Example apples

- A lot with apples contain
  - 500 boxes, sender, variety and size are the same
  - 12 kilos in each box

- How to select a sample?

Answer

- You select 9 boxes from various parts of the lot
- You select and check 30 apples from each box.

- What to check?

Control method

Work box by box and check the 30 fruits you have selected

Check minimum requirements

1. Put aside, and count, apples not meeting minimum requirements including apples with decay.

Note the number in the table.

Check category requirements

2. Put aside, and count, apples not meeting the requirements of the Category separately.

Note the number in the table.

3. Do step 1 and 2 for each package in the sample.

Calculate non-conformity rate

4. After counting all selected boxes, calculate the non-conformity rate for

  A) minimum requirements - including decay

  B) requirements of the Category

The percentage is based on the total number of apples in all packages taken as a sample.

Calculate non-conformity rate

5. The <u>percentage</u> of non-conformities, is determined as follows:

<u>Number of non-conformity apples x 100</u>
Total number of apples in samples

Calculate non-conformity rate

6. The tolerance for not meeting the minimum requirements is

0 % in Cat Extra

1 % in Cat I - including decay

10 % in Cat II - excluding decay

2 % in Cat II – for decay

The tolerance for not meeting the requirements of the Category is

5 % in Category Extra

10 % in Category I and II,

Check size requirements and calculate Non conformity rate

7. Count the number of fruits not fulfilling the minimum size or sizing requirements. Note the number in the table.

8. After counting all the selected boxes, calculate the non-conformity rate for minimum size and sizing requirements.

The tolerance for not meeting minimum size and sizing requirements is 10 % in all categories.

Number or weight

6. The tolerance may refer to number of products or weight as stated in each standard.

Example with 9 boxes of apples, 30 apples selected from each box, Category I

NC= Non-conformities

Box	Number of NC – Min req. Incl. decay	NC Min req. Incl. Decay in percent	Number of NC – Class req	NC Class req in percent	Number of NC- size	NC size, in percent	OK or not OK
1	1		0		1		
2			4		4		
3			2		3		
4			4		2		
5	1		2		1		
6			4		2		
7			6		1		
8			1		2		
9			3		2		
Total	2	0.7 %	26	9.6 %	18	7 %	NOT OK
Min req. + Cat	x	x	x	10.3 %	x	x	

Calculations
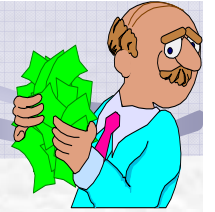
You have selected a total of 270 apples

Minimum req including apples with decay.:

$$\frac{2 \text{ non-conformity apples} \times 100}{270 \text{ apples}} = 0.7 \text{ \%}$$

Tolerance in Category I is 1 % including decay so in this respect the lot is OK.

Category:

$$\frac{26 \text{ non-conformity apples} \times 100}{270 \text{ apples}} = 9.6 \text{ \%}$$

Tolerance in Category I is 10 % but apples not meeting the minimum requirements shall also be included.

In this case non-conformity rate is 9.6 % + 0.7 % = 10.3 %. In this respect the lot is NOT OK.

Sizing:

$$\underline{18 \text{ non-conformity apples}} \times 100 = \textcolor{blue}{7\ \%}$$
$$270 \text{ apples}$$

Tolerance in Category I is 10 %, so in this respect the lot is OK.