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STANDARDIZATION AND EVALUATION OF GREENGRAM INCORPORATED SPAGHETTI

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Abstract

Pulses are poor man's meat due to their high protein content of 17-25 per cent which is nearly twice that of cereals. They have been consumed as a rich source of protein, supplementing the cereal or millet based diets and has an important role in human nutrition. Some pulses and legumes such as green gram and soya bean are excellent source of protein and fat. Supplementing the cereals with pulses, nutritive value of vegetarian diets can be improved in terms of proteins and minerals. Keeping this in view, the present investigation was undertaken to evaluate the influence of pulse flour blends on physical, nutritional, cooking and organoleptic characteristics of spaghetti prepared from composite flour of green gram, wheat semolina, rice and sorghum flour. Protein and fibre content increased significantly ($p<0.01$) with increase in level of pulse flour blend incorporation. Cooking time of developed spaghetti from composite flour was significantly ($p<0.01$) lesser than cooking time of control spaghetti. Cooking loss of developed spaghetti was on par with the control spaghetti. Mean overall organoleptic score of developed spaghetti from composite flour was in the range of highly acceptable criteria. Thirty percent level of composite flour blend incorporation was found to be acceptable.

Keywords: Spaghetti; extruded products; pulse flour blends; quality characteristics,

INTRODUCTION

Cereals are the cheapest source of food energy and contribute 70-80 per cent of daily energy intake (Mahajan and Chattopadhyay, 2000). But they have relatively low protein content and poor protein quality due to deficiency of one or two essential amino acids (Gopalan *et al*., 2007). Pulses occupy an important place in human nutrition. Pulses are poor man's meat due to their high protein content of 17-25 per cent which is nearly twice that of cereals (Singh *et al*., 2000). They have been consumed as a rich source of protein, supplementing the cereal or millet based diets and has an important role in human nutrition (Ofuya and Akhidue, 2005). The convenience foods market in India today provides the consumers with high quality tasty food that could be prepared in the minimum possible time and therefore suit their life styles (Nandita *et al*., 2007). Spaghetti as a shelf stable convenience product appeared in the Indian market in recent times. It is a very popular product now in

India and the most preferred food of every child and adult alike. Not only is this spaghetti popular with fast food restaurants but also very popular as a Continental and Italian delicacy (Sanghvi, 2008). The nutritional value of extruded products is not very high, as it is rich in starch, whereas its protein concentration and quality is significantly lower. Hence an effort was made to prepare spaghetti incorporated with pulse flour blends such as green gram wheat semolina, rice and sorghum which are easily available and a good source of protein.

Methodology

Spaghetti were prepared using 100 per cent wheat semolina flour and kept as control samples. Green gram flour, rice flour and sorghum flour were mixed in various proportions (5, 10,15 & 20 %) to develop spaghetti by the addition of salt and water. The pulse flour blends were sifted thrice to ensure thorough and uniform blending. Then the flours were weighed and fed in the barrel of extruder. They were mixed thoroughly by the shaft in the extruder. The mass was allowed to blend for 10-15 minutes to ensure thorough distribution of moisture. During mixing the required amount of water was added. The product was extruded using appropriate die. After extrusion, the spaghetti was steamed for 20 minutes using idly steamer. The steamed spaghetti was then cooled and dried in cabinet drier for 6-8 hours at 60°C. The dried spaghetti was cooled and packed in polyethylene bags.

The quality characteristics of prepared spaghetti were studied by analyzing physical, nutritional such as moisture content (AOAC, 1995), protein (Ranganna, 1995), fat (Cohen, 1917), crude fibre (Maynard, 1976), ash content (Hart and Fisher, 1971), amino acid profile (Bidilingmeyer *et al*., 1987) and cooking quality (Grant *et al.* 2004). The sensory attributes like colour, appearance, flavour, texture, taste and overall acceptability of the spaghetti were evaluated by a panel of ten untrained judges by using a score card with a nine point hedonic scale. Cost analysis of spaghetti were computed taking into account the fixed cost, variable cost, interest, depreciation and products profit.

Result and Discussion

Table 1

Physical and Nutritional characteristics of green gram incorporated spaghetti

Sl. No	Parameters		T_0	T_1	T_2	T_3	T_4
1.	Diameter (mm)	Raw	1.79	1.67	1.51	1.45	1.40
		Cooked	2.82	2.69	2.55	2.46	2.40
2.	Expansion Ratio		0.63	0.62	0.59	0.589	0.58
3.	Breaking Strength (N)		13.95	10.32	9.74	8.49	8.38
4.	Colour	L	37.41	37.47	37.52	38.66	46.58
		a	8.78	8.53	8.01	7.76	5.68
		b	15.49	15.64	15.83	16.37	16.65
5.	Bulk Density (g/cm^3)		1.282	1.250	1.225	1.190	1.162
6.	Moisture (g/100g)		6.60	6.69	6.71	6.74	6.78
7.	Protein (g/100g)		10.23	10.92	11.37	12.25	12.87
8.	Fat (g/100g)		0.785	0.840	0.905	0.957	1.103
9.	Fibre (g/100g)		0.365	0.541	0.955	1.180	1.527
10.	Ash (g/100g)		1.980	2.102	2.343	2.517	2.626
11.	Lysine (mg)		165.2	188.4	208.2	231.3	268.7
12.	Methionine (mg)		232	239.1	246.7	249.9	258.3

Physical and Nutritional characteristics of green gram incorporated spaghetti:

The diameter of raw as well as cooked spaghetti was increased with the increased level of incorporation of l pulse flour blends with wheat semolina. As the level of incorporation increased, the breaking strength was decreased. The 'L' values of spaghetti ranged from 37.05-46.58, 'b' values 15.64-16.65 and 'a' values 8.53-5.68 for T1 to T4 respectively. The bulk density of spaghetti was decreased with addition of pulse flour blends.

The nutritional composition such as moisture, protein, fat, crude fibre, ash and amino acid profile of spaghetti were increased with increased level of incorporation of pulse flour blends. Hegde (1997) stated that the moisture content of green gram flour incorporated cassava noodles gradually increased during 180 days of storage. Sugasini (2003) found that there was an increasing trend in moisture content and crude fibre content of legume incorporated wheat vermicelli. Thirumaran *et al.* (1992) reported that the processing of sweet potato flour for the production of vermicelli and spaghetti which was prepared by mixing with wheat flour and legume flours like green gram, bengal gram or defatted soy flour to increase the protein level of the product. Study made by Wood (2009) had revealed that chick pea blends fortified with semolina showed increased levels of amino acids expect cysteine and methionine. Glutamic acid and proline decreased with fortification.

Table 2

Cooking quality characteristics of green gram incorporated spaghetti

Sl. No	Parameters	T_0	T_1	T_2	T_3	T_4
1.	Cooking Time (mins)	10.30	9.00	8.18	7.13	6.40
2.	Cooked Volume (ml/100g)	228.50	223.00	219.50	216.85	209.25
3.	Cooked Weight (g/100g)	285.62	278.75	274.37	271.06	261.56
4.	Water Absorption (ml/100g)	148.50	143.00	139.50	136.85	130.75
5.	Cooking Loss (%)	7.45	7.57	7.93	8.11	8.16

Cooking quality characteristics of green gram incorporated spaghetti:

The cooking time, cooked weight, cooked volume and water absorption of spaghetti decreased with increased level of incorporation of pulse flour blends except cooking loss. Green gram incorporated spaghetti had the maximum cooking loss of 8.16 (T_4) followed by 8.11 (T_3), 7.93 (T2) and 7.57 (T_1) per cent. Vijayalakshmi (2004) stated that the cooking time mainly depend on the density of the product. Protein content in the products had also high impact on the cooking time of the products. Vani (2001) found that as the incorporation of pulse flour increased, the cooked volume decreased. Bahnassey and Khan (1986) reported the increased cooking losses with standard pasta (noodle and spaghetti - types) when fortified with legume flour and protein concentrates. The maximum cooking loss would be 8 per cent. Sowbhagya and Ali (2001) opined that a solid loss of less than six per cent is considered very good and about eight per cent is average.

Organoleptic characteristics of green gram incorporated spaghetti:

The control spaghetti had dark brown colour. The spaghetti had smooth edges and firm texture. The control spaghetti had cooked starchy flavour. The green gram incorporated spaghetti had the colour of light brown to yellow (T_1 to T_4). Initially all the criteria like colour, appearance, flavour, texture and taste received similar and sometimes higher scores than control sample. T_1 and T_2 samples scored the maximum score for all the sensory attributes among the other samples.

Conclusion

Extruded products are becoming more adaptive due to its various advantages over the traditional processed foods. Utilization of composite flour in extruded products offer different flavour and texture characteristics resulting in an element of novelty with enhanced consumer appeal and nutritive value. Hence utilization of cereals and pulses in extruded foods would lead to the development of nutritionally optimized foods at affordable cost.

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POST – HARVEST MANAGEMENT OF FRESH FRUITS AND VEGETABLES – A STUDY IN KARNATAKA, INDIA

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Abstract

India produces a large variety of food crops including cereals, pulses and oilseeds. Diversified agriculture is the priority of the Central Government, and technical and financial support is being extended to farmers to encourage diversification especially in the areas of horticulture, floriculture, medicinal and aromatic plants, apiculture (pee-keeping) and sericulture. The government is continuously working towards the development of the agribusiness sector through considerable emphasis on infrastructure and food processing. However, there still is scope for further development and up gradation of technology and agri-infrastructure to attain world-class standards. The main emphasis is on quality enhancement, infrastructure development and the use of modern technology. Even though India is a major producer of fruits and vegetables less than 2% of the total output is being processed. The contribution of processing industry in the country is pathetically low as compared to other developing countries. The dismal performance of the processing industry and the factors that hinder the growth of the processing industry in the country can be attributed to lack of adequate and proper post harvest management practices and infrastructure. The State of Karnataka is no exception to this. In India, the total losses on account of wastage & spoilage are estimated to be around 25 % of total production of fruits and vegetables. Considering the economy of the country, this wastage is enormous and efforts have to be geared up immediately to arrest it. The fruits and Vegetables sector in India is marked by extensive inefficiency with high level of wastage and value distortion (Mc Kinsey & Co report – 1997). The paper highlights the Post – Harvest Management of Horticultural crops the special consternation given in this paper is for Fresh Fruits and Vegetables. The two fruits such as Mango and Grapes and two vegetables like Onion and potato were selected for the study. The SPSS was adopted in the study to know the fruits and vegetables producers opinion on post harvest infrastructure and management aspects in Karnataka.

Keywords: *Post – Harvest, Management, Fruits and Vegetables, Grading and Packaging*

INTRODUCTION

Fruits and vegetables are an important part of a healthy balanced diet. They provide us with essential vitamin. They are a rich source of protein and they are also aesthetically pleasing to the eye and our olfactory senses, however, unlike most other food commodities, fruits and vegetables have living organisms, even after harvest. As a result of their biological nature, they are subject to physical, chemical and microbiological spoilage from the time they are harvested until consumption. Physical spoilage

includes bruising, softening and moisture loss, the latter resulting in shriveling of products. Fruits and vegetables also continue to respire after harvest. These biochemical changes result in a breakdown of carbo-hydrate and build up of CO_2 and CH_4, resulting in senescence and change in the colour and odour of many fruits and vegetables. In addition, enzymatic activity, e.g., pectinases and result in softening of fruit. Micro-biological spoilage, due to the growth of molds, yeasts and bacteria on a product's surface or internally, result in changes in the colour, odour and texture of products. All of these changes can occur alone or in conjunction with one another. While good manufacturing practices and proper temperature/humidity control can reduce physical, chemical and micro-biological spoilage, proper packaging can also play an important role in maintaining the quality and shelf life of fresh produce throughout the distribution chain.

Many fruits and vegetables undergo further processing, e.g., thermal processing, freezing or drying to inhibit/delay the enzymatic and microbial spoilage and to extend product shelf life. The success or failure of any processing operation is to develop the correct choice of packing container. For example, if dried fruits are packed in a material that has too low a moisture barrier, the product will pick up moisture from the external atmosphere to a level conducive to mold spoilage. In other instances, the packaging container is an integral part of the food process operation and ensures the quality and safety of the processed product, e. g., canned fruits and vegetables. There is a multitude of packaging materials in today's market place, each designed with specific properties. The correct choice of packaging is not only dependent on a knowledge of the physical, chemical, and micro-biological characteristics of fruits and vegetables, but also on the functional properties of the packaging materials available for a particular product or preservation technology.

In the past three decades, there has been a tremendous growth in pre-packaged fruits and vegetables on supermarket shelves and new food processing/packaging technologies, such as aseptic processing and controlled/modified atmosphere packaging, for shelf life extension of these products. The growth of packaging, for both short and long term preservation of fruits and vegetables is due to a number of interrelated factors. The success of any packaging technology as a means of extending shelf life of food depends on the permeability characteristics of packaging materials surrounding a product. Developments in polymer chemistry have resulted in the production of packaging films, such as Low –Density polyethylene (LDPE): polystyrene (PS): polyvinyl chloride (PVC): polyvinylidene chloride (PVDC), commonly known as Saran: and Ethylene Vinyl Alcohol(EVOH). These films have a range of water vapor, gas barrier, and heat-sealable characteristics to enable them to be used alone or to be tailor-made to give laminated structures with the desired permeability characteristics for shelf life extension of products. In addition development in high-speed continuous and thermoforming packaging equipment, compatible with the machinability characteristics of these films, have also promoted the growth of packaging of fruit and vegetable products.

In the past, production of food was a major task for the majority of the population. With the industrial revolution, rural population decreased as people moved into cities to be close to their workplace. Most urbanized nations depend on a food supply chain that extends all the way from the farm gate which may be thousands of miles away to the urban meal table. The food processing/ packaging industry provides an essential chain in this long link by

ensuring that consumers have a constant supply of a variety of fresh and processed fruits and vegetables that are nutritious and safe to eat.

HARVESTING

Care in harvesting and handling is necessary to preserve subsequent quality of fruits. Faulty harvesting and rough handling at farms directly affects market quality of the produce. Different kinds of fruits require different methods of harvesting. Harvesting by hands is used for fruits, which can be easily plucked by pulling or twisting. However, there is always a possibility of tearing off a piece of flesh or rind.Manual harvesting includes the use of hand tools like sickle, knife, clippers etc. Which can aid the harvesting of fruits, especially if fruits are to be harvested with stalks, without causing undesired injury to fruits and trees. Use of picking platforms and pickup machines of raised platforms on the back of a tractor etc. facilitates easy accessibility to fruits as in case of tall trees. Trolleys and conveyer belts can be used to facilitate conveying harvested fruits from point of harvesting to point of collection. In mechanical harvesting, generally there are three types of commercial mechanical harvesters used for fruits.

HARVESTING OF FRUITS

Harvesting of fruits in India is carried out either by hand or with help of certain hand tools such as knives, cutters etc. These fruits are then collected in cloth/gunny bags, bamboo baskets etc. Harvesting techniques for the major fruits in India are discussed in the following paragraphs.

MANGO

Owing to the delicate nature of the fruit, harvesting is done by hand to the extent possible. The fruit is twisted sharply sidewise or upwards. Fruit borne on high branches are gathered by a mango picker which consists of a long bamboo ring. A sharp iron blade is fixed to the inner side of the ring. This hook is surrounded by a canvas or net bag to hold the fruits as they are cut. The picker may either climb the tree or remain on the ground. If he is on top of a tree, he places the fruits in a collecting basket or bucket, which once refilled, is lowered to the ground with a rope. The mechanical harvesting may not feasible on existing trees due to their large spread. However, the use of dwarf stocks for mangoes will produce compact and short trees within reach of a mechanical harvester. But , Israel is using this technique.

GRAPE

Bunches of grapes are snipped off from the vine with a pair of scissors or a sharp knife and gently transferred into baskets or trays and arranged in 2 to 3 layers. Grapes meant for table use or exports are generally hand-picked and carefully sorted to remove any defective and damaged fruits from the bunch. As mentioned above, harvesting in India is done manually. Where as the developed nations have mechanized harvesting operations to a considerable extent.

HARVESTING OF VEGETABLES

Harvesting of vegetables in India is by and large done manually, where as semi – mechanized means is being used for potato and onion. Manual harvesting requires use of tolls such as knives and clippers and digging tools for root crops.

Internationally, echanized harvesting has made tremendous strides; however, the degree of mechanization varies with area and crop. Factors such as climate, cultivators, cultural practices, machine development, labor supply, landholding and the extent to which the crop is grown for processing influence the status of mechanization. Although machine harvesting of vegetables is growing rapidly, certain bio-engineering limitations must be met before machine outputs are acceptable to processors. This is because each crop is perishable to a different degree and engineers, post-harvest physiologists and bacteriologists have to work together to determine the

effects of damage on ultimate vegetable quality. There are various stages involved in the mechanization of harvesting vegetable crops. The first stage is mechanization of hand thinning of vegetables, which was once a tedious job requiring high labor input. Later, machine thinning was developed for many crops, and now precision seeders may eliminate the thinning operation entirely. Internationally, harvesters have been developed for each of the major vegetables. The most important reason for development of mechanical harvesters is rapidly increasing labor costs. Mechanically harvested vegetables have lesser handling costs associated with them specifically if the production is to be sent for further processing. For example, vegetables for canning ordinarily require a far greater number of man-hours per unit monetary value of output than the other segments of agriculture such as food grains and cereals and are already highly mechanized. Harvest mechanization has brought about drastic changes in the crop-growing system. In the past, later-maturing, large-vined cultivators were planted in wide-spaced rows and hand-harvested several times; whereas, now a days many early maturing, dwarf cultivars in close-spaced rows are grown for a single destructive harvest. Closely related to the change in row spacing and plant size is evolution of harvesting methods. The usual stages proceed from hand harvesting to mechanical aids for hand harvest, to destructive machine harvest following hand harvest, to a single destructive harvest. The most advanced state is the single destructive machine harvest. World over, there is an emphasis on an integrated approach to mechanization. Cultivars, fertilization, precision seeding, weed, insect, and disease control, plant spacing, scheduled plantings irrigation, mechanical harvesting and mechanized post-harvest handling should all be considered simultaneously if the most efficient system is to evolve. Mechanical harvesters have been developed for each type of vegetable crop and is harvested by using a unique harvester; the principle of working of harvesters used for harvesting important vegetable crops is briefly discussed below.

ONION

Onion are mechanically dug and deposited on top of the bed. Huge hydraulically-operated bulkers pick up the onion and convey them to a moving grading and cleaning table. Clean, graded and inspected onions are then elevated and deposited into semi trailer trucks that travel alongside. There onions are transported directly from the field to the processing plant.

POTATO:

The potato harvester digs potatoes up and separates much of the soil while elevating the roots and remaining soil to a grading table. This table conveys everything past six to twelve grader-packers, which snap the roots from the stem and place them in baskets or crates.

MECHANISED HARVESTING IN INDIA

The design of the mechanical harvester depends on various factors such as crop characteristics, layout of plantation etc. Thus, the crop has to be grown very scientifically to ensure efficiency and effectiveness of mechanical harvesting. However, in India fruits and vegetables are generally grown on small pieces of land and are not cultivated on scientific patterns. This may render the use of automated mechanical harvesters impractical. The economics of mechanical harvesting in Indian conditions needs to be evaluated taking into consideration the following factors:

- The size of landholding in India, even in large farms, is very small by international standards;
- Cost of labor in India is low;
- The yields in India are low for most of the fruits and vegetables.

The spoilage during mechanized harvesting is higher than during manual harvesting. The produce that is harvested mechanically sustains minor injuries and bruises. Therefore, it can be used for processing only. However, in India most of the fruits and vegetables are consumed fresh and less than 3% of total production goes to processing. Even in countries like Brazil, fruits and vegetables for table consumption are picked manually.

Indian economy being labor-intensive a technology like mechanical harvesting may be seen as reducing employment opportunities, may not be an ideal one for Indian conditions. However, a certain degree of mechanization such as use of picking machines and raised platforms can assist in raising harvesting efficiency.

Objectives of the study

To study the Post – Harvest Management of Fresh Fruits and Vegetables

Methodology

The study mainly depends on primary data. The primary data was collected from the fruits and vegetables producers. The primary data was collected by administering the questionnaire by personal interview.

Sample Design

The multi random sampling technique was adopted in sampling to arrive at a representative sample for the study. The districts having highest share in (a). Area under production and (b). Production of selected fruits like mango and grapes and vegetable such as onion and potato were chosen for each commodity 50 producers were consulted personally in the selected districts. Thus, the sample size constituted 50 for each crop totally 200 for the study, to comprehend the post harvest facilities and problems their off with the producers in the state. The statistical tools and techniques are used to draw a definite and precise conclusion on the proposed study. In addition to these statistical techniques, the tables graphs and charts, which are generated from the analysis of both primary and secondary data collected from various sources has been used to draw appropriate inferences. The SPSS is adopted in the study to draw the results.

Results and Discussions

The following table depicts the harvesting season of selected fruits and vegetable in Karnataka.

Harvesting Season of selected fruits and Vegetables in Karnataka

Sl. No.	Commodities	Harvesting Season		
		Beginning	Peak	End
Fruits				
01	Mango	March	May	July
02	Grapes	January	February – March	April-May
Vegetables				
01	Potato	August March	September-October, April – May	November June

Source: Department of Horticulture, GOK, Bangalore

POST – HARVEST TREATMENTS

Post-harvest treatment prevents losses in the harvested produce by delaying the natural senescence and inhabits microbial attack. Post-harvest treatments for Mango and Grapes are given in the following table.

Post Harvest treatments of Selected Fruits in India

Treatment	Commodities treated	Point of Application	Function
1.Degreening (Etheral treatment)	Grape	After washing	Improve appearance
2. Hot water immersion	Mango	After washing	Disease controls stimulation of ripening
3.Fumigation	Grapes, fruits for exports	After harvest and	Controls decay and

		during storage	infestation
4.Vapour heat	Mango	Before or after shipping	Controls decay and infestation
5. Ripening	Mango	Ripening rooms in wholesale markets	Converts fruit to edible condition

Source: TIFAC, New Delhi

Technologies for use of above mentioned post-harvest treatments are available in the country, but the extent to which they are used commercially is difficult to ascertain due to the presence of a large, unorganized sector within. However, a judicious mix of such technologies is essential to reduce harvesting losses and to extend storage life.

PRE-COOLING

Pre-cooling is perhaps the most important of all the field operations for increasing the shelf life of fresh fruits and vegetables. It involves removal of field heat from the harvested produce, since this heat accelerates their senescence. Further, it is very important to remove the field heat as early as possible since every hour saved from the moment of harvest to removal of field heat can add a day to the useful shelf life of the fruit/vegetable.

The various technologies of pre cooling

Forced draught air-cooling
Hydro cooling
Vacuum cooling

GRADING

The following table gives the various quality parameters, which can be used for sorting/grading of fruits and vegetables.

Table 1
Quality parameters for sorting/grading of fruits and vegetables

Factors	Component Parameters
Appearance	Size: Dimensions, Weight, Volume Shape and form: Diameter/depth ratio, smoothness, compactness Colour: Uniformity, intensity, Gloss: Wax Defects: External, Internal 1. Morphological (sprouting, rooting, floret opening) 2. Physical and mechanical (shriveling, bruising) 3. Entomological
Texture (Feel)	Firmness hardness, softness Crispness, Succulence, Juiciness Mealiness/grittiness,Toughness /fibrousness
Flavour (Taste & / Smell)	Sweetness, Sourness (acidity), Astringency, Bitterness Aroma (volatile compounds) Off-flavours and off-odours
Nutritive value	Carbohydrates (including dietary fibre) Proteins Lipids Vitamins Minerals
Safety	Naturally occurring toxicants Contaminants (chemical residues, heavy metals, etc.) Mycotoxins Microbial contamination

Source: Advances in Horticulture, edited by Dr. K. L Chandha

The various methods of grading fruits and vegetables are:

1. Manual grading
2. Specific gravity grading
3. Grading according to diameter
4. Mechanical grading.

Internationally, only mechanical grading has been adopted on a commercial scale. For mechanical grading, volume-fill graders, rotary bin graders. Smaller or junior systems, avocado grading systems and

composite graders are commercially available.

GRADING OF SELECTED FRUITS AND VEGETABLES IN KARNATAKA

The farmers in Karnataka sort the fruits and vegetables by the size, colour, variety, freshness etc which is done by manual grading. No farmer in the state go by Mechanical grading or scientific methods of grading the commodities. The grading methods used by the farmers are give in the following table.

Grading of selected fruits and vegetables

(In Percentage)

Fruits	Percentage Producers grade the Commodity	Basis of Grading						
		Quality	Size	Color	Maturity	Variety	Freshness	Diseases Free products
Fruits								
Mango	48	20	15	6	30	10	40	40
Grapes	90	23	10	5	28	8	41	37
Vegetables								
Onion	88	14	55	4	35	20	5	38
Potato	82	20	23		11	9	48	48

Source: Primary Survey

The table reveals that only 48 per cent; of the mango producers grade the commodity, where as in case of grapes as much as 90 per cent of the producers grade the fruits. The most determinants of the grades are freshness of the commodity (40%) and disease free fruits. The other prominent factors for grading are maturity of the fruit (30%) quality and size of the product. The farmers normally sort their products based on quality size, colour and freshness of the fruits at the farm level. The package is done on the basis the grade. The table also reveals that more than 80 per cent of farmers are into sorting/grading the vegetables. 88 percent of the onion producers and 82 per cent of the potato producers grade the commodities. In case of onion size, disease free and variety are the important determinants for grading, where as in case of potato freshness, disease free and size are the criteria for grading.

PACKAGING

The self life of packaged fruits and vegetables is controlled by the properties of the product (including water activity, susceptibility to enzymic or microbiological deterioration, mechanism of spoilage, and the requirement for or sensitivity to oxygen, light, carbon dioxide, and moisture) and the properties of the package material. Moisture loss or uptake is one of the most important factors that controls the shelf life of fruits and vegetables. Fruits and vegetables are high in moisture content ranging form 75-95%. Loss of moisture under normal storage conditions causes wilting and shriveling of product, however, proper packaging is able to extend storage life of fresh products by keeping moisture loss during storage to 10% or less, thereby preventing wilting. The rate of moisture loss varies on each product's respiration rate and the water vapour permeability of the packaging film. The use of small perforations in some films to ensure a constant supply of oxygen has no appreciable effect on moisture loss. Fruits and vegetables are living organisms, and even after harvest, they continue to respire and transpire. Respiration involves the uptake of oxygen and breakdown of organic matter into water and carbon dioxide. If there is not enough oxygen, fermentation occurs, and small amounts of alcohol are produced. This results in the production of off-

flavors and off-odors and spoilage of the commodity therefore, packaging materials for fruits and vegetables should note be too high a barrier to oxygen. The thermal properties of the packaging material should also be taken into consideration, to minimize temperature fluctuations. Maturation can be slowed down by storage at refrigeration temperatures, because this reduces the respiration and the synthesis of ethylene, which causes maturation. However, too low a temperature may cause chilling damage to the products. Therefore, proper packaging can endure temperature distribution within the package and prevent chilling injury. Some packages are required to withstand processing conditions.

Bulk Packaging of Fresh Fruits and Vegetables

The primary functions of bulk packaging of fruits an vegetables are to provide a means of shipping a suitable quantity of product in one marketing unit and to protect the products during loading, transport, unloading, and marketing distribution from physical injury and spoilage. Therefore, to meet these requirements, bulk packaging containers should be able to :

1. Protect products from physical injury
2. Provide adequate temperature control throughout distribution and storage
3. Protect from water loss to prevent shriveling or wilting
4. Facilitate certain treatments, e.g., fumigation, ethylene treatment to enhance or delay ripening.
5. Be compatible with handling systems e.g., palletization
6. Be adaptable to handling/storage requirements, e.g., high relative humidity, ice packing, controlled atmosphere storage.

The different types of packing materials used to pack fresh produce are as follows.

Traditional Materials:
Wooden Crates
Cardboard or Fibre – Board Containers
PLASTICS
Polypropylene boxes:
Moulded expanded polystyrene boxes:
Rigid plastic crates:
Plastic nets:
Plastic films:
Plastic Bags:
Stretch film:
Shrink wrapping:
Natural and synthetic fibres:

Paper Sacks:

The following table gives the extent of use of various packaging materials for Mango and Grapes

Usage of different packaging materials for fruits

Fruit	Packaging Type
Mango	Loose CFB PE wrappings
Grapes	Wooden Boxes Bamboo boxes CFB

Source: Techno-market survey report on packaging, TIFAC, Dec. 1991

Usage of different packaging materials for vegetables

Vegetables	Packaging Type
Potato	Jute Bags Paper Bags Plastic Films
Onion	Jute Bags Bamboo Baskets Plastic Packs

Source: Techno-market survey report on packaging, TIFAC, Dec. 1991

As shown above, in India the most common type of packaging are bamboo baskets and wooden cartons which are used for majority of fruits and vegetables including mango, banana, citrus fruits, guava, apples, pears, potato, onion, tomato and garlic. These boxes are

cushioned with paddy straw to reduce mechanical injury. Corrugated fiber board (CFB) is generally used for packaging of grapes. These boxes are perforated to provide ventilation. At present the use of CFB boxes and plastic films is very limited and generally used for export purposes. However, the use of these packaging materials is expected to increase rapidly. These materials are used extensively for packaging of fruits and vegetables in all developed countries. Plastic films with perforations have also developed to enable respiration in the packaged products. Field preparation and packaging is possible only for a limited number of fruits and vegetables. After the harvest fruits and vegetables must be cleaned, sorted, graded, sized and packaged. Usually, these processes takes place in a packaging house and most of the operations are carried out manually. As against this, most advanced nations have fully automated packaging houses with automated facilities for cleaning, grading, sorting and packaging.

Packaging by the farmers in the study area

An attempt is made to analyze the different packaging material used by the producers to protect the produce from physical injury, protect from water loss, provide adequate temperature control, handle carefully and facilitate certain fumigation treatments. The following table gives the various packaging materials used by the farmers in the study area. The table is prepared on the basis of field survey conducted all over the state.

Packaging materials used for Mango and Grapes

Commodity	Bamboo Bowl	Carton Box	Plastic Crates	Wooden Box	Gunny /Jute Bags	Others	Total
Mango	**12**	**36**	**16**	**24**	**4**	**8**	**100**
Grapes	**48**	**32**	**8**	**8**	**-**	**4**	**100**

Source: Primary Data

The above table and graph reveals that, the most common packaging material used for mango are carton and wooden box which account for 36 and 24 per cent respectively. The other important packaging materials used in the study area are plastic crates (16%) followed by Bamboo bowl (12%), gunny bags (94%) and other materials (8%) like plastic bags etc. But, incase of Grapes bamboo bowl and Carton box are most commonly used by the farmers which account for 48 and 32 per cent respectively. Plastic and wooden boxes are also used by the farmers.

Table 2

Packaging materials used by Onion and Potato producers.

Commodity	Bamboo Bowl	Plastic Crates	Carton Box	Wooden Box	Gunny/Jute Bags	Others	Total
Onion	**-**	**-**	**-**		**92**	**8**	**100**
Potato		**4**		**4**	**80**	**12**	**100**

Source: Primary Data

The above table reveals that, the most common packaging material used by the farmers all over the state for onion is gunny/jute bag (92 %) and only few farmers use other types (8%) of packing material. Similarly, the most common packaging materials used for potato is same as onion i.e., gunny /jute bags (86 %) followed by others 2 per cent, wooden box 2 pr cent and plastic crates 2 per cent. It is evident from the above, packaging materials play an important role in marketing of fruits and vegetables since, they are perishable in nature. Still the producers of fruits and vegetables practiced the traditional methods of packaging. By adopting modern technologies in packaging of fruits and vegetables post harvest loss may be avoided. From the primary survey it is evident that the fruits and vegetables are packed by producers in various forms,

unless sold at the farm or at a nearby place. A gunny bag is the commonly used packaging material for onion and potato. However, fruits like mango and grapes wooden box is used to prevent damage to the skin of fruits. Farmers opined that gunny bags, wooden case and bamboo bowl are easy to handle and required by the purchaser.

TRANSPORTATION

A significant proportion of fruits and vegetables are lost due to lack of cold chains, which can control the storage conditions of produce. An important constituent of the cold chain is the means of transportation of fruit and vegetables from the point of production to consumption centers. If the fruits and vegetables are to be avoided from serious post-harvest losses, the system should provide suitable transport at the right time and at the right place.

Mode of Transport prevailing in the study area

The mode of transport used by the farmers in moving their produce from production centers to the market centers areas are Cart, Tractor, Tempo, Truck .and Others (Bus, Cycle) etc., The study reveals that the farmers use different sources for transport such as personal contact with transport operators, through commission agents, transport agents, through public transport. The different categories of farmers use their own link for the transport and the same is given below.

Transport facility used by different categories of farmers for fruits and vegetables in the State

(In Percentage)

Type of Farmer	Personal Contact with operators	Commission Agent	Transport Agent	Own Transport	Public Transportation, Bus etc.
Marginal farmer	**6**	**4**	**-**	**-**	**20**
Small Farmer	**3**	**12**	**-**	**3**	**3**
Big Farmer	**13**	**18**	**2**	**16**	**-**
Total	**22**	**34**	**2**	**19**	**23**

Source: Primary Data

The table reveals that 34 per cent of the farmers approach commission agents for transport facility, 23 percent use public transport, 22 per cent approach the transport operators directly and 19 per cent of the farmers use their own transport for fruits and vegetables in the study area.

REASONS FOR USING THE PRESENT TRANSPORT SYSTEM

There are several reasons for using the existing transport system and each farmer has his own reasons.

Reasons for using the existing mode of transportation in the state

Types of Farmer	Qty. is less	Bulkiness of Qty.	Cheaper	No other cheap alternative	Own transport	Others
Marginal	**12**	**2**	**5**	**18**	**-**	**8**
Small	**-**	**7**	**2**	**7**	**-**	**1**
Big	**-**	**15**	**1**	**2**	**17**	**3**
Total	**12**	**24**	**8**	**27**	**17**	**12**

Source: Primary Data

The table above reveals that, 27 per cent of farmers expressed the opinion that due to non availability of other cheap transport they are forced to use the present transport facility where as 24 per cent opined that it is because of the bulkiness of the produce, but only 8 per cent of the farmers expressed that present system of transport is cheaper and convenient.

Distance by Mode of Transport

The following table gives the details on the various modes of transport used by the farmers by distance.

Mode of Transport for Mango and Grapes by distance

Distance in Kms	Lorry	Truck/ Tempo	Tractor	Carts	Others	Total
< 20	-	2	4	4	4	14
20-40	8	4	6	-	2	20
40-60	16	8	4	-	-	28
60 & above	24	14	-	-		38
Total	48	28	14	4	6	100

Source: Primary Data

The above table and the graphs shows that as their distance increase, the farmers use Lorry as a major transport (48%) followed by the Tractor/Tempo (28%). Only 14 per cent of the farmers use Tractor with the distance ranging from 0-60 KM. Further, it also reveals that lorry is the common mode of transport for Mango and Grapes accounted 48 per cent followed by trucks 28 percent, tractor 14 percent, others 6 per cent and by carts 4 percent. Most of the farmers opined that the cost of transport is lesser for the longer distance. Most of the fruits are highly perishable in nature so, they should take care of them while transporting from producing centers to consuming center. Transport play an important role in post harvest infrastructure for fruits and vegetables, without good transportation facilities, the commodities can not be moved from one place to another place safely.

The following table shows the mode of transport by distance for vegetables

Mode of Transport for Onion and Potato by distance.

(In Percent)

Distance	Lorry	Truck/Tempo	Tractor	Carts	Others	Total
< 20	-	6	2	4	4	16
20-40	4	10	4	2	6	26
40-60	16	22	2	-	-	40
60 & above	12	6	-	-	-	18
Total Percentage	32	44	8	6	10	100

Source: Primary Data

The table and graphs shows that, as the distance increases the farmers tend to use Lorry as a major transport (32%) followed by Truck/Tempo (44%). Only 8% and 6% of the farmers use Tractor and Carts respectively with the distance ranging from 0-60 Km.

Cost of Transport

The cost of transportation varies according to the mode of transport and distance. The average transportation cost was also significantly influenced by the weight and volume of the fruits and vegetables. The problems in transportation of fruits and vegetable are serious because of peculiar factors associated with them such as perishability of produce, bulkiness, the small quantity of marketed surplus etc. The important problems in transportation are to poor roads, non-availability of desired means of transport and loss in transit which is relatively high. The response of producers in this regard revealed that over loading, poor packaging, poor transport facilities, poor road and weather and improper loading and unloading facilities are responsible for loss in transit. It is therefore, there is a need to provide efficient and good transport systems in the producing centers. Therefore also reported by the producers, that the transport operators charge high cost of transport for fruits and vegetables. They opined that the cost of transport alone

comes to 20 to 25% of the total marketing cost.

STORAGE

Proper storage of fruits and vegetables is necessary to extend their shelf life, especially if the distance between production and consumption centers or the time between production and consumption is large. In temperate regions, storage plays an important role in improving the off-season availability of fruits and vegetables. The basic aim of any storage is to prevent the exposure of produce to excessive temperature and dry weather, both of which accelerate senescence. At the same time, very low temperature leads to chilling injury. Thus a careful evaluation of optimum storage conditions is necessary for designing proper storage facilities. The important types of storages issues in fruits and vegetables storage are discussed in the following paragraphs.

VENTILATED STORAGES

These are ambient air storages, which make use of controlled ventilation for cooling. It protects the product from solar heating and allows cooling by ambient air at night. There are different types of ventilated storages such as barnstorms, earth banks, cellars and fully insulated above ground buildings with vent controls. Though these storages are widely used in developing countries including India, they are not suitable for fruits, which have a rapid ripening rate. Further, these storages should be used when

a. Produce is being stored for short periods and meant for local use
b. Produce has relatively long natural storage life,
c. There is significant difference between day and night temperature,
d. Regular inspections are possible to remove spoilage.

Other types of storages have replaced the ventilated storages in most developed countries.

Low temperature storages:

These are extensively used all over the world to store fruits and vegetables for a long period and employ the principle of maintaining a low temperature which reduces the rate of respiration and thus delays the ripening. Further, they also reduce the growth of organisms which cause decay. The optimum storage conditions, the storage life and the expected storage losses under conditions for various fruits and vegetables are given below.

Optimum storage conditions for selected fruits and vegetables

Fruit/Vegetable	Storage Temperature (°C)	Relative Humidity (%)	Storage Life (days)
Fruits			
Mango	**7 - 12**	**90**	**21 – 49**
Grapes	**-1 – 0**	**90 – 95**	**30 – 120**
Vegetable			
Onion	**0**	**65 – 70**	**180 – 250**
Potato	**4 – 6**	**90 – 95**	**120 - 250**

Source: Directorate of Horticulture.

HARVEST LOSSES

Harvesting Losses in fruits Improper pre-harvest treatments

As discussed earlier, pre-harvest treatments such as fungicides protect the fruits from microbial attack. Similarly use of growth regulators can help in extending the shelf-life of product. Although, technologies for pre-harvest treatments are available in India, they are not being used properly because of the lack of education among the farmers. Further, the spraying of fungicides etc. can be effective only if they are adopted by all farmers in a given area and spraying schedules are observed properly.

Improper determination of fruit maturity

Harvesting of fruits at the correct stage of maturity is very important since it influences the shelf-life and quality of ripe fruits. Maturity for harvest in

traditional practice is determined by the size, shape and surface colour of the fruit. Harvest maturity criteria such as total soluble solid, (TSS) starch content, starch to acid ratio, brix level and 'Heat Unit Concept' have been suggested for various fruits. The general parameters for determining maturity of mango and grape are given below.

Harvesting criteria for Mango and grapes

Sl. No.	Fruits	Criteria for harvesting fruits	
		Physical	Chemical
01	Mango	Olive green colour with clear lenticulas, shoulder development, size, sp. gr., days from fruit set	Starch content, flesh colour
02	Grapes	Peel colour, easy separation of berries, characteristic aroma	TSS

Source: Advances in horticulture, edited by K. L. chandha)

Further, maturity of fruits at the time of harvesting also depends upon type of consumption they are meant for:

1. Fruits which are consumed as fresh fruits in domestic markets, have to be ripened before consumption;
2. For trade, harvesting should be done before harvesting for local consumption as this prolongs the shelf life;
3. For fruits used in processing, maturity depends on distance between orchard and processing plant, type of fruit and the final product.

In India, however, most of the advanced techniques for determination of fruit maturity are confined to lab scale. Generally, the Indian farmer relies on visual inspection only. Moreover, in the absence of proper infrastructure for transportation and storage, the farmers are generally forced to either advance or delay the harvesting (than as required by proper maturity indices) to avoid a glut in the market.

Improper handling of fruits during harvesting

Extreme caution is needed to prevent damage to fruits during harvesting. Some of the harvesting practices to prevent such injuries are noted below:

1. Mangoes should generally be clipped leaving a stalk end of about one centimeter attached to fruit.
2. The harvesting of fruit should be generally not carried out during the daytime since high temperature accelerates the aging of the fruits. To overcome this, developed countries have installed precooling facilities at the farms. However, the above precautions are generally not being observed by producers in India. Further, the precooling facilities in India are generally limited to natural shade or mud houses.

Improper post-harvest treatments

As discussed earlier, various post-harvest treatments may be required by different fruits to delay the natural senescence of fruits. These include treatments like fumigation, surface coatings, hot water immersion etc. However, due to lack of awareness these are practiced on a limited scale only.

HARVESTING LOSSES IN VEGETABLES

ONION

Of the total production, nearly 15 – 30% never reaches the consumer, resulting in substantial economic loss to the country. The factors responsible for such heavy losses are:

1. High moisture content and poor load bearing capacity of onions resulting in problems during harvest, handling, transportation and storage.
2. The rough handling of the bulbs at the time of harvest, collection and packing leading to heavy damage which may be due to injury, cuts and decay

resulting in undesirable softening of the damaged tissues and shattering or separation of the protective dry scales, thus enhancing the loss of weight and chances of post-harvest decay. Immediately after harvesting, onion is dried and cured under sun. during this process of drying and curing, nearly 3 – 5% of the harvested produce is lost.

Normally, sorted and graded onions are packed in used gunny bags with varying thickness. Sacks are thrown rather than lifted on account of their weight (more than 50Kg capacity). The stocking pattern in transport trucks accommodates more bags rather than allowing sufficient ventilation. Due to non-availability of ventilated wagons, onions are transported in closed wagons, with open doors or tops, which causes decomposition of 10 to 20% of stock, sprouting losses amounted to 15%.

STORAGE LOSSES

The reasons for storage losses are:

Limited infrastructure: as discussed earlier, the storage infrastructure in India is very limited. The total cold store capacity is about 8 million MT., of which about 90% is used for storing potato. Further, most of the cold storages are restricted to urban centers and with a few government organizations such as NAFED, State Agro Marketing Federations etc.

LOSSES DURING TRANSIT:

The main reasons for losses during transport are as follows:

1. Poor road conditions: The general condition of roads in India is very poor which leads to high physical injury to fruits and vegetables during transportation.
2. Absence of cold chains: Post-harvest losses during transportation can be minimized if the produce is kept at optimal temperature conditions during transport. However, this would require an organized cold chain right from farm to retail level. Although such cold chains have been established in Maharashtra, Gujarat, Andhara Pradesh etc., the infrastructure is very limited and these are being used generally for export purposes only. Thus, growers in India are forced to use ordinary trucks, rail wagons etc. for transporting horticultural products.However, be emphasized that infrastructure for cold chains is quite expensive not only in terms of capital costs, but also in terms of operating and maintenance costs due to high temperatures which exist in India. Therefore, alternative means of transportation suited to Indian conditions need to be studied and developed.It is evident that there is an urgent to conserve post-harvest losses in fruits and vegetables. Most of the losses can be reduced by educating farmers about better farm management practices. Further, there is a need to develop proper infrastructure in terms of precooling facilities, road conditions, storage and transportation facilities and the overall marketing setup.

POST – HARVEST LOSSES

As stated earlier, a significant proportion of the fruits and vegetables in India is lost due to spoilage at various post-harvest stages. Several studies have been conducted in India to estimate the level of these losses. Table below gives the estimated post harvest losses for fruits and vegetables in India.

Post-harvest losses in Selected fruits and vegetables

Sl. No.	Commodity	Post harvest losses as a percentage of production
	Fruits	
01	**Mango**	**17 - 37**
02	**Grapes**	**23 - 30**
	Vegetables	
01	**Onion**	**15 – 30**
02	**Potato**	**15 - 20**

Source: Figures based on the study done under Indo-Us Aid Project for estimation of post-harvest losses in fruits and vegetable (1986-90) as reported in ‘ Advances in Horticulture’ edited by K. L. Chandha, 1993).

The indicative level of wastage for mango fruit losses at various stages in Post-harvest handling

The post harvest losses of fruits and vegetables in the study area is estimated on the basis of the farmer's experience in handling during transport and storage etc. The following table gives storage such details

Estimated post harvest loss of selected fruits and vegetable

Category	Handling	Transportation	Storage	Others
Fruits				
Mango	3	8	15	
Grapes	4	10	18	
Vegetables				
Potato	1	2	16	4
Onion		4	11	2

Primary Data

The above table reveal that the post harvest loss during handling, transport and storage of mango, grapes, onion and potato. It is evident from the above table that the major loss of 15 per cent is during storage followed by 8 per cent during transport and 3 per cent during handling. This is because of lack of road facilities at the production centers to consumption centers and also absent of mechanical handling of the produce. The major loss incurred during storage is because of pests, insects, rodents and lack of cold storage in the state are the major bottlenecks which account for loss during storage.

Conclusion

Proper post-harvest management is utmost important to maintain the standard of quality products in export markets. The fruits and vegetables produced are very good taste and nutritional value and would help in meeting export obligations, once an export niche is established. To harvest the export potential of fruits and vegetables, diversified efforts can be focused for horticultural products, a systematic formation of an effective package of production and marketing strategies is important. The export potential should be enhanced further through improved productivity and quality, better technology, improving standards to meet international quality specification etc.

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AN ANALYTICAL STUDY ON THE CONCEPT OF ADVERSE POSSESSION OF IMMOVABLE PROPERTY WITH REFERENCE TO SUPREME COURT DECISIONS

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Abstract

Adverse possession is a very old concept of law and it is recognized by many countries. It is not a positive right; it is a negative or consequential right. This concept is useful but it is often criticized on the ground that it protects and confers right upon wrongdoers. The concept of adverse possession is a way in the aspect that it gives ownership of land to the person who use the land continuously and effectively. The land which is being used is more valuable land than idle. The possessor who improves the land has a more valid claim to the land than the true owner who never cares the land. The supreme court of India has delivered many landmark judgments regarding adverse possession. This paper is going to analyze the legal and factual aspects of adverse possession and views of supreme court of India for favor the concept and against the concept.

Keywords: *Possession, Adverse possession, Ownership, Animus possidendi, Acquisition of title, Supreme Court*

INTRODUCTION

One of the methods of acquisition of title is by way of adverse possession. The claim of rights in relation to property initially starts with wrong and ends with right in the concept of adverse possession. The claim of right relating to property on the basis of possession has been recognized in all legal systems. Uncontested and continuous possession for a specific period, hostile to the rights and interests of true owner is considered to be one of the legally recognized modes of acquisition of ownership. The prescription of periods of limitation for recovering possession of true owner is the essence of the law of adverse possession.

ADVERSE POSSESSION – LEGAL POSITION IN INDIA

The statute does not define adverse possession. It is a common law concept. The period of limitation has been prescribed statutorily under the law of limitation in Article 65 as 12 years. The limitation Act 1963 does not define the concept of adverse possession nor anywhere contains a provision that the plaintiff cannot sue based on adverse possession. The plea of adverse

possession was governed by Article 64 and 65 of the Limitation Act 1963.

It is important to note that the starting point of limitation of 12 years is counted from the point of time "when the possession of the defendants becomes adverse to the plaintiff". Article 65 is an independent Article applicable to all suits for possession of immovable property based on title. Article 64 governs suits for possession on possessory right. 12 years from the date of dispossession is the starting point of limitation under Article 64. Article 65 as well as Article 64 shall be read with section 27 which deals extinguishment of right to property. Section 27 is an exception to the well accepted rule that limitation bars remedy and does not extinguish the title. It lays down a rule of substantive law by declaring that after the lapse of period, the title ceases to exist and not merely the remedy (1964)1MLJ,161.

Article 65, Schedule 1 of the Limitation Act 1963, lays down a limitation period of 12 years for a suit of possession of immovable property or any interest based on the title. The period for limitation for the Government, however is 30 years by virtue of article 112. The law of adverse possession was summed up by the Judicial committee of the Privy council in Perry-Vs-Clissold (1907 AC73, at 79), where it was observed that if a rightful owner does not claim his right against a possessor within a given time, his ownership right stands extinguished.

Article 65 of the Limitation Act read as hereunder:

Description of suit Period of limitation Time from which period begins to run Article 65. For possession of Twelve years. When the possession immovable property or of the defendant any interest therein becomes adverse to based on title.

Explanation. — For the purposes of this article—

(a) where the suit is by a remainderman, a reversioner (other than a landlord) or a devisee, the possession of the defendant shall be deemed to become adverse only when the estate of the remainderman, reversioner or devisee, as the case may be, falls into possession;

(b) where the suit is by a Hindu or Muslim entitled to the possession of immovable property on the death of a Hindu or Muslim female, the possession of the defendant shall be deemed to become adverse only when the female dies;

(c) where the suit is by a purchaser at a sale in execution of a decree when the judgment debtor was out of possession at the date of the sale, the purchaser shall be deemed to be a representative of the judgment debtor who was out of possession.

In India, the law recognize possession, persons are not permitted to take law in their hands and dispossess a person in possession by force as observed in Lallu Yashwant Singh v. Rao Jagdish Singh [AIR 1968 SC 620] by Supreme Court. The suit can be filed only based on the possessory title for appropriate relief under the Specific Relief Act by a person in possession. Articles 64 and 65 both are attracted in such cases as held by Supreme Court in Desh Raj Vs. Bhagat Ram (2007) 9 SCC641.

In Nair Service Society Ltd. v. K.C. Alexander, AIR 1968 SC 1165 it was held that if rightful owner does not commence an action to take possession within the period of limitation, his rights are lost and person in possession acquires an absolute title.

The adverse possession requires all the three classic requirements to coexist at the same time, namely, nec vi i.e. adequate in continuity, nec clam i.e., adequate in publicity and nec precario i.e. adverse to a competitor, in denial of title and his knowledge. Visible, notorious and peaceful so that if the owner does not take care to know notorious facts, knowledge is attributed to him on the basis that but for due diligence he would have known it.

Adverse possession cannot be decreed on a title which is not pleaded. Animus possidendi (will to exercise control on the property) under hostile colour of title is required. Trespasser's long possession is not synonymous with adverse possession. Trespasser's possession is construed to be on behalf of the owner, the casual user does not constitute adverse possession. The owner can take possession from a trespasser at any point in time. Possessor looks after the property, protects it and in case of agricultural property the concept is that actual tiller should own the land who works by dint of his hard labour and makes the land cultivable. The legislature in various States confers rights based on possession.

PRINCIPLES AND CONCEPTS OF ADVERSE POSSESSION

The prescription of periods of limitation for recovering possession is the essence of the law of adverse possession. Right to sue before court is barred by law on limitation of prescribed time. The conditions necessary for the acceptance of a claim based on adverse possession have been laid down basically by way of Judge made law. The basic principles for adverse possession is that the title of the land should not be kept in abeyance, rival rights of ownership between paper owner and actual possessor exists and it is presumed that the true owner abandoned his right, the possessor who occupied the land and enjoyed for a specific time. Many exceptions to the concept of adverse possession based on legal relationship between the title holder and the person in actual possession are also recognized by law. Mere permissive possession and constructive possession does not constitute adverse possession. Mutation of municipal records does not attract adverse possession (AIR 1964SC5). Possession without a clear intention to exercise right over the property is not considered as adverse possession. The essential requirement to establish adverse possession are that the possession of the adverse possessor must be neither by force nor by stealth nor under the license of the true owner. It must be adequate in continuity, exclusive, uninterrupted, public and hostile from interruption, a will to exercise control on the property (animus possidendi) and in extent to show that the possession is adverse to the title owner.

The concept of adverse possession relates to the process of acquisition of title by the person in possession of the property despite not being the owner. If the possessor remains in continuous possession of the property for 12 years with the knowledge but without permission or interference of the owner, the title of the property vests with the possessor.

Adverse possession was explained by the Supreme Court in Amarendra pratab singh-Vs- Tej Bhahadur pradapati (2004)10 SCC 65 as, " A person, though having no right to enter into possession of the property of someone else, does so and continues in possession setting up title in himself and adversely to the title of the owner, commences prescribing title into himself and such prescription having continued for a period of 12 years, he acquires title not on his own but on account of the default or inaction on the part of the real owner, which stretched over a period of 12 years results into extinguishing of the latter's title."

Article 65, Schedule 1 of the Limitation Act 1963, lays down a limitation period of 12 years for a suit of possession of immovable property or any interest based on the title. The period for limitation for the Government, however is 30 years by virtue of article 112. The law of adverse possession was summed up by the Judicial committee of the Privy council in Perry-Vs-Clissold (1907 AC73, at 79), where it was observed that if a rightful owner does not claim his right against a possessor within a given time, his ownership right stands extinguished.

It was again clarified in Karnataka Wakf Board-Vs- Government of India that the question of adverse possession is a mixed question of fact and law as a trespasser needs to prove a continued possession of more than 12 years with animus possidendi against the true owner. Again, clarified that, an owner would be deemed to be in possession of a property so long as there is no intrusion. Nonuse of the property by the owner even for a long time won't affect his title. But the position will be altered when another person takes possession of the property and asserts rights over it and the person having title omits or neglects to take legal action against such person for years together.

BURDEN OF PROOF IN RESPECT OF ADVERSE POSSESSION

The burden of proof in respect to adverse possession is on the person who claims title by way of adverse possession. As per Article 142 and 144 respectively of the Limitation Act, 1908 in a suit, the plaintiff (that time only plea of adverse possession could be taken only by defendant) had to prove that he had the title and had been in the physical possession of the property since last 12 years. But under the Limitation Act, 1963 the burden has now shifted. Now true owner just has to prove ownership and the onus shifts on the person claiming title by way of adverse possession.

POSITION OF LAW IN ABROAD

The acquisition of land under the concept of adverse position is recognized in all common law jurisdictions such as UK, US, Germany, France, Spain, Hungary, Netherlands, Poland and Australia. The essential requirements of adverse possession are almost same. But the period of limitation differs from country to country.

PLEA OF ADVERSE POSSESSION TO HAVE A FRESH LOOK

Some legal scholars in foreign countries have pleaded for abolition of adverse possession describing it as legalized land theft and a means of unjust enrichment. It has also been pointed out that there is no certainty in the law of adverse possession and the courts in several cases have wrestled with the meaning of the expressions- actual, continuous, open, hostile and exclusive possession.

The Supreme Court in State of Haryana -Vs- Mukesh Kumar and others stated, People are often astonished to learn that a trespasser may take the title of a building or land from the true owner in certain conditions and such theft is even authorized by law. The theory of adverse possession is also perceived by general public as a dishonest way to obtain title to the property.

Under the head of the plea Adverse possession, the state which is in charge of protection of life, liberty and property of people, permitted to grab the land and property of its own citizens is a question. In Hemaji's case, "the law of adverse possession which ousts an owner on the basis of inaction within limitation is irrational, illogical and wholly disproportionate. The law as it exists is extremely harsh for the true owner and a windfall for a dishonest person who had illegally taken possession of the property of the true owner. The law ought not to benefit a person who in a clandestine manner takes possession of the property of the owner in contravention of law. This is substance would mean that the law gives seal of approval to the illegal action or activities of a rank trespasser or who had wrongfully taken possession of the property of the true owner".

The Supreme Court in State of Haryana –Vs- Mukesh Kumar and others stated, "If the protectors of law became the grabbers of the property, then people will be left with no protection and there would be a total anarchy in the entire country and also viewed that adverse possession must be arrested without further loss of time in the larger public interest. No government Department,

Public undertaking and much less the Police department should be permitted to perfect the title of the property by involving the provisions of adverse possession and grab the property of its own citizens in the manner that has been done in this case."

Further, the Hon'ble Supreme Court gave certain suggestions that in case the law of adverse is not abolished then the Parliament might simply require adverse possession claimants to possess the property in question for a period of 30 to 50 years, rather than a mere 12 years. Such an extension would help to ensure that only those claimants most intimately connected with the land acquire it, while only the most passive and unprotected owners lose title. The Hon'ble Supreme Court vide this judgment recommended the Union of India to consider either to make necessary amendments concerning the law of adverse possession or abolish it for good.

A fresh look in Ravinder Kaur Grewal-Vs-Manjit Kaur (2019 SCC ONLINE SC 975) Supreme court held that the Article 65 off Limitation Act, 1963 not only enables a person to setup a plea of adverse possession as a shield as a defendant but also allows a plaintiff to use it as a sword to protect the possession of immovable property or to recover it in case of dispossession. The plea of acquisition of title by adverse possession can be taken by plaintiff under Article 65 of the Limitation Act and there is no bar under Limitation Act 1963 to sue on aforesaid basis in case of infringement of rights of a plaintiff.

CONCLUSION AND SUGGESSION

The above legal and factual and the views expressed by the Supreme Court need to devise some special measures for protection of properties under adverse possession. Adverse possession initially starts with wrong and ends with right. Hence the plea for abolition of adverse possession may be describing it as legalized land theft and a means of unjust enrichment. But the total abolition of adverse possession would initiate practical problems affecting people and the persons who take care of property may have no title.

The Supreme Court of India, has pointed out in the case of Hemaji Waghaji vs. Bhikhabhai Khengarbhai and State of Haryana Vs. Mukesh Kumar that ''Law of adverse possession which ousts an owner on the basis of inaction with in limitation is irrational, illogical and wholly disproportionate. The Court while asking the Government of India to reconsider the law of adverse possession further held, the law ought not to benefit a person who in a clandestine manner takes possession of the property of the owner in contravention of law. This would mean that the law gives seal of approval to the illegal action or activities of a rank trespasser or who had wrongfully taken possession of the property of the true owner.

The five-bench judgment of Supreme Court in Justice K.S. Puttaswamy (Retd) vs Union of India on 26 September, 2018 "If an enactment puts limitation on a constitutional right and such limitation is disproportionate, such a statute can be held to be unconstitutional by applying the doctrine of proportionality". As per Article 300A of Constitution of India, right to property is a valuable constitutional right. When it is a constitutional right, the doctrine of constitutional proportionality may be applied to evaluate the concept of adverse possession.

Adverse possession has become a handy tool to the relatives and neighbors to occupy the NRI's properties. The need to devise some special measures for protection of properties owned by NRIs. The consultation paper of Law Commission of India regarding adverse possession, discussed the above points and also released questionnaire in this regard.

The principles governing adverse possession and its proof should be provided explicitly in a statute and enlarge the present period of limitation of 12 years and 30 years. The NRI's would be more handicapped than resident Indians by reason of application of law of adverse possession. So, longer period of limitation has to be fixed in respect of the property owned by NRI's.

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ORGANIC FARMING AND RURAL ENTREPRENEURSHIP DEVELOPMENT: A STUDY IN MYSURU DISTRICT, KARNATAKA

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Abstract

*The current agricultural crisis and the farmers situation in the era of globalization, increasing capitalization of agriculture, chemical intensive and bio-technology oriented farming and implications of soil and water degradation or depletion for farmers livelihoods. Food is our most basic need, the very stuff of life. 75 percent of the Indian population derives its livelihood from agriculture, and every fourth farmer in the world is an Indian, the impact of globalization on Indian agriculture is of global significance. Small and marginal farmers are pushed to extinction, as monoculture replace biodiversity crops, as farming is transformed from the production of nourishing and diverse foods into the creation of markets for seed company products, as farmers are transformed from producers in to consumers of corporate-patented agriculture products. Agriculture is the most important livelihood strategy in India, with two thirds of the country's workforce depending on farming. Most farmers are small and marginal farmers cultivating areas of less than two hectares. Increasing land fragmentation, diminishing natural assets, high costs for external farm inputs, indebtedness, and pesticide-related health issues have threatened the livelihoods of many farming families. So, organic farming is best and ultimate livelihood option for any kind of social horizon. If you are in any profession take big 'U' turns and lives and enjoy remaining life without any presser. Organic farming makes following assets Enhanced **NATURAL** assets – here all kind of natural assets will increased and without any environmental cause. Enhanced **SOCIAL** assets – organic farmers will get in same thread and they will discuss about new methods and connected to each other always .Enhanced **HUMAN** assets – by eating organic food and working in organic farm will improve the health. Enhanced **FINANCIAL** assets – here reduced the input cost and increased outputs. Famers will not apply for any loans because no need buy inputs. Enhanced **CULTURAL** assets – celebrate local festivals with related to agriculture and connected to our cultural roots. An attempt is made in this paper to analyse the socio and economic status of organic products producers and rural entrepreneurship in Mysore District.*

Keywords: *organic farming, Cultivation, rural entrepreneurship and Marketing Arrangements*

INTRODUCTION

The main idea behind organic farming is 'zero impact' on the environment. The organic farming is to protect the earth's resources and produce safe and healthy crop. Organic farming is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local

condition, rather than the use of inputs with adverse effects.

Organic farming combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. Organic farming is being practiced in 130 countries of the world. The ill effects of chemicals used in agriculture have changed the mindset of some consumers of different countries who are now buying organic with high premium for health. Policy makers are also promoting organic farming for restoration of soil health and generation of rural economy apart from making efforts for creating better environment. The global organic area is 26 million hectare roughly along with 61 standards and 364 certification bodies roughly. The world organic market is now $26 billion. The organic area in India is 2.5 million hectare including certified forest area.

A) CONCEPT OF ORGANIC FARMING

Organic farming is not new to Indian agriculture community. Several forms of organic farming are being successfully practiced in diverse climate, particularly in rain fed, tribal, mountains and hill areas of the country. Among all agriculture systems, organic farming is gaining wide attention among farmers, entrepreneurs, policy makers and agricultural scientists for varied reasons such as it minimizes the dependence on chemical inputs (fertilizers, pesticides, herbicides and other agro-chemicals) thus safe guards and improves the quality of resources, and it is labour intensive and provides an opportunity to increase rural employment and achieve long term improvements in the quality of resource base.

B) ORGANIC FARMING AT GLOBAL LEVEL

According to the 2009 survey almost 31 million hectares are currently managed organically by more than 600000 farms worldwide. This constitutes 0.7 percent of the agriculture land of the countries covered by the survey. The continent with most organic land is Oceania with almost 11.9 million hectares, followed by

Europe with almost 7 million hectares, America 5.8 million hectares, Asia almost 2.9 million hectares, North America 2.2 million hectares and Africa 0.9 million hectare.

C) FAVORABLE EFFECTS OF ORGANIC FARMING ON ENVIRONMENT

Organic farming is much better for the environment than conventional farming. One of the greatest environmental problems today is energy consumption and organic farming. As a matter of fact, energy efficiency is around seven percent greater for the organic farming system. Other positive environmental aspects of organic farming include the use of much less fertilizer, and the complete avoidance of synthetic fertilizers, which are harmful to soil, water, animal and people. Also, the nitrate content of organic fields is significantly lower than on conventional farms due to the absence of soluble fertilizers. Organic farming focuses on preserving the habitats of all species and their surrounding environments, including the air and water. Organic farming releases much less carbon dioxide than does conventional farming. Carbon dioxide is the leading greenhouse gas that causes global warming.

ORGANIC FARMING IN INDIA

In Indian agriculture, organic manures have been used since Sir Albert Howard. A British agronomist way back in 1900 started the organic farming. The commercial organic farming, as practiced today, is still at a nascent stage. According to a survey of International Federation of Organic Agriculture movement and Stiftung Oekelogie and Landbou (SOEL) February 2005 India has about 76,326 hectare land under organic management. Which is only 0.05 per cent

of total agricultural land According to this survey; there are about 5,147 certified organic farms in India. The Indian organic farming industry is estimated at us20 million and almost entirely export oriented. Acceding to Agricultural and Processed food Products Export Development Authority (APEDA 2005), agency involved in promoting Indian organic products with a worth of rupees 72 million are being exported from India.

Organic farming is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological, cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs. This is accomplished by using, where possible, agronomic, and biological and mechanical methods, as opposed to using synthetic materials to fulfill any specific function in the system.
The approach and outlook towards agriculture and marketing of food has seen a quantum change worldwide over the last few decades. Whereas earlier the seasons and the climate of an area determined what would be grown and when, today it is the "market" that determines what it wants and what should be grown. The focus is now more on quantity and "outer" quality (appearance) rather than intrinsic or nutritional quality, also called "vitality". Pesticide and other chemical residues in food and an overall reduced quality of food have led to a marked increase in various diseases, mainly various forms of cancer and reduced bodily immunity. This immense commercialization of agriculture has also had a very negative effect on the environment. The use of pesticides has led to enormous levels of chemical build up in our environment, in soil, water, air, in animals and even in our own bodies. Fertilizers have a short-term effect on productivity but a longer-term negative effect on the environment where they remain for years after leaching and running off, contaminating ground water and water bodies. The use of hybrid seeds and the practice of monoculture have led to a severe threat to local and indigenous varieties, whose germplasm can be lost forever. All of this is for "productivity". In the name of growing more to feed the earth, we have taken the wrong road of unsustainability. The effects already show - farmers committing suicide in growing numbers with every passing year; the horrendous effects of pesticide sprays by a government-owned plantation in Kerala some years ago; the pesticide contaminated bottled water and aerated beverages are only some instances. The bigger picture that rarely makes news however is that millions of people are still underfed and where they do get enough to eat, the food they eat has the capability to eventually kill them. Yet, the picture painted for the future by agro-chemical and seed companies and governments is rosy and bright .Another negative effect of this trend has been on the fortunes of the farming communities worldwide.

This is where organic farming comes in. Organic farming has the capability to take care of each of these problems. Besides the obvious immediate and positive effects organic or natural farming has on the environment and quality of food, it also greatly helps a farmer to become self-sufficient in his requirements for agro-inputs, and reduce his costs. Chemical agriculture and the agriculture and food distribution systems have developed, propagated, sustained and now share a symbiotic relationship which affects each of us in many ways.

NEED OF ORGANIC FARMING

With the increase in population our compulsion would be not only to stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the ‘Green Revolution’ with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs

to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

The key characteristics of organic farming include

- Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention
- Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms
- Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures
- Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention
- The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioral needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it.

In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides, etc., were obtained from plant and animal products.

Organic farming was the backbone of the Indian economy and cow was worshipped (and is still done so) as a god. The cow, not only provided milk, but also provided bullocks for farming and dung which was used as fertilizers.

Given below are some of the advantages of organic farming for Small farmers:

- **High premium:** Organic food is normally priced 20 - 30% higher than conventional food. This premium is very important for a small farmer whose income is just sufficient to feed his/her family with one meal.
- **Low investment:** Organic farming normally does not involve capital investment as high as that required in chemical farming. Further, since organic fertilizers and pesticides can be produced locally, the yearly costs incurred by the farmer are also low. Agriculture greatly depends on external factors such as climate, pests, disease. Furthermore, most of the small farmers are dependent on natural rain for water. Therefore in cases of natural calamity, pest or disease attack, and irregular rainfall, when there is a crop failure, small farmers practicing organic farming have to suffer less as their investments are low. (It should be noted that while shifting from chemical farming to organic farming, the transition might be costly)
- **Less dependence on money lenders:**
  Many small farmers worldwide commit suicide since chemical

inputs, which are very costly, are not required in organic farming, small farmers are not dependent on money lenders. Crop failure, therefore, does not leave an organic farmer into enormous debt, and does not force him to take an extreme step.

- **Synergy with life forms:** Organic farming involves synergy with various plant and animal life forms. Small farmers are able to understand this synergy easily and hence find it easy to implement them.
- **Traditional knowledge:** Small farmers have abundance of traditional knowledge with them and within their community. Most of this traditional knowledge cannot be used for chemical farming. However, when it comes to organic farming, the farmers can make use of the traditional knowledge. Further, in case of organic farming, small farmers are not dependent on those who provide chemical know-how.

Constraints in Organic Farming in India:

There are many constraints to the spread of organic agriculture in India. Here are the main ones.

1. **Bias towards chemical farming:** Existing policies, research and extension activities all support high-external-input farming. Little attention is given to organic agriculture, and no resource materials are available.
2. **Misappropriation of local varieties:** There is a danger that local seed varieties will be patented by multinational companies. The Indian government should recognize the rich heritage which is the property if India and its local people. This property should be protected by law.
3. **Hazardous chemicals:** The government should ensure that hazardous substances which are banned internationally do not reach Indian farmers. Such chemicals are dangerous to people and the environment. Laws already regulate them, but they are not properly enforced.
4. **Certification of organic farming:** Policy support for organic agriculture is arriving, but it caters to big organic enterprises. The procedures and requirements are not suited to small-scale farmers.
5. **Bias in incentives:** The government provides many different incentives for high input agriculture. Equal attention should be given to sustainable agricultural practices.
6. **Lack of research and extension support:** to organic farming and on various aspects like traditional varieties.
7. **Poor marketing:** there is a lack of organized, appropriate marketing structures for small-scale organic farming.
8. **Misinformation and market power:** The pesticide industry provides misleading or false information to farmers. Its well-established marketing structures feed India's farmers with persuasive messages promoting high-input farming.
9. **Lack of awareness:** Farmers and consumers are still not awakened to the dangers of chemical farming and the continuing depletion of natural resources.

Changes needed to achieve the potentials of organic agriculture

Many changes are needed if India is to overcome these constraints and achieve its rich potential in organic agriculture.

Research and extension: Research is needed to improve the yield of local crop varieties. Research and extension systems should place more emphasis on developing indigenous crops and livestock.

Supporting small-scale organic farming: Specific attention should be given to improving local agricultural

production by marginal farmers and smallholders who are still "organic by default" and frequently depend on public welfare programmes.

Protect livelihoods of rural poor: The deregulation of national food markets has been agreed on an international level. Within this framework, agricultural policy should develop new strategies to prevent small-scale farmers from being pushed out of the market and off their land into poverty.

Local control of land: Large areas of wasteland and forest land located close to villages should be supervised by village committees. This would increase their ability to rehabilitate and use these lands in a sustainable way.

Local enterprises: Village-level, farm-based enterprises need to be promoted, strengthened and linked to potential markets. This requires support structures that are rarely in place. The government should provide guidelines and support to improve transport facilities, access to information, training, local marketing systems, etc.

Education: Organic agriculture should become part of the agricultural curriculum. Professional degrees in organic agriculture should be offered at universities to meet the demand for qualified specialists.

Cropping Pattern in Mysore District

Cropping pattern means the proportion of area under various crops at a given period of the time. Cropping pattern differs from macro to micro regions both in area and time and it is largely governed by the physical, culture and technological factors.

Mysore district is a dry area in general as it lies in the rain – shadow region of the Western Ghats. Wet crops like sugarcane and rice occupy lesser area when the compared to dry like ragi, groundnut, jowar and mulberry. But in the recent years ht area under wet crops in slightly increasing because of increase in irrigation facilities. The areas under different crops is given in table 3.4 It can be seen from the Table 3.6 that the district has 20.4 per cent of the area under Paddy. Ragi is another important Cereal product in the district. Area under cereals constitute 40.8 per cent of the total area under all crops. Pulses are also important crop in the district with 20.6 per cent of the cropped area under pulses. Non-food crops have major share in H.D Kote, Hunsur and Periyapatna. T. Narasipura. K. R Nagar and Nanjangud are mainly paddy growing areas. Pulsed, Ragi and other non-food crops are mainly grown in Mysore.

Objectives

1. To study the present scenario of organic farming in the study area.
2. To assess and evaluate the factors which facilitates the adoption of organic farming through Rural Entrepreneurship Development.
3. To study the constraints of organic farming and to provide the remedial measures thereof.

Methodology

The present research is conducted in Mysore District. The district has been purposefully selected due to the availability of data base relating to organic farmers. Department of Agriculture has documented details relating to the growers who are practicing organic farming in the district namely selected H.D.Kote. Department of Agriculture and MYRADA has initial several programmes to provide training in organic farming. H. D. Kote have been selected for the present study, as the concentration of organic growers is more in this Taluk.

Sample Size

The 50 organic producers were selected for the study and by administering the questionnaire the primary data has been collected through personal observation and Interview in the study area.

Results and Discussions

Table 1
Educational Status of Farmers in study area

Particulars	No. of Respondent	Percentage
Illiterates	25	50.0
Primary	11	22.0
Higher Secondary	11	22.0
Graduates	3	6.0
Total	50	100.0

Source: Primary Survey, 2017

The above table 1 reveals that the educational status of the sample farmers in the study area. Out of 50 farmers, 25 (50.0) percent are illiterate, and remaining 50 percent are literate out of that (11) 22.0 percent farmers are studied up to 7th standard, (11) 22.0 are obtained Higher Secondary education level and only (3) 6.0 percentage of farmers obtained Graduate level of Education. It indicate present situation only those who are illiterate and Primary and Secondary level farmers are involving in organic farming and suggested thing is to if more educational people are involve in Organic Farming it useful to understanding the things of Cropping Pattern and method of Cultivation and easily understanding the facts in training programmes and also they may adopt technology if they are literate people.

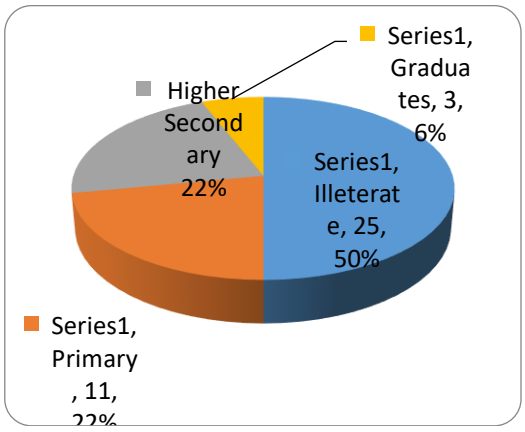

Figure: 1 ***Level of education of respondents***

Table 2
Income status of Farmers in study area

Income level	No. of Respondents	Percentage
10,000 to 50,000	37	74
50,000 to 1,00,000	10	20
1,00,000 to 1,50,000	3	6
Total	50	100

Source: Primary Survey, 2017

The table and figure 2 clearly shows that income of sample farmers in the study area. In level of income of farmers the range of (10,000 to 50,000) 74 percent had found, the range of (50,000 to 1,00,000) 20 percent of farmers having annual income in the study area, and only (1,00,000 to 1,50,000) 6 percent farmers are found in the study area. This shows status and standards of living of the family, and it conclude those Low income groups' people are engaging in Organic Farming in the study area and for the Successful Organic farming huge investment are needed.

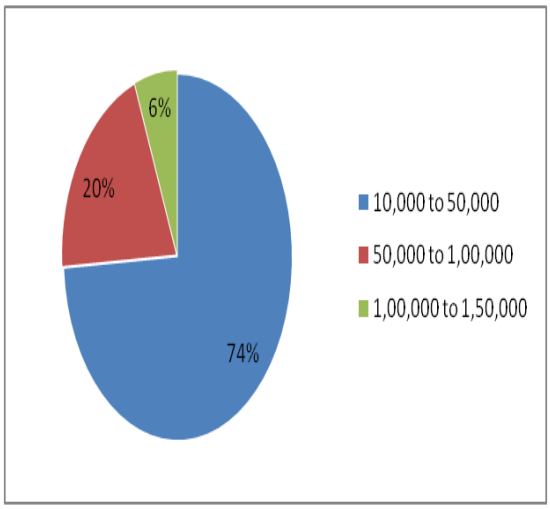

Figure 2: Income level of Farmers, 2017

Table 3
Family size of the Farmers in study area

Particulars	No. of Respondent	Percentage
1 to 5	39	78
5 to 10	10	20
10 & Above	1	2
Total	50	100

Source: Primary Survey, 2017

The table 3 shows that the Family Size of the samples farmers in the study area. Out of the 50 respondents (39) 78 percent of farmers are come under 1 to 5 size of family, (10) 20 percent of farmers having 5 to 10 size of family. (1) 2 percent size of family is involving in organic farming. The above table depicts people who are 1 to 5 size of family farmers are adopting organic farming, but in organic farming suitable for family size more than 5 and above because of it can save labour cost.

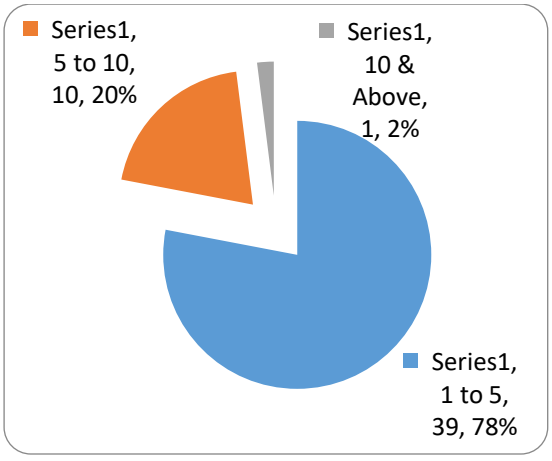

figure: 3 Family Size of Respondents

Table 4
Occupations of the Farmers in the study area

Particulars	No. of Respondent	Particulars
Agriculture	49	98.0
Subsidiary	1	2.0
Total	50	100.0

Source: Primary Survey, 2017

The table 4 reveals that out of 50 samples of the farmers in the study area. Out that (49) 98 percent of the respondents are involving in Agriculture as Major Occupation for their sustainability of life, only (1) 2 percent are involving them in some other work such as carpenter, daily labor, Bar Bar and other work as subsidiary Occupation. It found that No one is purposefully engaging in Organic farming in the study area.

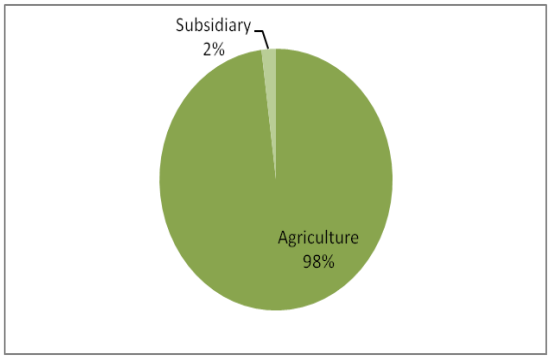

Figure: 4 Occupations of the Farmers

Table 5
Land Holdings of farmers in the study area

Particulars	No. of Respondent	Percentage
0.5 to 1	5	10.0
1 to 2	13	26.0
2 to 3	13	26.0
3 to 4	10	20.0
4 t0 5	4	8.0
> 5	5	10.0
Total	50	100.0

Source: Primary Survey, 2017

The table 5 indicate that land holding in the study area. It clearly shows that (0.5 to 1) of 10, (1 to 2) of 26, (2 to 3) of 26, (3 to 4) of 20, (4 to 5) of 8, above five 10 percent of land holding in respectively. The low land holding in the study area because of testing the yield and

high land holding because of perhaps Training by MYRADA. It clearly shows that the small and marginal farmer are cultivating or practicing the organic farming. And only few people are engaging in organic farming in the study area.

Table 6

Source of Irrigation in the study area

Particulars	No. of Respondents	Percentage
Bore well	11	22.0
Ponds	1	2.0
Rain fed	38	76.0
Total	50	100.0

Source: Primary Survey, 2017

The table 6 reveals that the source of irrigation sample farmers in the study area. It shows that (38) 76 percent of the respondents are depends on Rain fed, (11) 22 percent of farmers on Bore Well and remaining (1) 2 per cent of the farmers are depends on Ponds. It clearly mentions that the farmers are facing the problem of irrigation in the study area. And they expect the irrigation facilities for promoting of organic farming by the Govt.

Table 7

Types of Irrigation in the study area

Particulars	No. of Respondents	Percentage
Not having	39	78.0
Flood Irrigation	2	4.0
Sprinkler	9	18.0
Total	50	100.0

Source: Primary Survey, 2017

The table 7 shows that 78 per cent of respondent are not having any kind of irrigation in the study area, 18 per cent of farmers are having Sprinkler irrigation, 4 per cent of farmers are obtained Flood irrigation and no one found in the drip irrigation segment. it clearly indicate that depends on Rain Fed is cause for weeds growing easily, and also indicate more water will waste in flood irrigation perhaps we save water if we can adopt drip irrigation.

Table 7

Reason for growing Organic crops

Particulars	No. of Respondents	Percentage
Training by MYRADA	16	32.0
Soil Fertility Mgt	4	8.0
Environment protection	1	2.0
Low cost of cultivation	25	50.0
Healthy & Tasty Food	2	4.0
Family attitude	2	4.0
Total	50	100.0

Source: Primary Survey, 2017

The table reveals that reason for growing organic crops of sample in study area. It clearly indicate (16) of 32 percent of respondent due to training by MYRADA, (4) of 8 percent for soil fertility management, (1) of 2 percent for Environment protection, (25) of 50 percent of people due to Low cost of cultivation, (2) of 4 percent are for Healthy and tasty food, and lastly (2) of 4 percent of farmers are growing for Family attitude. It summarize the things most of people who are involved in organic farming they may having the lack of Investment.

Table 8

Motivational Factors to Farmers

Particulars	No. of Respondents	Result
Own	1	2.0
MYRADA	49	98.0
Total	50	100.0

Source: Survey Data, 2017

Table 8 represents Motivational factor for cultivating organic farming in the study area. (49) 98 percent of the farmers are cultivating organic farming because of promoted by MYRADA, only (1) 2 percent of farmers are growing by their own and by the family attitude. It indicate if any policy can made for promoting of organic farming by any Govt. or NGO's we may bring No. of farmers into Organic Farming.

Table 9

Problems in Organic Farming

Problems	No. of Respondents	Percentage
Weeds	26	52.0
Irrigation	11	22.0
Wild Animals	10	20.0
Crop decease	1	2.0
Labour	1	2.0
Certified Inputs	1	2.0
Total	50	100.0

Source: survey data

The table 9 reveals that problems in Organic Farming samples respond by sample farmers in the study area. The above table represents clearly out of 50 respondents facing deferent kinds of problems such as (26) of 52 percent weeds , (11) of 22 percent irrigation, (10) of 20 percent Wild Animals attack on crops, (1) of 2 percent is Crop decease, (1) of 2 percent is labor, and (1) of 2 percent facing the problems of above respective problems. And it indicate comparatively weeds are major problem in Organic farming other than Non-Organic Farming, because in modern farming use the pesticides, insecticides, herbicides and other can be used, but in organic farming also using of pesticides but which are certified as organic manure and not affect the soil, these organic manures are not that much effective to avoid the weeds.

Table 10

Remedial measures solve the problems

Remedial measures	No. of Respondents	Percentage
Crop Rotation	42	84.0
Hand Weeding	6	12.0
Use of Certified Seeds	2	4.0
Total	50	100.0

Source: Survey data , 2017

The table 10 shows remedial measures for solve the problems of problems of samples drawn in the Study area. Out of 50 sample drawn (42) of 84 percent Crop Rotation, (6) of 12 percent Hand weeding, and (2) of 4 percent farmers are using Certified Organic Manures for Avoid the above coated problems. It indicating farmers are go through the traditional system because of may be lack of investment for adopt the technology like adopt drip irrigation for avoid the weeds in the crop area, also in the study area farmers facing irrigation problems.

Table 11

Major buyers for organic crops

Buyers	No. of Respondents	Percentage
MYRADA	47	94.0
Others	3	6.0
Total	50	100.0

Source: survey data

The table 11 reveals that the Major buyer for the Organic Products of

the sample farmers in the study area. That shows out of 50 of 100 percent, MYRADA can purchase of 47 of 94 percent and remaining of the products are purchased by others like Tamilnadu buyers and local buyers has purchase in the study area. It indicates for organic products specific buyer will need.

Findings of the study

1. Educational background of the farmers shows that there are fifty per cent of the farmers are studied primary and secondary level of education and other fifty per cent of the farmers are illiterate among those practicing organic farming.
1. Majority of organic growers has 4 to 5 range of family members and only few of having more than ten members in a family. It shows that more employment opportunity provided by organic farming system.
2. Low level of income group farmers are involve in the organic farming, shows that status and standards of living of the family, and it conclude those low income groups farmers are engaging in organic farming in the study area and for the successful organic farming need huge investment.
3. Motivational factor of farmers to cultivating organic farming in the study area KABINI organic farmers producers' Pvt. Ltd., (MYRADA) it constitute of more than ninety five per cent. It indicate if any policy can made for promoting of organic farming by any Govt. or NGO's we may bring more number of organic farmers into organic agriculture.
4. **Cost of cultivation:** economic performance of any system could be analyzed the costs and the returns. In the present study cost of cultivation is less comparatively with (Secondary data) modern farming system, and the yield of organic farming is less in conversion stages and after three to five years the yield will be double than modern farming system.
5. The demand factor of organic is gradually increasing in the study area due to more people are having health consciousness.
6. **Existing marketing arrangements:** in the 4th chapter, an attempt to understand who are the consumers, who are the demanding organic commodities, why they are purchasing, their willingness to pay higher price and the opinions of these consumers to improve the system. This helps in suggesting suitable policy measures in order to develop an organized marketing system which acts as an intensive to producers.

Suggestions

1. The study clearly shows the economic profitability of organic farming. But it is true in the case of farms which were converted from modern to organic farming around more than five to six years and it is applicable to the ecosystem with assured irrigation. It is necessary to initiate in depth farm level studies of this nature in different agro climatic conditions and those farm which are in the initial stage of transition to understand the economic profitability at those levels. This helps in designing appropriate support policies for promoting organic farming on a large scale under different agro-climacteric conditions. Such research should be initiated by agricultural research institutions.
2. It has been observed that cost of cultivation under organic farming is high in transition stage, though the farm Business Income from ecological agriculture is more due to higher yield and price. It is mainly due to the purchase of organic manure by the growers. Efforts should be made to encourage farmers to keep livestock to produce on farm

organic inputs in order to reduce the cost of organic manures.

3. Another important observation of the study is that only those growers who have other sources of income and those who can easily absorb the reduction in yield are converting to organic agriculture. In order to encourage more growers to convert support is to providing to absorb the effects of decrease in yield in the initial years. Providing subsidized organic inputs, price support are some of the options.
4. Training is another important factor influencing farmers to attain technical efficiency in production and get higher income. It helps in optional utilization of resources.
5. Certification is an important aspects of organic products. Despite several efforts of the state government, producers are not getting certification for their produce because, according to them, it is a difficult process and expensive.
6. Agriculture policy of Karnataka envisaged the involvement of NGOs in promotion of organic farming in the state. Though NGOs have several advantages, it is necessary to improve the capacity of these institutions. Technical training is to be given to before assigning the responsibilities.
7. Remunerative price acts as an economic incentive for encouraging more farmers to shift to organic farming. Presently there is no established marketing system for organic produce and due to this there is a large variation in price received. Government should take steps for the promotion of a market to cater to the domestic and export markets. Marketing channels are to be developed and by networking with the retail chains to provide remuneration price can be assured.
8. Government can also announce minimum support price and procure the produce and sell through separate outlets. This price acts as a floor price for price formation in the open market. This system also ensures continuous supply to the consumers.

Conclusion

Organic farming is gaining momentum all over the world as it offers a means to address food

self reliance, rural development and nature conservation. The common thread in this approach is the sustainable use of bio-diversity, in terms of both agriculture's contribution to biodiversity and biodiversity's contribution to agriculture. People's consciousness towards healthy food, ecology and pollution free environment through conventional farming has encouraged them in practicing organic farming. Organic agriculture used to be a way of life in India, a tradition which for centuries has shaped the thought, the outlook, the culture and economic life of it's people. Prior to independence and till two decades later a majority of the Indian farmers were unaware of the use of fertilizers for plant nutrition and pesticides for control of pests and diseases. In fact, it was all holistic agriculture then and the majority of farmers were cultivating in this way. However, to feed the ever-growing population of the country, it was felt necessary to rapidly increase the production of food grains. Thus, to achieve self sufficiency in food, dams and irrigation systems were put in place, use of external inputs like seeds of high yielding varieties of crops, chemical fertilizers and plant protection chemicals were developed and made available.

Organic agriculture recognizes that crop rotation and an intensive partnership with animal husbandry is important to maintain the ecosystem balance. Organic farming aims at production of quality and safe agricultural products which contain no chemical residues, following ecofriendly production methods and the farming

systems that restore and maintain soil fertility.

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ON-LINE MARKETING: BENEFITS AND BARRIERS IN INDIAN PERSPECTIVE

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Abstract

The amount of research related to on line marketing has benefits and barriers A review of the literature base will help identity the topic that have been explored as will identify topics for further research . The research project collects, synthesizes and analyses both the research strategies and contract of the current literature and them discusses an agenda for future research efforts. Several people define this in a several way. According to the researchers, the on-line marketing is a set of powerful tools and methodologies used for promoting products and services through the internet. Online marketing includes a wider range of marketing elements them traditional business marketing due to the extra channels and marketing mechanisms available on the internet. This paper highlights the concept of online marketing, the benefits, barriers and concluding remarks. In this paper, the study mainly focuses on the issue of sustainability for a better tomorrow.

Keywords: *Electronic Data Interchange (EDI), Cyber Crime, Attention Interest Desire Action (AIDA).*

INTRODUCTION

Online marketing synergistically combines the internet's creative and technically including design, development, sales and advertising. Online marketing connects organizations with qualified potential customers and takes business development to a much higher level than traditional marketing. Online marketing has facilitated the practical application of various concepts, including relationship marketing, interactive marketing, micro marketing or targeted marketing and mass customisation, all of which have important implication for marketers. Electronic commerce is a term popularised by the advent of commercial services on the internet. Electronic Data Interchange (EDI) provides for the efficient transactions of recurrent trade exchanges between commercial organisations. Online marketing has outsold traditional advertising in recent years and continues to be a high growth industry.

Objectives of Study:-

1. To study the concept of online marketing.
2. To study the benefits of online marketing.
3. To study the barrier of online marketing.
4. To provide concluding remarks for the same.

A Marketer Can Benefit From Online Marketing In Many Ways :-

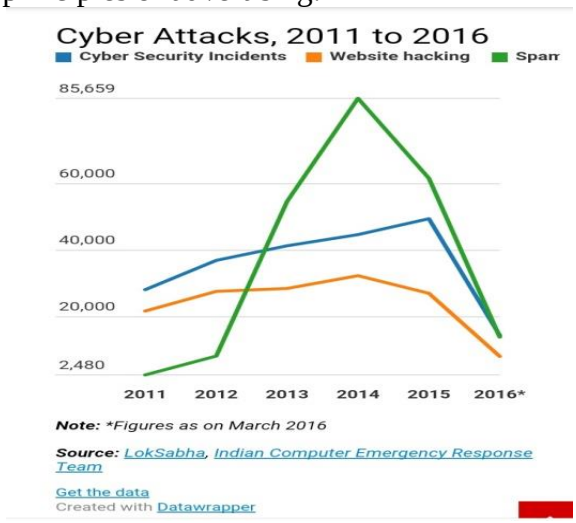
1. Sell directly to end users without going through classic distribution channels. Time, people and distribution channels can be disintermediated with the use of online technology. When a marketer automates procedures, time may be the middleman that is being disintermediated. Online tools allow you to both meet new clients, colleagues and influencers and strengthen relationships with those you already know. The web is such a powerful platform because it allows you to use content to get your message across and demonstrate expertise in topics relevant to your target audience.
2. Communication gaps and improves the marketer's one-to-one relationship with customers and prospects and with suppliers and distributors too. By facilitating an ongoing dialogue and interaction the marketer learns more about his customers and the latter too learn more about marketer. The interactive two-way communication and direct sales help marketers to forge close relationships with customers.
3. All marketers, irrespective of their size or location have the same ease of access to potential customers through the internet. The web is that it has no defined location and extends even beyond time zones and countries. Even those customers who were not accessible earlier because of the geographical constraints can be reached through the web. Transact business electronically and at a lower cost. Act quickly by adding products and changing selling propositions at a moment's notice. Track the sales interaction, steps and results. This is unlike the real world, where in the physical location and size can affect the marketer's ability to access customers.
4. Online marketing enables marketers to target individual markets where each of their customers is seen as a unique person with or her own needs, lifestyle, preferences and buying patterns. You can do this relatively inexpensively by targeting keywords in educational blog posts, or participating in groups or industry hash-tag on social media. The internet's interactive qualities and easy access provide companies with direct information. A tool simple as a "contact us" button on a website can provide a marketer with direct feedback from the customer at no extra cost.
5. Internet is a great place to keep consumers running. They can get information and consume it quickly. This is a great way for consumers to access relevant and engaging content that matters to them.
6. The world moves at a fast pace. People want access to information quickly and efficiently. Time is precious and people do not want to waste it. People can quickly access information and purchase items through the web. This is one of the benefits of internet marketing to consumers.
7. With the rise of the Internet, consumers become more important about brands. They have more access to information about companies, which leads them to form opinions about certain brands. This opens the door to building relationships with companies they trust.
8. If you have two things about your audience, it is that they do not like to waste time and they want to be valued as a customer. One of the benefits of Internet advertising is the ability to create a personalized marketing experience for each member of your audience. This not only makes them

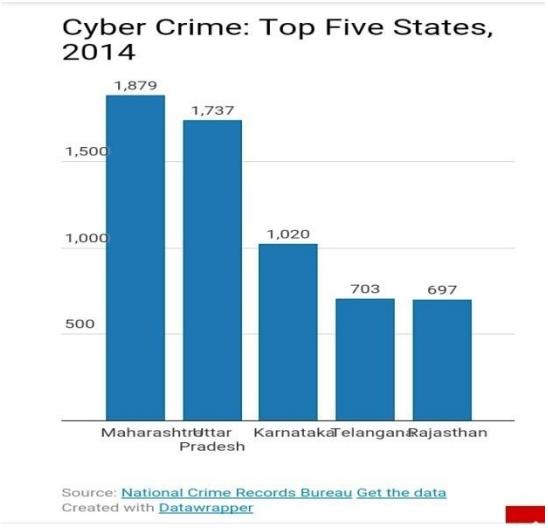
feel valued, but it also allows them to get marketing material for their interests.

9. Your business may be closed, but the Internet remains open 24/7. People have constant access to information on the Internet regardless of the time of day or day of the week. This means that people always get information about your business, products or services.
10. Before the Internet, consumers turned to different stores to compare the store. If a competitor's store was too far, it was a difficult task to go to all the stores to check their prices to see if their prices were more affordable. With the rise of the Internet, consumers can charge checks directly from their devices, making it easy and convenient.
11. The cost of marketing products on the Internet is less than marketing them through a physical retail outlet. You do not have recurring costs of rental and maintenance of the property. You do not have to buy stock for display in the store. You can order stock according to demand while keeping your inventory costs down.
12. The Internet provides an important platform to build relationships with customers and increase customer retention levels. When the customer has purchased the product from your online store, you can start the relationship by sending a follow-up email to confirm the transaction and thank the customer.
13. One of the most important benefits of digital marketing is that it is the most cost effective method for marketing your business. When it comes to traditional marketing, it is very difficult for small businesses to compete with large businesses for a limited budget. However, with an affordable digital marketing strategy, small businesses can get more for their marketing expenses.
14. Digital marketing helps you reach these engaged consumers. You can not only publish and promote unique content on these social sites, but you are also able to reach consumers through advertising. Social media platforms such as Facebook provide sophisticated targeting options that help you reach consumers who are interested in your products or services.

Barriers To On-line Marketing

1. The postal service or the most expensive (and so-called safest) courier companies may not be able to guarantee prompt delivery due to multiple factors including theft, tracking issue and corruption. Most people believe that shopping online can prevent them from getting the best deals out there from their favourite shops and shopkeepers (and their families) that they know for generations. There are even scenarios where you have to provide your card number to the customer care executive over the phone which is not the right way should work. A lot of people still do not believe things that are not tangible. It's perhaps more of a cultural issue. When I mean engagement, it's not about the impressions, reach or SOV, but it's more of intangible and broadly AIDA (Attention Interest Desire Action) principles of advertising.





2. When it comes to online businesses, there are even stricter money transaction rules. The risks of hacking the sites and manipulating the data are always there yet even in the physical world. When it comes to law enforcement and protection against cyber crime, though we have taken some initiatives, how often an online criminal gets caught in this country. Each of these platforms has its own perils and should be approached with its expertise.

3. It's easy to entire and convince client with digital parlance, but on long term you will have a disappointed and grumpy client. The customer expects to save time and cost but if he is not able to achieve that, he prefers to opt for the usual known way of doing things. Customers may have a negative perception about secure financial transactions. To get more leverage or any other available options, should have proper balance with creativity and matrices.

4. Many people do shopping kind of things using the internet access at work but there are still other issues with online businesses. There are a lot of inconsistencies and dishonesty prevailing with the networks as well. Television, hording and cinema ads are still way ahead of the internet. When it comes to preferred marketing channels. The lack of supporting infrastructure such as escrow services, legal advisory for online businesses. The lack of online payment facilities necessitates off line interaction for the completion of the transaction. The required technology is not available easily and cheaply, it can hamper their plans.

5. E-commerce companies came up with a nifty idea, "cash on delivery", to break this barrier. And while it turned out to be an expensive proposition, with high return rates, it helped build the market and spread the service to far-flung areas of the country, previously considered out of bounds for ecommerce.

6. Smartphones have really taken off in the last two years and hence mobile internet access has been made. At the top, initiatives like Android One and entry of manufacturers like Xiaomi have reduced smartphone prices to INR 5000 – the 6000 range has made them affordable to the public. And ecommerce companies not only noticed this growth, but produced it with an extraordinary focus on building their mobile channel.

7. You have to deliver the product safely and safely to the right man in the right time frame. Arriving at this holy grail is not a dream for the Indian ecommerce initiative. Regular post does not offer acceptable service levels, couriers have higher fees and limited access. Initially, you may have to get insurance for high-value shipped articles, increasing the cost. Lower value articles will have significant shipping costs that will make them expensive.

8. Currently, digital illiteracy is one of the rare problems of e-commerce in India. On the other hand, the constant migration of skilled computer engineers to other countries has brought India's software engineers into disrepute. This has posed a real threat to the Indian IT industry. Clearly, the solution lies in curbing the computer brain drain and uses the same in the country.

9. The software so far in the country is English specific. But, in order for e-commerce to reach small enterprises, it needs to be available in the languages (regional) of the owners of small enterprises to be able to optimize e-commerce processes in their operations. The sooner this is done, the better it will be to adapt e-commerce for small enterprises.

CONCLUDING REMARKS :-

To help focus on companies evaluating and driving their marketing forward. Experienced in integrated strategic marketing planning, data segmentation, customer relationship management systems, customer insight and reviewing internal systems, data and processes, to maximize conversion strategies and the customer experience. Consumers have an expectation that the business they patronize are the guests in their lives rather than the other way around. They are not satisfied merely be "invited in" to do business with you, because they want to be the inviting. Challenge is to earn the invitation that you once just had to hand out. And your solutions have to be comprehensive and work with the others in your customers lives. It's your job to fit into their ecosystem of vendors and providers. Removal of intermediate distribution layers has made reaching consumers simpler, and provided a level playing field for upstarts both in the digital and the physical economics. Cheaper infrastructure makes business more affordable, and flexible infrastructure makes change faster and easier. To increase online sales, companies need to step outside the comfort zone. In the multi channel world that retail is moving to ward, consumers have high expectations for the sales, service, and fulfilment experiences. Companies that meet these expectations will cement relationships with their consumers and generate long term growth in online and overall sales. Both distributors and retailers in certain sectors may either be contractually prohibited from doing business with competing business by contracts with existing business or may be highly incentivized for doing so. This can make it difficult for a new market entrant to get their products in front of customers in order for them to adopt them.

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MEDICAL NEGLIGENCE LAWS IN INDIA

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Abstract

Laws are made to regulate human conduct and streamline the actions and relations of individuals and groups and also to augment the human resources and human endeavour. Like the all other fields, the medical profession and its allied and incidental vacations and services are governed and guided by Acts of parliament which are the statutory mandates binding on each and every one at the helm of affairs. Laws prohibit practice of medicine by those without a license, with impaired faculties, those convicted of a felony, practicing with abusive behaviour or outside their professional ability many legislations regulates the nature and conduct of medical profession. The various statutory provisions are discussed in this paper

Keywords: medical profession, patient, treatment, laboratory .

INTRODUCTION

Medical professionals commits errors despite prudence and care in their day to day medical practice such as incorrect diagnoses, wrong treatment and lack of consent. Any such blunder may result in harm to the patient or even death. This inherent fallibility in the medical profession is directly related to legal action. Hence, medical professionals will now have to learn about moral and legal fallibility while performing their duties

At present, the medical profession has become commercialised practitioners are adopting deceitful methods to attract the innocent patients and thereby procure money. Some doctors suggest their patients to under to various tests, that too in a particular laboratory which are, in fact unnecessary. There may be unethical collusion between that laboratory and the doctor. And some other doctors prescribe more medicines than necessary on the letter pad of a particular medical shop. There may also exist some understanding between doctor and pharmaceutical companies for prescribing their product. The medical profession is a noble profession and it should not be brought drown to the level of simple business. Today in India, many doctors have become totally money – minded and have forgotten their

Hippocratic Oath. Since most people in India are poor, medical treatment is beyond their reach.

REMEDIES AVAILABLE TO THE PATIENT

Patient who is sufferer from the negligent act of the doctors can seek remedy under various laws.

1. Compensatory action involving complaint against doctors, staff, or hospital whether private or governmental hospitals who committed negligence seeking monetary compensation before Civil Court under law of Torts , Law of contract, High Court under the constitution law, or Consumer Courts under Consumer Protection act.
2. Punitic action involving criminal complaint under Indian Penal Code against doctor.
3. Disciplinary action which involves complaint seeking disciplinary action against the medical practitioner or the hospitals as the case may be, before statutory bodies governing the medical practitioners such as Indian Medical Council or State Medical Council.
4. Recommendatory action involves lodging of complaint before the National / State Human Rights Commission seeking compensation.

CRIMINAL LIABILITY OF HEALTH PROFESSIONALS

The Gross ignorance, gross carelessness or gross neglect the may be prosecuted in a criminal court under section 304A[1] of the Indian Penal code. High degree of negligence is required to be proved. There must be direct nexus between the death or any other serious injury of the patients and negligence act of the doctor. A doctor is not criminally liable for the patient's death unless his negligence or incompetence showed.

Under the criminal law, the injured person or representative of deceased victims get nothing in monetary form, but the wrong doer is to be penalized or convicted. But under the section 357 of code of criminal procedure, 1973, the court can make an order to pay compensation to the aggrieved, out of the penalty imposed on accused. In India, Section 357 of the code of Criminal procedure 1973, empowers the criminal courts to award compensation to the victims while passing judgment of conviction. In ***HariKrishan's case***[2] the Supreme Court has directed all criminal courts to exercise the power of award compensation on consideration of the nature of crime, justness of claim of the victim and ability of the accused to pay, the distinction between tort and crime has been reduced to the extent that the degree of negligence in Criminal liability is higher than that of negligence in tortuous liability.

In ***Dr.Jacob George –Vs-State of Kerala case,*** [3] where homoeopathic doctor conducted abortion and caused the death of women. The doctor was convicted under 304 of Indian Penal Code and sentenced to four years rigorous imprisonment and to a fine of Rs.5000. The Supreme Court in appeal reduced the sentence of imprisonment to two months and enhanced to fine to Rs.1 lakh.

In ***Juggankhan –Vs- State of Madhya Pradesh***[4]a registered homoeopath administered to the patient suffering from guinea worm, 24 drops of stramonium and a leaf of dhatura without studying its effect and the patient died of poisoning. The rash and negligent act of the doctor to prescribe poisonous medicines without studying their probable effect was of such degree as to amount to taking a hazard where by injury was most likely to be occasioned. The criminating lies in running the risk of doing such an act with recklessness or indifference to the consequences. The homoeopath doctor was held guilty under Section

304A of Indian Penal code by the Supreme Court.

The ***Indore bench of Madhya Pradesh***[5] high court held a registered Hakim guilty for committing an offence under section 304A of Indian penal code. The fact that a person totally ignorant of the science of medicine or practice of surgery undertakes a treatment or performs an operation is very material in showing his gross ignorance from which an inference about his gross rashness and negligence in undertaking the treatment can be inferred. Since the Hakkim registered under section 46 of the Madhya Bharat Indian Medicines Act, 1952 had no knowledge whatsoever of penicillin injection, his act of giving procaine penicillin injection to the decreased would be clearly rash and negligent within the meaning of section 304A of Indian pencil code.

In ***Ram Niwasv.State of Uttar Pradesh***[6] a person (not a qualified doctor carried on the profession of a doctor) administered a full dose of an injection without giving the test dose and the subsequent reaction, resulted in death. The Allahabad High court ruled that the accused not being a qualified doctor, an injection given without the test dose and the immediate and subsequent death of the person so injected shows not only that the death was the direct consequence of administering the injection, but also that he acted with rashness, recklessness, negligence and indifference to the consequences. The accused was convicted by the trial court under section 304A, IPC to undergo a sentence of one year rigorous imprisonment.

MEDICAL NEGLIGENCE LIABILITY UNDER THE LAW OF TORT.

Tort means civil wrong for which the law provides some remedy. According to Dr. Winfield, 'tortuous liability arises from the breach of duty primarily fixed by law; this duty is towards persons generally and its breach is redressible by an action for unliquidated damages'.[7]

The Supreme Court in ***Ram Bihari Lalv.JN Shrivaslava***[8] observed that it may not be questioned that the defendant possessed the necessary skill and knowledge to undertake the operation, but his over-confidence and burry failed him. The defendant failed in his duty of care in undertaking the operations. His act of removing the gall-bladder was highly dangerous which resulted in the death of the patient. So the defendant was liable to pay damages for his wrongful acts.

In ***Ram Bihari Lal v. JN Shrivastava***[9] the operation theatre was under repair. There were no facilities for oxygen and blood transfusions there was no anaesthetist, and some lifesaving drugs were not available. The doctor, therefore, failed in his duty of care in undertaking the operation without taking necessary precautions.

The Supreme Court in ***Joseph alias Pappachan&orsv. Dr. George Moonjely&Anor***[10]ruled that regarding the vicarious liability of those who run hospitals for the negligent acts of the doctors employed by them. Therefore, the first defendant is primarily liable for his negligent act, and the second defendant being the owner of the hospital, is vicariously liable for the negligent conduct of the first defendant.

The Supreme Court held that the state would be vicariously liable for the damages which may become payable on account of negligence of its doctors or other employees in in ***Achutrao H Khodwav. State of Maharstra***[11]

In***Ram Binharilalv.Dr. J.N. Srinivastav.***[12] Rs.1000 was awarded under the head 'mental agony and physical suffering'.In ***Dr. P. Narasimha Raov.Gundrarpu Jaya Prakash,*** Rs.2, 00,000 was awarded under the head 'loss of amenities of life'.

In ***Aruna Ben D. Kothari and othersv.Navdeep clinic and others***[13],

Rs.40,000 was awarded under the head 'loss of estate' and incase of Maharaj Prasad Aggarwal***v.***Dr. M.R. Jain, Rs.2,00,000 was awarded under the head of 'loss of consortium'.

LIABILITY OF HEALTH PROFESSIONALS UNDER THE LAW OF CONTRACT

Doctors have to often enter into contracts in their personal and professional lives. If Doctors have an administrative position in a hospital, they may also have to enter into contracts on behalf of their hospitals. A large part of hospital functioning is also related to contracts. Liability of health professionals under the contract Act, 1872 mainly depends on the express or implied terms agreed upon by the patient or his representatives and the doctor or hospital. Consent for treatment on payment of fees on the part of a patient can be treated as an implied contract with the doctor, who by undertaking treatment on acceptance of fees, promises to exercise proper care and skill[15].

The Supreme Court, in ***Joseph alias Pappachan and othersv.Dr. George Moonjely and another*** [16]while dealing with the matter of death of a 24 year old woman due to the negligence and breach of legal duty under section 73 of the contract Act observed that the vicarious liability of those who run hospitals for the negligent acts of the doctors employed by them, the question is no longer res integra. It further held that the first defendant is primarily liable for his negligent act, and the second defendant being the owner of the hospital is vicariously liable for the negligent conduct of the first defendant.

LIABILITY OF HEALTH PROFESSIONAL UNDER THE CONSTITUTIONAL LAW

The constitution incorporates provision guaranteeing everyone's right to the highest attainable standard of physical and mental health. Article 21 of the constitution guarantees protection of life and personal library to every citizen. The Supreme Court has held that the right to live with human dignity, enshrined in article 21, derives from the directive principles of state policy, and therefore included protection of health[17]. Further, it has also been held that the right of health is integral to the right to life and the government has a constitution obligation to provide health facilities[18]. Public interest petitions have been filed under article 212 in response to violations of the right to health. They have been filed to provide special treatment to children in jail; on pollution hazards.[19]

Failure of a government hospital to provide a patient timely medical treatment results in *violation of the patient's right to life[20]. Similarly, the court has upheld the state's obligation to maintain health services,[21] against hazardous drugs,[22] against inhuman conditions in after-care homes;[23] on the right of patients in cataract surgery camps,[24] for immediate medical aid to injured persons[25],on conditions in tuberculosis hospitals,[26] on occupational health hazards;[27] on the regulation of blood banks and availability of blood products;[28] on passive smoking in public places[29]; on the health rights of mentally ill patient;[30]and in an appeal filed by a person with HIV on the rights of HIV/AID patients[31]*.

REMEDIES UNDER CONSUMER PROTECTION ACT

In the absence of provisions for the protection of users of medical services in the Indian Medical Council Act, 1956, medical negligence was incorporated within the ambit of Consumer Protection Act[32]. This was exhorted by the General Assembly of the United Nations deliberations leading up to a resolution adopted by India[33]. The Preamble of the Act emphasizes protection for the interests of the consumers. In order to settle disputes, quasi-judicial consumer redressal forums were established and authorized to make awards.It is well-

settled by various decisions of the National Commission that the activity of providing medical assistance for payment carried on by private hospitals and members of the medical profession falls within the scope of the expression "service" as defined in s. 2(l)(o) of the Consumer Protection Act 1986 and in the event of any deficiency in the performance of such service, the aggrieved party can invoke the remedies provided before the Consumer Forum having jurisdiction.

The Supreme Court of India in ***INDIAN MEDICAL ASSOCIATIONv.V.P. SHANTHA***[34] case, ruled that the medical profession comes within the ambit of the consumer protection Act in order to protect the innocent consumers from the malpractices of all service providers, including doctors.

The complainant sustained fracture in the humerus bone of the left arm. The complainant suffered from permanent disability due to negligent treatment of the doctor. The State Commission, U.P.[35] directed the doctor to pay compensation of Rs, 1, 63,000 and cost of Rs. 5,000 to the complainant. The complainant was awarded Rs. 1, 00,000 for mental tension, agony, harassment and permanent disability and Rs. 63,000 for medical expenses incurred by him.

. The wife of the complainant gave birth to a child who suffered from "erb's palsy" or "brachial palsy". The baby could not move right hand from shoulder to finger. It was established from expert evidence that the baby suffered disability due to excessive fraction given by the doctor during delivery.The State Commission, Andhra Pradesh,[36]awarded compensation of Rs. 1,75,000 towards general damages for pain and suffering and permanent disability of right hand of the baby along with costs of Rs. 500.

LIABILITY UNDER MEDICAL LAWS

The following legislations regulate the nature and conduct of medical profession.

1. The Indian Medical Council Act, 1956.
2. The Pharmacy Act, 1948
3. The Indian Medicine Central Council Act,1970
4. The Dentists Act, 1948.
5. The Homoeopathy central Council Act,1973
6. The Indian Nursing Council Act, 1947.
7. Medical Degrees Act, 1916
8. The Drugs (Control) Act, 1950.
9. The Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954.
10. The Medical Termination of Pregnancy Act, 1971.

These legislativative enactments provide for setting up of Medical Councils at national level and state levels and empower them with the powers, inter alia, to lay down minimum standards for medical education, enrolment of doctors and also regulate their professional conduct by formulating the code of medical Ethics. In order to understand the efficacy, functioning and regulation of medical professionals under the aforesaid central acts it is necessary to examine them.

CONCLUSION

Criminal liability of health professionals, medical negligence liability under the Law of Tort, liability of health professional under the law of contract, liability of health professionals under the constitutional law, remedies under Consumer Protection Act, and liability under Medical Lawsprovisions protect the interest of the consumers. A doctor should give more importance to excellence in the treatment and patient care. The people are now confident enough while visiting doctors and getting treatment.

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AN ANALYSIS OF THE CHALLENGES TOWARDS THE PRACTICES OF ELECTRONIC BANKING IN COOPERATIVE BANK OF OROMIA MIDA KEGN BRANCH, OROMIA REGIONAL STATE, ETHIOPIA

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Abstract

The aim of this paper was to assess the Challenges of Electronic banking practices in Cooperative Bank of Oromia Mida Kegn Branch, Oromia Regional State, Ethiopia. The study was conducted based on the data gathered from Cooperative Bank of Oromia Mida Kegn Branch (CBO). A mixed research approach was used to answer the research questions that emerge through the review of existing literature and the experiences of the researcher in respect of the E-Banking system in Ethiopia. The study statistically analyzes data obtained from the survey questionnaire. The study was conducted on Mida Kegn Branch and 154 customers were selected by Simple Random Sampling. The data gathered through primary method was summarized using descriptive statistics through frequency distribution and percentages, mean and standard deviation, Pearson Correlation to come up the analyses of data. Mean score is used to identify the highest and the lowest of the variables. Pearson's Correlation analysis is used to test the degree of the relationship between independent variables and the dependent variable. The study also suggests a series of measures which could be taken by the Cooperative Bank of Oromia Mida kegn Branch and to address various challenges identified in the study area.

Keywords: *Challenges; Cooperative Bank of Oromia; E-Banking Adoption; Electronic Banking Practices.*

INTRODUCTION

Background of the Study

Nowadays modern technology is being introduced in all fields and it is changing the world with full of innovations. In this regard, information technology is considered as the key driver for the changes to take place around the world. The traditional banking services are getting modernized by the use of electronic banking. These changes are made mainly due to the developments in Information and Communication Technology. (Shittu, 2010).

Electronic banking enables a customer to do banking transactions through the bank's website in the internet. It is more or less like bringing the bank to customer's computer, at the place and time of customer's choice. (Devamohan, 2012).

The rapidly growing information and communication technology is knocking the front door of every bank in the world, where Ethiopian banks would never be exceptional. Electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries. In Ethiopia, however, in this context, the study was attempt to trace the present status of E-Banking in Cooperative Bank of Oromia Mida Kegn Branch, Oromia Regional State, Ethiopia the prospects and practices and looks at the challenges faced in providing the service.

Statement of the problem

Electronic banking is a driving force that is changing the banking industry towards a more competitive and efficient situation. Electronic banking presents both an opportunity and a challenge in terms of being able to provide the convenience, efficiency, and effectiveness of electronic banking to its customers. (Alam, 2010).

The main driver behind electronic banking is convenience. It is available around the clock, is extremely time-saving, and is accessible from anywhere around the world. Electronic banking is very efficient, and has helped cut down a lot of costs, and in the case of virtual banks it has cut down almost all costs (Alam, 2010).

According to Kumaga (2010), low level of internet penetration and poorly developed telecommunication infrastructure impede smooth development and improvements in E-commerce in developing countries.

Despite the growth of E-Banking worldwide, most Cooperative Bank of Oromia continues to conduct most of their banking transactions using traditional teller based methods. Despite the fact that E-Banking has a lot of benefit for both banks and customers in Oromia, Banking operation is still under developed backed by low level of infrastructural development, lack of suitable legal and regulatory framework, high rates of illiteracy, frequent power interruption and security issues. Moreover, E-Banking is a new technology in Ethiopia which needs a lot of effort and resources to be easily adopted by customers (Yitbarek, 2013).

The adoption and growth of Electronic Banking is found to be very important towards creating a cashless society with its impact on bringing economic transparency, efficiency and growth. From customers' perspective, the most recognized drivers for the growth of Electronic Banking include convenience, reliability, widely availability, affordability and usefulness of the services (CBO, 2017/18).

Hence, in order to help banks to improve E-Banking adoption by their customers, it is necessary to examine challenges to adopt E-Banking service of Cooperative Bank of Oromia MidaKegn Branch.

Objectives of the Study

- To examine the challenges of E–Banking Practices in the study area.

Review of related literature reviewed

E- Banking

E-Banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet. Customers access E-Banking services using an intelligent electronic device, such as Point of Sale (POS), Automated Teller Machine (ATM), Short Message Services (SMS) and Mobile Banking (Shannak, 2013).

Mobile Banking

Mobile Banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of Short Text Message (STM).Mobile Banking can be defined as an occurrence when customers access a bank's networks using cellular phones, pagers, personal digital assistants, or similar devices through telecommunication wireless networks (Segun, 2011).

Tele-Banking

According to Habibur, Mohammed and Sayeed (2012) Telephone Banking service is provided by phone. To access an account it is required to dial a particular telephone number and there are several options of services. Options included; Checking account balance, Funds transfer between current, savings and credit card accounts, Bill Payments, Stock exchange transaction, Receive statement via fax and Loan payment information.

Another relevant study conducted by (Yitbarek and zeleke, 2013) on analysis of factors influencing customers' intention to the adoption of E-Banking service channels by using research model of Technology Acceptance Model (TAM) revealed that attitude, subjective norm, perceived behavioral control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users' intention to use E-Banking service channels. In general, Review of Empirical studies shows that understanding the Critical Success Factors (CSFs) in E-Banking is important for banking industries because it would potentially help them improve their strategic planning process.

The gap of the study

As reviews reviewed from many researches studied, many of them were studied factors determining for the adoption of E- banking services, but still little studies are available in Ethiopia also but there is no study available in the study area, study unit related to the challenges for the E- banking practices in cooperative bank of Oromia Mida Kegn Branch, Oromia Regional State, Ethiopia

Research Design

To attain the intended objective of this study, Descriptive Research Design was employed. It is descriptive research design because it aims to describe, contrast and analyze the problem identified and to describe the relationship between the E-Banking variables and customer satisfaction and how these dimensions affect customer satisfaction.

Types and Sources of Data

In this study, both primary and secondary data sources were employed. The data type of the study was cross-sectional data since the Research on the challenges and prospects of E- Banking practices in the case of Cooperative Bank of Oromia MidaKegn Branch.

Sources of Data

The data required for the study is obtained from primary and secondary sources.

Primary Data Source

Primary data source is required in order to get first-hand information with respect to the study under consideration. Primary data was collected from the sample customers' respondents by using questionnaire. The structured questionnaires were developed in English.

Data Collection Techniques

Two types of instruments were used in this study in order to collect both qualitative (by interviews) and quantitative data (by questionnaires). The primary data was collected through questionnaire. The questionnaire was administered through trained data collectors using interview type. With regard to the questionnaire, the questions are both open ended and close ended.

Sampling Techniques

The method of sampling techniques that was employed in this study is Simple Random Sampling. Because it is chosen in order to avoid bias. In Simple Random Sampling by its nature, each element in the population has an equal chance of being included in the sample. The sample item comprised of the customers of the Bank and Bank officials in the study unit and in the study area.

Populations of the Study

The target populations of the study area are: - Bank staffs16, Bank's customers 13,931 and the total are 13,947.They are 10,695 customers are using electronic banking and 3,252 are non-using Electronic Banking. The researcher, study only the customers who uses Electronic Banking only**.**

Method of sample size determination

Multi stage sampling was used.

The Cooperative Bank of Oromia has more than360 Branches and Midakegn Branch is one of the Nekemte districts of CBO that has 10 branches under its domain. Out of these 360 branches, the study was conducted in Mida Kegn Branch and 154 customers were also selected on Simple Random Sampling Method because of large numbers of CBO's customers.

For the purpose of this study, based on population size, sampling error (the level of precision) the confidence level, finance and time available for the researcher, sample size was determined by Yamane formula in a scientific way. N=10,695 e=0.08 Z=92%

Hence, following formula is used.

$$\boldsymbol{n} = \frac{\boldsymbol{N}}{\mathbf{1}+\boldsymbol{N}(\boldsymbol{e})^{\mathbf{2}}} = \frac{\mathbf{10{,}695}}{\mathbf{1}+\mathbf{10{,}695}(\mathbf{0.08})^{\mathbf{2}}} = \underline{\mathbf{154}}$$

Where N *is* the population size, n is sample size, Z is the confidence level and e is the level of precision or sampling error.

Since in a social science, 1%-10% of errors are acceptable, for the purpose of this study, the researcher was accept 8% of error due to of lack time and fund to collect data from large sample(Admas*et al*,2007).

Method of Data Analyzing

The data that was gathering through primary method was summarizing using descriptive statistics through frequency distribution and percentages, mean and standard deviation, Pearson Correlation to come up the analyses of data. Mean score is used to identify the highest and the lowest of the variables. Pearson's Correlation analysis is used to describe the magnitude/degree of association between independent variables and the dependent variable.

In order to meet the stated research objectives, the collected data is analyzed based on the nature of the objective. Accordingly, the data collected via questionnaires is analyzed with descriptive statistics using Statistical Package for the Social Sciences (SPSS) V. 20.0.

Table- 1
The type of E-Banking Channels Used by Customers

E-Services	Frequency	Valid Percent	Cumulative Percent
ATM	121	78.6	78.6
SMS	8	8.4	87.0
POS	8	2.6	92.2
Mobile Banking	13	5.2	94.8
Internet Banking service	8	5.2	100.0
Total	154	100.0	

Source : Primary Data- 2019

It is witnessed from the above table 1- that out of 154 respondents, the majority of them 121 (78.6%) were used ATM services as the E- banking services and 13(5.2%) of them were used mobile banking services, 8 (5.2%) of them were used invariably the services of SMS (Short Message Systems), POS (Point of Sale) and internet banking services in the study area and in the study unit. However, ATM and Mobile banking services are most dominantly used E-Banking services in the study area.

Table 2
Kind of Services Availed by the Respondents

Kinds of services Availed	Frequency	Valid Percent	Mean	Std. Deviation
Fund Transfer	57	37.0	2.0714	.99743
Balance Checking	40	26.0		
Withdrawal of Cash	43	27.9		
Purchase of Goods	14	9.10		
Total	154	100.0		

Source: Primary Data- 2019

The result presented in the above table shows that, the respondents asked whether customers of Kinds of services from the banks, and the descriptive statistics result gives mean and SD of 2.0714 &.99743 respectively, that means the largest number of respondents were agreed on the issue, therefore Kinds of services of the customers used were for fund transfer followed by withdrawal of cash from the accounts. This result were consistent with the findings of Ghazi and Khalid (2012, p.9);Khalfan*et al* (2006) in which all indicted that, the kinds of services, such as

Table 3
Major Challenges for E-Banking Practices

Challenges for E-Banking Practices	Frequency	Valid Percent	Cumulative Percent
Lack of knowledge	36	23.4	23.4
Electricity Problems	15	9.7	33.1
Network Problems	38	24.7	57.8
Less number of ATM machines	65	42.2	100.0
Total	154	100.0	

Source: Primary Data- 2019

The above table 3 Shows that the largest number of respondents 65 (42.2%), were agreed with the idea that lack of competition between Ethiopian banking sector and foreign bank is considered as barrier for the adoption of E-Banking system. Similarly, an interview result revealed that, Ethiopian government did not allow foreign banks to operate in the country, these is due to protecting of local banks from the well-developed foreign bank competition. Therefore, Ethiopian banking industry did not consider about competition with foreign banks and such policies could discourage banking sector of the country from the adoption of E-Banking system.

Table 4
Mean Comparison Statistical Summary

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Challenges of E-banking practices	2.2597	154	.59194	.04770
	Security of E-banking	**3.6753**	154	.89941	.07248
Pair 2	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Role of GOV'T to adopt technology	**2.2143**	154	1.12002	.09025
Pair 3	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Technological Factor	**2.4026**	154	1.47094	.11853
Pair 4	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Organizational Factor	**3.0325**	154	1.35964	.10956
Pair 5	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Environmental Factor	**1.6688**	154	.47217	.03805
Pair 6	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Lack of Adequate ICT Infrastructure	**2.4351**	154	.83177	.06703
Pair 7	Challenges and prospects of E-banking practices	2.2597	154	.59194	.04770
	Environmental Factor(Lack of Competition	**2.5325**	154	1.22164	.09844

Source: Primary Data- 2019

In order to address the objective on testing the statistical significance difference between two different variables on some E-Banking challenges indicators of some CBO; variables such as technological factor, organizational factor, environmental factor, lack of adequate infrastructure, Environmental factor (lack of competition of E- Banking with the period in which E-Banking was so as to compare the mean of each performance indicators. Accordingly, the Technological factor(Mean value= 2.4026), organizational factor(mean value= 3.0325), environmental factor(mean value= 1.6688), lack of adequate infrastructure(mean value=2.4351), environmental factor (lack

of competition) mean value= 2.5325 respectively of CBO implementation of E-Banking for the E-Banking is estimated as to be favor for the practices of the E-banking services.

Table 5
Correlations between Dependent and independent variables

		GOVR	EXP	TECHF	OF	DMOGF	LAIS	EF	ES
Challenges and prospects of E-banking practices	Pearson Correlation	**1**							
	Sig. (2-tailed)								
	N	154							
(1) Role of GOV'T to adopt technology	Pearson Correlation	.744**	**1**						
	Sig. (2-tailed)	.000							
	N	154	154						
(2) Expecting from the bank to provided efficient e-banking services	Pearson Correlation	.825**	.910**	**1**					
	Sig. (2-tailed)	.000	.000						
	N	154	154	154					
(3) Technological Factor	Pearson Correlation	.817**	.939**	.919**	**1**				
	Sig. (2-tailed)	.000	.000	.000					
	N	154	154	154	154				
(4)Organizational Factor	Pearson Correlation	.680**	.918**	.786**	.873**	**1**			
	Sig. (2-tailed)	.000	.000	.000	.000				
	N	154	154	154	154	154			
(5) Demographic factors	Pearson Correlation	.497**	.765**	.557**	.673**	.842**	**1**		
	Sig. (2-tailed)	.000	.000	.000	.000	.000			
	N	154	154	154	154	154	154		
(6) Lack of Adequate ICT Infrastructure	Pearson Correlation	.658**	.881**	.837**	.860**	.901**	.702**	**1**	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		
	N	154	154	154	154	154	154	154	
(7).Environmental Factor(Lack of Competition)	Pearson Correlation	.820**	.886**	.916**	.909**	.824**	.648**	.819**	**1**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	154	154	154	154	154	154	154	

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Primary Data- 2019

Table above depicts the correlation between the independent variables and also with the dependent variables. The result shows the acceptable reliability of the research variables in which, the correlation among predictors were not high indicates there are no problems among variables. As of the relationships between the dependent variables (Challenges of E-Banking practices) and independent variables (EF, DMOGF, OF, TECHF, GOV'T and EXP), some findings are significant and Furthermore, there were strong correlations between the dependent variable(Challenges and prospects of E-Banking practices) and independent variables EF(r= 0.819) DMOGF (r= 0.842) OF(r= 0.873), TECHF, (r= 0.919) GOVR (r= 0.744) and EXP (r = 0.910), with (P<0.01) level of significant, shows a strong support for first, fourth and six respectively. The correlation analysis was utilized to reject or accept research in previous E-Banking research in addition to the regression analysis.

Important findings and Recommendations

Based on the above data analysis and interpretations the following recommendations were the made from the findings of the study and it has been forwarded to the stakeholders:

In order to exploit the benefits that can be achieved from the provision of E-Banking services, banks operating in the country needs to establish a strong link with customers by providing the required information that will enable them to use electronic banking services in the future. In this regard, it is recommendable to make website information clear and precise so that customers can easily understand about the service. Furthermore, since it is the duty of the concerned staff to provide all the information to its customers, they should provide all the materials to customers that demonstrate how to use electronic banking.

The findings reveal that security & privacy are the most important issues for customers to use electronic banking. In this regard, the two commercial banks should provide security measures to their customers that demonstrates full authentication, privacy, completion of transaction from start to end and its confirmation. Moreover, these two banks should acquire latest computer programs that enable banks to have a powerful technique for security related issues.

For the successful implementation of E-Banking system telecommunication infrastructure, is a major prerequisite. Therefore, the government should support the electronic banking sector by investing on telecommunication infrastructure development. In this regard, (ETC) Ethio-Tele-Com needs to provide these banks to have a better and quality network having a higher bandwidth. By doing so, the existing quality of internet connection should also be improved until such time that successful implementation is achieved.

Without technology it is impossible for banks to compete and provide quality services. It is also very important that the existing IT employees of the study units and the study area should learn new skills. It is also strongly recommended that study units have to hire well trained and experienced IT professionals to handle the business competently and who are capable of solving the problems with adequate knowledge in technology.

The finding of the study also indicated that CBO had lacked fast and effective compliant handling system. And therefore; the bank should establish efficient and effective compliant handling system in the future in order to retain the existing E-Banking customers and to attract new customers (E-Banking users).

Therefore, Ethiopian government should establish a clear set of legal frame work on the use of technology in banking industry, support banking industry by investing on ICT infrastructure and banks

needs to be focused on technological innovation competition rather than traditional bases of retail bank competition in the study area to overcome the challenges faced by the study units and the study area in general and for the improvement of the E- banking services in the country as well..

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