METHODS TO ANALYSE MOLECULAR DATA ON AGRICULTURAL BIODIVERSITY

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COURSE AIMS

This course is conceived to provide the participants with an introduction to the analytical methods - such as multivariate statistics, clustering algorithms, network analysis etc. - usually applied to molecular data to describe the diversity of agricultural species.
Starting from relevant examples taken from the scientific literature, the course will describe the theoretical background of the methods, explain how to interpret the results and how to use them for scientific publications.

METHODOLOGY

Lectures (8 hours in total)

COURSE DESCRIPTION

A variety of statistical methods are available to analyze molecular data and describe the diversity of agricultural species, but rarely young scientists have access to guidelines on how to efficiently exploit these tools, avoid their misusage and interpret the results. Therefore, this course aims at:
i) reviewing the techniques most frequently applied to genomic data of agricultural species starting from relevant scientific papers.
ii) introducing the theoretical background and pros and cons of each technique, to explain when and to what end approaches like multivariate statistics, analysis of molecular variance, methods to assign individuals to populations or breeds/varieties or to identify events of admixture/gene flow between populations can be applied.
iii) explaining how to interpret the results in a critical way to prepare scientific papers.

RECOMMENDED TEXTS

Course slides and scientific papers provided by the lecturer.