MIXED FEED
LIBRARY

J. Kersten / H.-R. Rohde / E. Nef

Principles of Mixed Feed Production

Components · Processes · Technology

AGRIMEDIA

Jens Kersten • Hans-Rainer Rohde • Ernst Nef

Principles of Mixed Feed Production

Components • Processes • Technology

Contributors:

Heiko Almann, Dr Christine Chudaske, Heiner Kotscha,

Wolfgang Meissner, Dr Jürgen Struck

AGRIMEDIA

Spithal 4
29468 Bergen/Dumme
Germany
Tel. ++49 - 5845 - 9881-10
Fax ++49 - 5845 - 9881-11
mail@agrimedia.com
www.agrimedia.com

Proof-reading: Dr Vicki Glasgow
Translation: John Speese, Harry Glennie, James Alder (Kosmos srl)
Coverpictures: Bühler; DBU
Layout: Jana Mengel

Printed in Germany, Druckhaus Harms, Groß Oesingen

ISBN 3-86037-273-4

Contents

Spithal 4
29468 Bergen/Dumme
Germany
Tel. ++49 - 5845 - 9881-10
Fax ++49 - 5845 - 9881-11
mail@agrimedia.com
www.agrimedia.com

Proof-reading: Dr Vicki Glasgow
Translation: John Speese, Harry Glennie, James Alder (Kosmos srl)
Coverpictures: Bühler; DBU
Layout: Jana Mengel

Printed in Germany, Druckhaus Harms, Groß Oesingen

ISBN 3-86037-273-4

Jens Kersten • Hans-Rainer Rohde • Ernst Nef

Principles of Mixed Feed Production

Components • Processes • Technology

Contributors:
Heiko Almann, Dr Christine Chudaske, Heiner Kotscha,
Wolfgang Meissner, Dr Jürgen Struck

AGRIMEDIA

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 un-thought 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 conditioning 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.

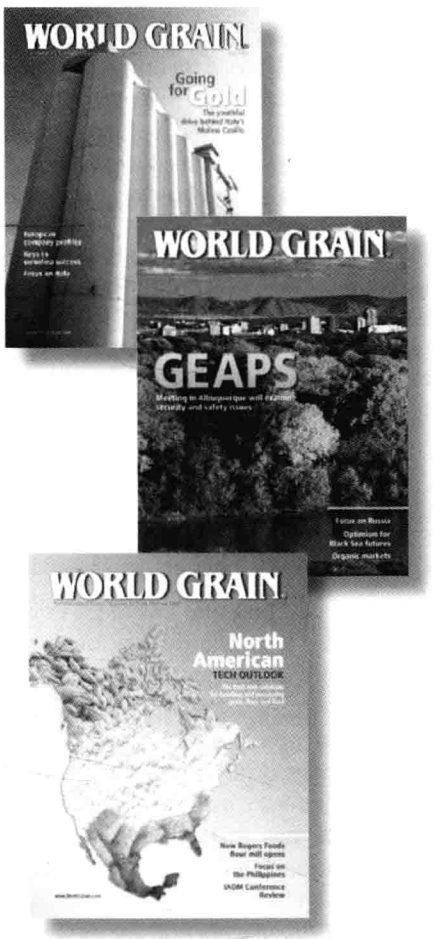
The editors

WORLD GRAIN®

The International Business Magazine for Grain, Flour and Feed

World Grain keeps you in touch with the dynamic and global business of the expansive grain and grain processing industries. With international coverage of grain storage and transportation issues, global trade and market trends in addition to grain and feed processing operations and end-market demands, *World Grain* is the best resource for understanding the worldwide grain industry and for helping you excel in its operations.

Each issue of *World Grain* offers informative operation features for grain handling, flour milling and feed processing, as well as industry news, relevant special reports, commodity market updates, new product technology and in-depth focuses on industry activity in regions around the globe. Serving readers in 136 countries, it is the only international publication for grain, flour and feed industry professionals.



For information on advertising in World Grain magazine,
contact Mark Cornwell, *Publisher*: +1-800-338-6201
or e-mail mcornwell@sosland.com.

For a free subscription to World Grain,
call Judy Arnone at +1-800-338-6201 or e-mail jarnone@sosland.com.

Additional information can be found at www.World-Grain.com.

Contents