

TO STUDY ON LEFT OVER FOOD REUSED IN KITCHEN

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INTRODUCTION

Humans must have food to survive. In the United States and other countries, the system of obtaining food was highly localized before the twentieth century. With the development of new technologies and improved transportation, food production and distribution systems became national in scope and more complex. The current food system stretches from producers to consumers and is international in scope. Ensuring its quantity, nutritional adequacy, and safety has become more complicated, and requires major government and private-sector efforts.

Food safety encompasses a wide spectrum of issues-not only the avoidance of food borne pathogens, chemical toxicants, and physical hazards, but also issues such as nutrition, food quality, labelling, and education. The system for regulating the food supply in the United States involves all levels of government from federal to local. The present legal framework is: comprised of many inconsistent statutes and regulations, and implementing authority is spread among at least 12 federal agencies] (Appendix A). Such a fragmented structure requires heroic efforts at cooperation, communication, and coordination (federal agencies have reported more than 50 interagency agreements), but duplication of efforts and regulatory gaps are common. Food safety problems that transcend.

The major federal agencies involved include: the Agricultural Marketing Service, the Animal and Plant Health Inspection Service, the Agricultural Research Service, the Cooperative State Research. Education and Extension Service, the Economic Research Service, the Food Safety and Inspection Service, and the Grain Inspection, Packers and Stockyards Administration of the United States Department of Agriculture; the Centres for Disease Control and Prevention, the Food and Drug Administration, and the National Institutes of Health of the Department of Health and Human Services; the National Marine Fisheries Service of the Department of Commerce; and the Environmental Protection Agency.

Suggested Citation¹. Introduction and Background. Institute of Medicine and, 1998. Ensuring Safe Food: From Production to Consumption, Washington, DC: The National Academies Press the jurisdictional boundaries of two or more agencies are often not reported in the most expeditious manner. The General Accounting Office (GAO)

reports that the National Marine Fisheries Service (NMFS), which operates a voluntary seafood inspection program, failed to notify the Food and Drug Administration (FDA), the agency with regulatory responsibility for corrective action, of 198 plants that failed NMFS inspection between 1988 and 1991 (GAO, 1992). Recent outbreaks involving such items as Guatemalan raspberries, hamburger, ice cream, and cereal have raised concern over the adequacy of the

Current system to ensure the safety of the US food supply. The GAO, public interest groups, and several members of Congress have suggested the consolidation of the existing federal food safety structure into a single food safety agency (GAO, 1997). (See Appendix B for a 1998 for corrective action, of 198 plants that failed NMFS inspection between 1988 and 1991 (GAO, 1992).

Recent outbreaks involving such items as Guatemalan raspberries, hamburger, ice cream, and cereal have raised concern over the adequacy of the current system to ensure the safety of the US food supply. The GAO, public interest groups, and several members of Congress have suggested the consolidation of the existing federal food safety structure into a single food safety agency (GAO, 1997). (See Appendix B for a 1998 Congressional Research Service analysis of several proposals.) In addition, the Institute of Food Technologists (IFT) recently developed Guiding Principles for Optimum Food Safety Oversight and Regulation in the United States, which describes attributes of an effective food safety system (IFT, 1998).

These principles have been endorsed by 13 professional, scientific societies. To improve the safety of the US food supply, in early 1997 President Clinton directed the Secretary of Agriculture, the Secretary of Health and Human Services, and the Administrator of the Environmental Protection Agency to develop a food safety initiative. Food Safety from Farm to Table: A National Food-Safety Initiative (Appendix C) seeks to address hazards that present the greatest risk, make the best use of public and private resources, increase collaboration between public and private organization.

Purpose of study:

To know the process and control measure to reduces the food waste in hotel and also study the reused of leftover food in hotel & restaurant To prevent rotting food from producing such poisonous greenhouse gases, it's important to recycle organic waste responsibly.

AIM & OBJECTIVE

Aim: To Study About Leftover Food Reused in Kitchen.

Objectives:

- To study on the leftover food using for bio chemical gas...
- Leftover food using charitable trust or orphanage...
- To Study on leftover food Reused for other dishes. .

Limitation:

- ❖ The study was limited in Nagpur city only
- ❖ Time, money and energy was major limitation

REVIEW OF LITERATURE

How much food do we waste every year?

In 2011, an FAO publication based on studies carried out by The Swedish Institute for Food and Biotechnology (SIK) found that the total of global amount of food loss and waste was around one third of the edible parts of food produced for human consumption; amounting to about 1.3 billion tonnes of food are discarded per year. As the following table shows, industrialized and developing countries differ substantially. In developing countries, it is estimated that 400–500 calories per day per person are wasted, while in developed countries 1,500 calories per day per person are wasted. In the former, more than 40% of losses occur at the post-harvest and processing stages, while in the latter; more than 40% of losses occur at the retail and consumer levels. The total food waste by consumers in industrialized countries 222 million tonnes is almost equal to the entire food production in sub-Saharan Africa 230 million tonnes.

Each year in New South Wales more than 25 million meals are delivered by charity OzHarvest from food that would otherwise be wasted each year, the Australian economy loses \$20 billion in food waste. This has a crucial environmental impact through the waste of resources used to produce, manufacture, package, and distribute that food.

In addition, it is estimated that 7.6 million tonnes of CO₂ is generated by the disposed food in landfills. It is also the cause of odour, leaching, and potential generation for diseases. In March 2019, the Australian ministry of the environment shared the key findings of Australia's National food waste baseline, which will facilitate the tracking of the progress towards their goal to halve Australian food waste by 2030.

Many initiatives were taken by the Australian government in order to help achieve this goal. In fact, they financed \$1.2 million in organization that invest in renewable energies systems to store and transport food. They also funded more than \$10 million for research on food waste reduction. Local governments have also implemented programs such as information sessions on storing food and composting, diversion of waste from restaurants and cafes from landfills to shared recycling facilities and donation of food to organization that would otherwise be wasted.

Food losses VS Food Waste

It is important and possible to distinguish two types of waste:

Food losses or losses which occur upstream of the food Australia being:

- Sowing
- Cultivation collection
- Treatment
- Conservation
- First agricultural transformation

Food waste or waste that occurs during

- Industrial processing
- Distribution
- Final consumption
- So, losses and wastage of food occur at different levels of the path.
- From production to final consumption.

The Four Sources of Food Waste

1) May occur at the level of production and harvest, due to:

- Bad weather
- Diseases or infestations
- Defects in the system of cultivations
- Defects in the transportation system

2) It can occur during processing of the products, which produces waste of food production.

3) They can also take place during the wholesale distribution, where food remains unsold because it doesn't corresponds to the aesthetic and quality of buyers,

4) They occur in last at the catering and domestic consumption. They create food waste because of excessive portions, the non-eat food before the expiry date and difficult to interpret the label and the information relating to the consummation.

Why do we waste?

Food loss and waste is food that is not eaten.

While for the Developing country there is much to be done to reduce losses in the first part of the food Australia called "Food losses"; in developed countries, the major problems are in the process of consummation be it food or household consumption

There are many explanations as to why the food being wasted; these differ between sectors of the food Australia. The standardized data on food waste are deficient and difficult to collect, especially in the manufacturing and sales. Even food waste in agriculture deserves further research.

Waste in production: The majority of this deviation is seemingly inevitable: many wastes are unavoidable or derived from technical factors that lead to over-production, products deformed or damaged. Under the lean manufacturing system seven wastes are identified: overproduction, inventory, motion, defects, over-processing, waiting, and transport.

Waste logistics management: The wholesalers and vendors face challenges of logistics, including warehouse management: anticipating demand and correct stocks, to meet the increasing expectations on product quality and coordination between sectors.

Waste in families and restaurants kitchens: In this context, the main explanations for throwing away food, avoidable waste, is because it is left in the plates, left during cooking or not used in time and / or before the expiration date. Here, the waste is related to the awareness and attitudes of individuals, and practice management skills of food such as planning, portioning and storage. In particular, the causes of family waste may vary depending on the climate, the socio-economic status, culture, for example the consolidated habit to generously prepare more food than can be eaten and to have leftover food.

Food waste is staggering. In the United States, restaurants generate an estimated 22 to 33 billion pounds of food waste every year, and institutions like schools, hotels, and hospitals are responsible for an additional 7 to 11 billion pounds. Pair these gigantic numbers with the fact that 12.3% of Americans experienced food insecurity in 2016, and you have a situation in which no one is winning.

Aspects of particular importance

Expiration dates on food labels are one of the most important information as appears to be sought after by European consumers. The consumer research in the **UK and Ireland** emphasizes the confusion of the dates on the labelling; the result is that about a third of the food is discarded before the expiration date.

Even the practices of conservation show room for improvement. Most fruits and vegetables. Will keep longer if refrigerated. However, only 23% of consumers say they want to preserve the fresh fruit and 53% fresh vegetables in the fridge. Many of these would leave food not sealed or free, open-air, heedless that this could reduce the freshness or otherwise, would put the bread in the refrigerator knowing that what it does become stale and rancid faster.

Food Wastage Costs India 1 Lac Corer Every Year. Here's How You

Can Stop It

Actress Frieda Pinto was recently in the news for collaborating with Copier, an NGO that leverages technology to reduce food wastage. Pinto and Copra joined hands to distribute the leftover food at the recently hosted Oscars.

Food wastage is a universal problem, but India as country can afford it a whole lot less than many others. According to a report by the Food and Agricultural Organization of the United Nations, every third malnourished child is Indian. Yet, tons of food is wasted every day.

When a team of 10 professors from the University of Agricultural Sciences (UAS). Bangalore, surveyed 75 of Bangalore's wedding halls over six months, they recorded wastage of over 943 tonnes of good quality food i.e. enough food to feed 2.6 corer people a regular Indian meal.

No doubt weddings and banquets are a huge source of food wastage, but restaurants and hotels also contribute to food wastage, though the awareness around this has grown in the last five years.

While some restaurants in India employ food controllers to check food spoilage. Others donate it to their staff and other personnel, and smaller standalone restaurants, donate it to orphanages. Few also reuse non-perishable food.

However, around 40% of the food produced gets wasted even before it reaches your plate. A kit Kwarau, Founder - Feeding India, explains the journey of one grain of rice articulately in this [talk](#). According to him, of every 10 grains, 6 never reach a home, due to poor transportation, storage and other steps in the supply Australia process. Post-harvest losses in

India are claimed to be almost one lakh crore rupees, amounting to almost 10% of the budget 2017-18 allocation to the agriculture sector! A faulty supply Australia is a major factor.

Reducing food waste helps reduce pressure on planet earth and its resources. It reduces your environmental and carbon footprint. At the individual level, it helps you to be healthy, fit and disease-free.

It helps in conserving natural resources. When food is wasted, the natural resources, as well as physical resources applied to prepare the food for eating, are wasted as well. For example, if you waste food equivalent to one meal, its impacts on land, air, water and other human inputs like producing, processing, transporting, energy, storing, and disposing the food are wasted as well.

It helps you save money as a substantial portion of the household budget goes into procuring food items.

How does food loss and food wastage cost humanity? Well, it can increase the risk of hunger/food insecurity. It results in the emission of methane, a greenhouse gas, from the landfills, and also contributes to food inflation.

Government Interventions to Reduce Wastage

Are you aware of the guest control order of 1960? It was introduced to regulate the number of guests at a wedding or a social gathering in the aftermath of Chinese aggression and Bengal famine. Recently, the government of Jammu and Kashmir has taken up a similar initiative. To check the food wastage across supply Australia, the government of India, in 2008, initiated the establishment of Food parks. Food parks provide a direct linkage from the farm to processing to markets.

Of late, a private member bill named Marriages (Compulsory Registration and Prevention of Wasteful Expenditure) Bill, 2016 is seeking to put a cap on wedding expenditure. The bill seems to be focusing on cutting expenditure rather than food waste. One can only hope for the inclusion of food waste control at weddings as well. In a country with only 14 private member bills becoming laws to its credit, it is to be seen if the bill makes its way through Governments worldwide are taking laudable and easily adaptable initiatives. Have you ever asked for a doggy bag in a restaurant? Generally out of embarrassment, most people do not ask for one. Interestingly, the Scottish government provides free doggy bags to restaurants in the country. Restaurants in France are legally obliged to provide doggy bags to their customers.

Municipal solid waste (MSW) is a significant cause of climate change and global warming Babae Tirkolae et al 2018 Son & Louati, 2016. Today, a serious challenge faced by cities, especially metropolises, is the issue of waste and its correct and principled management. As such, the management of waste production, storage, transportation, processing, and disposal is of utmost importance, and any negligence in proper management will cause irreparable damage Jorge et al 2021 Manaf et al 2009 Bing et al 2014. The volume of MSW in many developing countries such as China, Brazil, and India shows a steady increase, known as the waste siege challenge,

due to its importance Boskovic et al 2016. One way to tackle the steady increase in MSW is to ensure that it is collected and engineered as fully as possible Ribeiro et al 2018. Meanwhile, the private sector can significantly contribute to urban waste management Salazar-Adams, 2021. Of all the stages of waste management, waste collection from the waste generation center to the waste management center, i.e., the waste collection route, is a highly critical issue Jaunich et al 2016 Richter et al 2018 Sanjeevi & Shahabudeen, 2016. Optimal routing can help reduce costs and fuel consumption González et al 2021. Waste collection is part of the process of discharging recyclable waste solid waste and recyclable goods collected from a set of points trash and disposed of in a recycling center a recycling plant, an energy recovery center, or waste disposal Valizadeh, 2020. In such cases, disposal centers are often only one destination, and this is a reverse logistics problem (RLP), i.e., collecting from several points trash and delivering to only one point as opposed to delivering from one point to several destinations, which is a matter of advanced logistics problems (FLP). A significant point in these problems is vehicle routing Hannan et al 2018 The collection of municipal waste accounts for 80% of waste management costs. Therefore, a slight improvement in municipal waste collection operations can significantly affect cost savings Budzianowski, 2012 With the presence of animals, rodents, and pests, failure to collect this waste in time can lead to infection and the spread of infectious diseases PérezLópez et al 2016 Zhang & Huang, 2014.

The UK has a food waste supermarket, which sells food discarded by supermarkets and food businesses, on a pay-as-you-feel basis. The supermarket has become a lifeline for several families and is part of a larger project to channelize food wastage away from landfills and to fight hunger.

Finally, though food loss can be eliminated by legislation, reduction of food waste, by and large, is achieved through awareness and a little concern Reducing waste make good business sense! To organize a successful waste management for your establishment that will minimize it to a minimum and utilize existing waste in the best possible way you need to do the following actions. Create a team of responsible persons for this job Track and analyze the waste in a restaurant

Review the documentation on the purchased goods and review the business decisions

Conduct inventory frequently in order to compare purchase and quantity of garbage

Change menu in order to minimize quantity of leftovers

Create rules for this program

Recycle everything what can be recycled!



For this job you and your employees will be rewarded. Some of the great results are:

- Reducing food costs and generate revenue
- Making impact on the creation of a positive image
- Improving foodservice practices
- Improvin your equipment
- Positive impact on employee morale
- Positive impact on the environment

You can hire a professional team to do a waste audit or you can do it with your team who should be in the team? Depending on the restaurant capacity and scope of the operations performed in the restaurant team may consist of one or more persons. It would be best if these persons are involved in the when selecting staff for this job choose persons with analytical spirit rather than those who are good with numbers. They will have better insight into the actual state of your garbage. If you include more employees in this job, choose leader who will coordinate with other employees and be sure that they follow the program and all information has been recorded in a timely manner.

But above all, it is necessary to educate every member of the team about methods of monitoring, storage and recycling.

Restaurant Waste Audit - Monitoring and Analysis of Your Garbage

Restaurant waste can be roughly divided into two major groups - the one that left before consuming food and the one that left after your guests finish with dining. Restaurant waste that left before your guest consumed food would be one that occurs during food preparation like raw foods such as potato peel, roots from leafy vegetables or bones, improperly prepared food, fluids and food accidentally spilled on the kitchen floor etc. Statistical data suggest that as many as 4-10% of raw food in the restaurants ends up being this kind of garbage. Losses are really great but there are solutions for the recycling of such waste by donating to food banks or some other national association. Food can be also reused-old bread can preparation of meals, because they are familiar with the amount of specific ingredients that are used when preparing certain dishes. On the other hand, the staffs in charge for cleaning and washing dishes are familiar with the type and quantity of garbage that left after customers finish with eating.



Restaurant Waste Management is tasty toast!

Do you know how much money you throw away in your trash every day? You do not know? Or, you know but you do not know how to prevent money lost through your food waste? You are in the right place to find the answers to these questions change your foodservice practices and reduce restaurants waste to a minimum in the best possible way. Every day restaurants around the world throw away tons of food while many people on the same planet are dying from hunger. Our reality is full of contradictory facts that we can ignore or not. For someone this will be good reason to get concerns and take care of their food waste, and the other will need more reason for that. Maybe good reason will be data issued by the study of University of Arizona that says that the percentage of food waste in fast-food restaurants is about 9.55 % and in restaurants with full service 11.3 % of the total amount of purchased food. Cost of food for the preparation of meals is the second largest expense in the restaurants industry, right after personnel costs. These data confirm that you can reduce these costs by almost 10 %. You got enough reasons to organize the restaurant waste management? Your goals are to reduce, reuse and recycle!

Austria was the first country to implement individual waste charging in 1945, but PAYT did not catch on until the 1980s when efficient and secure systems became available to account for usage of disposal services electronically. The first city in Europe to implement an electronic identification and billing system for waste charges was Dresden, Germany, in 2004. The first experience in Spain was in 2003. Since 1991, the European Waste Policy has required that “part of the costs not covered by revenues from material reuse must be recovered on the polluter-pays principle.” Versions of PAYT are present in municipalities all over Europe.

Garbage that left after dining represents everything that guests has not eaten along with the packaging in case that in your restaurant you are using disposable packaging, such as plastic. Plates and paper cups. Promotion of extra-large servings of food in the United States as a marketing trick to attract new guests had a big impact why this kind of food waste in restaurant become real problem. Waste assessment will give you information how much garbage your restaurant create and what is the quantity of waste that can be reduced through the practice of waste management, recycling and reuse. Identifying Quantity of Different Types of Waste



NOTE: THIS IS A REPRESENTATION OF TOTAL WASTE GENERATED AND DOES NOT DEPICT WHAT IS DIVERTED FROM LANDFILL THROUGH RECYCLING AND/OR COMPOSTING.

You will Identify your garbage easily through the following actions:

- ❖ Conversation with the employees
- ❖ Disposal of garbage in specific containers
- ❖ Recording of types and quantities of waste
- ❖ A review of invoices and other documentation

To identify waste is usually sufficient to monitor and analyze it over a period of one month. Good will of your employees is very important for the success. They need to understand the importance of the evaluation of your waste. For better performance and commitment explain to your employees why you are doing audit and benefits of this programs for themselves if you succeed and manage to reduce the quantity of it.

Recycling saves energy, helps keep materials out of landfills and incinerators, and provides raw materials for the production of new products. When waste cannot be prevented, recycling is the next best option. Recycling is more than extending the life of landfills. It is about making the best use of the resources we have available and conserving those resources for future generations. It is about conserving water, energy, land and raw materials.

Composting is recycling for organics. It converts organic materials, like food waste and yard trimmings, into a valuable soil amendment that contributes to soil health and keeps organic wastes out of landfills.

When looking to increase recycling, there are two interrelated components to address, availability and engagement.



Tip: Raise wages during this month to estimate the devoted work of your staff and get more relevant results of waste audit!

Records about types and quantities of waste can be done by entering data into the paper form or in computer. You can use simple paper sheet where your staff will record information about product, quantity, reason for waste, date and employee.

For better insight into the quantity and type of garbage check out the following documents:

- ❖ records about collection and garbage disposal
- ❖ records about income from waste recycling
- ❖ inventory reports
- ❖ invoices from suppliers of goods

Sorting and Weighing Restaurant Waste

The simplest way to sort waste is by using different containers-buckets for certain types of waste. Waste is primarily necessary to sort to the one that can be recycled, such as food packaging, glass, paper, plastic bottles or organic waste from the kitchen, food scraps that your guests did not eat, all green food that can go to composting. These main categories can be furthered divided into subcategories such as meat, fresh fruit and vegetables, large plastic bottles, small plastic bottles, etc. A large number of categories and subcategories provides a clearer picture of the type and quantity of waste and brings more recycling options.



Tip: The rules about how to manage waste in restaurant should be an integral part of the employee handbook. All they work in the kitchen, bar or serving room.



The sorted waste can be easily measured by weighing.

First, it is necessary to weigh the empty container. Then weight container with the waste. To get weight of waste subtract the weight of empty container from the value that you get. Record everything in provided sheet for waste tracking. This process should be performed at the end of each working shift. In this way you will make the best comparison how much food you sell and how much waste you get, of course after you finished inventory for that shift you might use.

Be sure that your employees using adequate protective clothes and equipment when working with garbage. This includes protective masks, gloves, goggles and special uniforms for this purpose. All rules about used equipment waste weighing and disposal must be specified in the regulations for the restaurant operation in the employee's handbook.

Restaurant Food Waste Reduction Ideas How to reduce the restaurant waste? After you made waste audit and determine the type and quantity you need to take concrete steps to reduce it.

Below are soft of the proven and effective methods that will certainly half you to reach.

➤ Change your menu

After identify the restaurant menu items that usually have the most leftovers consider reducing the portion size of these menu items. In this way not only that you reduce the quantity of restaurant waste but also reducing the food cost of cooking and automatically increase profit.



- item that sadly gets tossed too much. So, to prevent that from happening, you have a few options. One, is to either freeze the stock immediately in an ice cube tray, which from there you can use it in soups like you normally would, or just heat it all in a big pot to use in other ways you need. Another better option is to use this flavorful liquid throughout the week once you open it to cook all your vegetables with on the stovetop. Instead of sautéing with water or oil, use a little broth. It adds flavor, holds moisture, and is a great way to add in extra nutrients. You **Make a purchase wisely.**

If some of the ingredients that you use to prepare meals often go to waste because you cannot spend it before the end of its period of validity, consider the purchase of those ingredients in smaller packages.

➤ Educate your staff.

With adequate practical training about the rules of movement in the kitchen or bar. Each of them must be familiar with the rules of movement in the bar or kitchen while preparing meals or drinks. For example, workers in the bar must learn to move circularly, to respect the sequence of actions in the bar in order to avoid unnecessary bumping that resulting with slower service and frequent spilling of drinks.

➤ **Invest in high-quality kitchen equipment**

That your staff using for the preparation and processing of foods. Use specialized knives for peeling of fruits and vegetables or knives for filleting and cutting meat or fish. These seemingly small differences in the quantity of food waste in the long period have a major impact on reducing waste and increasing your profit.

➤ **Change your plates**

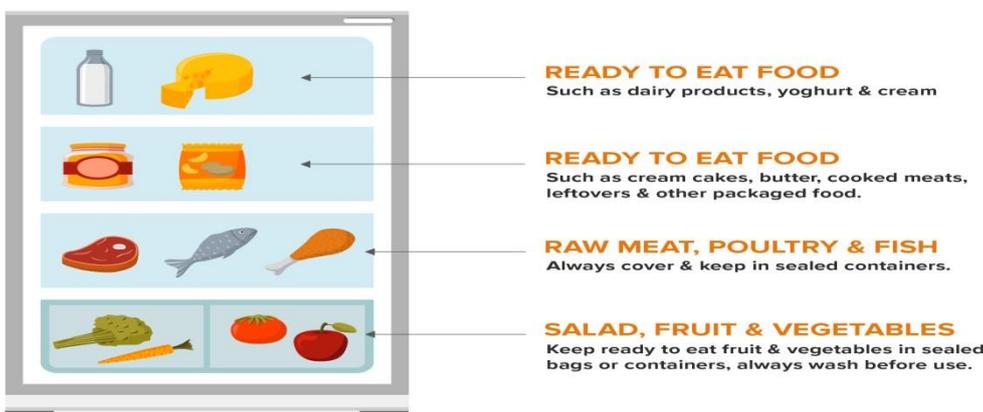
what would your nutritionist told you if you want to lose weight? Reduce portions of food in a way that you minimize the plate! Invest money in a new dinner service Plates and glasses with smaller volume will seamlessly reduce portions.

Tip: Set smaller plates with food on larger plates. In this way, portions will look bigger.

However, do not let your guests stay hungry!

Store fruits and vegetables properly. With proper storage of food you extending the time of use. Proper storage includes cleaning fruits and vegetables, storage in a suitable container and in the appropriate place with the obligatory labels with date of storage.

Regularly rotate the food in the fridge and warehouse. Set the foods that should be used first in front of the food that is stored newly. A very convenient way of storing food in the refrigerator is the rule "right to left". New foods always store on the right side of the fridge while existing food you move further to the left. When you taking the food for preparation you are of course using the reverse order "from left to right." In this way your food will be always fresh and you reducing food waste.



TAKE THE CHALLENGE:

Learn easy ways to waste less food and save money. Dedicate a leftovers night.

For many people in the world, food waste has become a habit: buying more food than we need at markets, letting fruits and vegetables spoil at home or taking larger portions than we can eat.

These habits put extra strain on our natural resources and damage our environment. When we waste food, we waste the labour, effort, investment and precious resources (like water, seeds, feed, etc.) that go into producing it, not to mention the resources that go into transporting and processing it. In short, wasting food increases greenhouse gas emissions and contributes to climate change.

It's a big problem. In fact, worldwide, tonnes of edible food are lost or wasted every day. Between harvest and retail alone, around 14 percent of all food produced globally is lost.

Huge quantities of food are also wasted in retail or at the consumer level.

Reducing food loss and waste is essential in a world where millions of people go hungry every day. When we reduce waste, we respect that food is not a given for the millions of people who go hungry every day.

It's up to us to change our habits to make not wasting food a way of life

If you find your fridge or freezer stuffed to the gills with leftover food, commit to "eating down the fridge" one night a week. Turn dinner into lunch. Another money- and time-saver for busy people: Stash a lunch-able portion of dinner in a container and pack it for lunch the next day. With a bit of planning and no extra effort, you can create a week's worth of healthful take-it-to-work lunches.

Think "ingredients," not "leftovers. Turn extra pasta or cooked vegetables into a frittata.

Blend cooked vegetables with a can of whole tomatoes and create a veggie-packed sauce for pasta. Create burritos with leftover cooked rice, meat and vegetables, and top them with sour cream and salsa. Make soup.

The steamed, roasted or grilled vegetables that you served as a side dish one night can become soup on another day. In a blender, puree the vegetables with 3 or 4 cups of vegetable or chicken broth, then warm the soup in a pot. Season to taste with salt and pepper and finish the soup with a bit of pesto olive oil or croutons. Salvage stale bread

If that loaf of good bakery bread loses its freshness after a day or two, do what the Italians do: Halve the loaf crosswise, drizzle it with good olive oil and rub it with the cut side of a halved ripe tomato. Season the bread with salt and pepper, wrap in foil and bake until warm. Stash vegetable scraps.

As an alternative to composting, keep vegetable scraps to make stock. Keep a gallon zip-top bag in the freezer and add trimmings: carrot and fennel tops, ends of onions or leeks, tomato cores, stems of herbs and greens, corn cobs, and the like. Any produce that's past its prime in the fridge can go in, as well. When the bag is full, defrost the contents, dump into a pot and add water to cover. Simmer for 2 hours, strain and you'll have better-than-store-bought veggie stock (which can be frozen in that same gallon bag). Create "kitchen sink "meals.

A great way to use extra cooked vegetables, bits of cheese, grilled or roasted steak, shrimp or chicken is to toss them with lettuce and your favorite dressing.

Portion and store.

Many food products come in extra-large sizes, which can be more economical. If you won't use all that sliced bread right away, for example, separate the loaf into portions your family will use in a day. Place a sheet of waxed paper between the portions, wrap and freeze.

Tortillas, pita bread and similar items can be saved the same way. Likewise, divide money saving large packages of meat into portions and freeze.

Why Use Leftovers?

The National Resources Defense Council estimates that up to 40% of food grown, processed and transport Got some food scraps that are destined for your trash or compost bin? Before you toss those

If you've heard the latest stats, you know that 40 percent of all food is wasted in the United States. And nearly half of that waste comes from households. Some of the reasons people waste food in their homes is by cooking too much and forgetting about or not eating up their leftovers. Here are six ways to prevent wasted food by tackling your leftovers.

- Don't throw them out
- Make them tomorrow's lunch
- Reinvent them
- Freeze them

- Swap them
- Prevent them

We have a serious food waste problem. While a lot of the food that goes to waste worldwide is on the supply side, we as consumers can do our part to reduce food waste as well. These ways to reuse food scraps are just one aspect of how we as consumers can reduce food waste.

Check out some of these articles for more tips and ideas to reduce food waste at home:

Ways to Reduce Food-Related Waste

Why Aren't We Addressing the Food Waste Problem?

Ways to Reduce Holiday Food Waste With 30-40 percent of our global food supply going to waste, anything that we can do to maximize the food we have can help. Check out these awesome ways to reuse food scraps to help you put a dent in the food waste in your kitchen!

Veggie scraps make delicious broth!

AWESOME WAYS TO REUSE FOOD SCRAPS

Make broth. Celery tops, onion and garlic skins, carrot peels, and other food scraps are great for flavoring your vegetable broth. Just save the scraps in a freezer-safe container until you have enough to cook them up. When the broth is done, strain out the solids and toss them into your

Use old lemon peels to infuse liquor. Check out this simple recipe for lemon brandy. You can also use this technique to make lemon vodka, rum, tequila...pretty much any liquor you like!

Save those kale stalks. Most recipes for kale and other dark leafy greens call for removing the leaves from the stems, but there is a lot of nutrition in those kale stalks! Try this recipe for kale stalks with chili and garlic.

A small slice of citrus peel keeps brown sugar from hardening. Just make sure that you store the sugar in the refrigerator, so the peel doesn't rot.

Is your garbage disposer stinky? Throw citrus peels into the garbage disposer to it. Apple peels make a tasty tea. If you want to make this recipe vegan, go for agave nectar or maple syrup in place of the honey or skip the sweetener all together.

Use apple peels to clean aluminum cookware. You can get the dects from DIY Network. You can actually eat carrots without peeling them, but if you want to peel your carrots, save the peels. You can use them to make carrot oil, which is a great addition to your DIY beauty regimen. Cucumber peels deter pests. You can find a list here of how to use cucumbers to deter ants, moths, mites, wasps, and silverfish.

Reuse those broccoli stems. Like kale stems broccoli stalks have tons of nutritional value. Just slice away the tough outer skin and try some of these recipes!

Does your kiddo eat his sandwiches with the crusts cut off? Save the crusts in a container in the fridge and grind them into breadcrumbs.

These cranberry muffins were made with almond flour left over from making almond milk! After making almond milk, dry the leftover pulp in the oven and use it in any recipe calling for almond flour. Try these almond flour muffins to start. Related Reading Foods that You Should Make from Scratch

Next time you get a bunch of beets, save the leafy tops. Wash them well to get all of the dirt off, and you can cook them up just like you would Swiss chard, a close relative to the beet Did someone say chard? Check out this recipe for quick-pickled Swiss chard stems! After cutting the top off of your pineapple, don't toss it in the compost. You can actually use that top to grow another pineapple. Save the bottoms of your green onions, too. You can plant them in a pot or your garden to grow new onions. Speaking of onions, you can use the skins to make fabric dye. Both yellow onions and red onions work to make dye. Reuse celery. leaves. Celery tops are full of nutrients and flavor. Green Talk shows you lots of ways to cook and store celery leaves Use coffee grounds to deodorize your hands and cutting board after chopping garlic and onions. Rub them on, then rinse away. It seriously works like magic. Next time you..

RESEARCH & METHODOLOGY

Title of Research:

To Study on leftover food Reused in kitchen in Nagpur City

Research Methodology

- Descriptive
- Analytical

Sampling

1) Population of Study- reduced cost & recycling reused leftover food 2) Total Sample Size:
104

Sampling Techniques:

The sample technique selected for study was Stratified Sampling Technique.

TOOLS USED

The tool used for this study is a well-structured questionnaire and its recording will be analyzed.

COLLECTION OF DATA::

- a) Primary data:-The primary data consist of information collected through questionnaires cum personal interviews. The questionnaires consist of basic information about topic and survey done on it.
- b) Secondary data:-The secondary data consist of individual information gathered by the researcher through, internets and magazines.

RESULTS & DISCUSSIONS

TABLE 1

SIGNIFICATION OF LEFTOVER FOOD REUSED IN KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	98	95.1%
2	No	5	4.9%
	Total	103	100%

From the above table its shows that 91.1% of people said they know about leftover food reused in kitchen, 4.9% of people said they don't know about leftovere food reused in kitchen.

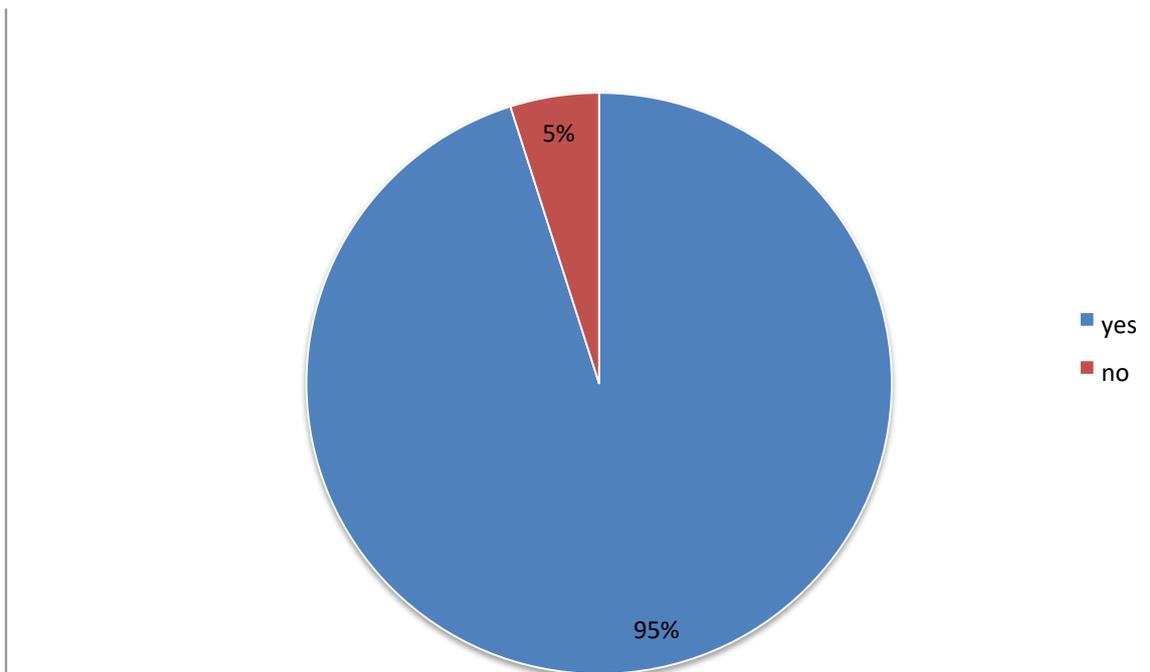


Fig 1

TABLE 2

REDUCING THE LEFTOVER FOOD IN KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	95%	9	8.7%
2	50%	82	78.8%
3	75%	8	7.7%
4	20%	5	4.8%
	Total	104	100%

From the above data 78.8% of respondents said food wastage due to to leftover food in kitchen can be reduced by 50%.,8.7% of respondents said food wastage due to to leftover food in kitchen can be reduced by 95%,7.7% of respondents said food wastage due to to leftover food in kitchen can be reduced by 75%.,4.8% of respondents said food wastage due to to leftover food in kitchen can be reduced by 20%.

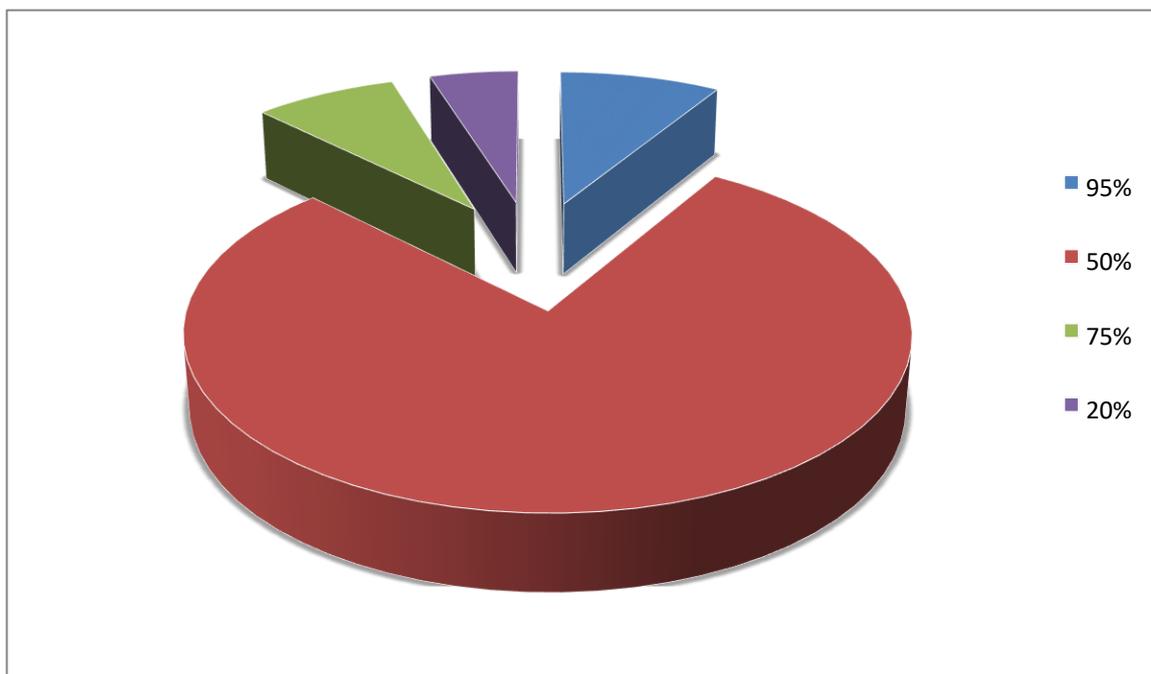


Fig 2

TABLE 3

METHODS USED FOR TREATMENT OF LEFTOVER FOOD IN KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	Reused	4	3.8%
2	Recycling	91	87.5%
3	U.O purpose	8	7.7%
4	Donated for charitable	7	6.7%
	Total	104	100%

Out of 104 respondents, 87.5% people said they recycled leftover food in kitchen, 7.7% of people said they used leftover food for other purposes, 6.7% people said that they donated for charitable purposes and 3.8% of people said they reused leftover food in kitchen.

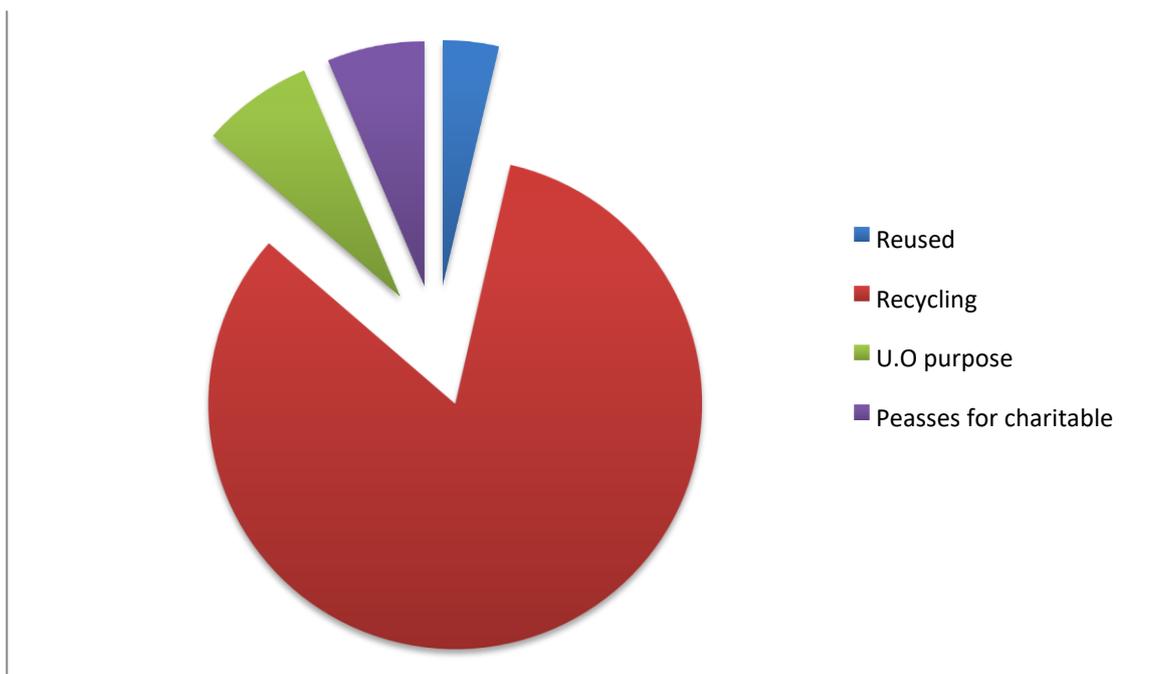


Fig 3

TABLE 4

SEGREGATE LEFTOVER FOOD IN YOUR KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	92	88.5
2	NO	12	11.5
	Total	104	100%

Out of 104 respondents, 88.5% of people said they know about segregate leftover food in your kitchen, 11.5% of people said they don't know about segregate leftover food in your kitchen.

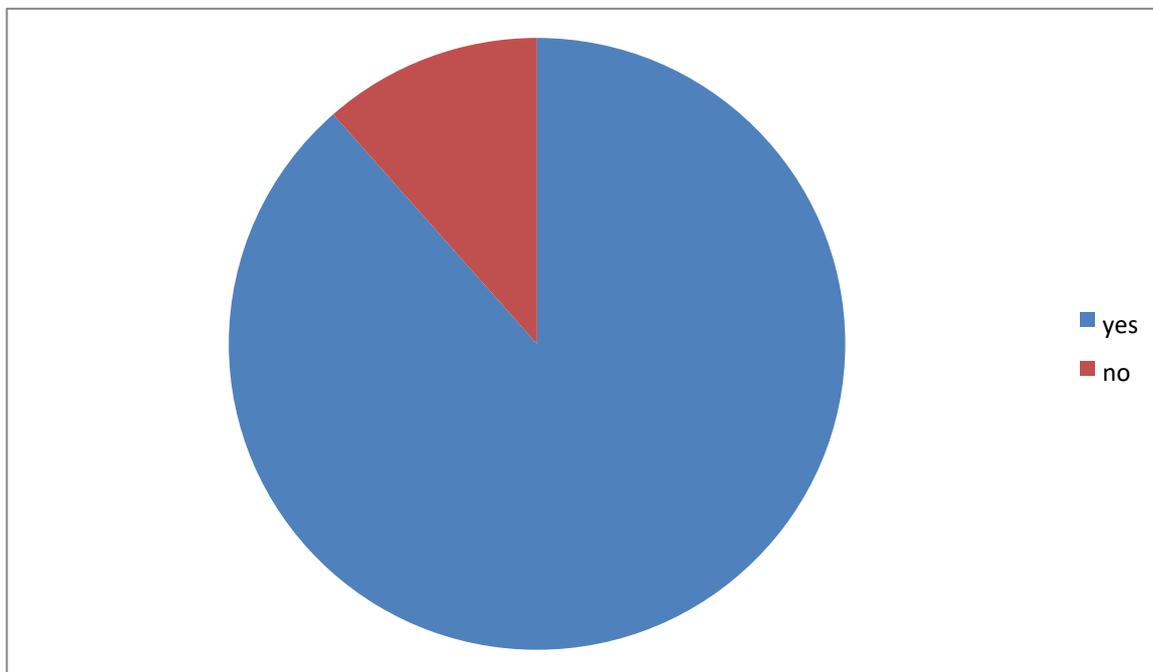


Fig 4

TABLE 5

THE LEFTOVER FOOD REUSE

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	98	94.2
2	NO	6	4.8
	Total	104	100%

Out of 104 respondents, 94.2% of people said they know leftover food reuse, 4.8% of people said they don't know about leftover food reuse.

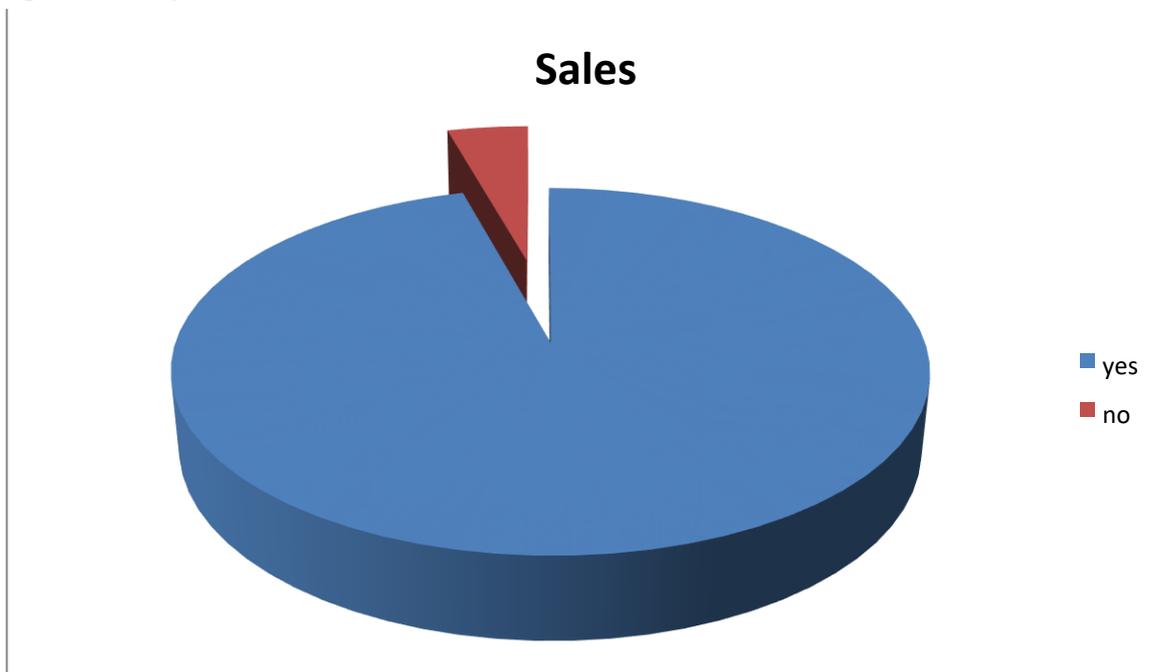


Fig 5

TABLE 6

LEFTOVER FOOD SEPARATION

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	97	93.3
2	NO	7	6.7
	Total	104	100%

Out of 104 respondents, 93.3% of people said they know leftover food separation, 6.7% of people said they don't know about leftover food separation.

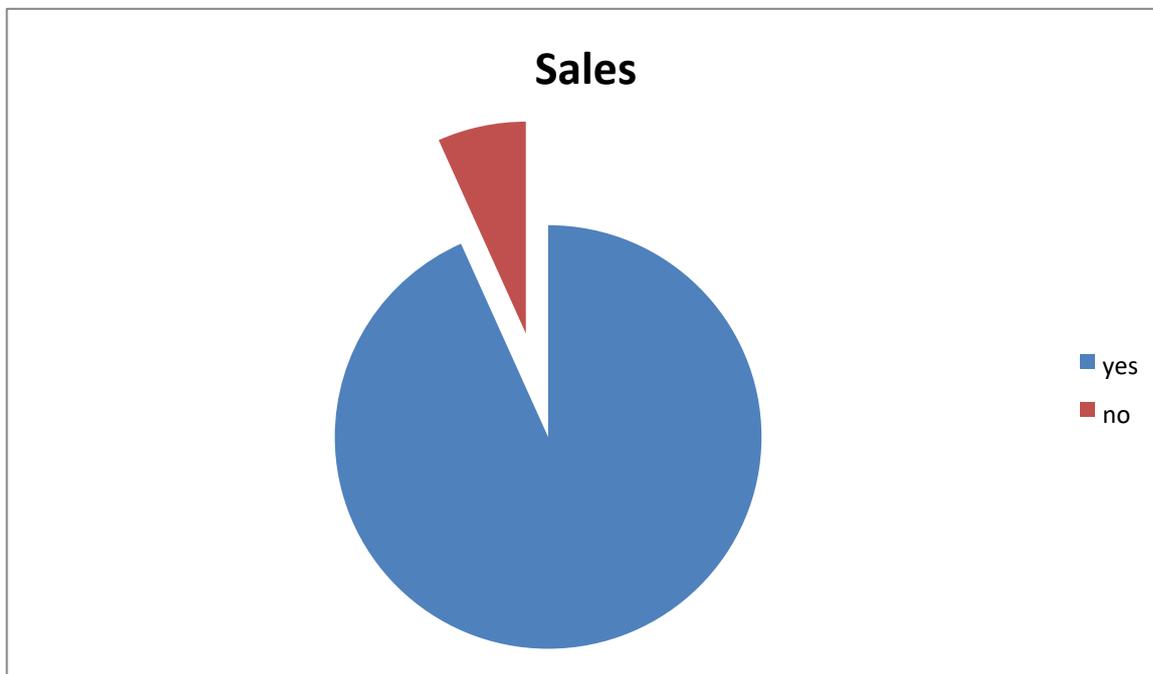


Fig 6

TABLE 7

EGG SHELLS USE FOR DOG FOOD

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	93	89.4
2	NO	11	10..6
	Total	104	100%

Out of 104 respondents, 89.4% of people said they know about egg shells use for dog food, 10.6% of people said they know don't know about egg shells use for dog food.

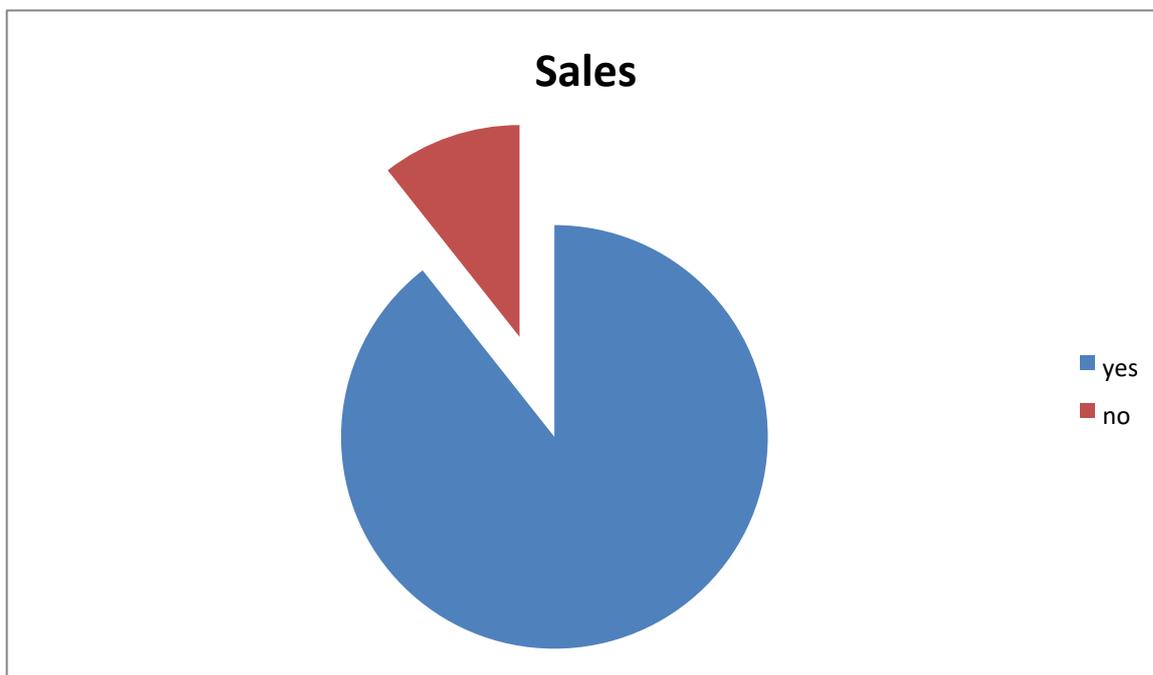


Fig 7

TABLE 8

PURCHASE OF FOOD IN KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	Online	4	3.8
2	Agents	93	98.4
3	By self	5	4.8
4	None of this	2	1.9
	Total	104	100%

Out of 104 respondents, 98.4% of people said they purchased food from agents, 4.8% of people said they purchased food by themselves, 3.8% of people said they purchased food online and 1.9% of people opted for a different source.

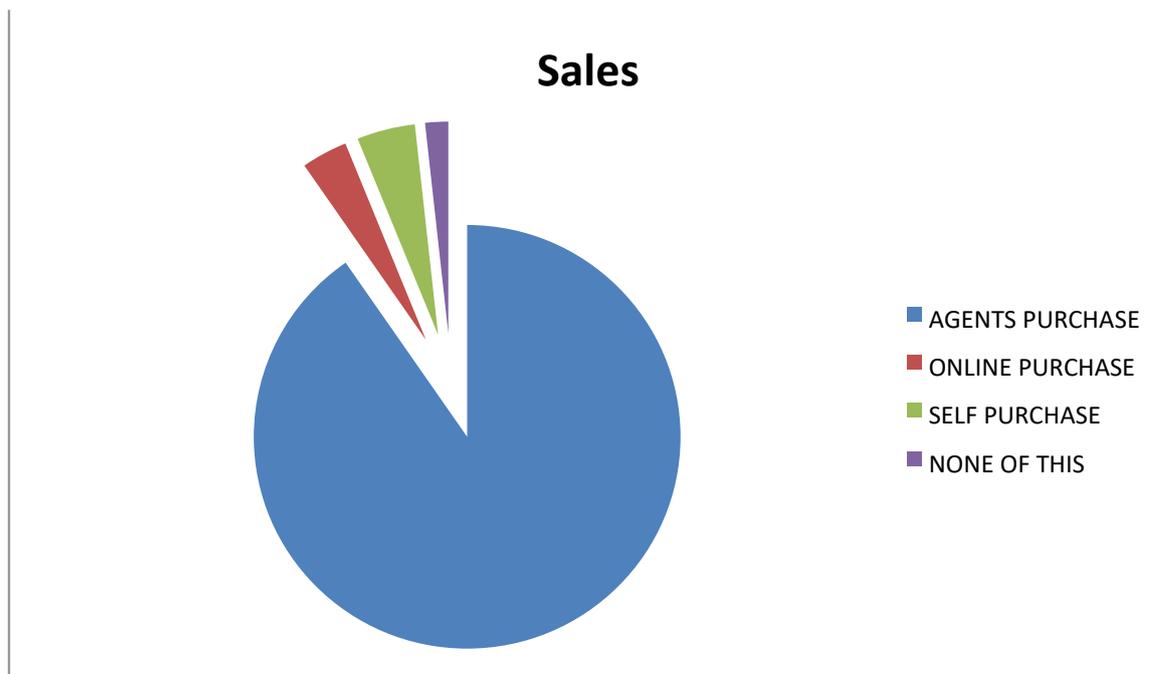


Fig 8

TABLE 9

RECYCLING COST CONTROL IN FOOD

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	87	83.7
2	NO	8	7.7
3	Maybe	9	8.7
	Total	104	100%

Out of 104 respondents, 83.7% of people said they know about recycling cost control in food, 8.7% of people said they maybe know about recycling cost control food and 7.7% of people said they know don't know about recycling cost control in food

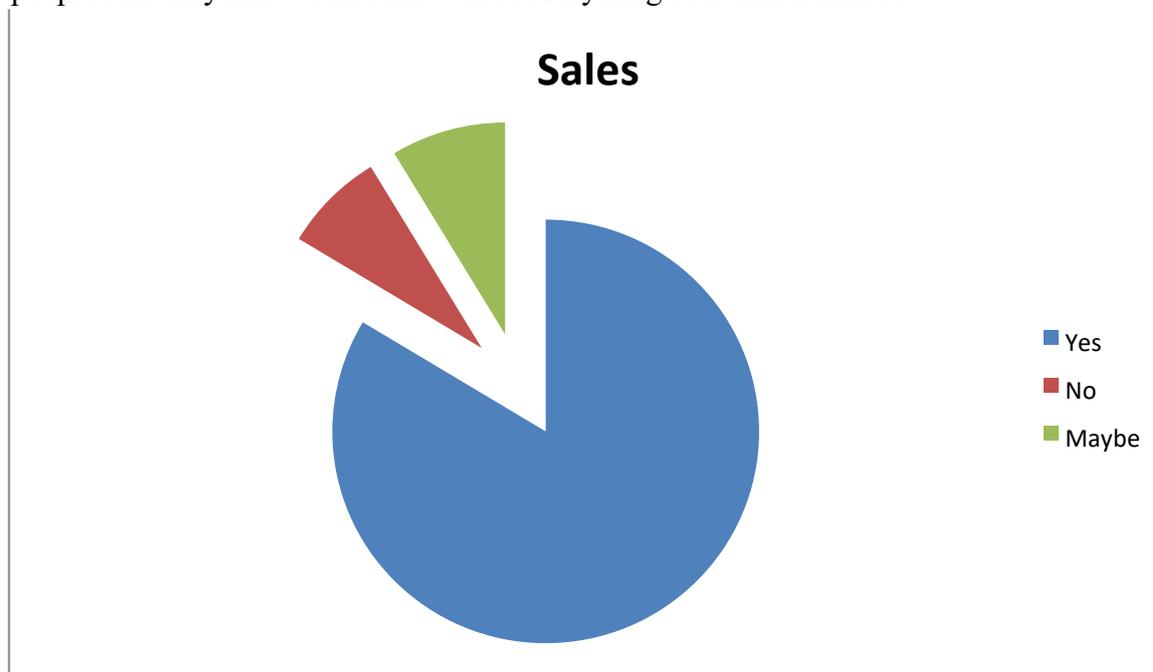


Fig 9

TABLE 10

THE LEFTOVER FOOD REDUCES A COST

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	97	93.3
2	NO	7	6.7
	Total	104	100%

Out of 104 respondents, 93.3% of people said they know about the leftover food reduces a cost, 6.7% of people said they don't know about the leftover food reduce a cost

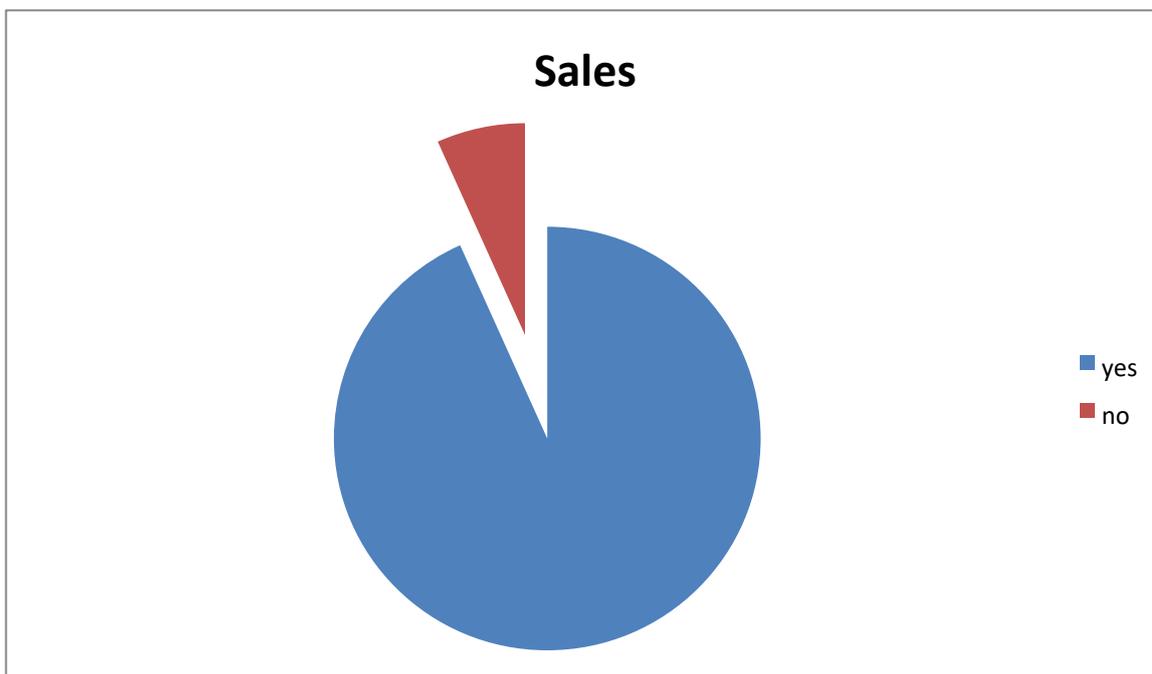


Fig 10

TABLE 11

THE RATIO OF LEFTOVER FOOD REUSED VS WASTAGE

Sr No.	Particulars	No. of Respondent	Percentage
1	Usable	6	5.8
2	Waste	14	13.5
3	Both	80	76.9
4	None	4	3.8
	Total	104	100%

Out of 104 respondents the ratio of food used vs food waste 13.5% is to 5.8%.

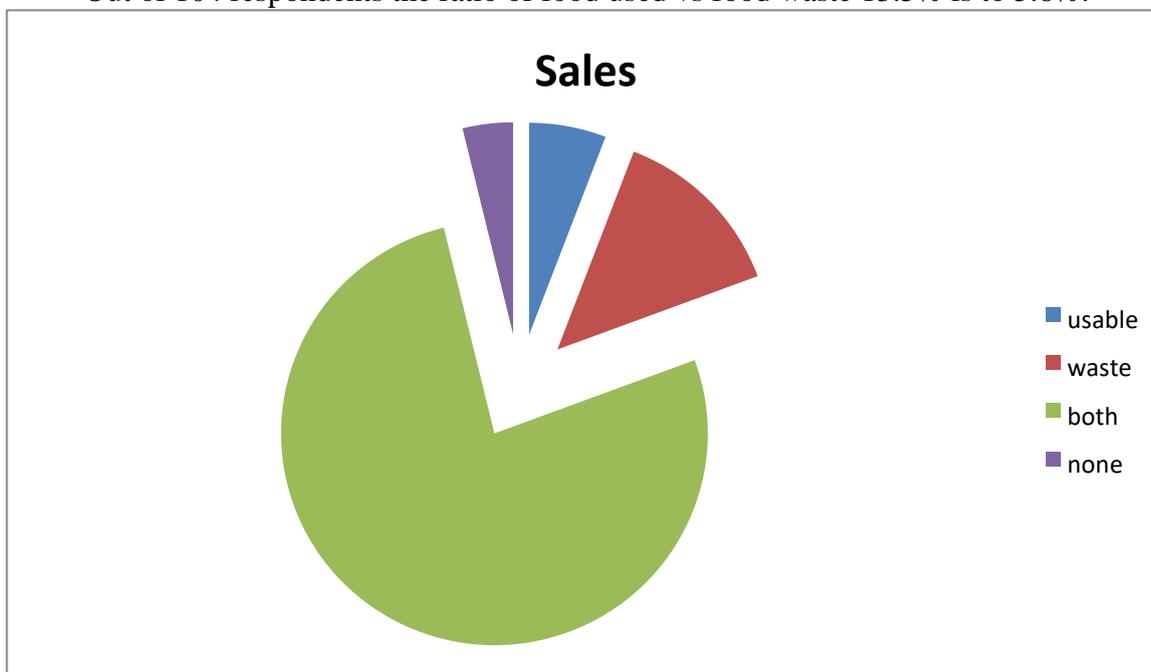


Fig 11

TABLE 12

YOU THING ABOUT THE RECYCLING OF FOOD

Sr No.	Particulars	No. of Respondent	Percentage
1	Other purpose	8	7.7
2	Other dishes	90	86.5
3	Charitable	6	5.8
4	None	0	0
	Total	104	100%

Out of 104 respondents 86.5% of people said they recycling of food in kitchen for other dishes, 7.7% of people said they recycling of food in kitchen for other purpose and 5.8% of people said they recycling of food for charitable.

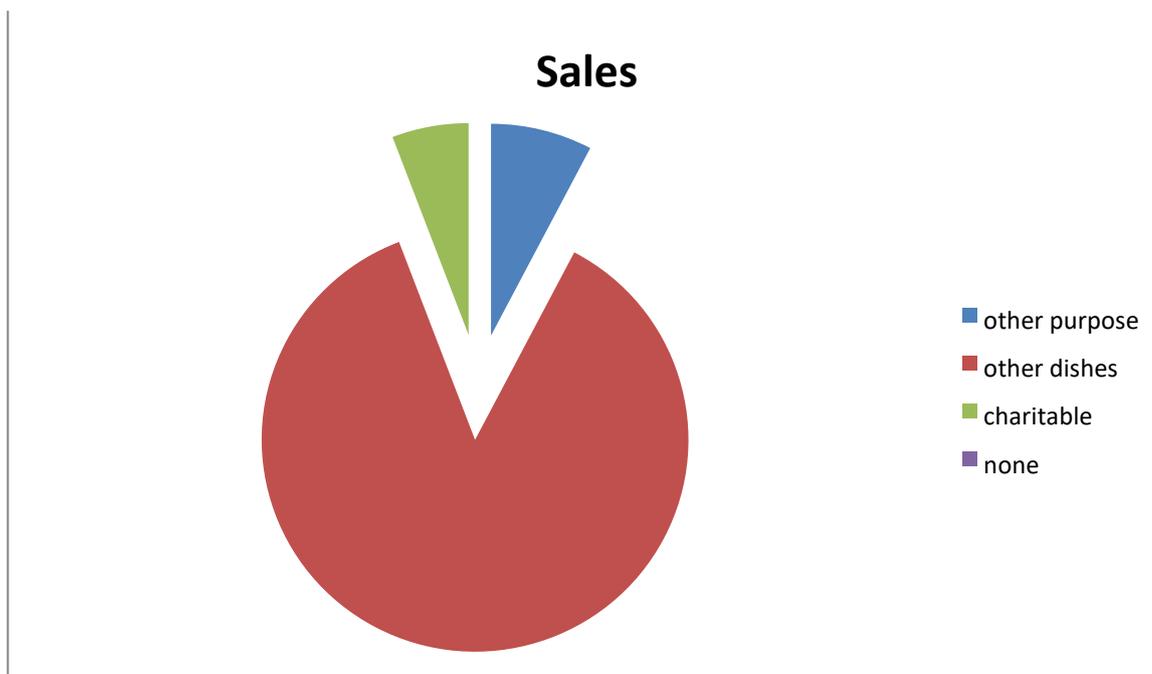


Fig 12

TABLE 13

OPINION THE WAGES OR PEEL ARE USABLE

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	99	95.2
2	NO	5	4.8
	Total	104	100%

Out of 104 respondents 95.2% of people said they know about the wages or peel are usable 4.8% of people said they know don't know about the wages or peel are usable.

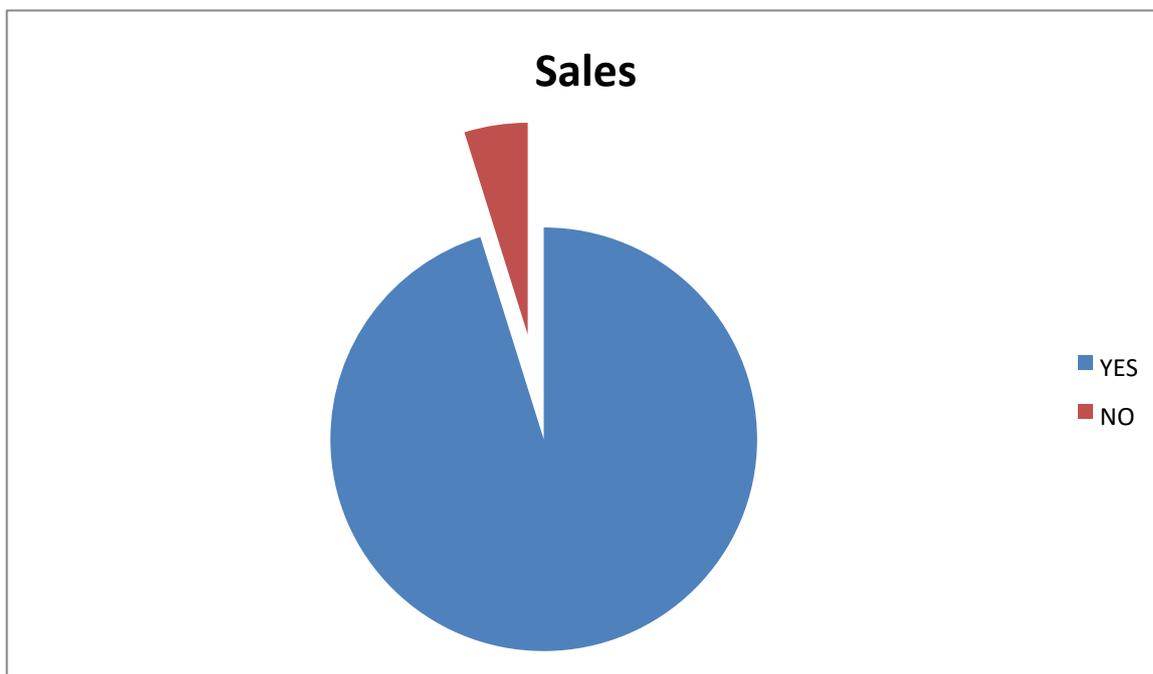


Fig 13

TABLE 14

REUSE REDUCE RECYCLE (3R)

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	95	91.3
2	NO	9	8.7
	Total	104	100%

Out of 104 respondents, 91.3% of people said they know about reuse reduce recycle (3R), 8.7% of people said they don't know about reuse reduce recycle (3R).

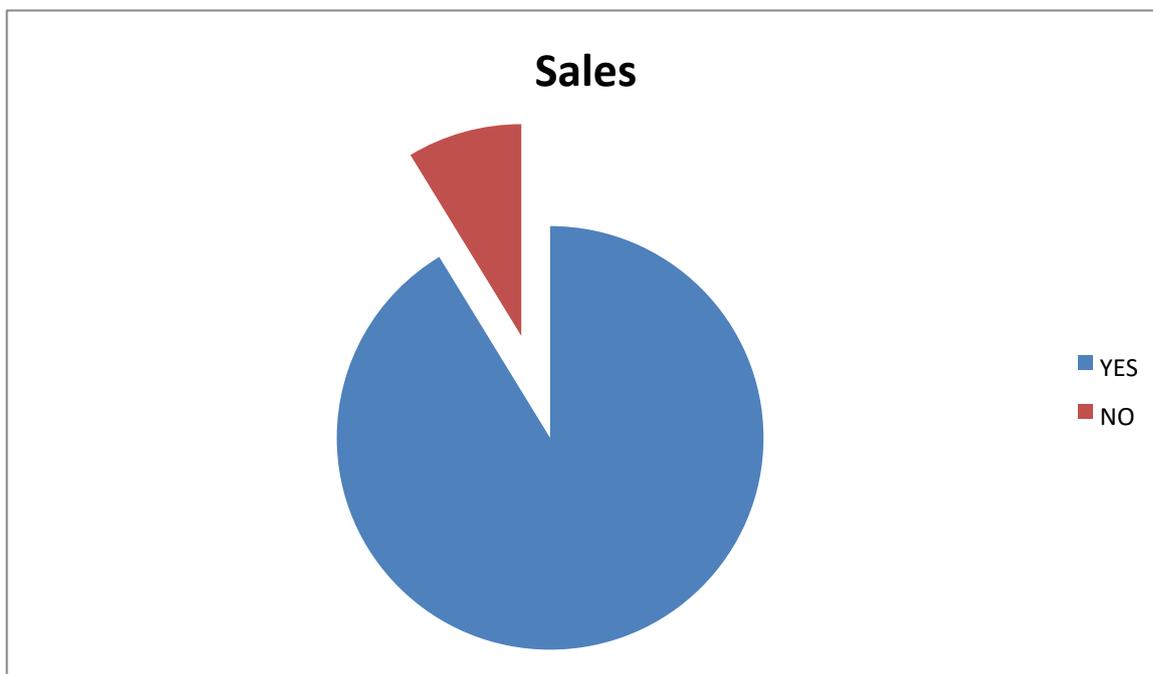


Fig 14

TABLE 15

MAKE A BIO CHEMICAL GAS IN YOUR KITCHEN

Sr No.	Particulars	No. of Respondent	Percentage
1	Yes	84	80.8
2	NO	11	10.6
3	Maybe	9	8.7
	Total	104	100%

Out of 104 respondents, 80.8% of people said they know about bio chemical gas in kitchen, 10.6% of people said they don't know about bio chemical gas in kitchen and 8.7% of people said they maybe know about bio chemical gas in kitchen.

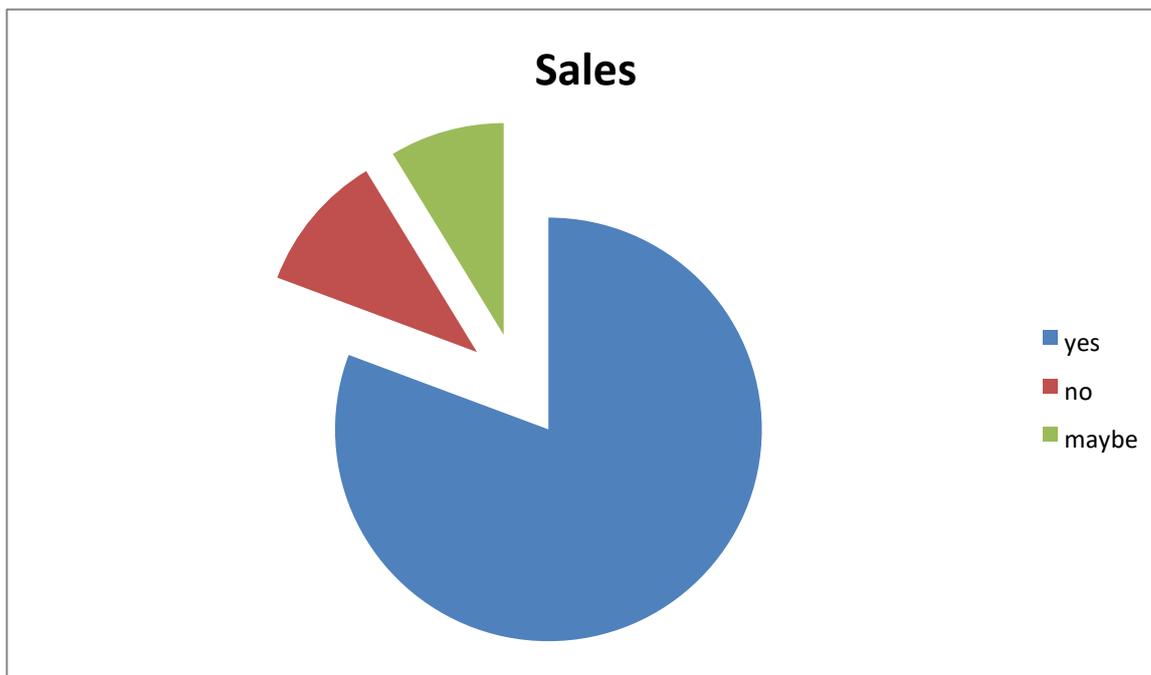


Fig 15

SUMMARY & CONCLUSION

SUMMARY:

Reducing food costs and generate revenue Making impact on the creation of a positive image

Improving foodservice practices. Improving your equipment.

Positive impact on employee morale.

Positive impact on the environment.

Create a Team Responsible for Managing the Garbage You can hire a professional team to do a waste audit or you can do it with your team.

Who should be in the team? Depending on the restaurant capacity and scope of the operations performed in the restaurant team may consist of one or more persons much money you throw way in your trash every the. Everyday restaurants around Do you know how day? You do not know? Or, you know but you do not know how to prevent money lost through your food waste? You are in the right place to find the answers to these questions, change your foodservice practices and reduce restaurants waste to a minimum in the best possible way the world throw away tons of food while many people on the same planet a dying from hunger, Our reality is full of contradictory facts that we can ignore or not. For someone this will be good reason to get concerns and take care of their food waste, and the other will need more reason for that. Maybe good reason will be data issued by the study of University of Arizona that says that the percentage of food waste in fast-food restaurants is about 9.55% and in restaurants with full service 11.3% of the total amount of purchased food Cost of food for the preparation of meals is the second largest expense in the restaurants industry right after personnel costs. These data confirm that you can reduce these costs by almost 10 You got enough reasons to organize the restaurant waste management Your pale and to reduce, reuse and recycle! Where to start? Restaurant waste can he roughly divided into two major groups - the one that learn before consuming food and the one that fell after your guests finish with dining

First, it is necessary weigh the empty container. Then weight contain with the waste To get

CONCLUSION:

Restaurant waste that left before your guest consumed food would be one that occurs during food preparation like raw foods such as potato peel, roots from leafy vegetables or bones, improperly prepared food, fluids and food accidentally spilled on the kitchen floor etc. Statistical data suggest that as many as 4-10% of raw food in the restaurants ends up being this kind of garbage. Losses are really great but there are solutions for the recycling of such waste by donating to food banks or some other national association. Food can be also reused -old bread can be tasty toast weight of waste subtract the weight of empty container from the value that you get. Record everything in provided sheet for waste tracking. This process should be performed at the end of each working shift. In this way you will make the best comparison how much food you sell and how much waste you get, of course after you finished inventory for that shift you might use.

SUGGESTION & RECOMENDATION

SUGGESTION AND RECOMMENDATION:

After data analyzing of the hotel questionnaire and carrying out association tests the data was interpreted. The findings of the hotel data interpretation are listed out below Mr. Mohsinuddin sheikh head chef for board's and brews cafe suggest for me making a bio chemical gas it's a not because this process is very costly there are various challenges of this process are as follows.

- Purchase of equipment
- Man power
- Area & Space
- etc
- Mr. Shakir khan MD in Taj hotel & restaurant Asi nagar teka Nagpur this research topic is good and he suggest & promise me the leftover food sending a charitable don't waste next time.
- Mr. Ankit Tiwari comment in my topic /hotel darshan tower According to your research concept is good this research is benefit the control food cost and help for poor people also.
- Mr. Ajay sir F&B Ex manager hotel center point Ramdas pet sadar Nagpur He is not reused because this process is not easy task this process is very highly and the hotel policy is donate a leftover food send for the charitable.

- Mr. Shakeel ayyub GM in Shabana Bakery chauni sadar Nagpur There are various product leftover in our restaurant he donate charitable Anath ashram sending a food because this is a policy of restaurant.

BIBLIOGRAPHY

- Personal research in a home & restaurant

WEBSITES:

- <https://possector.com/management/restaurant-food-waste-reduction> (htt1)
- <https://ivaluefood.com/resources/cooking-eating/creative-ways-to-useleftovers/> (htt2)
- https://www.powerforall.org/insights/technologies/powering-clean-farmfork-solutions-zerohunger-world?gclid=EAJaIQobChMI-devjqnsAIVfphmAh3kqwL-EAAYASAAEgKxEfD_BwE (htt3)
- <https://www.ncbi.nlm.nih.gov/books/NBK209124/> (htt4)
- <https://www.unep.org/thinkeatsave/get-informed/worldwide-foodwaste#:~:text=Roughly%20one%2Dthird%20of%20the,tonnes%20%2D%20gets%20lost%20or%20wasted.> (htt5)
- <https://www.unep.org/thinkeatsave/get-informed/worldwide-food-waste> (htt6)
- <https://blogs.worldbank.org/voices/food-waste-bigger-problem-youthought> (htt7)

Book reference

- **Institution food management** (mohini) □ **Nutrition science** (b.sirlakshmi)