

Revision practice – Descriptive Characteristics, F-test

Example 1:

In a dairy cows stock, the Mg level in blood serum of cows has been monitored. Measurements of Mg concentration were performed in a sample of 10 dairy cows and following Mg levels in blood serum have been found (in mmol.l^{-1}):

0.84, 0.78, 0.82, 1.03, 0.82, 0.93, 0.90, 0.87, 0.89, 0.93.

What is the average Mg level in the dairy cows stock and what is SD, variance and SEM (standard error of the mean) of this Mg level?

Example 2:

In a horse farm, the glucose level in blood serum of horses has been examined. In a sample of 12 horses, the following glucose levels in blood serum have been found (in mmol.l^{-1}):

2.91, 2.79, 3.02, 3.13, 2.82, 2.93, 2.90, 3.27, 2.89, 3.3, 3.07, 2.99.

Find out basic statistical parameters for the glucose level in blood serum of horses in the farm: mean value, median, standard deviation (SD), variance, coefficient of variability and SEM.

Example 3:

In stock of dairy cows the effect of a new veterinary preparation on the Mg level in blood serum of dairy cows has been monitored. In 10 dairy cows (control ones), to which the preparation was not applied, the following Mg levels in blood serum have been found (in mmol.l^{-1}):

0.82, 0.89, 0.82, 1.03, 0.91, 0.93, 0.90, 0.87, 0.93, 0.79.

In 10 dairy cows (test ones), to which the preparation was applied, the following Mg levels in blood serum have been found (in mmol.l^{-1}):

1.17, 0.97, 1.24, 0.99, 0.87, 1.20, 0.97, 0.95, 0.99, 0.96.

Does the preparation influence variability of Mg level in blood serum of dairy cows?

Example 4:

By means of F-test decide, whether duck clutch size (number of eggs) is differently variable in captive and in wild birds. Following numbers of eggs were found in duck clutches observed in a monitoring:

Captive birds (n=8): 11, 11, 10, 13, 12, 11, 12, 10

Wild birds (n=8): 9, 8, 13, 9, 11, 8, 6, 12

Is there any difference between variability of duck clutch size in captive and in wild birds?

Put down into a protocol in Word (for every example):

- Text of the task
- Calculated basic statistical characteristics of the samples
- Calculated F-test statistic (example 3, 4)
- F_{critical} found in the statistical tables (example 3, 4)
- Conclusion (answer)