

The Feed Analysis Laboratory Establishment And Quality Control Setting Up A Feed Analysis Laboratory And Implementing A Quality Assurance System Fao Animal Production And Health Guidelines

Animal feed impacts almost all sectors and services of the livestock sector. This document presents a step-wise process to guide the Laboratory Management, starting from planning a feed analysis laboratory building and layout to hiring suitable staff, choosing which methods to set up with appropriate equipment requirements. This document will enable Member States to establish accredited laboratories and also help prepare the existing ones for the accreditation. Quality of data on chemical composition and nutritive value will improve, resulting in preparation of safe and quality animal diets -- imperative for increased sustainable livestock production.

Animal disease outbreaks pose many challenges for response authorities that can impact livelihoods, food security, and the environment. Proper disposal of animal carcasses that die or are culled during the outbreak is a key component of a successful response to a disease outbreak because it helps prevent or mitigate the further spread of pathogens and in case of zoonotic disease, to further protect human health. The practical guidelines presented hereby provide carcass and related waste management considerations and recommended procedures for use by Veterinary Services and other official response authorities when developing animal disease outbreak containment and eradication plans. The guidelines apply to animal disease outbreaks of varying sizes, whether the outbreak is isolated to a single premise or spans a region to cover numerous premises. However, they are focused on small to medium-sized holdings in countries without access to engineered landfills, rendering plants or controlled incinerators. The guidelines are written in the spirit of “keep it simple and doable”, considering the limited human and financial resources that many countries are constrained with. Its presentation and practical approach ensure that countries will find it very useful for their emergency operation procedures toolbox. Further, the guidelines directly contribute to the one-health approach by protecting the health of animals, humans, and the environment.

This publication constitutes a practical development tool, which implements the sustainable food value chain framework with a focus on small-scale livestock producers, targeting an audience of project design teams and policymakers. Small-scale livestock producers are important actors in food production, human health and management of landscapes and animal genetic resources. However, they face a number of challenges, which hamper their productivity, access to market, and competitiveness vis-à-vis their larger counterparts. By integrating the concepts of value addition and the three

dimensions of sustainability, the sustainable food value chain framework not only addresses questions concerning the competitiveness, inclusion and empowerment of small-scale producers, but also incorporates the cross-cutting issues that are increasingly embedded in development projects. These guidelines take the user through the different steps of value chain development, highlighting the particularities of the smallholder livestock sector, such as multi-functionality, specific production cycles or food safety issues, through concrete examples.

These guidelines focus on responsible use of antimicrobials in sustainable apiculture. Following a one-health approach, they aim to protect not only honey bees, but even human health (e.g. reducing the risks of residues in hive products and preventing development of antimicrobial resistance) and the environment. The best way to reach this goal is to prevent and to guarantee the early detection of clinical cases of the main honey bee diseases through the application of good beekeeping practices and biosecurity measures. And when medicines are needed for the honey bees, specific indication is provided to reduce their impact: choosing medicines with a low environmental impact, using them timely, prudently and following the due instructions. It is imperative to apply only those active ingredients that are registered for the honey bees and that are ideally prescribed by a veterinarian. Antibiotics should always be avoided as much as possible to reduce risks of residues in hive products and to prevent risks of antimicrobial resistance. Prudent and limited use of antimicrobials in beekeeping benefits the quality of bee products and the safety of surrounding ecosystems, while also slowing development of antimicrobial resistance, which is a widespread issue affecting multiple sectors. Finally, in this document, for the first time, a progressive management pathway (PMP) has been devised for honey bees, as well as surveys were created to assess current beekeeping practices and general awareness of topical issues such as AMR. The overall aim of these guidelines is to provide information of current challenges within the sector and orientate towards sustainable production and honey bee colony health.

The regional animal feed action plan was formulated through a consultative and participatory process building on experiences and lessons learnt by wide spectrum of key stakeholders in public and private sectors, notably, policy makers, traders, pastoralist and farmers' organizations, civil society, NGOs, and the development partners. It builds on the earlier consultative experience sharing workshop on feed by USAID, ILRI, IGAD and FAO in the region. The plan provides broad opportunities for partnerships with producers, governments, and private sector, development and humanitarian organizations at the national and regional levels. It provides a guided approach to collectively tackle the problems of animal feed and pave the way for sustainable production of quality animals and products while improving competitiveness, profitability and ensuring sustainable feed resource management for the entire Eastern African region. The aim of the action plan is to provide guidelines to communities, countries, private sector and livestock stakeholders to

optimally utilize the available feed resources in East Africa to increase the supply as well as improve the quality of animals, products and by-products and to maximize the economic and social benefits of the livestock sector.

Laboratory facilities are complex, technically sophisticated, and mechanically intensive structures that are expensive to build and to maintain. Hundreds of decisions must be made before and during new construction or renovation that will determine how successfully the facility will function when completed and how successfully it can be maintained once put into service. This book provides guidance on effective approaches for building laboratory facilities in the chemical and biochemical sciences. It contains both basic and laboratory-specific information addressed to the user community—the scientists and administrators who contract with design and construction experts. The book will also be important to the design and construction communities—the architects, laboratory designers, and engineers who will design the facility and the construction personnel who will build it—to help them communicate with the scientific community for whom they build laboratory facilities.

The goal of this book is to present an overview of applications and ideas toward sample preparation methods and techniques used in analysis of foods and beverages. This text is a compilation of selected research articles and reviews dealing with current efforts in the application of various methods and techniques of sample preparation to analysis of a variety of foods and beverages. The chapters in this book are divided into two broad sections. Section 1 deals with some ideas for methods and techniques that are applicable to problems that impact the analysis of foods and beverages and the food and beverage industries overall. Section 2 provides applications of sample preparation methods and techniques toward determination of specific analytes or classes of analytes in various foods and beverages. Overall, this book should serve as a source of scientific information for anyone involved in any aspect of analysis of foods and beverages.

A new edition of one of Zola's lesser-known novels from the Rougon-Macquart Cycle Finding the young Angélique on their doorstep one Christmas Eve, the pious Hubert couple decide to bring her up as their own. As the girl grows up in the vicinity of the town's towering cathedral and learns her parents' trade of embroidery, she becomes increasingly fascinated by the lives of the saints, a passion fueled by her reading of the Golden Legend and other mystical Christian writings. One day love, in the shape of Félicien Hautecoeur, enters the dream world she has constructed around herself, bringing about upheaval and distress. Although it provides a detailed portrait of provincial 19th-century life and it adheres to a naturalist approach, *The Dream* eschews many of the characteristics of Zola's other novels of the Rougon-Macquart cycle—such as a pronounced polemical agenda or a gritty subject matter—offering instead a timeless, lyrical tale of love and innocence.

Vols. for 1973/74- include Directory and Who's who sections.

Animal identification and recording serves multiple purposes in a country's livestock sector. It is a prerequisite to establish and operate any genetic improvement programme. It also contributes to animal traceability and disease control, as well as to deterring stock theft. Traceability of animals and their products helps to ensure the safety and quality of animal products, and contributes to enhance market access and to generate larger incomes for producers and other players in the value chain. Animal recording systems are therefore not just an information system but a powerful tool for livestock development and for contributing to global demands for food security and poverty alleviation. To make

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animal recording systems effective, they must be supported by appropriate public and private policies, and a legal and institutional framework. These multiple uses of animal identification and recording highlight the need to adopt multipurpose systems that integrates animal identification and registration, animal traceability, animal health information and performance recording. The FAO guidelines for development of integrated multipurpose animal recording systems have been prepared with the objective of helping countries to design and implement such systems and to maximize the chances that they will be sustained. These guidelines put performance recording in a more general context, and hence to complement rather than replace the previous FAO guidelines. These guidelines focus primarily upon the process rather than the methods and the technology (e.g. details of the equipment and measurements), since the latter is sufficiently covered by other guidelines. Where necessary, the guidelines are formulated to suit low or medium input production environments.

The Laboratory Rat, Volume I: Biology and Diseases focuses on the use of rats in specific areas of research, ranging from dental research to toxicology. The first part of this book retraces the biomedical history of early events and personalities involved in the establishment of rats as a leading laboratory animal. The taxonomy, genetics and inbred strains of rats are also elaborated. The next chapters illustrate the hematology, clinical biochemistry, and anatomical and physiological features of the laboratory rat. This text concludes with a description of infectious diseases that may be contracted from laboratory and/or wild rats. This volume is a good source for commercial and institutional organizations involved in producing rats for research use, specialists in laboratory animal, animal care and research technicians, as well as students in graduate and professional curricula.

A respected resource for decades, the Guide for the Care and Use of Laboratory Animals has been updated by a committee of experts, taking into consideration input from the scientific and laboratory animal communities and the public at large. The Guide incorporates new scientific information on common laboratory animals, including aquatic species, and includes extensive references. It is organized around major components of animal use: Key concepts of animal care and use. The Guide sets the framework for the humane care and use of laboratory animals. Animal care and use program. The Guide discusses the concept of a broad Program of Animal Care and Use, including roles and responsibilities of the Institutional Official, Attending Veterinarian and the Institutional Animal Care and Use Committee. Animal environment, husbandry, and management. A chapter on this topic is now divided into sections on terrestrial and aquatic animals and provides recommendations for housing and environment, husbandry, behavioral and population management, and more. Veterinary care. The Guide discusses veterinary care and the responsibilities of the Attending Veterinarian. It includes recommendations on animal procurement and transportation, preventive medicine (including animal biosecurity), and clinical care and management. The Guide addresses distress and pain recognition and relief, and issues surrounding euthanasia. Physical plant. The Guide identifies design issues, providing construction guidelines for functional areas; considerations such as drainage, vibration and noise control, and environmental monitoring; and specialized facilities for animal housing and research needs. The Guide for the Care and Use of Laboratory Animals provides a framework for the judgments required in the management of animal facilities. This updated and expanded resource of proven value will be important to scientists and researchers, veterinarians, animal care personnel, facilities managers, institutional administrators, policy makers involved in research issues, and animal welfare advocates.

The Feed Analysis Laboratory Establishment and Quality Control : Setting Up a Feed Analysis Laboratory, and Implementing a Quality Assurance System Compliant with ISO/IEC 17025:2005 Food & Agriculture Org

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This manual provides comprehensive information and practical guidelines to assist farmers, producers and all stakeholders along the feed value chain to comply with the requirements of the Codex Alimentarius Code of Practice on Good Animal Feeding. The application of the Code is an important step for the expansion of international trade of feed and products of animal origin. Both feed/food exporting and importing countries can benefit from a greater and safer trade of feed and products of animal origins. This manual is intended to guide managers of feedmills, the feed industry as a whole and on-farm feed mixers and producers. It will also be of value to national competent authorities, in particular those engaged in feed inspection, in their supervisory roles. It can also serve as a training manual and a guide to setting up national feed associations.

This publication provides practical guidelines on establishing composite service laboratories for the analysis of soil, plants, water and fertilisers (mineral, organic and biofertilisers). It also provides various analytical methods for assessing soil fertility and making nutrient recommendations, assessing quality of irrigation water, and details of the equipment, chemicals and glassware required for a given analytical capacity. Useful to administrators and planners in establishing laboratories, and to technicians through providing detailed and precise procedures for estimation.

This publication is intended to guide managers of feedmills and the feed industry as a whole.

Bees provide a critical link in the maintenance of ecosystems, pollination. They play a major role in maintaining biodiversity, ensuring the survival of many plants, enhancing forest regeneration, providing sustainability and adaptation to climate change and improving the quality and quantity of agricultural production systems. In fact, close to 75 percent of the world's crops that produce fruits and seeds for human consumption depend, at least in part, on pollinators for sustained production, yield and quality.

Beekeeping, also called apiculture, refers to all activities concerned with the practical management of social bee species. These guidelines aim to provide useful information and suggestions for a sustainable management of bees around the world, which can then be applied to project development and implementation.

Edible insects have always been a part of human diets, but in some societies there remains a degree of disdain and disgust for their consumption. Insects offer a significant opportunity to merge traditional knowledge and modern science to improve human food security worldwide. This publication describes the contribution of insects to food security and examines future prospects for raising insects at a commercial scale to improve food and feed production, diversify diets, and support livelihoods in both developing and developed countries. Edible insects are a promising alternative to the conventional production of meat, either for direct human consumption or for indirect use as feedstock. This publication will boost awareness of the many valuable roles that insects play in sustaining nature and human life, and it will stimulate debate on the expansion of the use of insects as food and feed.

Live poultry markets are an important part of the poultry supply chain in many parts of the world. However, the emergence of avian influenza viruses that can cause severe disease in humans which results from working in or visiting contaminated markets means that some long-standing practices are no longer acceptable. This guide has been produced for live poultry market managers and

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provides practical options for improving the hygiene and biosecurity of their markets. The guide is structured as a series of questions based on real-life situations and problems. It also contains information on appropriate ways to decontaminate markets and the equipment and vehicles that enter markets. It does not provide a 'one-size-fits-all' solution for markets given that these vary from large wholesale markets with a daily throughput of tens of thousands of poultry to small roadside or village markets that operate once or twice per week. Instead, this guide offers a menu of options that can be used to find cost-effective solutions for any type of market. A shift is already occurring away from live bird sales to centralized slaughter, but while live poultry markets continue to operate it is imperative that those that remain are managed in a way that reduces the risk of infection of poultry and humans with avian influenza viruses. This guide will help market managers to achieve this goal.

Every sector of the livestock industry, the associated services and the wellbeing of both animals and humans are influenced by animal feeding. The availability of accurate, reliable and reproducible analytical data is imperative for proper feed formulation. Only reliable analysis can lead to the generation of sound scientific data. This document gives a comprehensive account of good laboratory practices, quality assurance procedures and examples of standard operating procedures as used in individual specialist laboratories. The adoption of these practices and procedures will assist laboratories in acquiring the recognition of competence required for certification or accreditation and will also enhance the quality of the data reported by feed analysis laboratories. In addition, ensuring good laboratory practices presented in the document will enhance the safety of the laboratory workers. The document will be useful for laboratory analysts, laboratory managers, research students and teachers and it is hoped that it will enable workers in animal industry, including the aquaculture industry, to appreciate the importance of proven reliable data and the associated quality assurance approaches. An additional effect of implementing and adopting these approaches will be strengthening of the research and education capabilities of students graduating from R&D institutions and promotion of a better trading environment between developing and developed economies. This will have long-term benefits and will promote investment in both feed industries and R&D institutions.

Los brotes de enfermedades animales plantean dificultades que pueden tener fuertes repercusiones en los medios de vida, la seguridad alimentaria y el medio ambiente. La eliminación correcta de los cadáveres de los animales que mueren o se sacrifican durante un brote de enfermedad es fundamental para poder dar una buena respuesta ante estas situaciones, ya que ayuda a impedir que los patógenos se sigan propagando o que lo hagan en menor medida; en el caso de enfermedades zoonóticas, permite proteger mejor la salud de las personas. En las directrices prácticas que aquí se presentan se proporcionan consideraciones relativas a la gestión de cadáveres y de otros residuos afines, y se recomiendan procedimientos a tal efecto. Se han preparado para que los servicios veterinarios y otras autoridades oficiales encargadas de dar una respuesta las utilicen en la elaboración de planes de contención y erradicación de brotes de enfermedades animales. Las directrices son aplicables a brotes de enfermedades de animales de diferente magnitud, desde los que están aislados en una única explotación hasta los que se extienden por una región y afectan a numerosas explotaciones. No obstante, están centradas en las explotaciones pequeñas y

medianas de países sin acceso a vertederos artificiales, plantas de procesamiento de desechos o incineradores controlados. Las directrices se han elaborado con la intención de que sean simples y factibles, considerando la limitación de recursos humanos y financieros que padecen muchos países al abordar esta cuestión. Se ha fomentado la presentación y el carácter práctico de las directrices para asegurar que los países las encuentren útiles para sus procedimientos de emergencia. Asimismo, las directrices contribuyen directamente al enfoque "Una salud", ya que protegen la salud de los animales, de las personas y del medio ambiente.

The first edition of Food Analysis: Theory and Practice was published in 1971 and was revised in 1978. The second edition was published in 1987, and in 1993 we found it necessary to prepare a third edition to reflect and cover the most recent advances in the field of food analysis. A complete revision of a book is an arduous and anguished task. The following are challenges that we wanted to address in this revision: to update the material without eliminating classic and time-preserved and honored methods used by the food analyst; to broaden and deepen the coverage and scope without increasing the size of the book; and to produce a textbook (for senior undergraduate and graduate students) with regard to objectives, scope, and outlay while providing a reference and resource for the worker and researcher in the field of food analysis. To meet those challenges we added much new material and took out practically the same amount of "rel atively outdated" material. Every chapter has been extensively updated and revised; many of the pictures in the previous editions were deleted and, whenever available and appropriate, were replaced by diagrams or flow sheets. In Part I we have expanded the seetions on sampling, preparation of sam ples, reporting results, and reliability of analyses.

FAO Animal Production and Health Papers This guidance document helps decision-makers gain a basic knowledge of the farmer fields schools approach, learn about its contribution to the livelihoods of livestock-dependent communities and recognize the conditions required for the successful implementation of this approach.

Animal health and economics are closely linked. Any decision taken to prevent, control and eliminate an animal disease is based not only on the technical knowledge available about a particular disease but also on the effectiveness and socio-economic aspects associated with interventions and mitigation measures implemented by governments, producers and all the actors along the livestock value chains. Economic rationale drives decisions in assessing particular investments which are likely to result in a benefit for society or for a specific stakeholder, including livestock farmers and communities. These guidelines prepared by FAO will contribute to a better understanding of the importance of economic analysis when assessing the impact of a particular animal disease in production, trade, market access, food security and livelihoods of rural communities, or when designing or implementing an animal health strategy at national, regional or global level. This framework will provide a good communication tool between animal health technicians, veterinarians and economists in developing countries and will encourage a well informed collaboration between veterinarians, animal health experts, economists and social scientists for livestock and socio-economic development. Economic analysis should be an essential part of animal disease policies and disease management strategies.

"The assessment builds on the work of the Livestock, Environment and Development (LEAD) Initiative"--Pref.

The occurrence and spread of an animal health threat can be prevented when a timely assessment of the risk is carried out to inform prevention, response and control measures. These technical guidelines on rapid risk assessment (RRA) are designed as a simple and practical tool to be used by veterinary services to build risk assessment capacities and assist decision-makers in conducting qualitative RRA on the emergence, occurrence and/or spread of animal health threats. Using available evidence, data and information, a multidisciplinary team can conduct an RRA in a short time (within two weeks). The publication provides a simple and flexible methodology for conducting a RRA when facing a disease event. Eight steps in the RRA process are described and detailed examples are provided. The final outcomes of the RRA provide robust evidence and guidance for decision-makers in designing timely prevention, control and eradication measures that contribute to sustainable livelihoods, animal health, public health and enhanced food security.

In the years since the third edition of this indispensable reference was published, a great deal has been learned about the nutritional requirements of common laboratory species: rat, mouse, guinea pig, hamster, gerbil, and vole. The Fourth Revised Edition presents the current expert understanding of the lipid, carbohydrate, protein, mineral, vitamin, and other nutritional needs of these animals. The extensive use of tables provides easy access to a wealth of comprehensive data and resource information. The volume also provides an expanded background discussion of general dietary considerations. In addition to a more user-friendly organization, new features in this edition include: A significantly expanded section on dietary requirements for rats, reporting substantial new findings. A new section on nutrients that are not required but that may produce beneficial results. New information on growth and reproductive performance among the most commonly used strains of rats and mice and on several hamster species. An expanded discussion of diet formulation and preparation--including sample diets of both purified and natural ingredients. New information on mineral deficiency and toxicity, including warning signs. This authoritative resource will be important to researchers, laboratory technicians, and manufacturers of laboratory animal feed.

With the current Second Growth and Transformation Plan (2015-2020), the Government of Ethiopia expects the agro-industrial sector to play key role in economic growth of the Country. Accordingly, the creation of Integrated Agro-Industrial Parks has been identified as one of the key mechanisms for accelerating the development of the sector and the structural transformation of agriculture. Agro-industrial parks will play a significant role in transitioning Ethiopia from an agricultural-led into an industrial-led economy. In view of that, the development of Integrated Agro-Industrial Parks has been prioritized in Ethiopia's national development strategy and four Agro-Industrial Growth Corridors have been selected for piloting the establishment of four Integrated Agro-Industrial Parks. The initiative aims at driving the structural transformation of the Ethiopian economy while reducing rural poverty and creating a better environment for increased investments in agro-processing and allied sectors. Since 1981, FAO has been a strong partner of the Government of Ethiopia towards the achievement of national food security and economic growth goals. FAO is working closely with the Ministry of Agriculture and Natural Resources to empower value chain

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actors and to promote inclusive, efficient and sustainable agricultural value chains. The present document is the second one of a series of detailed analyses of prioritized commodities, which will lead to inclusive, sustainable and stronger agricultural value chains in the Agro-Commodities Procurement Zone of the pilot Integrated Agro-Industrial Park in Central-Eastern Oromia.

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