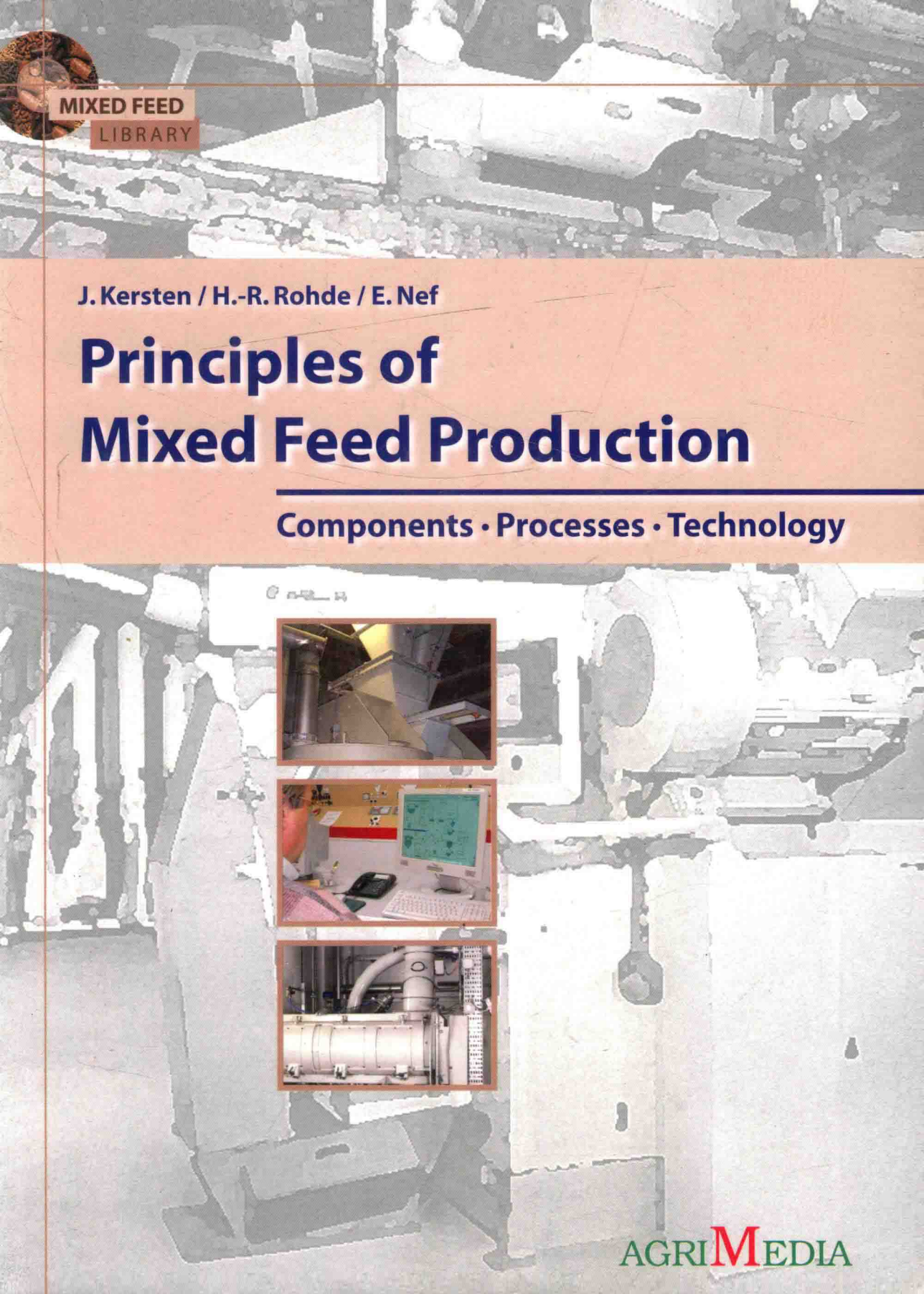




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Principles of Mixed Feed Production

Components • Processes • Technology



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Contributors:

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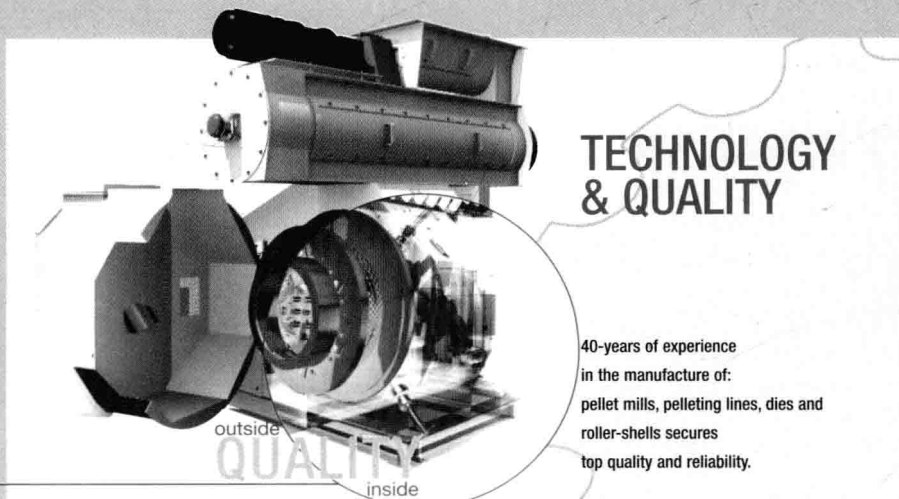
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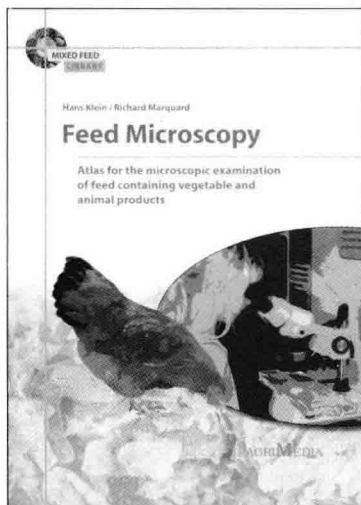
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NEW

**Upgrade and enhance your quality
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Feed microscopy is the fastest and most efficient way to identify impurities in ingredients and finished feeds! One must be proficient though in using the microscope and have reliable literature at hand: Using this atlas for your lab-analyses will bring you the benefits of being able to refer to **more than 830 detailed drawings!** They show both the morphological and anatomical structures of plants and plant products. As these characteristics are unchanging, they constitute a reliable criteria for identity and quality control. The same can also be said of the assessment of animal feed components, in which anatomical structures and/or their fragments form the basis for microscopic diagnosis. The book also helps to identify missing ingredients.

Moreover the book explains about:

- the quality control aspects of feed microscopy
- technical equipment and sample preparation
- structural characteristics of cereals/legumes/starch plants/oilseeds/other vegetative plant parts and their by-products
- structural characteristics of animal/marine components and their by-products
- structural characteristics of common impurities and contaminants

Intended as a laboratory manual the Atlas serves as a reference book in the lab as well as in professional training.

A lot of practical information and techniques make this book a need-to-have guide for every feed mill-laboratory.

All the illustrations in this atlas are hand-drawn in accordance with the relevant literature and after microscopic checking using authentic materials.

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Preface

Mixed feed or compound feed is a well-balanced mixture of raw materials from different sources producing healthy and nutritious feed meeting the needs of different livestock. Animal nutrition science and feed companies have achieved considerable progress over the past years, not only through raising the quality of animal feed but also by showing its effects on the properties of animal products. This new approach reveals the feed chain as an integral part of the food chain. It improves transparency and thereby increasing safety for livestock producers, processors and consumers:

- Maximum customer orientation.
- Customized products.
- Implementation of HACCP principles.
- Quality, safety and tractability of feed materials.
- Source-directed measures for the control of contaminants.
- Feed labeling.
- Observance of national and international laws and standards.

To produce good and customer-orientated animal feeds, high-quality raw materials and the appropriate equipment is needed. The design and running of a feed production plant and its individual processes is very complex and requires engineering know-how unthought of in the feed industry not many years ago.

Before the raw materials can be processed the impurities such as pebbles, soil and metals, etc. must be carefully removed without damaging the materials themselves e.g. sieving, magnetic separators and similar equipment. The ingredients can then be ground to the required size using either hammer mills or roller mills for further processing. To ensure high-precision blending of the feed ingredients, volumetric and gravimetric proportioning equipment measures and weighs the materials according to the feed formula. The mixed materials are then heat-treated by the addition of steam thereby also condition-

ing it, if needed for the pelleting process. The finished product is then prepared for shipment to the customer. Miles and miles of chain, screw, belt or pneumatic conveying equipment is used for horizontal and vertical movement of materials from one process to the next.

The purpose of this book is to introduce this very complex theme and its various aspects to a wider scope of readers. With this purpose in mind, emphasis has been placed on a presentation that is as vivid as possible, practical, and enriched with many examples. The book starts with a concise introduction to the science of animal feeds and nutrition followed by the impact on mixed feed production, including legal aspects, quality management, and mixed feed optimization. The third chapter gives a detailed presentation of individual feeds and ways in which they may be used. The fourth chapter covers the additives that are used in mixed feeds. The fifth chapter is designed to provide the reader with comprehensive information concerning the individual steps and the technology involved in mixed feed production. It concludes with a section on the quality of mixed feeds.

This book is the result of the dedicated efforts of several authors. The authors of each section contributed to the success of the book with their professional expertise. Mr. Lajos Mészáros prepared the excellent photographs of each of the individual feed types. We especially wish to thank Dr Vicki Glasgow from Harbro, Scotland, for proofreading the text. We also owe a great debt to the many companies who contributed to the book.

It must also be said here, that the technology outlined in this book are only examples, which obviously cannot reflect the diversity of the available designs and systems of every manufacturer. However, every effort was made to choose the most representative and standard constructions.

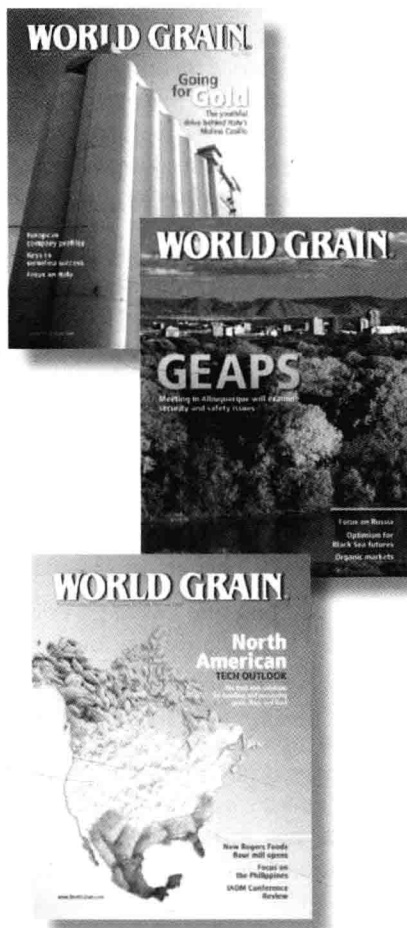
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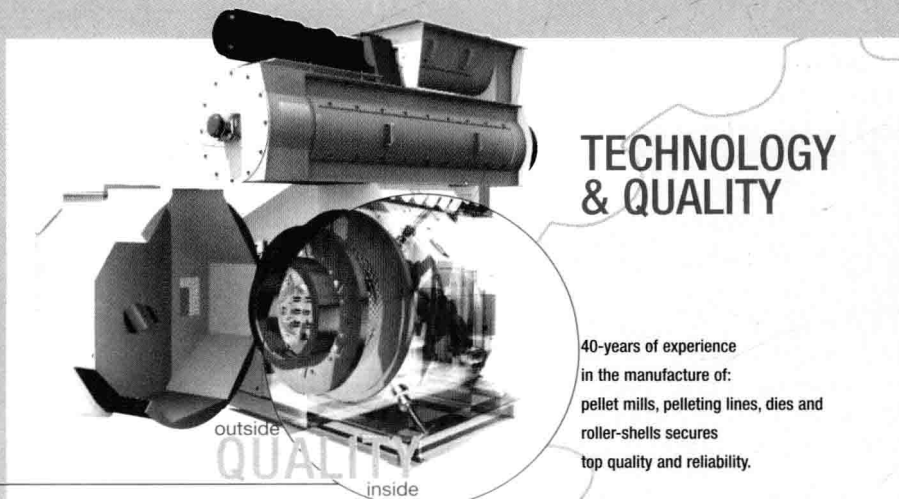
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