

Awareness on Food Processing Entrepreneurship among Engineering Faculty

D Ramesh Babu, K V Narasimha Rao, E Ramesh, T Sabitha



Abstract: Government of India is promoting on development of startups in food processing sector. Being second largest producer of fruit and vegetables in the globe, Indian government choose food processing as “thrust and focus area” in 13th fifth-year plan. A questionnaire was developed to find the level of awareness in teaching faculty on food processing aspects. It was generally felt that faculty has minimal awareness on food processing areas. However results shown that they have high level of awareness on agricultural and food process aspects. In the light of faculty expected to be acting as mentors to promote thrust areas like food processing, a need is identified to train them. Aspects like surplus agri-products and production areas found to be known to people. However processed foods using technologies are not much known to the engineering faculty. To achieve the mission of Ministry of food processing industries, it is necessary to train manpower in the engineering colleges other than food processing institutes and farmers. Recommendations are made to strengthen the manpower in food processing entrepreneurship.

Key words: Agri-products, Food processing, Entrepreneurship, Awareness, Engineering faculty

I. INTRODUCTION

India is proving its strength in Agri-products and exports to other countries especially food processing, since 2010 the exports increased by two folds (from 1.5% to 3% of total global exports) Promotions through specific channels like National Horticulture Board (NHB), Ministry of food processing industries (MOFPI), National institute of food technology entrepreneurship management NIFTEM and Indian Institute of Food Processing Technology (IIFPT) need to be strengthened by conducting training programs to all engineering college faculty, being a scope for creating large number of mentors for food processing. A big mass of professional students are approachable to the faculty for developing mindset in the student. In this paper, we tried to identify the training needs of faculty, as a case study in the S R Group.

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II. LITERATURE OVERVIEW:

Ramesh Babu et al. (2016) [1] studied the food processing entrepreneurship and opportunities for the current scenario. They also discussed in detail about the horticulture products, processed foods and advanced technologies available to implement. Aker (2011) [2] in his study highlighted about the information and communication in agriculture development. To find solutions for agriculture problems, good communication and IT Technologies must be used. Mittal and Mehar (2015) [3] made study on assessment of farmer's information networks in India-role of modern ICT. Information and communication technologies can solve the larger number of farmers problems for such a big farming country the India. Menale Kassie et al. (2011) [4] made detailed studies on Agricultural Technology, Crop Income, and Poverty Alleviation in Uganda giving insights of agriculture and farming community development at a larger perspective. Chunhua and Bo (2010) [5] in their paper titled "Bottleneck problems in China's E-Agri development", discussed about the bottle necks and issues in the Electronic-Agriculture development in china. A critical evaluation of problems done in this paper and suggestions made for the issues related to E-Agriculture. Yaser Ahangari Nanehkaran (2013) [6] discussed about the E-commerce and its applications which can be useful for the agriculture and allied fields. Niranjana Murthy et al. (2013) [7] analyzed about E-Commerce and M-Commerce. They also discussed about the advantages, limitations and security issues related to usage and safety. Gangeshwer (2013) [8] has studied the E-Commerce applications and Internet Marketing. The review was given from Indian context. Ahl (2006) [9] studied on new directions requirement for women entrepreneurs so that special issues related women entrepreneurs are addressed. Several researchers studied basic concepts of agriculture business development and issues along with proposed with solutions in agricultural and food related areas. Also researchers given insights of entrepreneurship related to agriculture, food processing, small business, women owned small business, and food business [10-18].

III. MATERIALS AND METHODS

A questionnaire was developed to collect the data on awareness of entrepreneurial factors in food processing. The questionnaire contains basic questions like faculty belief and confidence to be acting as mentors for entrepreneurship, basic knowledge an Agri production with specific reference to horticulture products like fruits and vegetables apart from processed foods.



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85 faculties were given the questionnaire during the working hours and were asked to fill it. Participants were both men and women faculty. Survey was conducted for three days in three different institutions of the same group of educational institution. From the survey it was found that basic details like vegetables price fluctuations in market, surplus availability, regional capacities found to be known to the respondents, however aspect like value addition, processing market scope and market player, if are not popularly known to them the statistical data. Most of the questions were given with options and where no response given by the respondent, it is indicated with "NR".

Table1: Question "Do You Belong to Rural Area? "			
S No	Option	Percentage	Responses
1	Yes	47.05	
2	No	52.94	
3	NR	0	

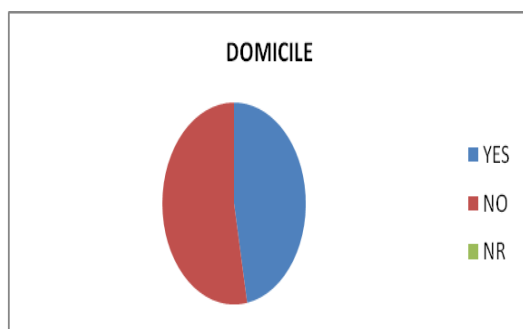


Table 1 explains the geographical residence details of the respondents. 47% of the respondents belong to rural area, while 52% of the respondents are from non-rural areas. The results indicated that rural faculty are less in numbers compared to urban faculty. Rural faculty were expected to be having more awareness on agriculture related and food products.

Table 2. Question "Do You Think Teachers Can Promote Entrepreneurship by Taking up the Role as Mentor?"		
Option	Percentage Responses	
YES	94.11	
NO	5.88	
NR	0	

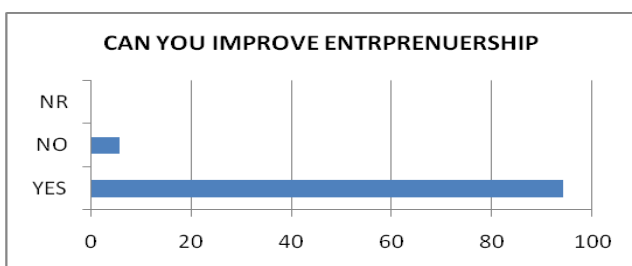


Table 2 explains the details of does a teacher can serve as a mentor in improving entrepreneurship. 80% of respondents were positive, while 20 others were negative regarding the role of mentor playing by a teacher.

Table 3: Question "If Opportunity is Given, in which Sector You Would Like to Start Your Enterprise?"		
SN	Option	Percentage Responses
1	Software	5.88

2	Engineering	17.64
3	Consumable	5.88
4	Chemical	0
5	Agricultural	5.88
6	Dairy	0
7	Food Processing	47.05
8	Any Other	17.64
9	NR	17.64

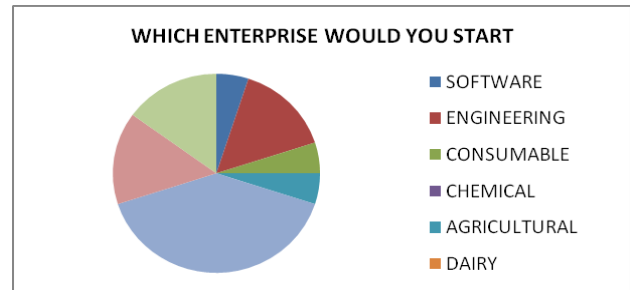


Table 3 explains the details about in which sector would the respondent is interested to start an enterprise. Highest no. of respondents given the option "FOOD PROCESSING" and the least given option is "CHEMICAL AND DAIRY" enterprises.

Table4: Question "What is the Rank of India in Production of Fruits and Vegetables?"		
SN	Option	Percentage Responses
1	1 st	5.88
2	2 nd	70.58
3	NR	23.52

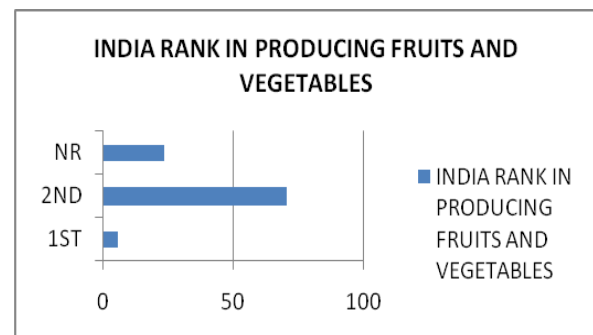


Table4 explains the rank details of "INDIA" in the production of fruits and vegetables. About 70% of respondents say that India ranks 2nd place while 10% of respondents say 3rd rank. However the fact is India is the largest producer of vegetables in the world. Means awareness need to be created even for the faculty on this.

Table5: Question "What Agriculture/Horticulture Products Produced Abundantly In Telangana?"		
SNo	Option	Percentage Responses
1	Paddy	41.17
2	Cotton	58.82
3	Turmeric	35.29

4	Corn	5.88
5	Maize	5.88
6	Mango	23.52
7	NR	17.64

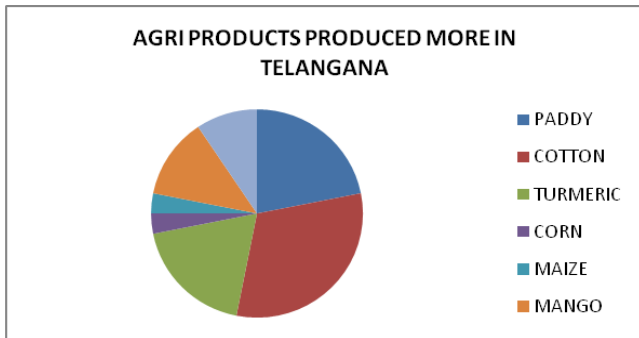


Table 5 explains the details about the crops that are grown by farmers in Telangana. It is seen that cotton is grown in more quantity than all other given options. Corn and maize are grown less in quantity.

Table 6: Question "Write Five Ready Mixes, which Can Reduce the Burden in the Kitchen?"

SNo	Option	Percentage Responses
1	Ginger Garlic Paste	58.82
2	Idly Mix	47.05
3	Dosa Mix	41.17
4	Chutney Powders	5.88
5	Masalas	52.94
6	Curry Powder	5.88
7	Upma Mix	5.88
8	Atta	5.88
9	Millets Powder	11.76
10	Amchur Powder	11.76
11	Maggie	5.88
12	Veg Biryani Mix	5.88
13	Chilli Powder	11.76
14	Puliogare Mix	5.88
15	Gulab Jamun Mix	5.88
16	Sambar Powder	17.64
17	Rava Dosa Mix	5.88
18	NR	5.88

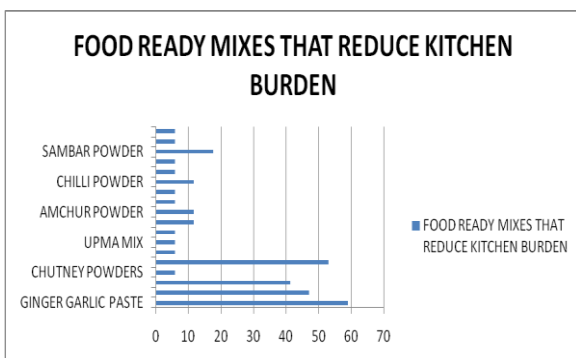


Table 6 explains the details of food ready mixes that are available in kitchen that reduces the burden for women. The results were little fluctuated between the options that are given.

Table 7: Question "What is the Approximate Life of Fruits and Vegetables in Refrigerator?"

SNo	Option	Percentage Responses
1	1 Week	64.70
2	2 Weeks	29.41
3	3 Weeks	5.88
4	4 Weeks	0
5	5 Weeks	0

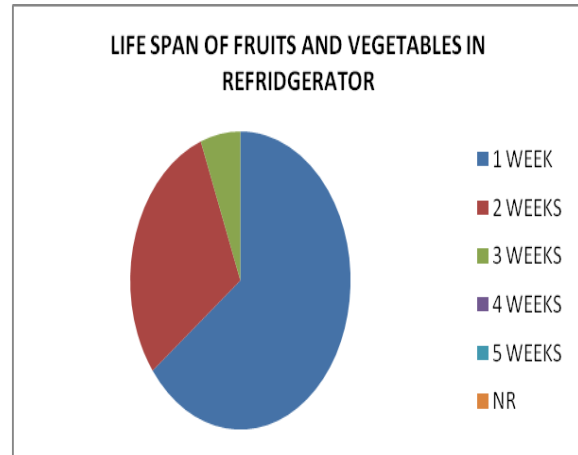


Table 7 explains about details of the life span of fruits and vegetables that are kept in refrigerator. The majority responses were given to that fruits and vegetables that are stored in refrigerator would have a life span of 1 week.

Table 8: Question "Five Products You Saw in Retail Shops, which are Ready to Eat?"

SNo	Option	Percentage Responses
1	Maggie	5.88
2	Pop Corn	11.76
3	Dry Fruits	17.64
4	Cakes	41.17
5	Biscuits	47.05
6	Peanut Chikki	5.88
7	Sweets	11.76
8	Jam	23.52
9	Chocolates	41.17
10	Bread	17.64
11	Chips	47.05
12	Samosa	5.88
13	Fried Moong Dal	5.88
14	Fruits	5.88
15	Curd	5.88
16	Sauces	5.88
17	Confectionaries	5.88
18	Puffs	5.88
19	Other Snacks	11.76
20	Cup Cakes	5.88
21	NR	11.76

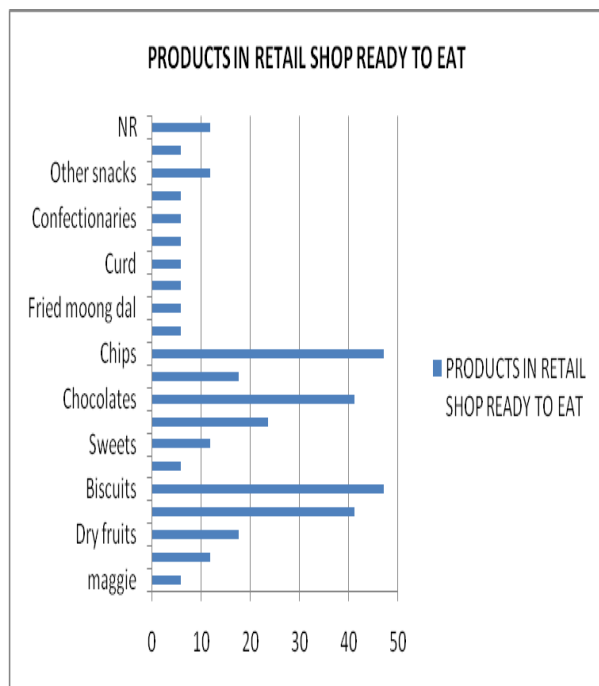


Table 8 explains the details of the products that are ready to eat and are available in retail store. Most of the respondents prefer “BISCUITS AND CHIPS” from a retail store. In some cases respondents could not distinguish between ready to eat and ready to cook, for example Maggie noodles.

Table 9: Question “Do You Think There is Large Scope for Processed Foods Business?”		
SNo	Option	Percentage Responses
1	Yes	88.23
2	No	5.88
3	NR	5.88

Table9.

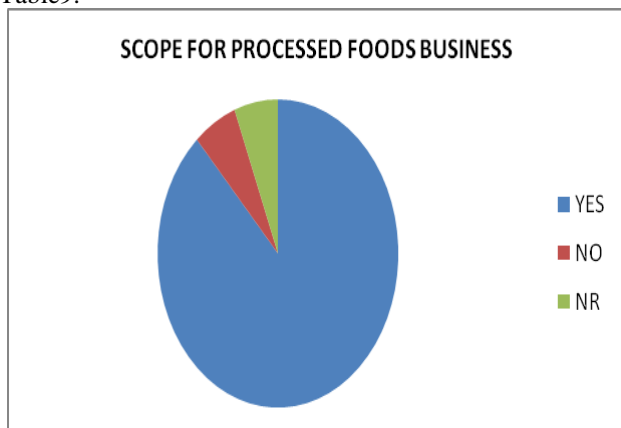


Table 9 explains about the details about the scope for the business of processed foods. About 80% of respondents agree that there is large scope for processed foods business.

Table 10: “Write Names of Five Operations in Kitchen That you Would Like to Eliminate”		
SN o	Option	Percentage Responses
1	Cutting Vegetables	64.70
2	Grinding Chutneys	23.52
3	Boiling Milk	5.88
4	Preparing Batters	11.76
5	Frying Chillies	5.88
6	Peeling	29.41
7	Boiling Dal Longer	11.76

	Time	
8	Cleaning Fish	5.88
9	Cleaning Kitchen Store	11.76
10	Kneading Dough	23.52
11	Heating	5.88
12	Rolling Chapathi	5.88
13	NR	29.41

Table10.

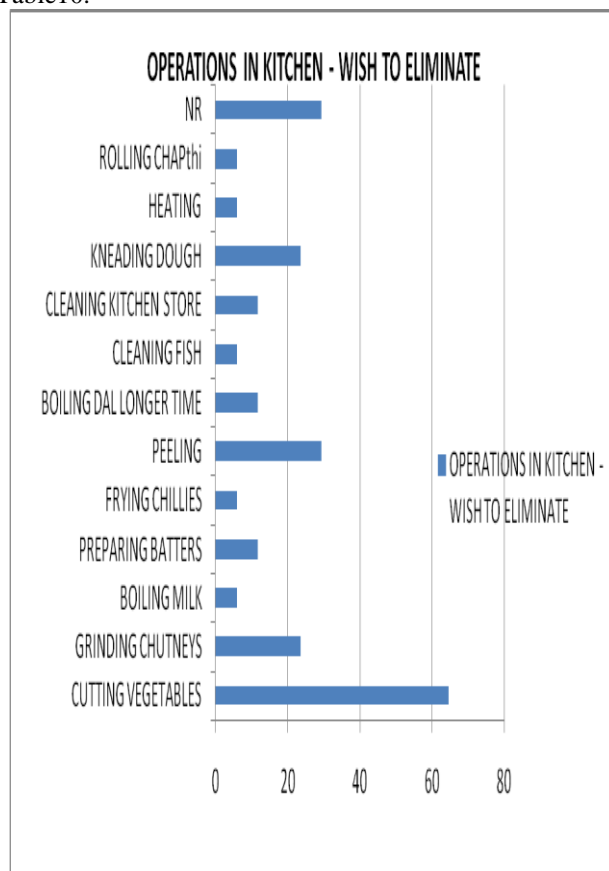


Table 10 represents the information about the operations that are performed in kitchen and are wished to eliminate. Large percent of respondents wish to eliminate “CUTTING and CHOPPING as it consumes more time.

Table 11: Question “Write Five Semi Processed Food Ingredients Available in the Market.”		
SN o	Option	Percentage Responses
1	Maggie	35.29
2	Noodles	29.41
3	Sweet Corn	17.64
4	Green Peas	5.88
5	Soup Powders	17.64
6	Oats	11.76
7	Popcorns	23.52
8	Ready Made Mixes	17.64
9	Papad	35.29
10	Frozen Non Veg Items	11.76
11	Eggs	5.88

12	Chips	5.88
13	Pasta	17.64
14	Cut Vegetables	5.88
15	Pickles	5.88
16	Jams	5.88
17	Jellies	5.88
18	Fried Veggies	5.88
19	Paneer Mix	5.88
20	Biryani Mix	5.88
21	NR	5.88

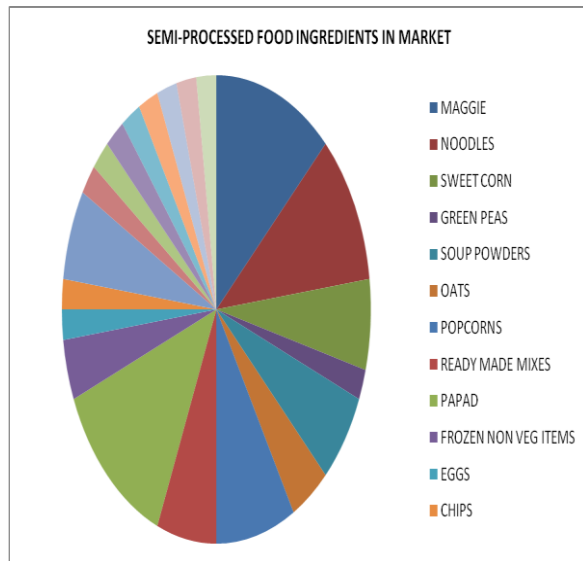
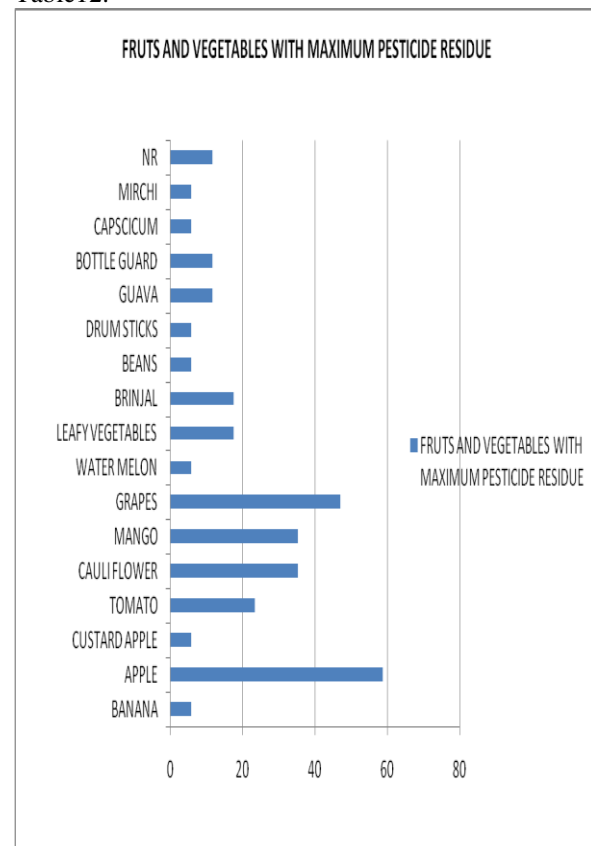


Table 11 represents the information about the semi-processed foods in market. The results in case of semi-processed foods are in scattered manner. Papad, ready made mixes, noodles were mostly referred by majority cases.

Table 12: Question "Which are the Fruits and Vegetables Having Maximum Pesticide Residues"		
SN	Option	Percentage Responses
1	Banana	5.88
2	Apple	58.88
3	Custard Apple	5.88
4	Tomato	23.52
5	Cauli Flower	35.29
6	Mango	35.29
7	Grapes	47.05
8	Water Melon	5.882
9	Leafy Vegetables	17.64
10	Brinjal	17.64
11	Beans	5.88
12	Drum Sticks	5.88
13	Guava	11.76
14	Bottle Guard	11.76
15	Capsicum	5.88

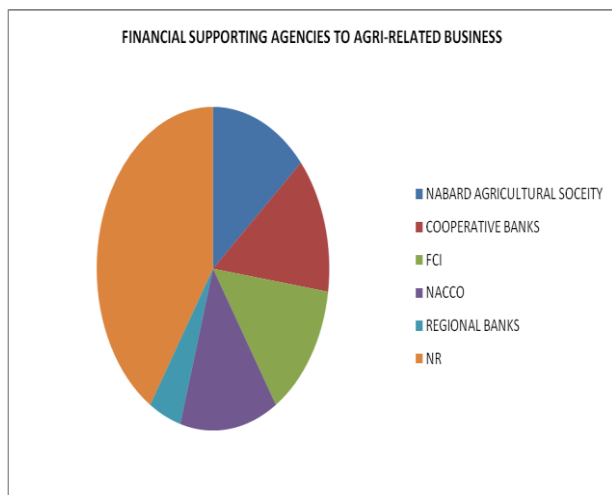
16	Mirchi	5.88
17	NR	11.76

Table 12.



The information represented in table 12 would explain the details of fruits and vegetables with maximum pesticide residues. Most of the respondents appeared to be worried about apple, grapes, mango, cauliflower due to their high level of pesticide residues, which is at large correct.

Table 13: Financial Supporting Agencies to Agriculture/Horticulture/Harvesting Businesses			
S No	Option	Percentage	Responses
1	NABARD Agricultural Society	17.64	
2	Cooperative Banks	17.64	
3	FCI	17.64	
4	Nacco	17.64	
5	Regional Banks	5.88	
6	NR	52.94	



13.

Table 13 showcases the information about the financial supporting agencies to various agri-related businesses. It shows the result as “Cooperative Banks” and “NABARD” to support agri-related businesses financially which is true at large, still training is required to make awareness of other financial supporting agencies and bodies of ministry of agriculture of government of India.

Table 14: Write Two States Which are the Highest Producers of Potato in India		
SNo	Option	Percentage Responses
1	U. P.	29.41
2	West Bengal	5.88
3	Bihar	29.41
4	Maharashtra	17.64
5	A.P.	5.88
6	Telangana	5.88
7	H.P.	5.88
8	Punjab	5.88
9	NR	35.29

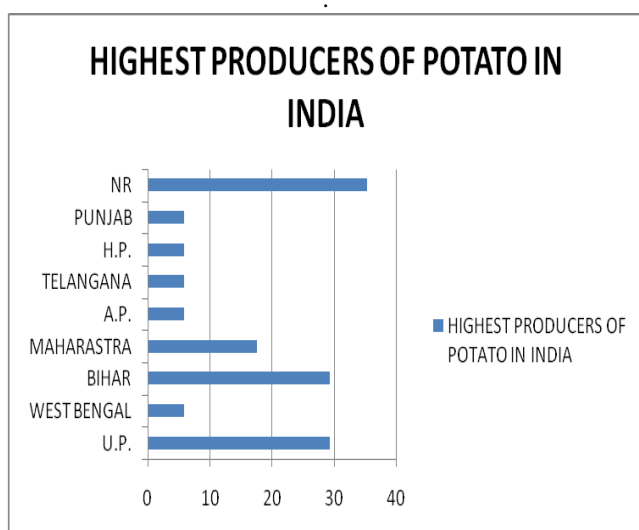


Table 14 explains about the details of “the state with highest production of potato in INDIA”. Respondents say that “BIHAR” and “UP” are the largest producers of potatoes and 39% people did not respond to it.

Table 15: Write Two States Which are the Highest Producers of Mango in India

Option	Percentage Responses
Telangana	76.47
Maharashtra	47.05
Andhra Pradesh	41.17
Karnataka	5.88
U.P.	5.88
NR	11.76

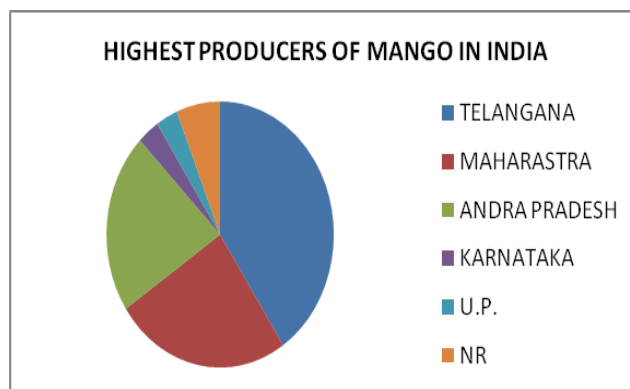


Figure 15.

Table 15 represents the information about the “state with highest production of mangoes in INDIA”. It is shown that “Telangana” and “Maharashtra” are the largest producer of mangoes. The fact is UP, AP, Maharashtra and Telangana are the leading producers of mangoes.

Table 16: Reason for Tomato is Sold at Very High Price Differences at Sometimes		
S N o	Option	Percentage Response
1	Seasonal Changes	17.64
2	Using Pesticides	5.88
3	Demand and Supply	5.88
4	Based on Production Changes	23.52
5	Lack of Awareness in Farmers	5.88
6	Decreased Sales	5.88
7	Yes	5.88
8	NR	35.29



Table 16 explains about the details of “price changes (sudden increase and rapid decrease) of tomatoes. Many people think that the price changes in tomato are due to the changes in production.

Table 17: Do You Know why Onion Prices are Discussed in Parliament and Assembly		
SNo	Option	Percentage Responses
1	Change In Price	5.88
2	Production	5.88
3	Black Market	5.88
4	Due To Demand	5.88
5	Yes	5.88
6	NR	70.58



Table 17 explains about the details of “discussion of onion prices in parliament”. Large number respondents were unknown about why is the prices of onion are discussed in parliament.

Table 18: Question “Which State In India Produces Highest Quantity of Ginger and Pine Apple”			
SN o	Option	Percentage Responses	
1	Assam	76.47	
2	North Bengal	47.05	
3	West Bengal	11.76	
4	Bengal	11.76	
5	Dargeeli	47.05	

	ng	
6	Maharashtra	11.76
7	Kerala	5.88
8	NR	17.64

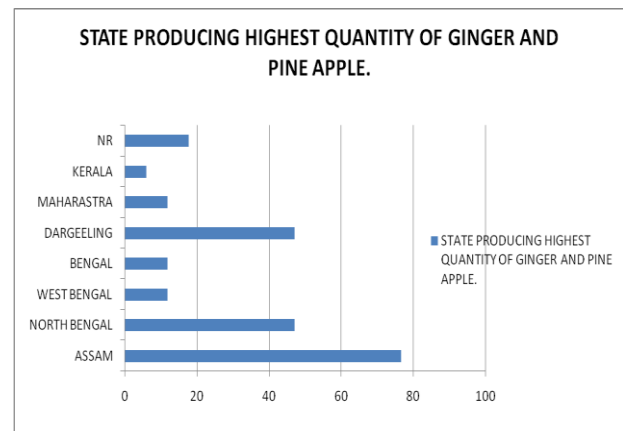


Table 18 represents the information regarding “the state that produces highest quantity of ginger and pineapple. According to the table it is observed that “ASSAM” is the highest producer of ginger and pineapple. Awareness is good on this.

Table 19: Which States in India are Largest Producers of Lemon, Mosambi, Mango.		
SNo	Option	Percentage Responses
1	Andhra Pradesh	82.35
2	Telangana	64.70
3	Maharashtra	5.88
4	NR	17.64

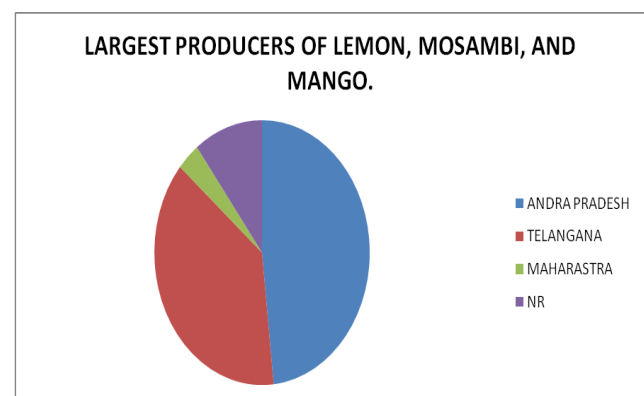


Table 19 represents the information regarding the “largest producer of lemon, mosambi, mango in INDIA. It resulted that “ANDHRA PRADESH” is the largest producer of lemon, mosambi and mango, which is true as per NHB statistics.

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Table 20: Write Five Ideas That Generate More Income And New Business Opportunities

SNo	Option	Percentage Responses
1	New Technologies	23.52
2	Raitu Bazaars	5.88
3	Fairs And Exhibitions	5.88
4	Bank Support	5.88
5	Subsidies	5.88
6	New Apps Creation	17.64
7	Cold Storages	11.76
8	Water Supply	5.88
9	Increase Variety Of Crops	11.64
10	Food Processing Units	5.88
11	Contracting Farmers	11.76
12	Increase Awareness In Farmers	11.76
13	Commercial Crops	11.76
14	Scientific Methods	11.76
15	Using Natural Pesticides	5.88
16	Shifting Cultivation	11.76
17	Quality Based Production	5.88
18	Organic Crops	5.88
19	S elling To Needy Directly	5.88
20	Facilitating Transportation	5.88
21	Increasing Prices	5.88
22	Crop Rotation	5.88
23	Composting Pits	5.88
24	Animal Husbandry	5.88
25	NR	11.76

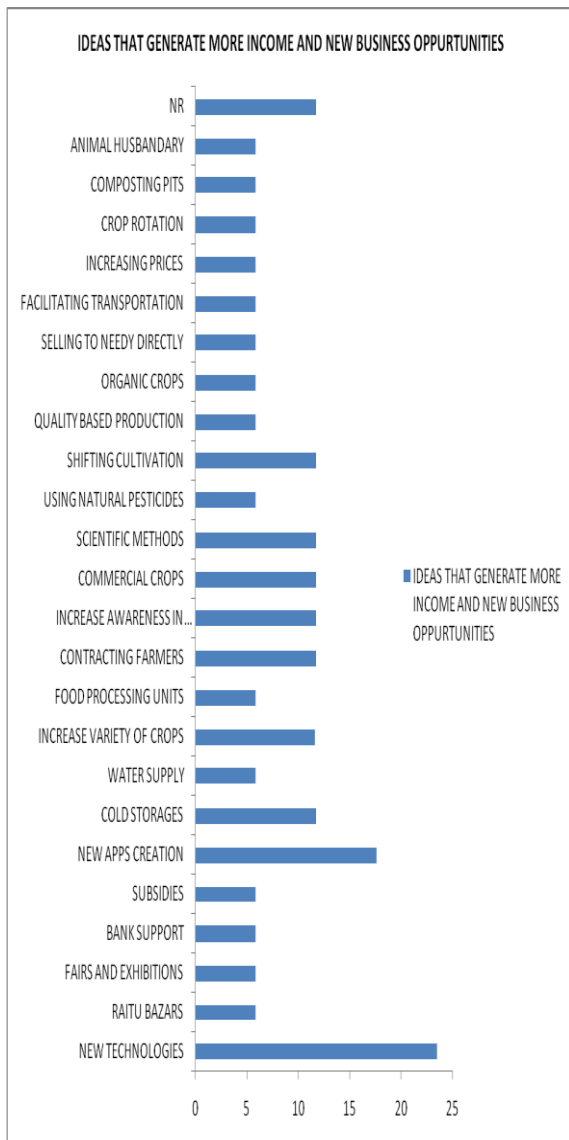


Table 20 explains about the “IDEAS” that are given by respondents to increase revenue for farmers and income for agricultural related businesses.

IV. CONCLUSIONS AND RECOMMENDATIONS:

Interesting facts were found during this study the reported as follows

1. Engineering faculty even though 47% people belong to rural area, still lot of awareness is found about food and related processing aspects and needs.
2. Regarding production varieties of crops in different states and specifically AP and Telangana, they got highest awareness. For example majority given right answer as ginger production in Assam and Darjeeling region
3. For lemon and citrus, mango, majority faculty answered correctly as AP and Telangana are the major suppliers of these items.
4. Majority of faculty gave insights about ideas to increase the revenue of the farmers, for example ideas like, increasing awareness, cold storage facility, creating mobile apps for selling, contract farming, crop rotation, facilitating transportation etc. Majority of people given ideas related to contract farmers, crop rotation, New app creation, increase variety of crops, scientific methods,

etc., which is a good indicator for the eligibility of faculty to be the mentors for engineering students to create new tools, methods and techniques for benefitting the farming community.

5. Observing above, there is a huge potential to utilize faculty of engineering colleges as mentors for mentoring food and agri related entrepreneurship by giving training through ToT (Training to Trainers).
6. The training needs must be in the areas of
 - a. Basic data of agri production, which can give them clarity on what kind of businesses to be created on that particular zone or state.
 - b. Infrastructure availability and future needs in consultation with State horticulture mission or National horticulture mission
 - c. Technologies available for commercial implementation and exploitation for benefit of farmers. Technologies developed by research institutes like CFTRI, DFRL, IIFPT, IIHR, CIPHET, and NIFTEM, to be transferred and commercialized.
 - d. Scope for exports of agri produce in raw stage of processed stage either to other states or other countries, where there is demand.
 - e. Basic information on incubation centers and mentoring resources, so that aspirant entrepreneurs can take the benefit.
 - f. Information on government schemes to support new venture creation.
 - g. Financial institution's support and their details, so that budding entrepreneurs can avail the benefit without searching for information on this.

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