BOOK REVIEW

Reed C.R. 2006. Managing Stored Grain to Preserve Quality and Value. AAAC International, St. Paul, USA, 235 pp. ISBN 1-891127-47-0

As indicated in the "Preface" (p. VII–VIII) and „Introduction" (p. 1–4) this book is intended as: (1) a reference manual for people who work in the operations branches of the grain industry; (2) a textbook for university students preparing to enter the grain-handling. It is obvious to everybody that there is a long chain of events to bring grain from the field to the customers – to people or to companies – who purchase raw grain or grain processed products such as flour, oil, meal, animal feed etc. During that time – frequently quite long – the grain must preserve its original expected quality.

Chap. 1 "Grain Quality Factors" (p. 5–29) broadly discusses quality features in respect to grain of corn, wheat, sorghum and soybean using flour and dough tests related to the ash content, falling number, bake tests and farinograph or alveograph tests.

Chap. 2 "Physical Processes in Grain Storage" (p. 31–54) in a descriptive way and on several drawing provides a lot of useful information how to maintain proper temperature and moisture gradients of stored grain.

Chap. 3 "Insects of Stored Grain" (p. 55–78) provides basic information on classification and identification of major insect orders and families recognized as important worldwide grain pests. There is also given useful information on the life requirements of several pest species.

Chap. 4 "Grain Molds" (p. 79–102) characterizes field molds and storage molds stressing the hazards to human health of *Aspergillus* spp. and *Eurotium* spp. due to mycotoxin/aflatoxin production. Methods of detecting mold growth and chemical and physical methods of grain molds control are described in details.

Chap. 5. "Monitoring for Grain Quality, Grain Condition, and Pests" (p. 103–130) is of particular interest and value. In a descriptive way and on several drawings and in many tables principles of grain sampling for presence of insects and mycotoxins are provided. Of special value are examples of measurements and interpretation of presence of pests.

Chap. 6 "Sanitation of Grain Storage" (p. 131–140) provides several instructions for creating and maintaining safe work environment for personnel safety and avoiding molds and rodent grain contamination.

Chap. 7 "Aeration" (p. 141–180) points that aeration is a powerful tool for maintaining good grain condition. Various techniques of aeration and equipment involved are described and illustrated.

Chap. 8 "Grain Drying Strategies" (p. 181–201) indicates that drying of grain involves conflict of interest. Grain is sold by weight, so it is advantageous to sell as much weight, as possible, including as much water as it is tolerated. However, in order to avoid grain deterioration during storage the moisture cannot exceed 13–15.5%. Several drying strategies, including also unconventional drying techniques are discussed.

Chap. 9 "Grain Fumigation" (p. 203–228) describes in detail legal and technical aspects of using contact insecticides and fumigation technology approved in the United States. Use of contact insecticides and fungicides is discussed in details. Phosphine and methyl bromide account for nearly 100% of all grain fumigation worldwide.

I strongly recommend this book to all persons concerned with raw and processed plant grains and to agricultural and food industry libraries.

Jerzy J. Lipa
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