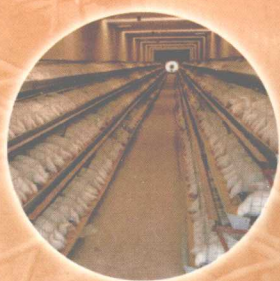
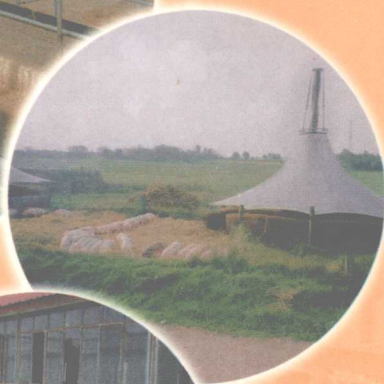
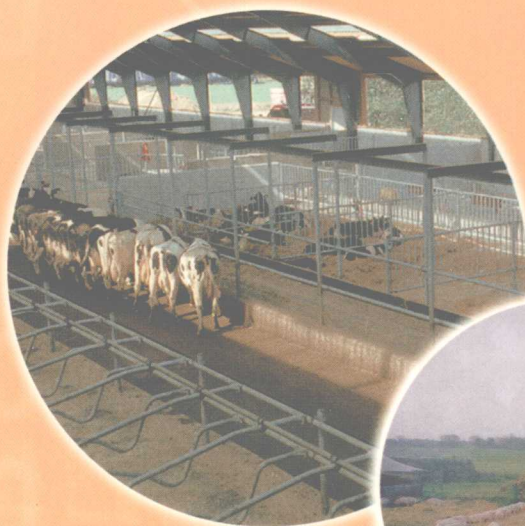


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李保明 主编



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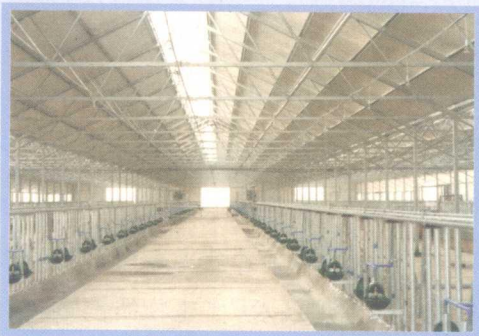
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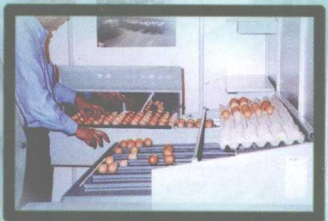
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孟繁锡（中国农业大学）

前 言

随着我国全面建设小康社会目标的提出和西部大开发全面深入的展开,各级政府都把大力发展畜牧业作为新世纪富民工程的一个重要内容来抓,大中城市郊区更是把发展绿色畜牧业或环保型畜牧业列入重中之重工作。优质、安全畜产品的市场需求和对符合清洁生产的新型畜禽养殖工程工艺及其配套设施与设备的需求也愈来愈大。畜牧工作者如何及时把握我国当前畜牧生产的时代脉搏,解决当前畜牧生产中的瓶颈;畜牧工程相关企业如何抓住当前这个有利时机,以便更好地占领国内市场,拓展国际市场;如何进一步加强学术界和企业界的交流与合作,加快我国畜牧生产标准化进程等等,都迫切需要专家、学者、企业家们的认真思考和研究。

为配合 2003 年全国畜牧工程及家畜环境科学学术研讨会的召开,中国农业工程学会畜牧工程分会组织了全国相关领域的部分专家、学者,对我国畜牧工程的发展现状、主要成就、存在问题进行认真总结。在此基础上,结合我国国情和畜牧业发展特点,以及所面临的新形势,着重就畜牧业集约化、规模化、标准化生产工艺模式,畜禽养殖建筑设施、饲养设备、环境调控等工程配套措施,畜产品安全、无公害、高品位生产技术等进行探讨。以适应我国畜牧业产业化发展需要,应对加入 WTO 后日趋激烈的国际化竞争,促进畜牧业从数量型向质量效益型转变,更好地发挥畜牧业解决“三农”问题中的主导作用提供技术支撑。全书分总论、工程工艺模式、设施与设备、环境调控技术、环境保护与环境治理、动物行为与动物福利等六个专题,汇集了中国农业大学、中国农业科学研究院、农业部规划设计研究院、北京市农业机械研究所等 20 多家单位专家学者的最新研究成果。该书内容比较全面,有一定的理论深度和较高的实用价值,对加快我国畜牧工程设施设备标准化和产业化进程,做大、做强我国畜牧工程企业,促进畜牧业可持续发展具有一定的指导意义。

本书编写过程中,中国农业大学施正香副教授、孟繁锡教授花费了大量精力,对每篇论文及英文摘要进行认真审定和修改,中国农业大学农业生物环境与能源工程专业的周道雷博士、王顺利硕士、赵阳同学也付出了很多辛勤劳动。本书得到了北京市农业机械研究所、北京市富通环境工程公司、中国农业科学院农业环境与可持续发展研究所、中国农业大学设施农业工程技术研究中心等大力支持,在此一并致谢。

由于时间仓促,书中不泛错漏之处,恳请批评指正。

李保明
2003 年 8 月

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ABSTRACTS

• Review and Forum •

Innovation and Development on Animal Husbandry Engineering Technology in China (7)

Li Baoming, Shi Zhengxiang (Faculty of Hydraulic and Civil Engineering, China Agricultural University, Beijing 100083, China)

Abstract: Since 1970's, large scale production of livestock has become more and more popular in China. Animal husbandry engineering technology is one of the key technologies in modern livestock and poultry production. Based upon learning from foreign countries, with the process of research and development over 20 years, a series of new animal husbandry engineering technologies and products with Chinese characteristics have been formed. Compared with developed countries, the evident differences exist in the fields of a pattern finalizing of husbandry techniques, standardizing, development of establishment and facilities, as well as in the research of standardizing clean production techniques. In order to realize animal husbandry industrialization, agricultural sustainable development, and to increase farmers income, it is the first step to standardize the animal husbandry techniques and innovate engineering technology. Following aspects should be taken into consideration as to the development of animal husbandry engineering technology. Production techniques innovation of swine, cows and sheep should be carried out under the layout of China dominant industry. Operation model of standardization, industrialization and commercialization should be put into use. More investment should be kept in techniques creation and manufacture of establishment and facilities that should be brought into effect. Only doing like this, is it possible to promote our livestock production, get rid of the embarrassed situation of low techniques and poor quality of production, and meet the increasing demands of good and safe animal production.

Key words: animal husbandry engineering; techniques; ancillary engineering facility; technology innovation

Developing Trend of China Poultry Enterprise in Further (14)

Wang Shengyu¹, Gao Guangyao¹, Peng Chunchen², Tang Jianmei³, Wang Hongmei⁴ (1. Shandong Academy of Agricultural Sciences, Institute of Poultry Science, Jinan 250023; 2. Animal Husbandry Bureau of HeZe County; 3. Veterinary Station of HeZe County; 4. Agricultural Bureau of Yanzhou)

Abstract: Present situation and major problems existing in China poultry enterprise are analyzed in this article. Some measures should be taken during the development process of transforming from quantity to quality, and from low - priced to high - quality were also discussed, which provided important ba-

sis for the development of China poultry enterprise in further.

Keywords: poultry enterprise; present situation; developing trend

Some Points on Local Selection for Livestock and Poultry Farms (19)

Lian Yaping (Chinese Academy of Agricultural Engineering, Beijing 100026, China)

Abstract: With the development of rural and town economy in China, the production model of animal husbandry in China has been innovated. The key points of site selecting for constructing livestock and poultry farms were presented in this paper, which provides some references and guidance for reasonable planning and correct designing for livestock and poultry farms.

Key words: farm site selecting; appropriate scale; hygiene and epidemic prevention; environmental protection

Strategic Extension from Greenhouse Engineering Manufacturers to Animal Husbandry

Engineering (25)

Cheng Qinyang, Tian Liya, Geng Rulin (Chinese Academy of Agricultural Engineering, Beijing)

Abstract: The development of intensive animal husbandry engineering in China during the last two decades is presented in this paper. Structure assembly and equipment specialization will be the developing direction in future. Characteristics of intensive animal husbandry engineering and greenhouse engineering are analyzed. And greenhouse engineering manufacturers can accomplish the strategic extension from greenhouse engineering to animal husbandry engineering with comparatively lower costs. Some problems to the greenhouse engineering manufacturers should pay attention to. The day when taking up animal husbandry engineering is also discussed in this paper.

Key Words: greenhouse engineering manufacturers; intensive animal husbandry engineering; strategic extension

Animal Husbandry Developing towards Protected Animal Husbandry (31)

Tian Ping, Yao Wuqun (Dept. of Animal Sciences, Guangdong Foshan Science and Technology Collge, Nanhao Dali, 5282231)

Abstract: Protected animal Husbandry is new field in modern agriculture with widely development in future. To fully develop the protected animal husbandry is an effective way to promote agricultural structure adjustment in a strategical way. It is an important method to realize the modernization. In this paper, it indicates the characteristic its importance and its function. It also pointed out the basic principles and some key points in developing protected animal husbandry.

Key words: developing trend; facilities; animal husbandry

Establishing Pubic Animal Fed Farms in Countryside, Developing Reginal – beyond Animal

Husbandry Enterprises (34)

Hu Mingfeng (Hunan Daoxian Burea of Animal Husbandry and Fishery, Hunan, Daoxian County, 425300)

Abstract: In south part of China, there are many animal fed farms invested by governments, by collectives, or by private to provide to the local managers or to the out – of – regional managers to run, called public animal fed farms, for their business. Through an analysis of this pattern, including its background, reasons, and present situations, it indicates that the public animal fed farms can be a good

way to develop its agriculture, rural economy and farmers' income. Also it is a good opportunity to transfer the surplus labors for their employment. It plays an important role in promoting animal fed farms into large scale for its industrialization. Some suggestions for the public farms are also given in this paper.

Key words: public animal fed engineering; regional – beyond; animal husbandry

• Engineering Technology Model •

Studies on the Housing Scattered Rearing System for Scaled Pig Farms (45)

Shi Zhengxiang, Li Baoming, Zhou Daolei, Li Luqin (Faculty of Hydraulic and Civil Engineering, China Agricultural University, Beijing 100083, China)

Abstract: Housing Scattered Rearing System was a new pig production technology, which was put forward by Helmut Bugl firstly. This rearing system meeting the pig physiology, ecology and behaviour was applied widely in Europe and America. With ten years' research and practice, a new housing scattered rearing system with Chinese characteristics was proposed. In order to promote the housing scattered rearing system, meet animal welfare and equip compound engineering technics, the character of this system, the demands of production technology, the parameter of the technology, the structure of swinery, the pen configuration and compound engineering technics were discussed in detail in this paper.

Key Words: Scaled Pig Farms; housing scattered rearing system; production technology; compound engineering technics

Study on Dairy Freestall Housing Technology (54)

Wang Chaoyuan, Li Baoming, Shi Zhengxiang (College of Water Conservancy and Civil Engineering, China Agricultural University, Beijing 100083, China)

Abstract: The dairy housing technology, concerning both the housing facilities and the production technologies, is important for dairy farming. In this paper, the main dairy housing technologies used in China are introduced. The popular used dairy freestall housing system in the United State and Europe is analyzed. The characteristics, facilities and equipments used in dairy freestall housing technology are introduced and discussed. Comparing with the dairy freestall housing, the differences and works needed for dairy housing technologies in China are emphasized and discussed. Finally, a dairy housing system with outdoor exercise field is proposed for China.

Keywords: dairy; dairy housing; dairy housing technology; freestall

Studies on Techniques and Models for Organic Eggs Production (63)

Wang Chengxin (Beijing Chia Tai Livestock Co. Ltd, Shunyi District 101301)

Abstract: This paper introduced the development of organic egg producing technology systematically. With the production facts, it describes the key points in operation which include climate control, feeding management and post – treatment of eggs, etc. Also it pointed out the trend for organic egg development in brief.

Key words: organic egg; climate control; feeding technology; post – treatment; trend for devel-

opment

Studies on the Housing Scattered Rearing System for Scaled Sheep Farms (71)

Zang Qiang¹, Li Baoming¹, Shi Zhengxiang¹, Liu Lichun² (1 Faculty of Hydraulic and Civil Engineering, China Agricultural University, 2 Chifeng HongWu Group Co., Inner Mongolia 024000)

Abstract: Aimed at the deterioration of the grassland ecological environment, traditional pasture system could not suit with the development of the sheep industry. The current status, research development and problem of sheep housing rearing system were discussed and new scattered housing rearing system which meet sheep's biological and behavioural character was put forward. The character, the production technics and the compound engineering technique of this system were summed up. In order to advance the sustainable development of the grassland livestock industry and promote the yield level of the sheep industry, the scattered housing rearing system was a good approach.

Key words: sheep housing rearing system; new technics; compound engineering technique

Theories and Practice on Planning for Green - Dairy - Belt - Zone along Yellow River (78)

Gao Tengyun¹, Wang Chengzheng¹, Fan Li² (1. Henan Agricultural University, Zhengzhou 450002, 2. Henan Sci - Tech Press, Zhengzhou 450003)

Abstract: Utilizing the Yellow River beach to establish a large - scale, pollution - free Green Dairy Belt Zone is advantageous to adjust the agricultural structure. Planning and establishing the Green Dairy Belt mainly follow the principles: suiting measures to local conditions based on the natural landscape, making the most of regional superiority based on the local resources, developing dairy production in coordination with flood control, forestry and ecology comprehensively. The wetland reserve will be built in the soft beach which close to the water surface. The 500 meters wide forestry belt will be planted outside the dyke. The superior quality pasture will be developed and high yield dairy cows will be raised steadily between the wetland reserve and the forestry belt. For establishing the Green Dairy Belt zone, 5 models can be taken and 10 environmental protection measures should be considered.

Key Words: Yellow River beach; organic dairy farming; planning

The Key Technologies of Ecological Industrialized Pig Farming System (85)

Sun Hongchuang (Shenyang Institute Of Farming Mechanization, Shenyang, 110015)

Abstract: According to "four - in - one" of two - feeding - piaces - type production model, a new ecological pig production system was designed for farm demonstration of ecosystem. Its character and applied effect of this model was analyzed. When the pig - biogas - vegetables modle (flowers, fruit, food etc) model was applied in north area, the key technologies of this model, such as the pig housing design and pigpen, the design of the pig rearing facility, the manure management and its utilization, were discussed in this paper.

Key words: Industry pig production;" four - in - one" model; key technology; ecological

• Facility and Equipment •

Design and Research on Architecture for Cow Barn in Frigid Regions in Inner Mongolia (89)