DATA PRESENTATION SYSTEMS

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Summary

The most important thing of data presentation is that the speaker must clearly and correctly represent his/her opinion to the audiences. A personal computer (PC) and a multimedia projector are nowdays common tools for the presentation in the world. The advantage of the use of a PC is that we can collect data, analyze data, make charts and graphs, and create the presentation file with one PC using suitable application software. We can also use movies, executable programs and animations in a PC presentation. In this chapter, data presentation using a PC is discussed. Furthermore, it describes the graph types for the representation of data.

1. Introduction

Data presentation is a very important skill not only for scientists but also for engineers, sales persons, and all those who have to present their opinions, products, or plans. In the field of agriculture, the main objectives are safe and secure food production. However, sustainable agriculture and low input agriculture systems are needed for future food production and are related with environmental protection. In the course of doing the tasks for this food production, large amounts of data are being collected, analyzed and exchanged in order to improve agricultural technologies and sustain food production. This is made possible because of the advancement of information technology, sensor technology and communications technology.

With new data collected, new results are also discovered. The discovery of these new results is then reported to the audience. The goal of presenting data is not only to inform

but also to further evaluate data by allowing the audience to investigate the data. This is also the reason why there are a number of conferences organized yearly around the world; people want to know the new discoveries, new knowledge, new trends, and new skills, etc.

We have many different types of data presentation system, viz. Tables, 2D or 3D Charts, animations, photos, and videos. The choice of the suitable software and the suitable file format are important for making the data and information presentation.

This chapter discusses about the data presentation system. It begins with the flow of data; from acquisition to presentation. It is important to know how data can be transformed into something that is informative and useful. It discusses the tools for the data presentation specifically about the importance of the personal computer. Software packages for manipulating the data are also discussed.

2. Data Flow

Just like energy, data can be converted from one form to another. In order to present reliable data, it is important to understand the flow of data from acquisition to presentation, and also know how the form of data changes as it moves from one process to another. Figure 1 shows the flowchart of data transformation.
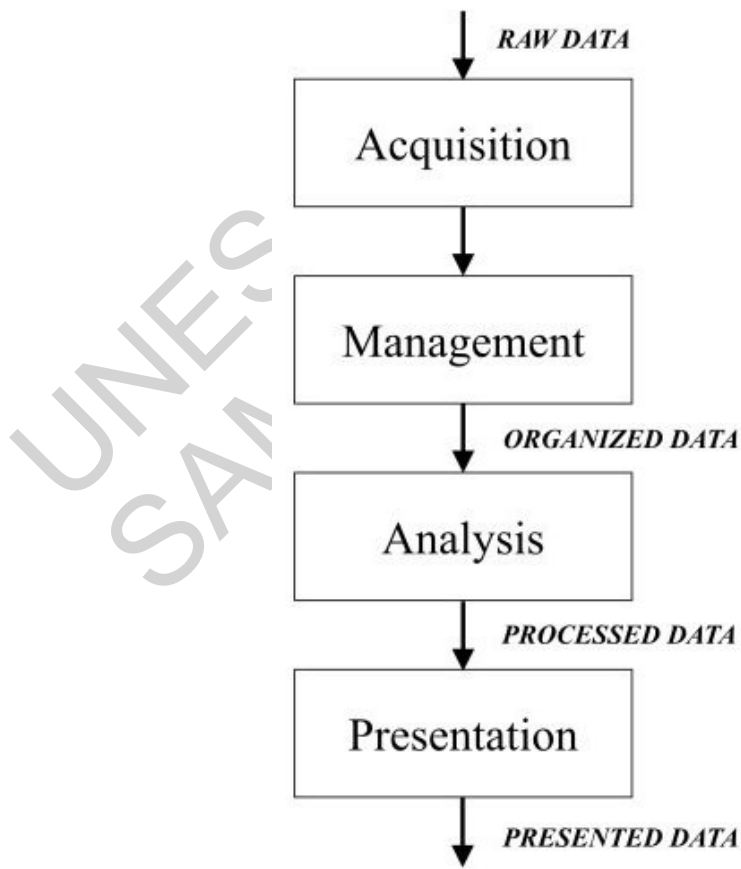

Figure 1. The flowchart of data transformation.

It starts with the acquisition of raw data. Data may be collected as analog or digital signal format depending on the data acquisition tools, sensors used, etc. The next step in the flowchart is the management of collected data. The management involves organizing the collected data for further processing and analysis. An example of data management is to put the data into tabular form by using a spreadsheet program such as Microsoft® Excel®. Following the management of data is the data analysis. The analysis may involve the determination of trends or relationship between observations depending on the objective of the project. It may also involve processing the data to produce a graphical representation to ease and simplify the data evaluation, and to estimate the phenomenon under investigation. Again, special programs such as Microsoft® Excel®, MATLAB®, statistical analysis software, or customized software built using programming languages such as BASIC or C++, etc., can be used for data processing. Once the data is processed and analyzed, it is ready for dissemination through reports, conference meetings, magazines, journals and others. This is the final part of the data flowchart, which is presentation.

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Biographical Sketch

Takashi Kataoka is an Associate Professor of Agricultural Engineering Department at Hokkaido University, Japan. He has been on the faculty since 2000. He was on the faculty of Iwate University, Japan, from 1990 to 2000. He teaches sophomore, junior, senior, and graduate courses in numerical analysis, mechanical engineering, and controls in the field of the Power and Machinery. His research interests are Precision Farming, power saving tillage machine, robotic harvesting system, automatic control for implements, and advanced sensors for the crop production.