Example kiwifruit in consumer packages

- A lot with kiwifruit in consumer packages contain
  - 50 boxes, sender, variety and size are the same
  - 12 packages of 1 kilo in each box
  - 15 – 18 fruit in each package

- How to select a sample?

Answer

- You select 5 boxes from various parts of the lot

- You select and check 3 consumer packages from each box.

- What to check?

Control method

Work box by box and check the 3 packages you have sampled in each box.

Total number of fruits

1. Open the 3 packages and take out the kiwifruit. Count the total number of fruits in the 3 selected packages.

Note the number in the table.

Check minimum requirements

2. Put aside, and count, kiwifruit not meeting minimum requirements.

Note the number in the table.

Control method

3.   Put aside, and count, kiwifruit not meeting the requirements of the Category separately.

Note the number in the table.

Check category requirements

4. After counting all selected boxes, calculate the non-conformity rate for 2 (minimum requirements and for (2+3) (requirements of the Category).

The tolerance for not meeting the minimum requirements (2) is 1 % in Cat I (0.5 % in Category Extra and 2 % in Cat II).

The tolerance for not meeting the requirements of the Category (2+3) is 10 % in Category I and II, 5 % in Category Extra.

Put all the kiwifruits back in one heap again.

Check size requirements and calculate Non conformity rate

5. Count the number of kiwifruits not fulfilling the minimum size or sizing requirements.

   Note the number in the table.

6. 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

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

Example with 5 boxes of kiwifruit in consumer packages, 3 consumer packages selected from each box, Category I

NC= Non-conformities

Box	No of fruits in sample	Number of NC – Min req.	NC Min req. 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	48			1		8		
2	47	1		4		7		
3	45			2		4		
4	49			3		9		
5	48	1		1		6		
Total	237	2	0.8 %	11	4.6 %	34	14.3 %	NOT OK
Min req. + Cat		x	x	x	5.4 %	x	x	

Calculations

You have selected packages with a total of 237 kiwifruits

Minimum req.:

$\underline{\text{2 bad kiwifruits} =}$ 0.008   **0.008 x 100 = 0.8 %**

237 kiwifruits

Tolerance in Cat I is 1 % so in this respect the lot is OK.

Category:

$\dfrac{\text{11 bad kiwifruits}}{\text{237 kiwifruits}}$ =0.046   0.046x 100 = 4.6 %

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

In this case non-conformity rate is 0.9 % + 4.6 % = 5.4 %.

In this respect the lot is OK.

Sizing:

$$\frac{34 \text{ small kiwifruit}}{237 \text{ kiwifruit}} = 0.143 \qquad 0.143 \times 100 = 14.3 \text{ \%}$$

Tolerance in Category I is 10 %, so in this respect the lot is NOT OK.