MATCOM

LEAKAGE

a learning element for staff of consumer cooperatives

international labour office, geneva

by Urban Strand

MATCOM
Material and techniques for cooperatives management training

The MATCOM Project was launched in 1978 by the International Labour Office, with the financial support of Sweden. In its third phase (1984-1986) MATCOM is financed by Denmark, Finland and Norway.

In collaboration with cooperative organizations and training institutes in all regions of the world, MATCOM designs and produces material for the training of managers of cooperatives and assists in the preparation of adapted versions for use in various countries. MATCOM also provides support for improving the methodology of cooperative training and for the training of trainers.

LEAKAGE

Contents

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PREREQUISITES

To benefit from this MATCOM Learning Element, you should:

- have some retail shop experience,
- be able to perform simple percentage calculations.

HOW TO LEARN

- Study the Element carefully.
- Give written answers to all the questions in the Element. This will help you not only to learn, but also to apply the knowledge in your work at a later stage.
- After studying the Element on your own, discuss it with your instructor and your colleagues, then take part in the practical exercises organised by your instructor.

TRAINER'S NOTES

are available for this Element.

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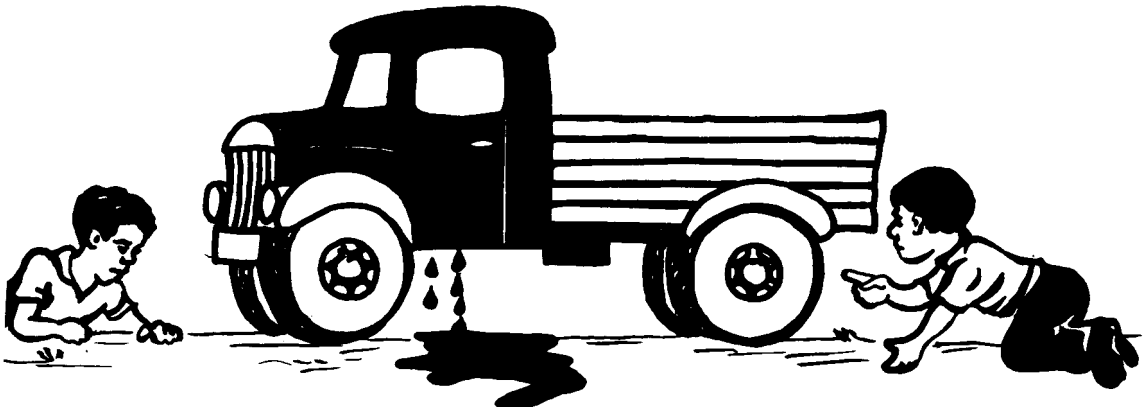
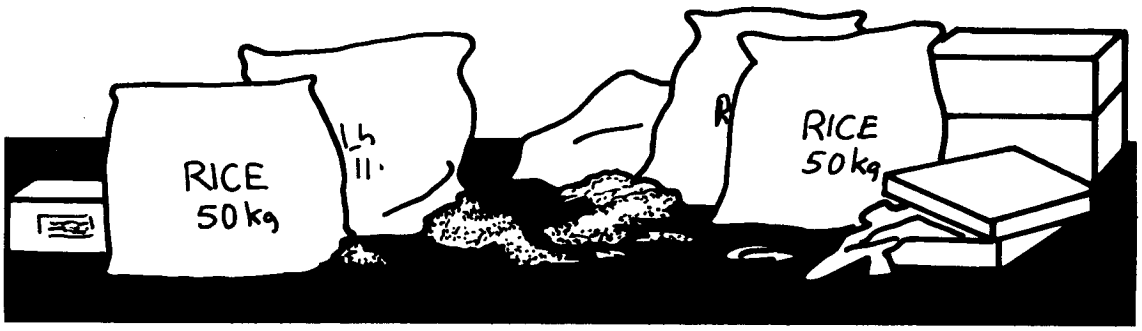
INTRODUCTION



"A leak!!! That's no good. Something valuable is disappearing here. We'll have to do something about it immediately or we'll lose money! We won't be able to use our truck ..."

Working in a retail shop you will often come across the term "leakage". It has the same meaning as in the example above: ... "something valuable is disappearing".



Leakage can be a very big problem in the retail trade. Indeed, it is because of leakage that some co-operatives have gone out of business.

Therefore, it is very important that everyone working in a shop knows what leakage is and where it can occur. In fact, to be qualified for work in a shop you must know how to prevent leakage.

Using this Element, you will learn:

- what leakage is;
- how to find out the amount of leakage in your shop;
- the consequences of leakage;
- where to look for leakage in your shop;
- that you have to take the responsibility for any leakage within your field of work.

Read these five learning objectives once again. Isn't another even more important one missing? If so, which one?

Go back to what was said on page 3 ...

Yes, the most important thing is to prevent the leakage. And this is not something you can learn using this Element only.

Not until you know every operation, every little job in the shop, will you be able to fight leakage properly.

So, when studying other topics during your training programme, try to remember the leakage problem and what you should do about it.

WHAT IS LEAKAGE?

A few simple examples will show you what we mean when we talk about leakage in a shop.

The first example involves a very simple business operation. It is about Charlie who has a stall at the market.

- One morning, Cbarlie goes to a supplier and buys 400 oranges.
- Charlie intends to sell the oranges for 25c each.* (Of course, that is not what he himself paid for them. He has added a small amount because he wants to make a profit.)
- So, in the morning, Charlie has a stock of 400 oranges. if the price of each orange is 25c, the total STOCK VALUE at SELLING PRICE is T$100.* That is what Charlie expects to have in his pocket when all the oranges have been sold.
- By the end of the day, Charlie has sold out his stock and counts the money. There is only T$97!!
- Charlie has somehow lost T$3. His profit is lower than expected! Charlie has had T$3 of <u>leakage</u>.

? How did it happen? What was your immediate reaction? Write it down here.

* *We use an imaginary currency here, because this booklet is used in various countries. We call it 'Training Dollars' and cents, T$ and c.*

MORNING: Charlie has stock worth T$100.

EVENING: Charlie has no stock left but T$97 in cash. - Why not T$100?

What actually happened in Charlie's stall? What was the reason for the leakage? Were some oranges stolen? Maybe he did not receive 400 oranges from the supplier, maybe only 388. Did Charlie give too many oranges to a customer by mistake? And that fellow who said "I'll pay later", - did he actually pay ...? Well, Charlie does not know. And this is the problem with leakage. You don't always know where, when and how it happens.

Either Charlie lost some of the goods, or he lost some money. If he lost some cash, we could talk about a "cash shortage". But in this case we do not know what happened, so we generally talk about leakage.

But Charlie knows that there was some leakage and how big it was. It is easy to understand his reasoning: "When I opened the stall I had stock worth T$100. I've sold the stock but I've only T$97 in my hand. Something went wrong and I lost T$3 through leakage."

The following morning, Charlie opens his stall with a stock of 200 kg of potatoes which he sells at 65c a kg. In three days he sells out his stock and counts the money he has received: T$127.40.

Compare the OPENING STOCK VALUE AT SELLING PRICE with the SALES in order to see if there was any leakage. Make your calculations in the space below.

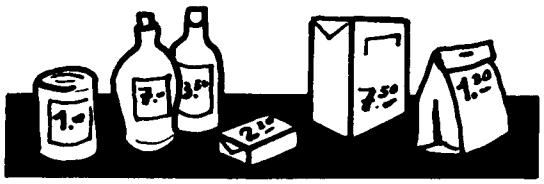
Answer: the leakage was T$. _____

It was easy for Charlie to calculate the leakage because he sold out everything. First he had stock, then he had money instead of the stock. It is just a question of comparing the two.

If you could do the same in your shop, it would be just as easy to check if there has been any leakage. Here's an example:

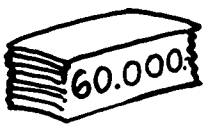
You have a shop with stock made up of different items.

Each item has a selling price.



Added together, the stock of all the items is worth T$60,000.

STOCK VALUE AT SELLING PRICE



After selling everything, you have T$58,800 in cash.

SALES

The leakage is T$1,200.

LEAKAGE

Now you know that goods for T$1,200 have been lost in one way or another. But it will not be possible to know exactly which items have disappeared.

Now that we have seen the examples, let us agree on the meaning of the term "leakage":

> "LEAKAGE" REFERS TO THE GOODS WHICH DISAPPEAR WITHOUT BEING PAID FOR.

If money (received in payment for goods) disappears, it is included in the leakage, just as though the goods had not been paid for.

HOW TO CALCULATE LEAKAGE

In practice, it is seldom possible to calculate the leakage using Charlie's simple method. The reason is that you do not just purchase stock and then finish it before calculating if you have any leakage. On the contrary, you buy and sell goods continuously, and therefore the goods will never be completely finished. But it is still possible to calculate the leakage!

George is the manager of Palma Co-op Shop. Let us see how he calculates the leakage for one month.

In George's shop, the stock-taking is done at the end of every month. All the items in stock are counted, the quantity and the selling prices of each item are recorded. In this way the total Stock Value at Selling Price can be calculated.

So when George opens up for business on the morning of 1 October, he knows that the Stock Value is T$30,000.

Now George is going to check how the value of the stock changes from day to day. For that purpose he keeps a Stock Control Book.

First he writes down the value of the Opening Stock.

On 1 October he sells goods for T$2,000. He enters this and notes that the Stock Value is reduced to T$28,000.

On the following day the sales are T$2,400. The stock value is now only T$25,600.

On 3 October he purchases more goods. George calculates that the selling price of those goods is T$4,200. The stock value increases. It is now T$29,800.

On 3 October the sales are T$2,200. The stock value is reduced accordingly.

	CHANGES		STOCK VALUE
	+	−	
1. 10. Opening Stock			30,000
1. 10. Sales		2,000	28,000
2. 10. Sales		2,400	25,600
3. 10. Purchases	4,200		29,800
3. 10. Sales		2,200	27,600

In this way George goes on recording every day all the changes in the stock value. At any time he will be able to say what the stock value ought to be. (He also notes price changes and other things that affect the stock value. You will learn more about this work when you study the topic Stock Control.)

On 31 October George ought to have a stock value of T$34,200. This is the theoretical stock value according to his book.

31. 10. Theoretical Stock Value			34,200

But how much is the actual value of the "closing stock" on 31 October? George must do the stock-taking again.

The stock-taking reveals that the actual value of the closing stock is only T$33,700.

That is T$500 less than the theoretical stock value in the book. Why is there a difference?

Theoretical Stock Value		34,200
Actual Stock Value	-	33,700
Leakage	=	500

The reason is that there were some changes in George's stock which he did not record in his book - simply because he did not know about them.

THAT WAS THE LEAKAGE!!

Before we go on, have you any ideas about those changes in the stock which George did not know about? What could have happened to the stock to reduce its value by T$500? Write down briefly some possible reasons for this leakage.

Let us now repeat how to calculate the leakage over a period of time.

1. Do the stock-taking at the beginning of the period in order to find the actual stock value.

2. Keep a record of all changes in the stock value during the period in order to know the theoretical stock value at the end of the period.

3. Do the stock-taking again at the end of the period in order to find the actual stock value.

4. The difference between the theoretical and the actual stock values is the leakage.

THEORETICAL STOCK VALUE (according to the Stock Control Book)

\- ACTUAL STOCK VALUE (after stock-taking)

= LEAKAGE

Remember: All values have to be stated in Selling Prices.

Expressing the leakage in terms of percentage

Charlie had T$3 of leakage one day when he was selling oranges. George had T$500 of leakage in the Co-op Shop one month. It may still be that Charlie's leakage was more serious than George's, because we simply cannot compare these two amounts. We have to consider the size of the business.

Instead of stating the leakage in terms of money, we can express it as a percentage of sales. This is a better measure

Examples:

Charlie's sales were T$100. His leakage was T$3. In other words, his leakage was 3.0%.

George's total sales during October were T$50,000. His leakage was T$500. What percentage is 500 of 50,000?
Calculation:

$$\frac{\text{Leakage x 100}}{\text{Sales}} = \text{Leakage in \%}$$

i.e.

$$\frac{500 \times 100}{50{,}000} = 1.0\%$$

So George's leakage was 1.0%

One co-operative shop had T$240 of leakage one month when the sales were T$16,000.
Calculate the percentage of leakage. The correct answer is 1.5%

Another shop had T$2,450 of leakage in one year when the total sales were T$306,250.
Show how you would calculate the percentage of leakage.

Answer: The leakage was _____%

The manager told the committee that the sales had been T$96,240 and the leakage 1.2% during the last three months. How much had the society lost through leakage?

Answer: The society had lost T$_____.

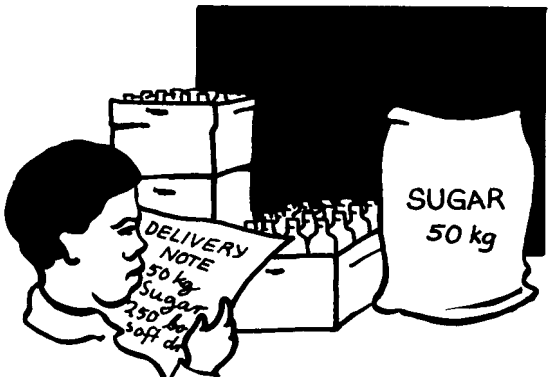
HOW DOES LEAKAGE OCCUR?

Generally, it is difficult to know exactly how, when and where leakage occurs. There might be many reasons for leak2rge in a shop.

Let us take two different articles as examples - sugar and soft drinks - and see how leakage can occur if we are careless.

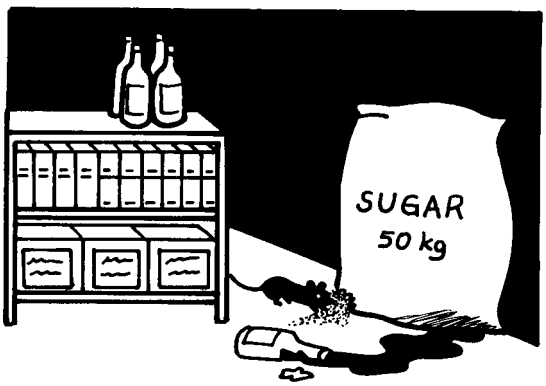
1. Did you <u>receive</u> the correct quantity of goods?

- You ordered a 50 kg bag of sugar. You did not know but it actually contained only 48 kg.
- You ordered 250 bottles of soft drinks. Later you discovered two cracked bottles in one case.



2. Did you <u>store</u> the goods safely?

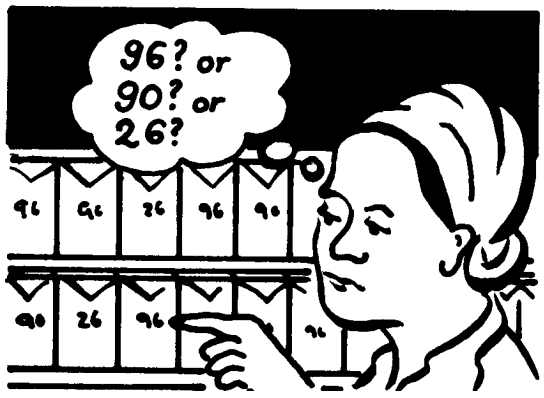
- One bottle standing on the edge of a shelf was accidentally knocked onto the floor.
- Rats got at the bag of sugar and spoiled some of it. The bag was placed directly on the floor and some of the contents were damaged by moisture.



3. Did you sell the goods at the <u>right price</u>?

- By mistake the cashier charged the wrong price for a soft drink; she mistook it for another brand.

- The price marked on a bag of sugar was not clear and a lower price was mistakenly charged.

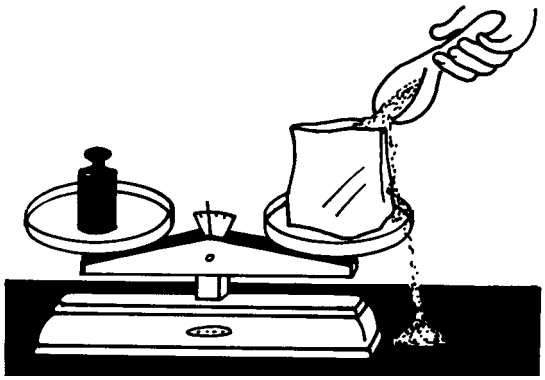


4. Did you cause leakage when <u>weighing</u>?

- The scale was not correctly set.

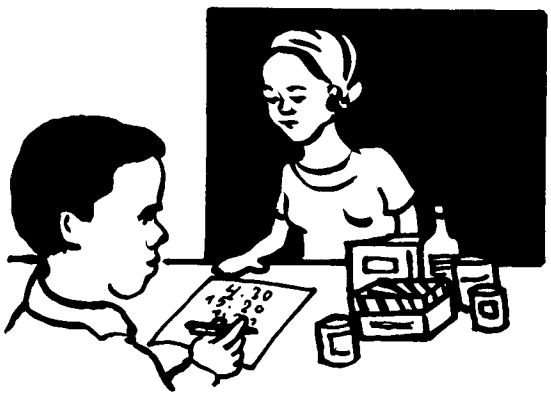
- You overweighed.

- You dropped some sugar on the counter when weighing.



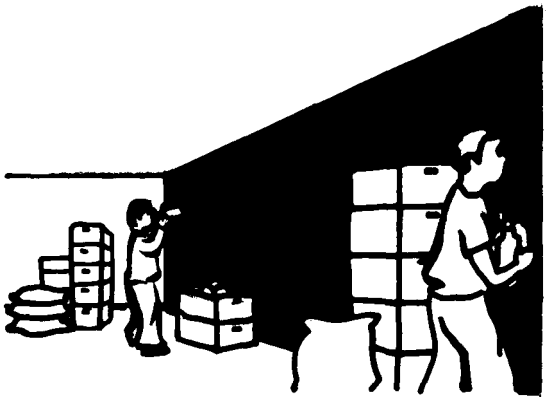
5. Were you careful in <u>handling money</u>?

- You made a mistake one day when adding up the sales to a customer. She was undercharged.



6. Were any goods <u>used or consumed in the shop</u> and not recorded?

- The Chairman of the Committee was entertaining some visitors. They were given drinks which were never recorded.



7. Was anything <u>stolen</u>?

- A shoplifter managed to leave with some bottles.

- A shop attendant was thirsty and had a soft drink. He also took 1 kg of sugar home for his mother but forgot to pay for it.

8. Did you demand a <u>deposit</u> for the empties?

- Some customers did not pay a deposit because they promised to return the empty bottles immediately. They never did.

These are the most common reasons for leakage. When dealing with perishable goods, you have to add:

9. Did you <u>order the right quantity</u>?

- You ordered too much fresh food. Some of it perished before you could sell it.

Take a second look at the nine reasons for leakage mentioned on pages 14-17. You can see that certain words are underlined.
Write them down below and you will have a "checklist" when looking for leakage.

_____ _____

_____ _____

_____ _____

_____ _____

_____

In a shop with well trained and experienced personnel, incidents like those described will not happen often, and leakage will be kept to a minimum. This is because the staff know the most common reasons for leakage, and how to avoid it.

<u>You</u> too now know the reasons for leakage. Let us see at once if you can list some good rules for preventing leakage in your shop.

Under each picture on pages 14-17, there is an empty box. <u>Write down in each box a rule</u> which refers to the incident described. (For instance, in the first box you could write: Always check the goods when you receive them.)

Think about the nine reasons for leakage again and complete the following sentences:

1. The three most common reasons for leakage in my shop are:

2. I think that the goods which are spoiled in my shop every week are worth approximately:

3. The first thing we should do in my shop in order to reduce leakage is to

THE CONSEQUENCES OF LEAKAGE

Mr. Leaka was talking on the telephone to his wholesaler.

"Please, you must sell me at least 50 kg of rice... You see, I have a problem here... If I have no rice in my shop, what will happen?"

"Yes, Mr Leaka, I appreciate your problem, but you must understand that you owe us too much already. Our manager has instructed us to deliver to you only if you pay cash."

But Mr. Leaka could not do that. In fact, raising enough money to cover expenses and renew the stock had been difficult for quite some time.

Mr. Leaka did not understand what was happening. Of course there was a surplus, but where did it go? His books were not properly kept, so he did not know. If Mr. Leaka had kept proper records he would have known the root of his problems. It was LEAKAGE.

Sales were good, at least they had been until recently; expenses were normal. There should be a little surplus.

But the leakage was there all the time, gradually eating away the little surplus.

Soon the leakage was eating into money which was supposed to be used for other expenses, like salaries and rent. As these expenses have to be paid in any case, the leakage began to eat into money which should have been paid to the suppliers of new goods.

Mr. L'eaka found that he had less and less money with which to buy goods. And now this ...! It was a shock to Mr. Leaka to realise that his reputation with the suppliers was so bad that they refused to deliver goods to him.

What should happen now?

Well, the future is not very bright for this Co-op Shop. What will happen to the shop, to the members, to Mr. Leaka? What do you think? Write down briefly your suggestions below.

SUPPLIER

Even if it is not always as disastrous as in Mr., Leaka's case, heavy leakage is always a serious matter. A shop selling goods for 500,000 and which has 2% of leakage is losing 10,000. The result could turn out to be an overall loss instead of a surplus for the society - no dividend or patronage refund for the members.

RESPONSIBILITIES

So far you have learned that:

- LEAKAGE refers to the goods which disappear without being paid for;
- LEAKAGE has to be measured periodically;
- LEAKAGE will reduce the surplus of the shop, if it is too high it will lead to a shortage of cash and goods;
- LEAKAGE is due to many different circumstances. Common to all of them is lack of care.

At this stage you will agree that it is extremely important that everything possible be done in order to prevent leakage.

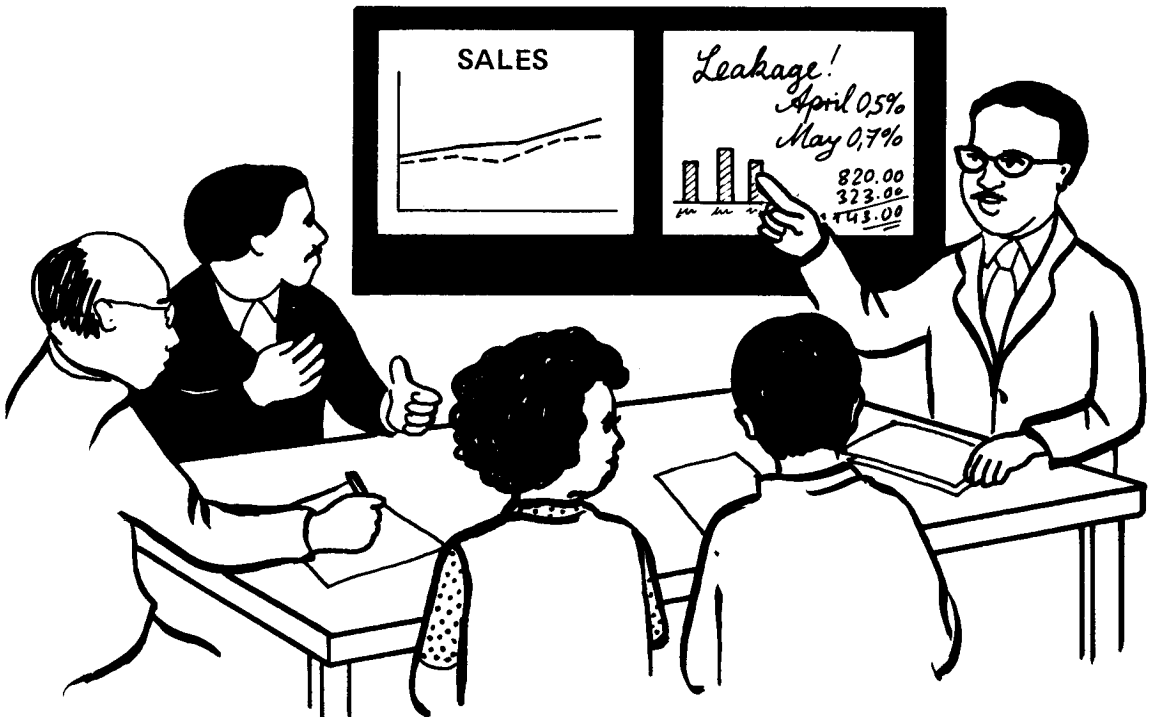
You will also agree that everyone working in the shop must co-operate in this work. Anyone who can cause leakage can also help prevent it.

The Role of the Manager

The main responsibility lies with the manager. He has to see to it that the goods and money entrusted to him are handled with great care.

Even when there are other staff in the shop, the manager is still responsible for telling them what to do and for giving them proper instruction and training. He should supervise their work. Good team spirit and good leadership by the manager will result in low leakage. This is the corner-stone for a successful co-operative.

The level of leakage is so important, in fact, that it is used as a measurement of a shop manager's ability. A high leakage rate in a shop should be a warning that the manager is not able to do his job! And a manager who can show a low leakage figure is considered to be a good manager (although other relevant facts must also be taken into consideration, such as financial results, sales development, members' opinions about the services, etc.)



The Role of the Committee

The leakage figures should be reported to the Committee regularly. Should the committee find the leakage unacceptable, they must take action immediately.

But what can the committee do to improve the situation? Here are a few possibilities:

- The committee realises that it has made a mistake in appointing a manager without enough knowledge of shop management. The committee should make sure that the manager is trained without delay, before the members lose more money through leakage.

- If the manager already has sufficient training, the committee may consider him unsuitable for the job and dismiss him.

- In the case of serious mismanagement, the committee could even request the manager to refund the society for the high leakage.

"Normal" leakage

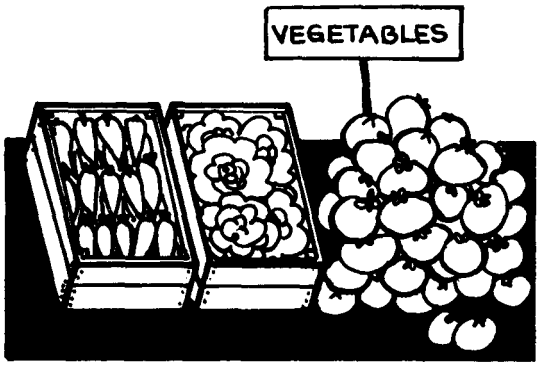
However effectively you combat leakage, you will find it almost impossible to get rid of it completely. For example, evaporation affects certain goods in a hot climate, and this is difficult to avoid. Most shops have to accept a certain level of leakage.

What should then be accepted as "normal" leakage? It depends on the type of shop and goods you are dealing in. Here are a few general guidelines:

Leakage (including any recorded damage and wastage) should not be allowed to exceed 0.5% in a counter-service shop with only a few perishable items in stock.

A counter-service shop.

If you sell a great deal of fresh food the figure may be up to 0.5% higher.



A counter-service shop with fresh food.

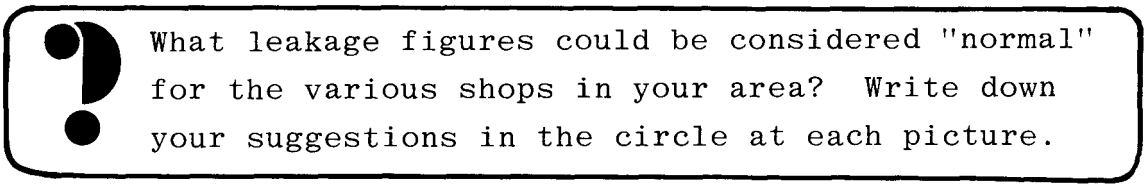
Allow up to a further 0.5% in the case of a self-service shop.

A self-service shop with fresh food.

Thus the leakage in a self-service shop with a lot of perishable items in stock should not be allowed to exceed 1.5% of sales.

However, when examining the leakage, the manager and the committee should also consider:

- The standard of the building in which the shop is located. High leakage could indicate that the building is not suitable for a shop. A leaking roof or a bad floor which is difficult to keep clean will certainly cause a lot of leakage.
- The environment. In a city area with a high crime-rate you would expect more leakage than in a quiet village.



Controlling Leakage

You will now understand that it is possible to calculate the leakage continuously. A manager or a committee can, at any time, organise stock-taking and find the leakage level.

But to be able to do this you need proper records of stocks and sales. Unless your records tell you exactly how much you are supposed to have in stock when stock-taking, you will not be able to calculate the leakage correctly. So be careful! If the figures in the books are wrong, the committee may be misled into taking the wrong action.

If you are expected to take the responsibility for leakage control in your shop, you need to learn more about keeping records, stock control and stock-taking. These topics are dealt with in other MATCOM Elements.

But there is something which is extremely important. What is it? We mentioned it earlier in the book. Go back to page 4 if you don't remember ....

PREVENTING LEAKAGE

In other MATCOM Elements we will discuss what you should do in order to prevent leakage. In this Element we have discussed where leakage occurs and, just as a summary and a preparation for your further studies, we will state the basic rules for the prevention of leakage.

Leakage will be prevented if goods and cash are handled with great care. In particular, you must observe the following:

		No.
1	Order goods in the right quantities.	
2	Check the goods when you receive them.	
3	Store the goods safely.	
4	Be careful when weighing. Pre-pack if possible.	
5	Mark each item clearly with the correct price.	
6	Make sure everything sold is correctly paid for.	
7	Check that a deposit is paid for empties.	
8	Beware of shoplifting	
9	Make sure that the staff remains honest.	
10	Keep correct records of stocks and sales.	

How do the rules you wrote down on pages 14-17 compare with the ones listed above?

Please check!

All the above rules are important, but in your shop some may be more important than others when it comes to reducing leakage. Use the right-hand column to re-number them according to their importance in your shop.

CHECK-OUT

To prove to yourself that you have fully understood this Element, you should now go through the following questions. Mark what you think is the correct answer to each question. If you have problems with a particular question, go back and read the corresponding chapter again. Your teacher will later check your answers.

1 To avoid leakage, you should

A take stock often
Ⓑ work with care
C work faster

2 The leakage of a small counter-service shop, not dealing in fresh food, should be below:

A 0.5%
B 1.0%
C 1.5%

3 To find the amount of leakage, it is necessary to:

A prepare a balance sheet
B use a cash register
C keep records of stock and sales

4 Bad price-marking can cause leakage because:

A it takes time to find the right price
B a lower price may be charged by mistake
C price labels are too dear

5 The actual stock value is T$2,460. The theoretical stock value is T$2,560. How much is the leakage?

A There is no leakage.
B T$100
C T$2,560

cont.

6 You are selling kerosene. You make some mistakes concerning:
measuring
deposits for containers
storing
Which mistakes could cause leakage?

A Only the mistakes concerning storing and deposits.
B Only the mistakes concerning measuring.
C All three types of mistakes.

7 What could cause leakage?

A High freight costs.
B Low prices.
C Lack of delivery control.

8 To find the actual stock value, you have to:

A check the stock control records;
B check the sales records;
C take stock.

9 Rats and insects can cause leakage because:

A they frighten away customers;
B they mean that a lot of money must be spent on traps, etc.;
C they spoil and eat the goods.

10 To find the leakage you have to compare:

A the theoretical stock value and the actual stock value
B the opening and closing stock values;
C the stock value at selling price and at cost price.

11 The total sales one year were T$450,000. Leakage was 0.8%. In money terms the leakage was:

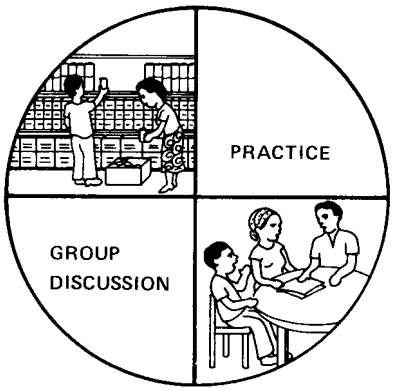
A T$360;
B T$800;
C T$3,600.

12 You are making up one-kilogram bags of sugar. You may cause leakage by:

A spilling some sugar on the floor;
B putting only 0.9 kg in some bags;
C working slowly.

COMPLEMENTARY EXERCISES

Before you have completed your studies of this topic you have to take part in some of the following group exercises, which will be organised by your instructor.



PRACTICAL GROUP ASSIGNMENTS

1. Leakage Survey

Study the work of the assistants, the shop layout, the display of goods and other arrangements in one selected shop. Work out a list of "leakage risks" in that shop, i.e. places and jobs where leakage may occur.

2. Interviews

In order to find out about the leakage problems in the co-operative shops in the area, interview some relevant people, such as shop managers, auditors, Department officers, etc. Ask about the normal (acceptable?) leakage levels, common and special leakage problems, etc. Report your findings to your fellow trainees.

GROUP DISCUSSIONS

3. The Important Rules

Within the group, compare your answers to the question on page 24. Try to agree on a ranking order which will be applicable to an average shop in your area.

4. Consequences of Leakage

Within the group, compare your answers to the question on page 19. Compare also your **practical experiences of the leakage problem.** Has anybody in the group discovered or been aware of a leakage problem in his/her shop and been able to solve the problem?

5. The Best Manager

Three managers were offered the same shop to manage for one year each. We assume that the conditions were the same for all three of them. Here are their results:

	Manager A		Manager B		Manager C	
Sales		200,000		400,000		400,000
Leakage	0.5%	1,000	1.0%	4,000	1.2%	4,800
Net surplus	4.0%	8,000	3.0%	12,000	3.5%	14,000

A has a lower leakage and a higher percentage surplus than B. Is he the better manager of the two? But he neglected the sales. Which is most important? Discuss.

B and C are equally good salesmen. B has the lower leakage. Is she the best manager? Discuss.

MANAGER A

LEAST LEAKAGE

MANAGER B

HIGH SALES

MANAGER C

HIGHEST SURPLUS