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Issue Involved In Marketing of GM Food Products in India

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Abstract

Genetically Modified food products can solve the food requirements of ever growing human population. By making the changes at the genetic level of food products, they can be made to grow very fast, the crops can be made insect resistant, size of products can be increased and changes can be made in life cycle of the crops. Although genetically modified food products are providing huge benefits to people and the government, yet there are many problems in acceptance of these products in the market. So the major issues which create problems in the marketing of genetically modified food products were studied and the factors which create problems in their acceptance were also studied. The study also aimed at finding out the ways and means as to how these issues can be addressed through proper marketing communication and by educating the consumers. Both the exploratory and descriptive researches were used. A structured questionnaire was used as a research instrument. 150 were the sample size chosen of consumers of these food products and 16 was the sample chosen of organizations who are involved in marketing of GM food products. Data analysis was done by using softwares named as MS EXCEL and IBM SPSS 19. Important conclusions are drawn out through data analysis. Various factors such as Availability, Price, Trust, Health, Political controversies, Safety and Awareness which are affecting the acceptance of genetically modified food products. People want more knowledge about these food products. Organizations can improve the marketing of GM food products by adopting various innovative marketing methods which are given in the recommendations. Organizations should build trust among people by government certification, products have to be properly positioned, Taglines should be given, and People should be provided with more consumer friendly information rather than producer friendly information. So in this last part the ways and means are described by which genetically Modified food products can be marketed more efficiently.

1) Introduction

Biotechnology is a fast emerging field of Science with lots of scope. It is solving many problems of human life by providing Genetically Modified Food products. These types of food products can solve the food requirements of ever growing human population. By making the changes at the genetic level of food products, they can be made to grow very fast, the crops can be made insect resistant, size of products can be increased and changes can be made in life cycle of the crops. There are many types of genetically modified food products which have already attracted attention of people, like Bt Brinjal, Golden rice, BT cotton and many types of fruits and vegetables.

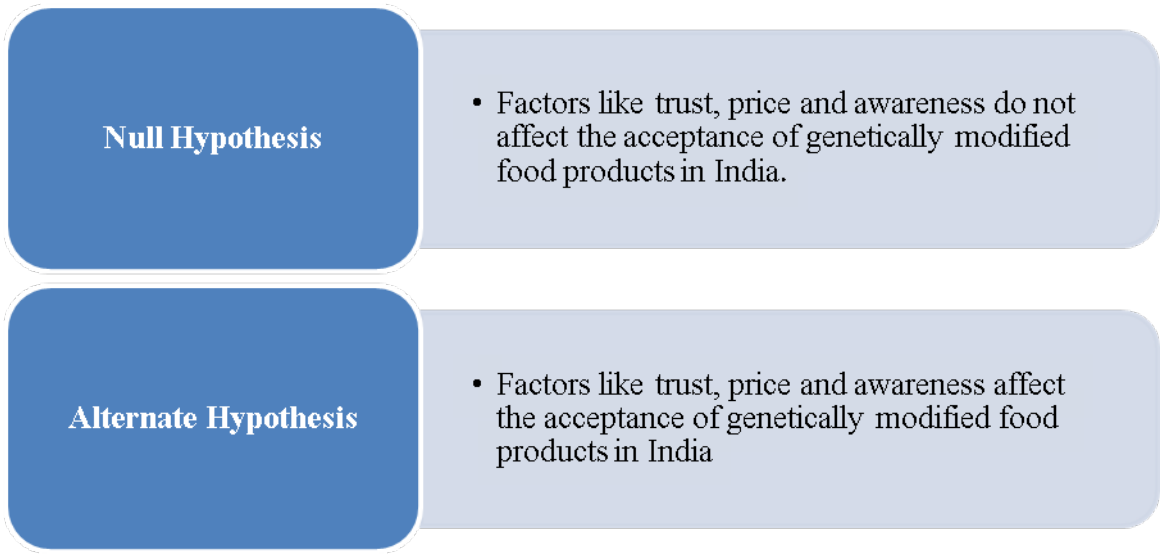
Although genetically modified food products are providing huge benefits to people and the government, yet there are many problems in acceptance of these products in the market. There are certain issues which drastically affect the marketing of these products such as price, trust, awareness, rumors, ethical issues, interest, health, safety, political controversies etc. There are many studies which are already done on these food products such as people are willing to pay more if consumer friendly information is provided to them, food safety issues, high yield of GM crops, less cost and more profits and lesser pesticides are used in growing these crops. But these studies have not focused on the exact ways and means which can help the marketers to promote these food products and increase their acceptance level.

Against the above background, it will be interesting to study the major issues which create problems in the marketing of genetically modified food products, what are the factors which create problems in their acceptance? What are the problems associated in their marketing?

The study will also aim at finding out the ways and means as to how these issues can be addressed through proper marketing communication and by educating the consumers.

Objectives

Major Hypothesis:



2) Research Methods & Procedures

Research Design

Research needs a design or a structure before data collection or analysis can commence. A research design is not a work plan. The function of a research design is to ensure that the data obtained enables us to answer the initial question as unambiguously as possible. Both exploratory and descriptive research will be used in this project to identify the problem areas, analyze those problems and then to find solution to those problems.

Exploratory research

Research from diverse sources such as journals, articles, books and internet was conducted to analyze what are the factors which affect the acceptance of genetically modified food products in India. Literature review was

done thoroughly to know all these factors and their impact on marketing of genetically modified food products. All these factors were taken to next level of exploratory research which helped in restricting and selecting only the important questions and issues.

Descriptive research

Descriptive research is a type of research which is also known as statistical research. It explains the characteristics about the population being studied. This type research answers the various questions like who, what, where, when, why and how. Descriptive research deals with the things which can be studied and counted. After selecting a suitable population and drawing a representative sample from this population, a survey was conducted with the help of a structured questionnaire for collection of primary data to find the answers to the questions formed by exploratory research.

Clear statement of Research Questions

Issues related with the acceptance of genetically modified food products (foods derived from genetically modified organisms) are one of the major topics of discussions all over the world today. These types of food products can solve the problem of shortage of food. By making changes at the genetic level of food products, they can be made to grow very fast, the crops can be made insect resistant and size of food products can be altered. There are many types of GM food products which have already attracted attention of people, like Bt Brinjal, Golden rice, BT cotton and many types of fruits and vegetables.

Although genetically modified food products are providing huge benefits to people and the government, yet there are many problems in acceptance of these products in the market. Marketers are therefore facing a lot of problems in marketing these food products. Against the above background, following research questions have been framed:

i. What are the factors affecting acceptance of genetically modified food products in India?
   - To find the answers to the above research question, factors like Price, Trust, Awareness, Ethical issues, Interest, Health, Safety and Political controversies were studied which are affecting the acceptance of genetically modified food products.

ii. What are the problems associated with marketing of genetically modified food products?
   - To find the answer to this research question, problems such as communicating the right benefits to people and ways to win the trust of people were studied, so that marketers can use the right marketing mix to get success in marketing GM food products.

iii. What measures can be adopted to overcome the problems with marketing of genetically modified food products?
   - With the help of the answers found in the question no.2, a study was done to find out the suitable measures to overcome the problems in marketing the GM food products.

Description of Population, Sample and Sampling Design

Population

The first step in good sample design is to ensure that the specification of the target population is as complete and clear as possible to make sure that all elements within the population are represented.

In the light of the above research questions, there is need of a specific population which fulfills certain basic criteria. According to the topic there were two sets of populations which needed to be considered. First set of population is of the consumers. Under this set, educated consumers which are aware of the GM food products will be considered. Another criterion to select the population of consumers were based on the place where they live i.e. urban and rural. As most of the new products are accepted in urban area, this set of population should comprise of consumers living in urban areas who have heard about GM food products.

The second set of population was comprised of the agencies and organizations which are involved in activities related to marketing of GM food products.

Sample size

Specific sample sizes of a definite number of respondents were chosen because it is not possible to study the whole population. As the size of sample is increased, margin of error will be decreased. Keeping in view the time and cost factor and the scale of the research, following sample sizes have been decided for the above sets of population:

Sample size for consumers: 150

Sample size for marketers: 16

Sampling design

After deciding sample size, the type of sampling was decided. Sampling design depends upon the different type of requirements related to research such as whether we like to select respondents randomly, with our convenience or small sample representing whole population. Depending on these types of requirements, sampling can be of various types such as Cluster sampling, Convenience sampling, Judgment sampling, Quota sampling, Simple random sampling and Systematic sampling.

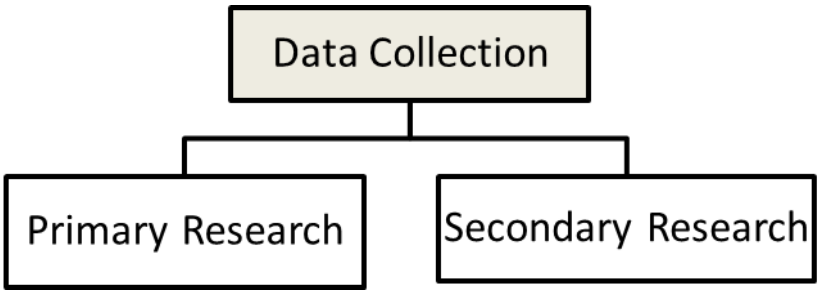
Keeping in view the characteristics of both the sets of population and availability of time and resources, following sampling design have been chosen:

Sampling design for consumers: A mix of simple random sampling, convenience sampling and Snowball/referral sampling was used. First a simple random sample will be chosen and then the referrals from the respondents will be taken which will help to get qualified respondents and lesser duration of time. Respondents from our convenience were also be taken considering the time factor

Sampling design for marketers: Stratified sampling

When subpopulations within an overall population vary, it is advantageous to sample each subpopulation (stratum) independently. Stratification is a process in which member of population are divided into homogeneous subgroups before sampling. Every element in a population must be assigned to one stratum .The strata should always be mutually exclusive and collectively exhaustive: no element from population can be excluded. The systematic and random sampling is applied within each stratum.This type of sampling will cover all the portions of population and will give best possible results in given time frame.

Data Collection Procedure



Two types of data, Primary and Secondary is collected.

Methods used to collect Secondary data:

Secondary data was collected from diverse sources such as journal of agricultural and food industrial organization, journal of agro biotechnology management and economics, the journal of agricultural science, journal of biotechnology, the plant journal, various articles, books and internet.

Methods to be used to collect Primary data:

Keeping in view the attributes of the sample chosen by us, the most of data was collected by structured Questionnaire and Interviews (telephonic and face to face)

Respondents were visited personally and requested to provide the required details. We also filled the questionnaires by getting the required information when the consumer was not having appropriate time to fill it. Questionnaires were also sent to some respondents via mails for their convenience.

These methods have advantages over the other methods which are:

- The distinctive feature of this method is that the questionnaire is self-administered by the respondents themselves and the responses are recorded by them, and not by the investigator.
- Questionnaire can be sent to the educated respondents via mails and social networking sites and the data can be collected in lesser time duration as compared to other methods
- Interviewing is also a successful technique because people are usually more willing to talk then to write.

Instrumentation

- Structured Questionnaire comprising of both close and open ended questions and likert scale, was used as research instrument.

- The Variables such as Price, Awareness, Ethics, Health and Trust etc which were used in questionnaire are derived from the literature of previously done studies on this topic.

Reliability and Validity

Reliability: It is the extent to which data collected and instruments can be relied upon. Reliability test was dome during analysis by using SPSS software.
In terms of instruments that will be used in the research, they are completely reliable as they are prepared carefully after studying the previous studies, putting more valuable factors and under expert guidance. The instrument used will be able to measure exactly what the research demands. Questions are genuine and authentic.
Validity: It asks whether the research measured what it intended to. Secondary data is collected from diverse sources such as journals, books and newspapers and Primary data is collected through questionnaire which ensures high validity.
So, the results which will come after the research will be extremely valid and valuable and they can solve the problem of marketers in marketing genetically modified food products to a great extent.

3) Data Analysis

Keeping in view the nature and type of data collected, data analysis and interpretation tools are decided. Two main softwares which were used for data analysis are:
IBM SPSS 19.0**:** IBM SPSS 19.0 was used for complex testing like cross tabs etc. which was not possible with other simple softwares or manually.
Microsoft Excel: MS Excel was used for simpler analysis part which can be done easily with it.

Table : 3.1

Count

		From where do you buy fruits and vegetables?				
		Big retail stores	Malls	Any shop near to home	Any other	Total
If no, who does this at your home?	.00	7	7	31	2	47
	Mother	13	8	31	0	52
	Father	12	2	25	0	39
	Brother/Sister	1	4	1	2	8
	Other	0	0	4	0	4
Total		33	21	92	4	150

Table : 3.1 Awareness level & Willingness of consumers to buy GM Food

		Do you buy Genetically modified food products?		
		Yes	No	Total
Do you know about Genetically Modified Food items?	Yes	50	69	119
	No	7	24	31
Total		57	93	150

Out of 119 people who know about Genetically Modified food products, only 50 i.e. 42% people buy them and for some reasons majority of people i.e. 58% are not buying them.

Inference: Awareness level of people about existence of these food items is good but still people do not prefer to buy them. This means people are not aware about benefits of these food products

Table: 3.2 Cross tabulation demand analysis for GM food

Count

		If yes, which type of foods?			
		.00	Fruits	Vegetables	Total
Do you buy Genetically modified food products?	Yes	0	40	17	57
	No	91	0	2	93
Total		91	40	19	150

Out of very less people who are buying GM food products, nearly 70% are buying fruits and very less people are buying vegetables.

Inference: Demand for GM fruits is relatively higher as compared to vegetable. Therefore organizations can focus on producing more fruits and marketers have to create demand for vegetables also.

Table: 3.3 Cross tabulation price analysis for GM Food

Count

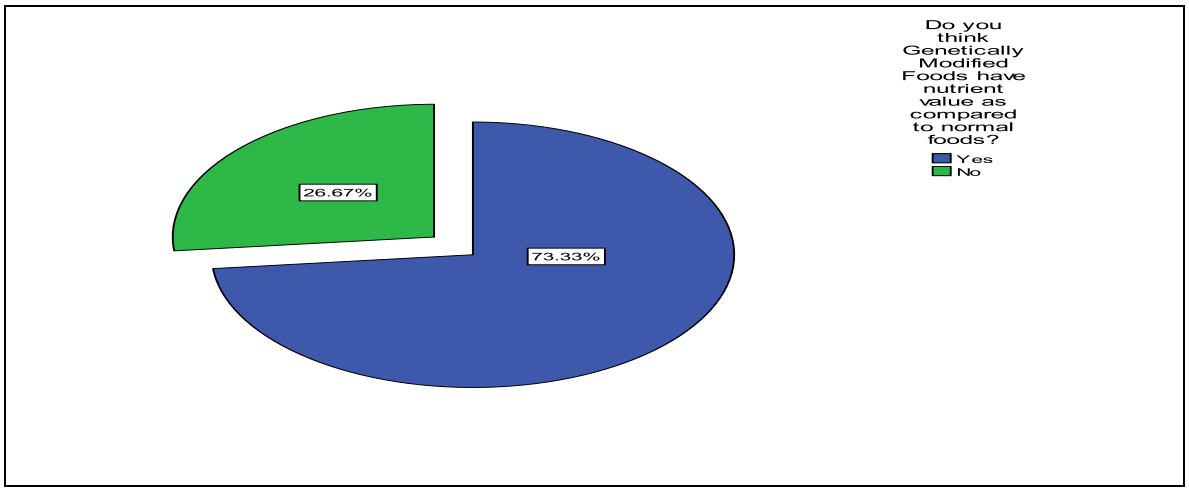
		If yes, how much?						
		.00	5%	10%	15%	20%	25% and more	Total
Is the price of Genetically Modified Food products higher as compared to normal food products?	Yes	0	26	27	23	28	26	130
	No	20	0	0	0	0	0	20
Total		20	26	27	23	28	26	150

130 out of 150 people think that the pricing of GM food products is high and majority of them think that it is as high as 20-25%.

Inference: Pricing of GM foods is set very high and that's why it is beyond reach of common people.

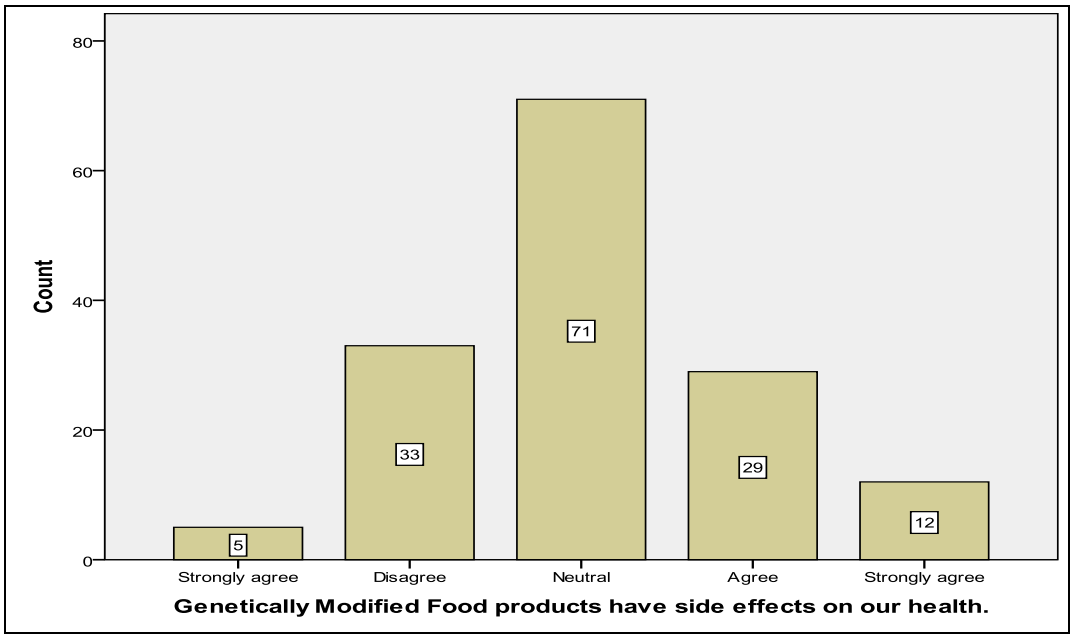
Analysis of benefits of GM Foods

Pie Chart: 3.4



Inference: Majority of people are aware of this benefit of GM foods so this is not a major issue in marketing**.**

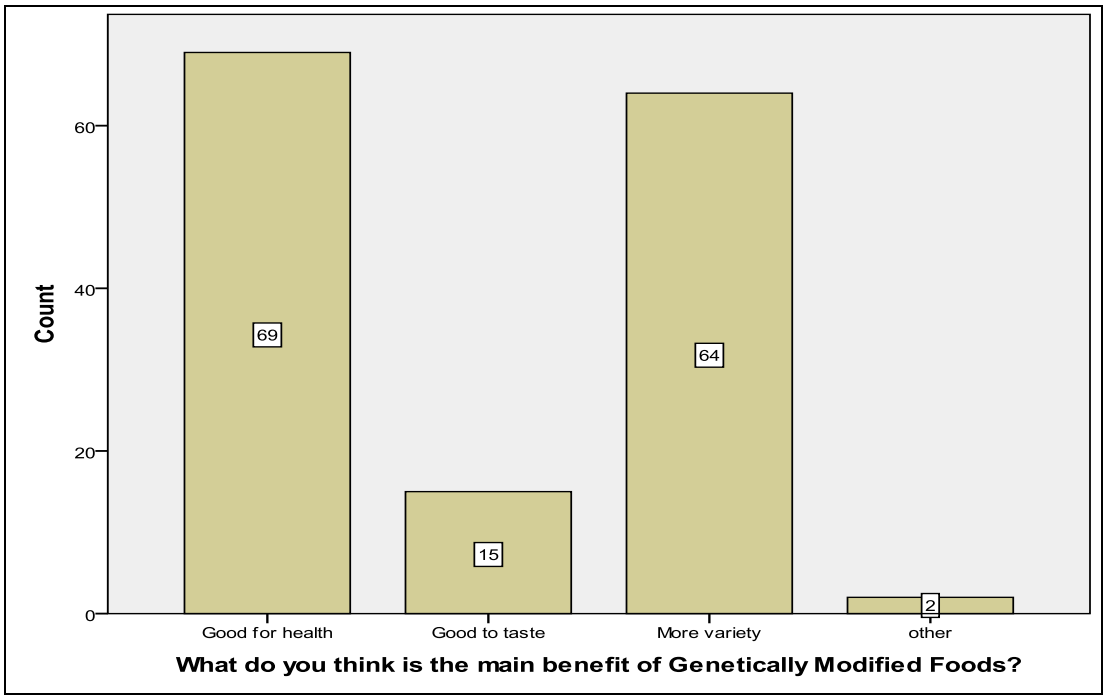
Bar Graph: 3.5



Nearly 47% of people are not sure whether GM food products have side effects on our health or not while rest of the population is on either side.

Inference: This is a major concern because as long as people believe that there is some risk and they are not very sure about it, they are not going to buy these food products. So people should be conveyed very clearly about this issue.

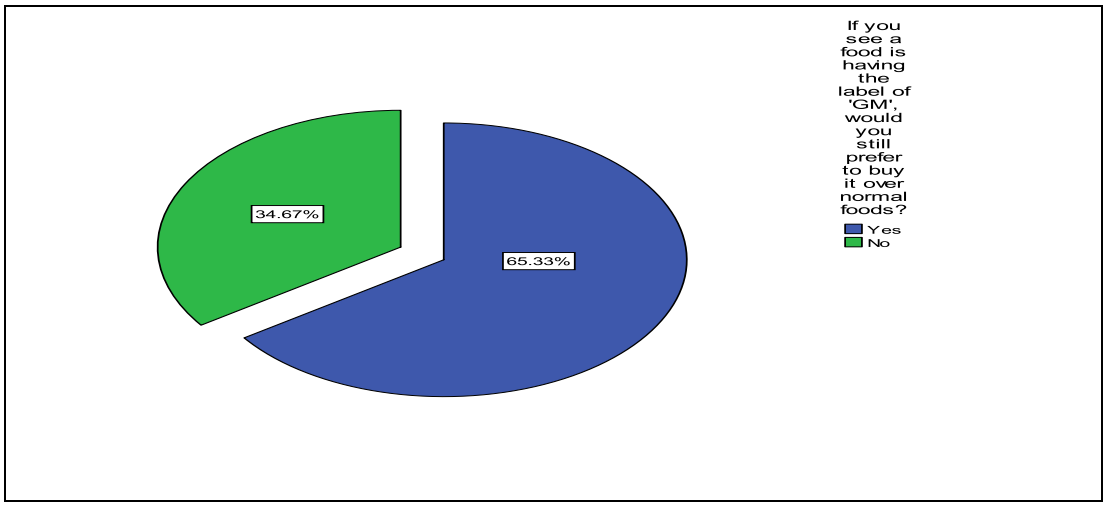
Bar Graph: 3.6



As it is clear from the above data that most of the people perceive health and more variety as the major benefit to them and there are very less people (10%) who actually like the taste of GM foods very much.

Inference: The area to focus on here to make the product better in taste also. If people will like the taste of these food products then will definitely go for it and sales can be raised manifolds.

Pie Chart: 3.7



Nearly 65% of the respondents are saying they will buy the food items having a label of ‘GM’ while 35% of them will not buy them.

Inference: This shows that having a label of ‘GM’ can actually increase the sales because people will take it as different food items and not the normal ones

Conclusions

i. There are various factors such as Availability, Price, Trust, Health, Political controversies, Safety and Awareness which are affecting the acceptance of genetically modified food products. All of these factors are studied and conclusions are drawn out of that.

- 86.6% people think that the pricing of GM food products is high and majority of them think that it is as high as 20-25%. Due to premium pricing of these food products, it is out of reach of majority of people to buy them.
- General awareness level of people about existence of these food items is good but still people do not prefer to buy them. This means people are not aware about benefits of these food products. Only 33% of people are aware and buying them. So the benefits of GM foods are needed to be communicated to people so that they should be able to compare them with the normal foods. Also there are very few people who have seen advertisements of GM food products and out of those very few only 42% are saying that there is not much information available in those advertisements. People also don't know the difference between GM foods and Organic foods.
- Availability of GM food items is very less. Therefore people are not able to buy them even if they want to buy. Only 36% of people are able to buy them from where they buy normal food products.
- People are not buying these food products because they are not sure about their safety levels. 47% of people gave neutral response that they are not sure about it. Therefore people perceive health risks and they are not finding these food products trustable.
- Having a label of 'GM' can actually increase the sales as 65% of people are in favor of this. This gives these food products their different identity.

ii. There are many problems which are associate with Genetically Modified food products which are:

- Government regulation is a very big problem which the marketers are facing. There are various threats to environment due to which government has put some regulation on these food products which is not allowing marketers to market their products freely.
- Most of the organizations i.e. nearly 85% of them are involved in producing GM vegetables and very less number of organizations are producing GM fruits. By consumer survey it is found that most of the consumers like to buy GM fruits only as they are aware of it only. So the organizations need to have proper market research and they should develop products according to that or they should create awareness of vegetables also.
- Products are not being positioned properly in the market as people are not aware about these innovated products.
- Commercialization of these food products is not done properly as it is done with the normal food products only. The customers are not having any chance to compare these products with the normal ones and choose their preference.

- There is also a big problem in terms of Place i.e. distribution of these food products. Consumers are not getting these food products at their convenience i.e. at the places from where they buy normal food products.
- Organizations are not targeting a specific segment to promote GM food products as it is found in the study that women in age group of 40-60 are the ones who buy majority of food products for their family. So to increase the awareness level of this group is very necessary to promote GM food products.
- It is a very big task to build trust among the people which has been a issue in recent times in marketing of GM foods. But organizations are taking various measures to overcome these issues and are somewhat successful in doing that.

Recommendations

The problems associated with marketing of GM foods need to be resolved to do effective marketing of GM food products. Some of the measures which can be taken to overcome these problems are:

i. One of the methods to resolve the issue of government regulations can b to create a pull in the market. Give more information about benefits of GM foods to the consumers so that a demand from consumers' side can be generated which can then induce government to remove the barriers. Citizens and consumers in a number of countries have demanded and got their governments or the markets to provide either legislation or proactive labeling systems for these products. This is counterproductive for both producers and consumers

ii. To create trust among people, organizations should tie up with the famous regional food brands which are already having consumers' trust on them. This will definitely help to increase the sales. This strategy is employed by Emergent Genetics India ltd. as they have tie up with Paras and Mahindra.

iii. Although the biotechnology industry has developed a number of new technologies and products and marketed them effectively to producers, the biotechnology industry has almost completely ignored the need to market these products to consumers. So they should not ignore the consumers and should develop marketing plan for them also.

iv. Innovative products need to be proactively positioned in the market either as a replacement for what exists or as an addition. GM foods must be placed in the market in such a way as to allow consumers to test and compare the new products against existing products.

v. Most of the people are saying that they are not being provided by much information in the advertisements. They should be provided with the information such as composition, procedures and benefits of these food products.

vi. Organizations should invite various marketing agencies to design products in collaboration with them and should develop synergies with them to try and put best product in the market.

vii. Taglines should be developed by the companies to have special position in the minds of the customers.

viii. Companies can go for joint ventures with various other organizations to have a strong network.

ix. Another way of creating trust among people is by having government certifications such as ISO 9001.2008. This can convey the people about proper manufacturing and testing of the products.

x. As it is found in the research that most of the consumers want scientific evidence about safety of the GM food products, this evidence can be provided to them through advertisements.

xi. Most important factor is that products should be looking attractive and should provide extra nutrition to consumers.

xii. Products should be promoted in the unorganized market also as most of the consumers buy food items from here only. If you are not having products here then surely you are missing a large part of the market.

xiii. Organizations have to develop cost effective methods to produce and promote these food products so that they should be able to provide them at competitive price.

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