

PURCHASE AND STORAGE OF FOOD

24.1 Introduction

All of us purchase food from the market. Some of us also grow food at home. While purchasing food we pick and choose from a variety of foods that are sold in the market. Some foods are cheap, some expensive, some are fresh and some stale, some are in season and some are out of season. All these factors influence our choice of food while buying. The quantity of food bought is generally more than what we require at any given time. Hence after buying, our next problem is to put the foodstuff away. Although, we are very careful when we store foods, often when we want to cook them, we find that some of the foods have got spoilt, vegetables have started to smell and rot and the dals have been eaten up by insects. Why does this happen? Is this because we did not select the foods carefully or because they were not stored properly? If a spoilt food is accidentally consumed, then what happens? You will find answers to these and similar questions in this lesson.

24.2 Objectives

After reading this lesson, you will be able to :

- classify foods on the basis of keeping quality or perishability;
 - select foods of good quality;
 - demonstrate appropriate methods of storage of food;
 - state the importance and procedures of safe food handling;
 - define food spoilage and explain its common causes;
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24.3 Perishability of Foods

You must have observed in your homes that there are some foods like green leafy vegetables, tomatoes etc, which spoil faster than vegetables like potatoes, onions, arbi etc. Foods like rice and dals do not spoil for months together. Each food stuff has a specific period after which it begins to spoil. This period is called shelf life. Depending upon the shelf life we can divide foods into 3 categories:

- i) Perishable foods
- ii) Semi-perishable foods
- iii) Non-perishable foods

(i) **Perishable foods:** Cannot be stored for more than one or two days at room temperature i.e. they have a shelf life of 1 or 2 days. Milk is a good example of perishable food.

(ii) **Semi-perishable foods:** Can be kept for a couple of weeks or even a month or two. They have a longer shelf life than perishable foods. Potato, arbi, onions, ginger, biscuits and namkeens, are some examples of semi perishable food.

(iii) **Non-perishable foods:** In the real sense foods in this category are not really non-perishables, but they can be stored for much longer time when compared to perishables and semi-perishables. They can be stored for several months and the examples of such foods are cereals, pulses, dry fruits, spices, oil etc.

You can also change a perishable food stuff to a semi-perishable or non-perishable one by giving it some treatment. For example if you boil milk and refrigerate it you can keep it for few days. If you make a murabba from carrot then you can keep it for months.

Perishable foods can be stored for 1-2 days.

Semi-perishable foods can be stored for some weeks to 1-2 months.

Non-perishable foods can be stored longer as compared to perishables and semi-perishables.

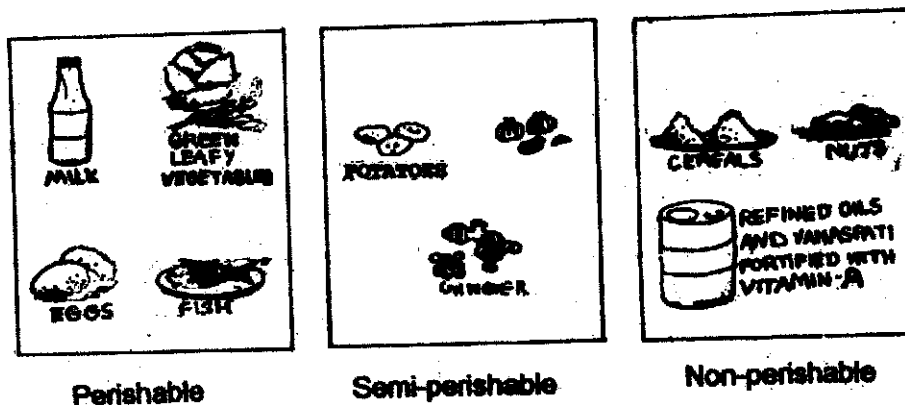


Fig. 24.1 Food Categories

Intext Questions 24.1

1. Classify the following foods as perishable (P), semi-perishable (SP) and non-perishable (NP)
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|--------------|------------------|
| 1. Bhindi | 11. Apples |
| 2. Urad dal | 12. Pappad |
| 3. Suji | 13. Moong dal |
| 4. Besan | 14. Badi |
| 5. Jaggery | 15. Potato chips |
| 6. Wheat | 16. Spices |
| 7. Rajmah | 17. Cooking oil |
| 8. Banana | 18. Green peas |
| 9. Butter | 19. Spinach |
| 10. Tomatoes | 20. Wheat flour |
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24.4 Selection, Purchase and Storage of Food Stuffs

When you go to the market to buy foodstuffs what do you do? You probably quickly run your fingers through wheat, rice, dal etc., or pick up a tomato, mango, banana and press it gently to see if it is firm. Why do you do this? You do this to see if there are any stones or insect eaten grains in it and to check the firmness of tomato, mango etc. When you buy food, you generally buy more than what you need or what you can consume immediately. If you bought food that will spoil before you could use it, it would mean wastage of money. The food that you purchased could also spoil if it is not stored properly. This again would mean wastage of food and money. If you left dals or spices in paper bags, they will absorb moisture and then after sometime, fungus and small insects will grow on them. Biscuits would become soggy if left loose and namkeens would lose their freshness. This means that after purchase proper storage of foodstuffs is as important as the purchase of quality foodstuffs. Let us now learn about the points you must keep in mind while selecting and purchasing food and the methods/procedures of storing different foodstuff.

When to buy

You may be thinking as to how does it matter 'when you purchase? Well it is an important factor which decides the quality of certain food items. Let us study some examples to understand this better.

1. **Seasonally available:** Compare the quality of mangoes that are available in the month of March and those available in the month of May-June or September. Isn't there a marked difference? Fruits and vegetables are fresh when in season and also cheaper. There is also a difference in the colour and taste. You know that carrots, methi and cauliflower are winter vegetables whereas bhindi, lauki and brinjal are summer vegetables. If you want winter vegetables in summer you may not get them or if you do, these may taste different. Hence remember, if you want to buy fruits and vegetables of good quality a knowledge about when these are grown is necessary.
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2. **Harvest Time:** The price of rice, wheat and groundnut and other foods which are grown once a year or once in six months will be cheaper during harvest time than in non-harvest time.
3. **Time of the day:** During what time of the day do you buy milk at your home? Early morning. Why? Because it is fresh. Similarly, fruits and vegetables, bread etc. are available in fresh form only during certain time of the day.
4. **Market for purchase:** You probably know that food is sold cheaper in some markets than in others. Wholesale markets are cheaper than the retail markets. But remember whole sale markets will sell only in bulk and if you do not need food in bulk there is no produce going there for purchase. Co-operative stores/super bazar/weekly bazars (Haats) are also cheaper than some of the retail markets. Hence before making purchases make a survey of the markets decide where you want to buy.

- Knowledge of what, where and when to buy helps you to get quality foods.
- Knowledge of how to store foodstuffs helps to prevent spoilage.

TABLE 24.1

TYPE OF FOOD	NAME OF FOOD	SELECTION	PURCHASE	STORAGE
A. Non-Perishable Foods	1. Cereals and pulses, e.g. Wheat, rice etc.	<ol style="list-style-type: none"> Should be clean i.e., without any stones, bits of stalk or rotting grains. Should not have any lumps or webs which are formed because of insects and weavils. Grains should be big, hard dry. Should have proper colour and appearance. 	<ol style="list-style-type: none"> Buy from co-operative stores as they are cheaper and reliable. Buy when in season, e.g. wheat in April/May, as it is fresh and has good flavour. Buy in bulk if you have space to store. 	<ol style="list-style-type: none"> Store in clean, dry and air-tight containers. Lumps of salt/ turmeric can be used for storing rice. Mix wheat with dry neem leaves. Special Ayurvedic tablets can be used. Tie these in muslin cloth so that it becomes easy to remove before cooking.
	2. Sugar, jaggery, coffee, salt	<ol style="list-style-type: none"> Should be clean and free of dirt, dust and stalk. Should have proper colour. Sugar should be dry. Select packed iodized salt. 	<ol style="list-style-type: none"> Buy more quantity only when good, clean variety is available. Buy coffee in small amounts only. 	<ol style="list-style-type: none"> Store in dry, air-tight containers.
B. Semi-Perishable foods	1. Suji, atta, maida, dalia etc.	<ol style="list-style-type: none"> Should have no lumps or weavils. 	<ol style="list-style-type: none"> Buy limited quantities only. 	<ol style="list-style-type: none"> Dry roast suji and dalia before storing.
	2. Spices	<ol style="list-style-type: none"> Should have proper colour. flavour is not lost. Should be finely powdered. It is best if packets have standardisation marks. 	<ol style="list-style-type: none"> Should have a sweetish taste. Buy in small quantities only so that bottles so that flavour is retained for longer period. 	<ol style="list-style-type: none"> Store in dry, air-tight tins or bottles. Store in dry, air-tight tins or
	3. Ghee, oils, butter	<ol style="list-style-type: none"> Should not have a stale smell. Should have proper colour. Select known brands only. 	<ol style="list-style-type: none"> Never purchase loose ghee/oil as it may be adulterated. Buy according to family needs. Buy brands with standardisation marks. Check date of expiry 	<ol style="list-style-type: none"> Store in air-tight containers. Never leave the tin open as air and moisture make the ghee/oil rancid.
	4. Cheese and paneer	<ol style="list-style-type: none"> Paneer should be fresh and spongy. 	<ol style="list-style-type: none"> Purchase from a reliable shop. 	<ol style="list-style-type: none"> Lightly fry paneer pieces and store on cooling. Paneer lasts much longer this way. Fresh paneer can be kept in cold water.

Table 24.1 Tells you about the points regarding selection, purchase and storage of various food products.

TYPE OF FOOD	NAME OF FOOD	SELECTION	PURCHASE	STORAGE
	5. Potatoes, onion, ginger, garlic	<ol style="list-style-type: none"> 1. Select medium sized vegetable, with no sprouting eyes. 2. Onion covering should be dry and free of smell. 3. Ginger should be fairly big and dry. 	<ol style="list-style-type: none"> 1. Avoid buying green potatoes as they are not good in taste and are harmful. 	<ol style="list-style-type: none"> 1. Remove from packets and store onions and potatoes in separate wire baskets. 2. Keep ginger in wet sand to make it last longer.
	6. Processed foods, instant foods, jams, jellies pickles, papads, sambar, chutney & so on.	<ol style="list-style-type: none"> 1. This should not be in bulging tins bottles, and bottle caps should not be broken. 	<ol style="list-style-type: none"> 1. Check lable for FPO brand names, observe lables, and expiry date. 2. Check packet for damage and weight bezaar. 	<ol style="list-style-type: none"> 1. Store in cool place. 2. Never leave tins and bottles open. 3. Transfer packet or open tin contents into clean air-tight bottles.
C. Perishable Foods	<ol style="list-style-type: none"> 1. Fruits and Vegetables 2. Eggs 	<ol style="list-style-type: none"> 1. Should be clean, fresh, firm and crisp. 2. Heavier fruits with a thin skin are juicier and of good quality. 	<ol style="list-style-type: none"> 1. Purchase only as much as required for the family. 	<ol style="list-style-type: none"> 1. Store in a cool, dry place. 2. Keep cauliflower and radish with leaves which keeps them fresh longer. 3. Keep leafy vegetables wrapped in a moist cloth. 4. Coat lemons with oil and then store. 5. Do not wash fruits before storing as they spoil faster. 6. Store in a refrigerator if you have one otherwise wrap in a moist cloth, specially in summers. 7. Keep cabbage and cauliflower in 2-3 folds of newspaper or brown paper.
		<ol style="list-style-type: none"> 1. Select eggs that are clean, fresh and large. Check freshness of eggs by - rough shell - no sound when shaken 	<ol style="list-style-type: none"> 1. Buy eggs from poultry farm if it is close by as rates are cheaper. 	<ol style="list-style-type: none"> 1. Never wash eggs before storing. 2. Store eggs with pointed ends downwards. 3. Store in a cool place or in a basket in an airy room.

TYPE OF FOOD	NAME OF FOOD	SELECTION	PURCHASE	STORAGE
	3. Milk, Curd, Cream, Khoa	1. Select milk according to quality needed. - Toned milk (no cream) - Full cream (buffalo milk) 2. Check colour and taste. Milk has a slightly sweet taste. Stale milk has sour taste and an unpleasant smell.	1. Buy from clean and hygienic place.	1. Boil milk and keep in a cool place. If there is no refrigerator, boil milk after every 5-6 hours to keep it free of germs. 2. Never mix old milk with fresh milk. 3. Curd and cream should be stored in cool place-a refrigerator if possible. 4. Keep away from strong smelling foods e.g., onions, guava, mango etc., as it absorbs the smell. 5. Khoa is soft and sweet but becomes sour if not stored in a cool place.
4. Meat, Fish, Chicken		1. Fresh meat is always pink in colour. 2. Meat should be firm yet soft and have a smooth surface. 3. Should not have a rotten smell. 4. Meat and fish should not feel sticky. 5. Fish gills should be of bright red colour. 6. Press fish with thumb and if depression remains, the fish is not fresh.	1. Buy from reliable shops only, where meat of healthy animals is sold. 2. Buy in quantity needed and consume immediately.	1. Keep in cool place.
5. Bread		1. Press it between your fingers. If soft to touch and presses easily and comes back to original shape, it is fresh.	1. Buy from a reliable shop.	1. Keep in air-tight containers so that it remains fresh longer.

24.5 Safe Handling of Food

Safe handling of food means hygienic handling of food. It is important for health. Unsafe food carries germs which can cause diseases. Hence, food meant for human consumption should be handled safely so as to prevent any harmful effects to the person consuming it.

Remember the following points while handling food :

- Wash your hands before cooking and eating
- Wash all fruits and vegetables before cooking or eating them raw
- While coughing or sneezing, cover your mouth and nose
- While tasting, use a separate spoon
- Keep all perishable foods in a cool place or in a refrigerator
- Keep your kitchen and storage facilities clean
- Use clean utensils
- Buy food from reliable sources especially milk and milk products, meat products, etc.

Intext Questions 24.2

Select The Correct Answer:

1. Green leafy vegetables should be wrapped in..... and stored.
 - (a) brown paper
 - (b) moist muslin cloth
 - (c) newspaper
 - (d) polythene packet
2. Eggs Should be stored with pointed ends
 - (a) straight
 - (b) downwards
 - (c) upwards
 - (d) angled
3. Rice can be stored using
 - (a) neem leaves
 - (b) special ayurvedic tablets.
 - (c) lumps of salt and turmeric
 - (d) all of the above

24.6 Food spoilage : Causes and Hazards

What happens when cooked dal or vegetables are left outside the refrigerator for two days? A white coloured cottony layer can be seen on top of the dal. There is also a very unpleasant smell. Can you eat this dal? No. This dal is now, not fit for human consumption. It is spoilt.

Food spoilage occurs when the quality of food is damaged and it becomes unfit for human consumption.

Foods can be spoiled by

- Micro-organisms
- Enzymes
- Insects and rodents

1. **Micro Organisms** : Do you remember the example of dal which was kept outside for two days and which got spoiled? How has it got spoiled, what causes this spoilage? The dal has been spoiled by micro-organisms which are present in the atmosphere all the time. They settle on the outer layer of foods and produce certain chemicals, which lead to spoilage of food. If this food is consumed it may lead to harmful effects. Micro-organisms can be in any one of these forms : bacteria, yeasts or moulds.

Micro-organisms are at times beneficial also. How do you prepare curd at home? You just put some old curd into warm milk and after a few hours the curd is set. How did this happen? This change of milk to curd also takes place by the action of micro-organisms called bacteria. Formation of spongy texture in idli, dhokla, dosa, bread, etc. is also due to the action of micro-organisms like yeast. But remember this is not spoilage of food.

2. **Enzymes**: Try this experiment—keep a raw mango in the kitchen and observe the changes that take place. The mango changes its colour from green to yellow to brown. It becomes hard to firm to soft, the flavour changes from sweet to offensive. A stage comes when the mango is not fit to be eaten. These changes occur due to the continuous action of enzymes which are present in the fruit. Such enzymes are present in every foodstuff and are responsible for its ripening and decay.
3. **Insects and Rodents**: Leave dal, rice, wheat outside for a few days . What happens, If grains are not stored properly, they can be easily attacked by insects and rodents. They spoil food, not only by eating these but also by dropping their excreta. Such foods are totally unfit for human consumption. Thus food is wasted.

Besides, there are other factors which speed up the process of food spoilage. They are heat, moisture and air. You must have noticed that cooked food spoils faster in summer than in winter. This is because of the presence of heat and moisture in the air. You can keep dry food for a very long time because there is no moisture and therefore micro-organisms cannot work on it.

Food that gets spoiled is not fit for human consumption. There is a change in the quality of the foodstuff. If this food is consumed it could lead to health hazards like nausea and vomiting, diarrhea and stomach aches.

INTEXT QUESTIONS 24.3

1. The ripening process..... after the fruit has completely ripened.
 - (a) stops
 - (b) continues
 - (c) partially continues.

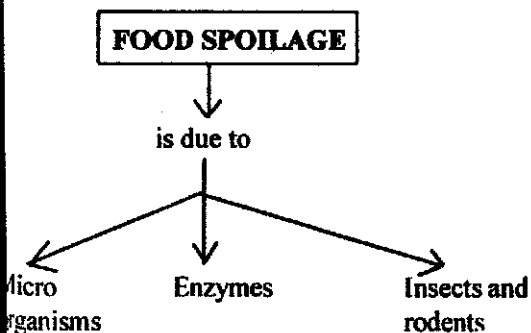
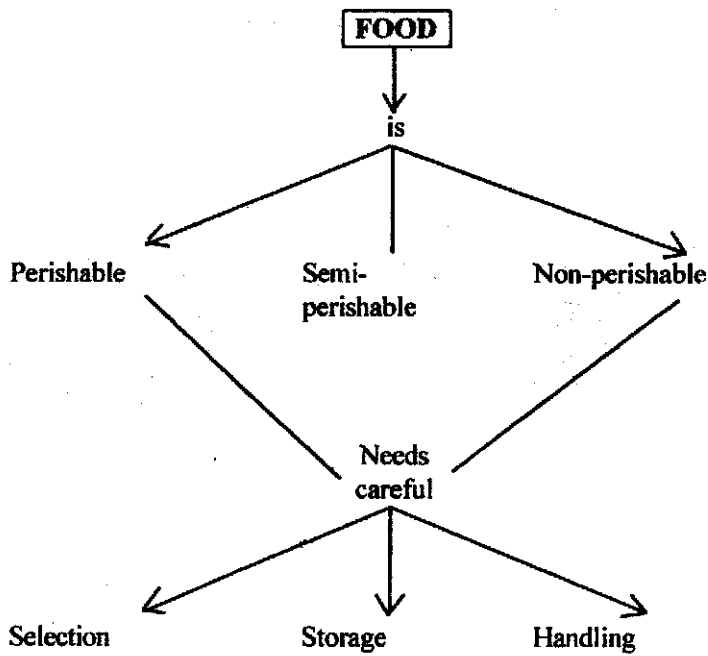
Micro-organisms are tiny living creatures which are present everywhere all the time. They cannot be seen with naked eyes.

Enzymes are chemicals which are already present in foods and help in the ripening of foodstuffs.

Rodents are nibbling animals and include mice, squirrel and rats.

2. Bacteria is a/an
- (a) enzyme
 - (b) rodent
 - (c) micro-organism.
3. Fruits and vegetables remain fresh in.....temperatures
- (a) warm
 - (b) cool
 - (c) hot

24.7 What Have you learnt



24.8 Terminal Exercise

1. Give three examples each of perishable, semi-perishable and non-perishable foods.
2. List two points we must keep in mind while selecting the following foods:

(a) rice	(b) maida
(c) vegetables	(d) meat
(e) bread	(f) canned food.
3. What are the main causes of food spoilage and factors speeding them?

24.9 Answers to Intext Questions

24.1	Perishable	Semi-perishable	Non-perishable
	Bhindi	Suji	Urad dal
	Banana	Besan	Wheat
	Tomatoes	Jaggery	Rajmah
	Apples	Butter	Moong dal
	Peas	Papad	Patato chips
	Spinach	Badi	Cooking oil
		Spices	
		Wheat flour	
24.2	1 (c)	2 (b)	3 (d)
24.3	1 (c)	2. (c)	3. (b)