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Abstract: Measurements of geometrical properties of kernels belonging to three different varieties of wheat. A soft X-ray technique and GRAINS package were used to construct all seven, real-valued attributes.

Data Set Characteristics:	Multivariate	Number of Instances:	210	Area:	Life
Attribute Characteristics:	Real	Number of Attributes:	7	Date Donated	2012-09-29
Associated Tasks:	Classification, Clustering	Missing Values?	N/A	Number of Web Hits:	256026

Source:

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Data Set Information:

The examined group comprised kernels belonging to three different varieties of wheat: Kama, Rosa and Canadian, 70 elements each, randomly selected for the experiment. High quality visualization of the internal kernel structure was detected using a soft X-ray technique. It is non-destructive and considerably cheaper than other more sophisticated imaging techniques like scanning microscopy or laser technology. The images were recorded on 13x18 cm X-ray KODAK plates. Studies were conducted using combine harvested wheat grain originating from experimental fields, explored at the Institute of Agrophysics of the Polish Academy of Sciences in Lublin.

The data set can be used for the tasks of classification and cluster analysis.

Attribute Information:

To construct the data, seven geometric parameters of wheat kernels were measured:
1. area A,
2. perimeter P,
3. compactness $C = 4*pi*A/P^2$,
4. length of kernel,
5. width of kernel,
6. asymmetry coefficient
7. length of kernel groove.
All of these parameters were real-valued continuous.

Relevant Papers:

M. Charytanowicz, J. Niewczas, P. Kulczycki, P.A. Kowalski, S. Lukasik, S. Zak, 'A Complete Gradient Clustering Algorithm for Features Analysis of X-ray Images', in: Information Technologies in Biomedicine, Ewa Pietka, Jacek Kawa (eds.), Springer-Verlag, Berlin-Heidelberg, 2010, pp. 15-24.

Citation Request:

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