STUDY REGARDING USING OF MATHEMATICAL EQUATIONS TO AMELIORATION OF AGRICULTURAL LAND

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Abstract: *The soil is closely correlated with the geographic position of the region, through configuration, nature and the structure. Soil quality depends on the formation and protection of surface water sources and groundwater. The soil is closely correlated with the geographic position of the region, through configuration, nature and the structure. Soil quality depends on the formation and protection of surface water sources and groundwater. Economic fertility (anthropogenic) of soils occurs as a result of modifying human activities. In this hypothesis, the links found and the hypothetical ones between components of the object the study can be described using mathematical relations: equations, inequalities, formulas Symbolic mathematics is one of the most convenient ways to describe quantitative and qualitative properties of the surrounding world.*

Key words: *economic fertility, descriptive equations, nonlinear equations*

INTRODUCTION

Using statistical methods, the use of the mathematics and laws of search results in a substantial progress, prefiguring modern statistics.

Descriptive statistics deals with the presentation, classification and synthesis of observed data.

Analytical statistics is using mathematical methods (probability theory) for the extraction and processing of statistical information, in many cases these methods emphasize the statistical regularities.

Translated into a mathematical language was build a statistical theory called statistical correlation, whose applications have allowed the identification of new laws addictive statistical specific and adapted to complex and varied forms that nature provides in its various manifestations.

In modern research starts from the statistical assumptions of the phenomenon or process observed consequences deduced logically then be compared with the available data and are consistent assumptions are justified, at least until further rigorous observations.

In other words the statistical analysis must consider both individual values and their frequencies.

After observing quantitative characteristic X in n samples obtained following primary data:

$$x_1, x_2,..., x_n$$

If the volume of selection is small the data shall be easy to handle and there is no need for mixing them. But if we have a large selection is difficult to work with this data. Besides primary data tables do not suggest anything about the variable distribution on X.

Therefore it takes a group (centralized) data. Group data is based on the type of feature X.

Thus, if X is a discrete variable which can take different values v1, v2, ..., vn, then the original data will be retained at the empirical distribution:

$$\begin{pmatrix} v_1.v_2...v_m \\ n_1.n_2...n_m \end{pmatrix}$$

Where ni (i = 1, m) is the frequency of occurrence (number of times) the value of vi, and n is the number of values in the original array (1) and is often called the absolute value of the value v m is the number of classes.

Report fj = nj / n of the absolute frequency and total number of samples is called the relative frequency.

It is noted that:

$$f_1 + f_2 + \ldots + f_m = 1 \text{ because } n_1 + n_2 + \ldots + n_m = n.$$

Relative frequencies, probabilities improperly called, underlying the calculation of the density distribution frequencies and the degree of concentration indicators. Allow compare two distributions built on the same variable, which differ only by the number of units in groups.

If X is a continuous variable which can take values in the range [a, b] then the interval is divided into subintervals I [aj, aj +1], j = 1, m, and a1 = a and I 1 = b for each of these subintervals are determined number n of the string values in this interval is called the absolute frequency sub-interval.

Subintervals [aj, aj +1] can be taken arbitrarily.

Most of the time the ends are made equidistant, so subintervals have equal lengths. But the number m of subintervals not chosen at random.

It is important that the data group not to lose the global nature of the distribution (if m is too small may distort actual distribution of the variable X).

Thus, some of authors subintervals number, m, must be chosen according to Sturges' formula:

$$m = [1 + 3{,}322 \log n]$$

The size range is given by:

$$i = \frac{x_{max} - x_{min}}{m}$$

N	m
11–30	3–4
31–100	4–6
101–500	6–9
501–3000	9–13
3001–∞	13–20

There are several types of graphical representation of statistical data.

Of those present histogram, frequency polygon and cumulative frequency chart.

The histogram is a figure in a rectangular coordinate system representing the empirical distribution by rectangles.

The foundations of such rectangles, built on the x-axis represents subintervals used in aggregating data.

Hj height of the rectangle with the base (aj, aj +1) is proportional to the ratio of the relative frequency and the length of the interval:

$$h_j = C\frac{f_j}{a_{j+1} - a_j}$$

C is a constant scale factor. If you subintervals group have equal lengths hj height will be proportional to the relative frequency, so hj = C * fj.

Frequency polygon is a graph in which the x-axis is taken vj means of intervals (aj, aj +1) used in the pool and on the ordinate axis defined hj values histogram construction.

Broken lines joining the coordinate points (vj, hj) is called a frequency polygon. It can be obtained from the histogram means connecting the upper side of the rectangles.

Figure 1 shows the frequency polygon is drawn by a dotted line.

Sizes c1, c2, ..., cm defined by:

$$c_j = \sum_{i=1}^{j} f_i$$

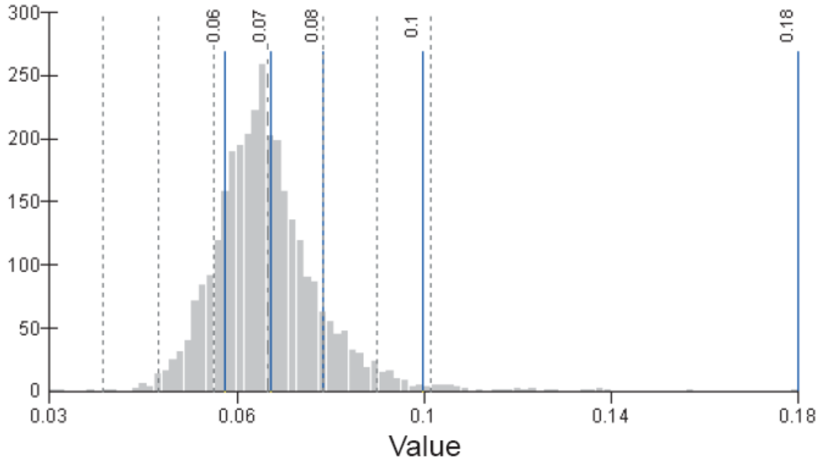
are called cumulative frequencies.

Broken line obtained by joining the points of coordinates (aj +1, cj] is called a cumulative chart ..

Mathematical equations given by statistical interpretations farmland were represented as follows graphic below:

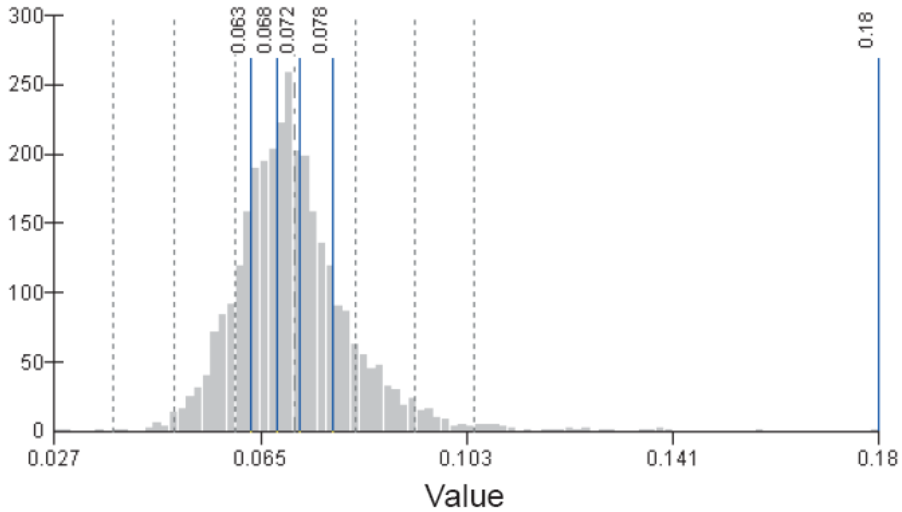
Data are classified based on natural grouping of values. It identifies those looking breakpoints default data clustering models.

The values are distributed over classes where the boundaries are indicated by the large jump from one value to another.

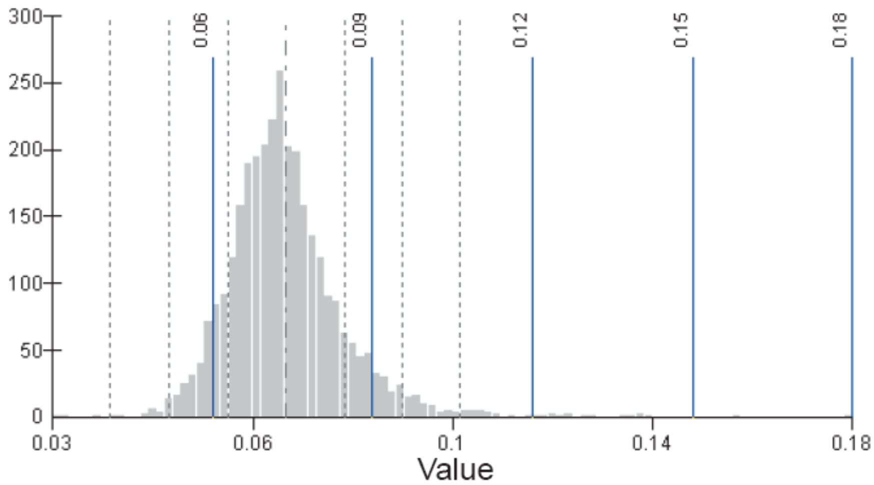


Each class the contains an equal number of values. Such a classification is very suitable for linear data. Since the data are grouped After major cause number in each class, resulting diagram can be deceptively.

Similar data can be placed into different classes, or very different values can be grouped together. This distortion can be avoided by increasing the curriculum of classes

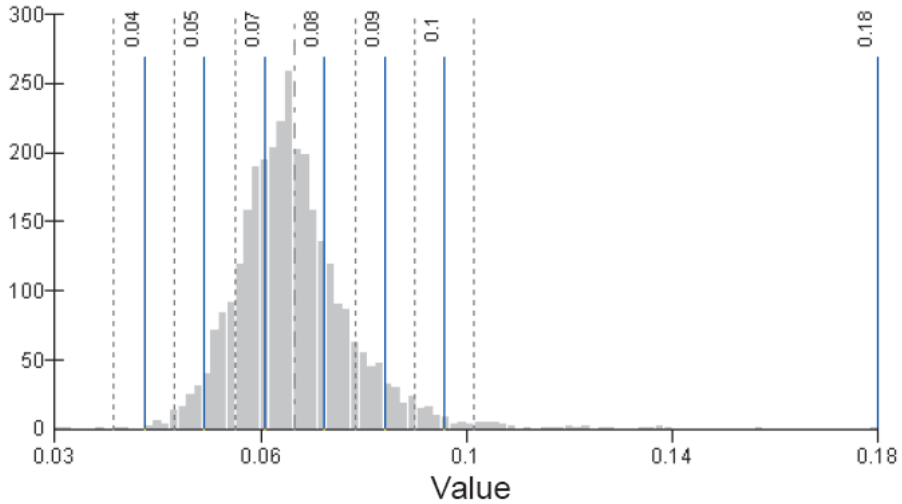


This classification scheme divides the string into substrings equal attribute values. Best strings are used for data in a particular field such as temperature and percentages.



Standard deviation

This scheme of classification divides the string into substrings equal attribute values. Best strings are used for data in a particular field such as temperature and percentages.



CONCLUSIONS

Both mathematical equations and statistical processing of the field data parameters can be represented and optimized in terms so to be able to mathematically determine the exact needs of elements that must be added on the land so that they can give maximum efficiency in the use.

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