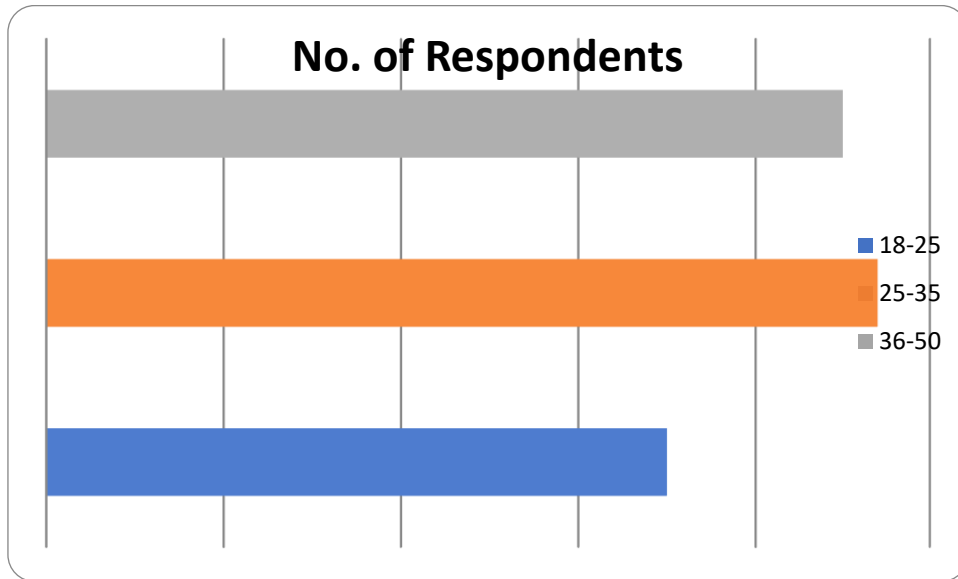
This research is the type of Survey research which includes Random sampling farmers. It begins with problem identification, and to arrive at a conclusion, which includes secondary data as well as information from primary data from survey.

### **Sample Size**

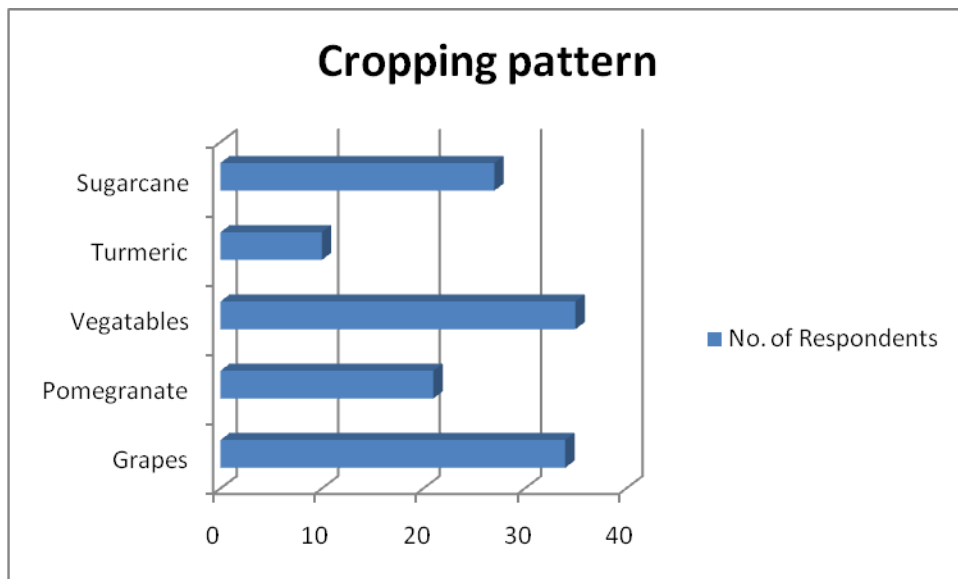
Random Sampling method was used as a part of Sampling from Sangli District. The sample surveyed is drawn from Miraj, Jat and Kavetemhankal Talukas in Sangli district covering important cash crops grown in Sangli district. List of major cash crops grown was accomplished and then a sample from population was taken selecting only the progressive farmers for survey. Therefore, the study was undertaken on representative sample of farmers to make it more manageable. A survey of 127 farmers was carried on in Sangli district, through data collected from dealers and by telephonic conversation.

**V. Data Analysis**

Q.1. Age Group of the Farmers.

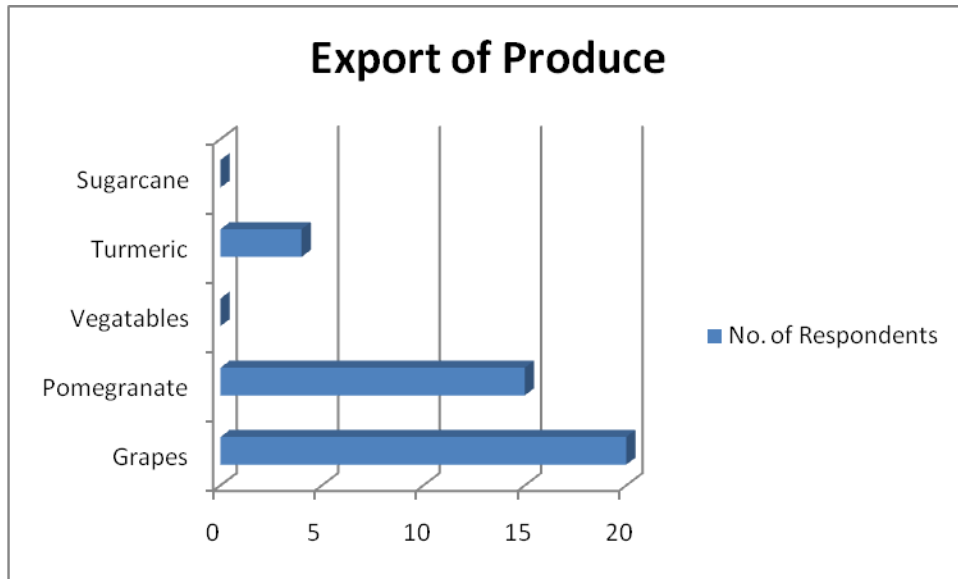


Q.2. Crops Grown by Farmers surveyed



The major crop in survey was Grapes as its an horticulture crop where the export potential is high. Even the farmers growing export crops like Pomegranate Turmeric were duly considerd. Farmers growing Vegetables and Sugarrcane were included in survey with a purpose.

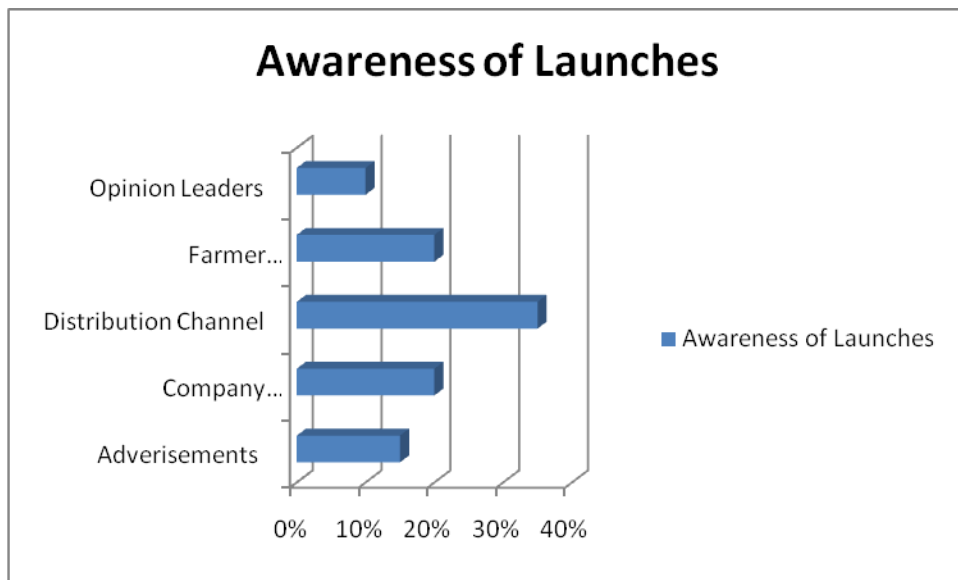
Q.3. Have/Do you export your agriculture produce.



**Figure 1**

Analysis : Thirty Nine Farmers said they do export the agricultur produce and all the farmers having the export potential were only Grape farmers. Rest 88 Farmers do look for the local market to sell their agriculture produce.

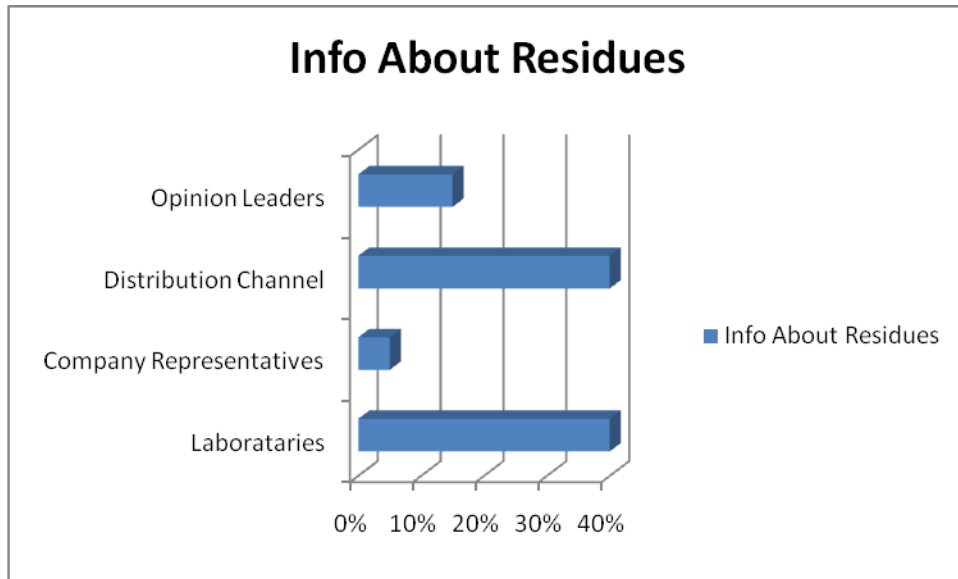
Q.4. How do you come across the new launches of agrochemicals.



**Figure 2**

Analysis: Although there are many channels through which the new launches of Agrochemicals are known by Farmers. The major impactful channel is still the Distribution Channel in Agribusiness sector.

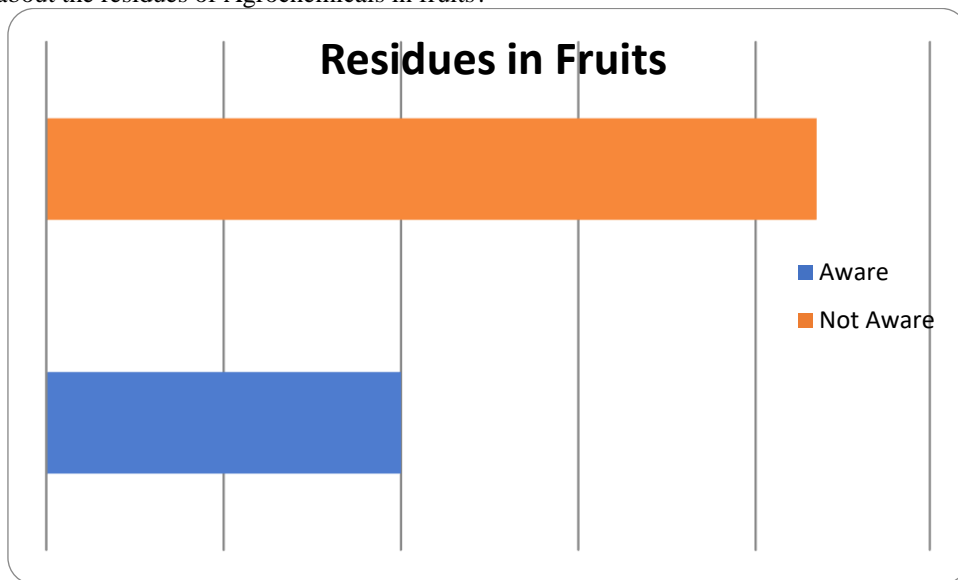
Q.5. Where do you get the information about the use of agriproducts and its residual effects?



**Figure 3**

Analysis: From the farmers responses it is observed that majority of retailers and the Agrilabs do provide information about the various product offerings, their constituents and benefits; the accessories; and the side effects and results of using such chemicals. They also educate them on the issues of safe usage and disposal.

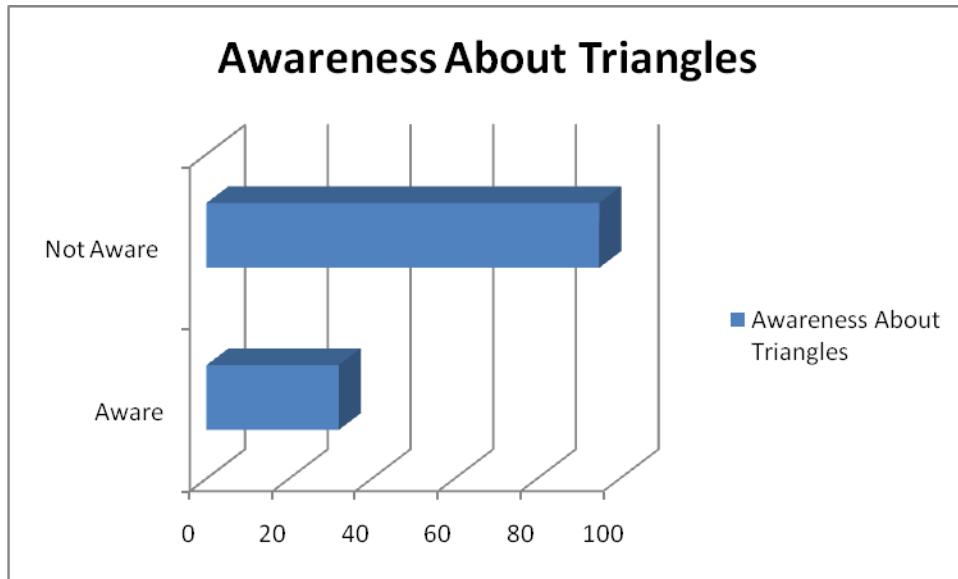
Q.6. Are you aware about the residues of Agrochemicals in fruits?



**Figure 4**

Analysis – Major respondents were unaware about residues in the fruits barring the farmers who exported their produce.

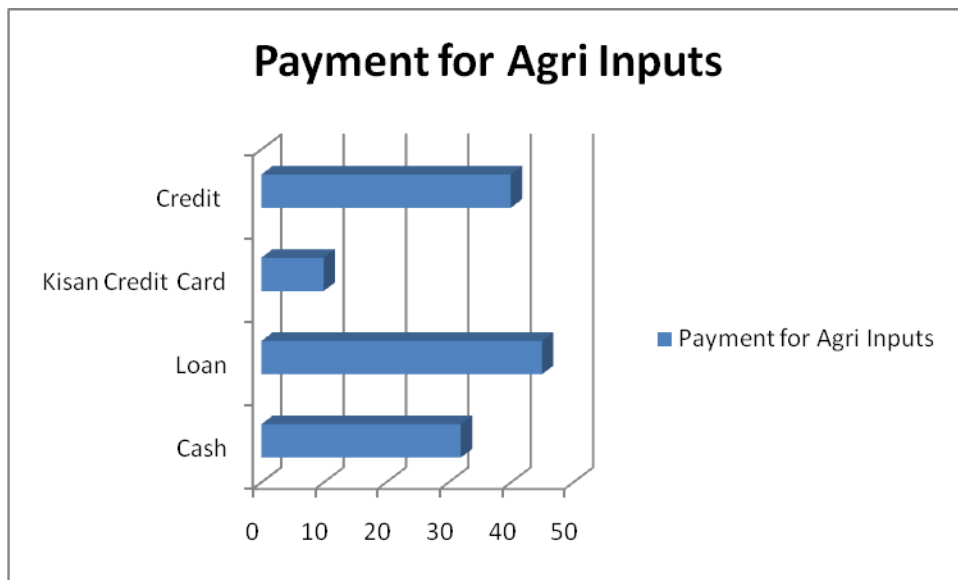
Q.7 whether you are aware about the Chemical Triangle of Pesticides?



**Figure 5**

Analysis – Major Farmer fraternity even they are exporting the produce are yet not aware about the Chemical triangles of Pesticides, as a result the perception in procurement of the chemicals is questionable in terms of residual and environmental impact.

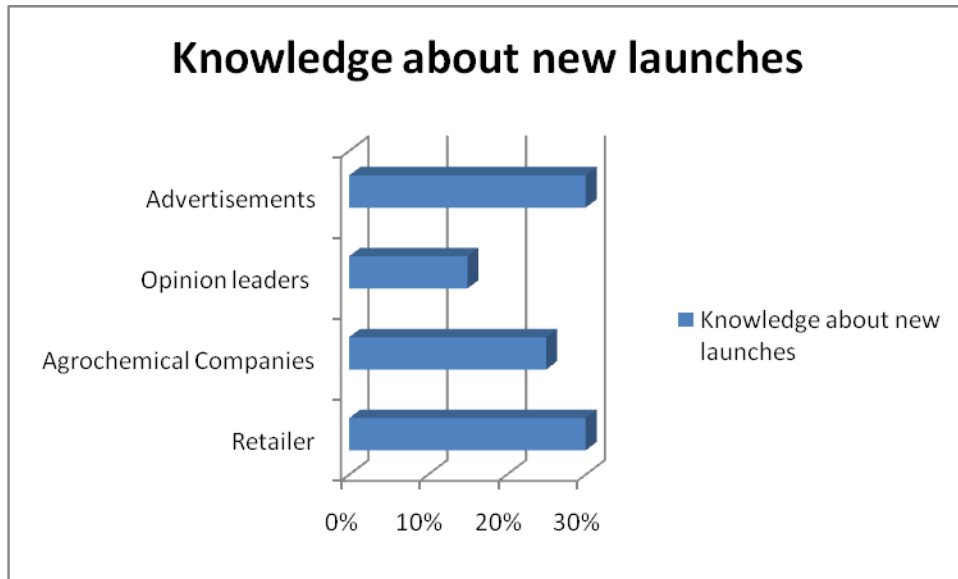
Q.8. Which crops are grown by you? How do you pay for the pesticides and fertilizer?



**Figure 6**

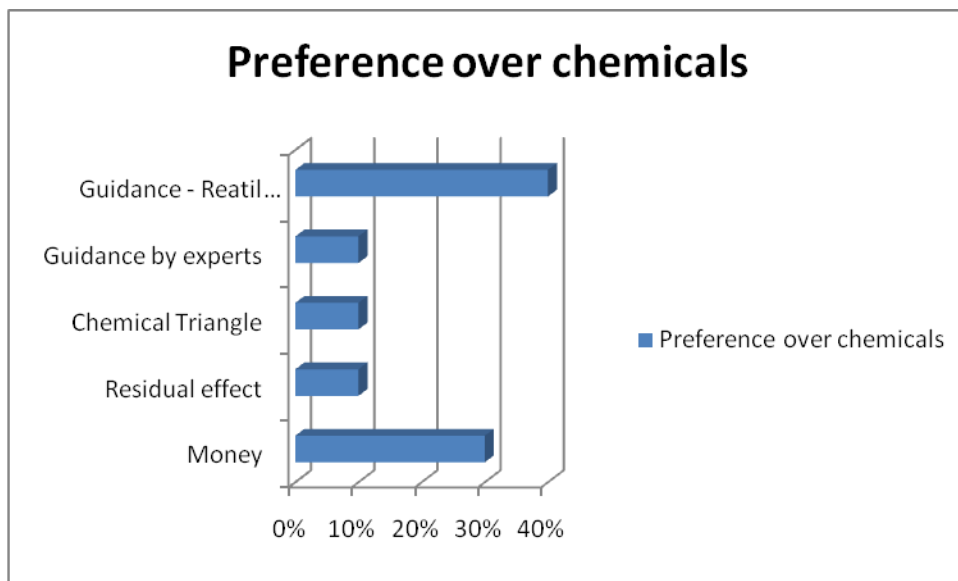
Analysis - The major agribusiness is carried out in Credit. It has a direct impact on procurement of the inputs in regards of Pesticides, Fertilizers and seeds. Credit system doesn't give a chance to farmer to choose the product and have to take the product enforced by the Distribution channel.

Q.9. How do you know about the new launches of the company?



**Figure 7**

Q.10. At the time of purchase of two identical chemicals where do you give preference?



**Figure 8**

Analysis – Whilst the choosing and purchase of chemicals is concerned, the retail channel and monetary impact has huge influence. The awareness and perception in buying behavior changes which is directly influential on the major factors as stated in the graph.

Q.11. Do you buy same chemicals of same company again and again even though new chemicals are in the market?

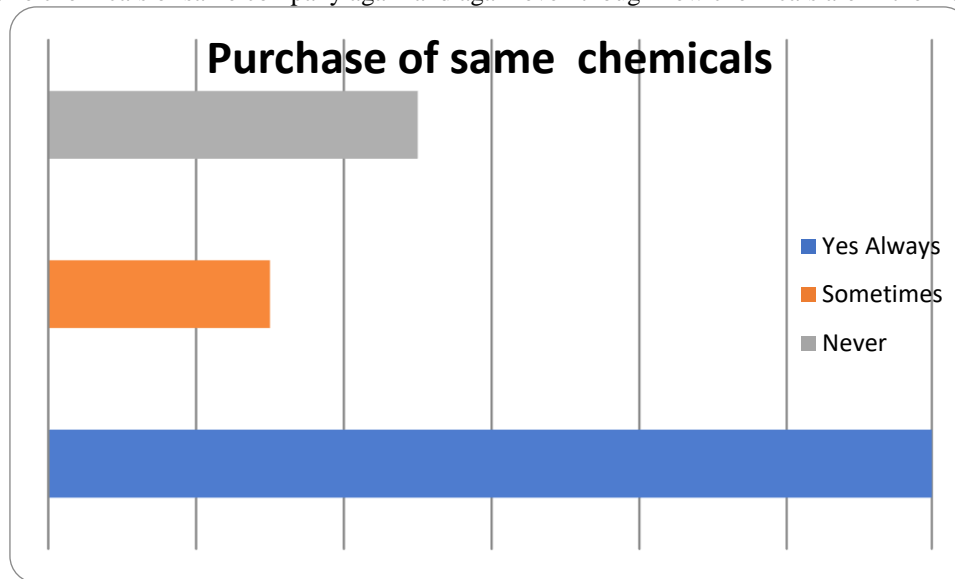


Figure 9

Analysis – Major farmers go by the previous experience when the purchase of Agrochemicals is concerned. They most of the time remain unaware for the new chemistry in market and the perception remains unchanged regarding the price and purchase of new Agrochemicals.

### Conclusion

The major crop in survey was Grapes as its an horticulture crop where the export potential is high. Even the farmers growing export crops like Pomegranate, Turmeric were duly considered. Farmers growing Vegetables and Sugarcane were included in survey with a purpose. The export potential among survryrd group is near about one fourth. This sector is knowledgable, keen to understand new technology in agribusiness, has awareness about the residual effect of pesticides, the potential and threat of chemical fertilizers to spoil the texture of soil. Remaining farmers are yet to adapt with the new technology, they percieve and purchase in same old methodology of buying behavior which results into more sale of chemicals in red and yellow traingles. Distribution channel plays a very important role in agribusiness as new launches, new technology introduced in market is disseminated mostly through this channel. They again provide huge credits to the farmers, because of which their word and dominance becomes crucial in the sector. Farmers should be made aware about the residual effect and harmful perils of pesticides which are not in Blue and Green triangles. Major farmers go by the previous experience when the purchase of Agrochemicals is concerned. They most of the time remain unaware for the new chemistry in market and the perception and adaptability remains unchanged regarding the price and purchase of new Agrochemicals.

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