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International Association for Agricultural Sustainability
105 Cecil Street #18-39, The Octagon, Singapore 069534

Contents

General Information
会议资讯

■ Conference Venue 会议场地

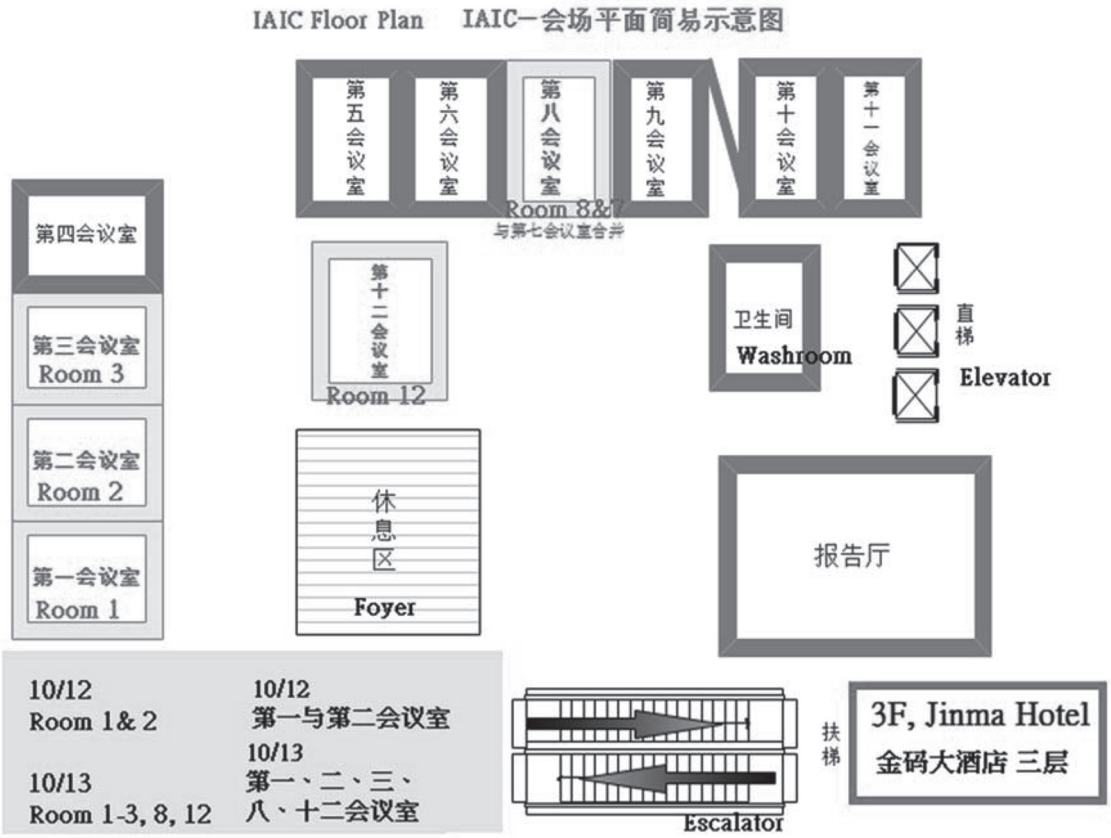
JINMA HOTEL BEIJING

Address: Building A, Golden Tower, 38 Xueqing Road, Hai Dian, 100083 Beijing, China

北京金码大酒店

地址：北京 海淀区 海淀区学清路甲38号金码大厦A座（海淀区学院路与清华东路交汇处东北角）

Floor Plan平面圖



■ Registration Desk 报到资讯

The registration desk will be situated on the 3th floor at JINMA HOTEL BEIJING during the following time:

08:30-16:00 Friday, October 12, 2018
08:30-09:00 Saturday, October 13, 2018

请参加者到金码大酒店3层第一会议室外报到，报到时间如以下：
2018年10月12日 08:30-16:00
2018年10月13日 08:30-09:00

Conference Agenda
大会议程

Day 1 Friday, October 12th, 2018 3F, Jinma Hotel Beijing 2018年10月12日 (五) 北京金码大酒店, 3层		
Time		**Information**
08:30-09:00		**Reception & Registration** 报到
Opening Ceremony 开幕式		
09:00-09:30		Welcome Speech 开幕致词
09:30-09:40		**Group Photography** 大会合影
Keynote Speech 主旨演讲		
09:40-10:10		**Mao-Hua Wang** Academician, Academy of Engineering, China Academician, InternationaI Academy of Sciences for Europe and Asia *Speech Topic: The Innovative Development of Informationization on Agriculture* 汪懋华 中国工程院院士 国际欧亚科学院院士 *演讲主题：农业资讯化创新发展*
10:10-10:30		**Tea Break and Networking 茶歇与交流时间**
Keynote Speech 专题演讲		
10:30-12:10	**10:30**	**Dr. Helen Li** Senior Research Fellow and Chief Economist, Development Research Think Tank, DRTT Dean, World Academy, DRTT Former Dean, Central University of Finance and Economics Training School *Speech Topic: The Latest Trend of Agricultural Innovation in China* 李澈 国研智库首席经济学家 国研智库国际研修院院长 原中央财经大学培训学院院长 *演讲主题：中国农业创新最新趋势*

10:30-12:10	**10:50**	**Dr. Pekka Antero Kess** Professor, Industrial Engineering and Management, University of Oulu, Finland *Speech Topic: Processing Super Food from the Nordic Wild Berries* 芬兰奥卢大学教授 *演讲主题：使用北欧野生浆果加工超级食品*
	11:10	**Prof. SC Lenny Koh** Chair Professor, Operations Management, The University of Sheffield, UK *Speech Topic: Agrifood System and Supply Chain: Now and Future* 英国谢菲尔德大学首席教授 *演讲主题：农产品系统和供应链的现在与未来*
	11:30	**Dr. Göran Svensson** Professor, Institute of Marketing, Kristiania University College, Norway *Speech Topic: An Ecological Cycle* 挪威克里斯提亚大学教授 *演讲主题：可持续农业：一种生态循环系统*
	11:50	**Dr. Tzong-Ru (Jiun-Shen) Lee** Professor, Marketing Department, Chung Hsing University *Speech Topic: The Application of PMI in Agriculture* 李宗儒 中兴大学行销学系教授 *演讲主题：PMI在农业上的应用*
12:10-14:00		**Lunch 午餐** **23F, Jinma Hotel / Restaurant** **金码大酒店23层 / 云景四季**
14:00-16:00	**14:00**	**Dr. Joanna Paliszkiewicz** Professor, Warsaw University Of Life Sciences, Poland *Speech Topic: Knowledge Management and Innovation: New Trends* 波兰华沙大学生命科学学院教授 *演讲主题：知识管理和创新的新趋势*
	14:20	**Dr. Wee Liang Tan** Associate Professor, Strategic Management, Singapore Management University *Speech Topic: The Challenges of Developing New Agri-tech Ventures Supplying "Safe" Foods* 新加坡管理大学副教授 *演讲主题：新型农业科技企业在"安全"食物供应中所面临的发展挑战*

14:00-16:00	**14:40**	**Dr. Nirote Sinnarong** Assistant Professor, Ph.D. and Master Program in Applied Economics, Maejo University, Thailand *Speech Topic: Agricultural Innovation and Climate Change Adaptation under Thailand 4.0 National Policy* 泰国湄州大学助理教授 *演讲主题：在泰国4.0国家政策下的农业创新与气候变化适应*
	15:00	**Dr. Rika Ampuh Hadiguna** Senior Lecturer, Department of Industrial Engineering, Universitas Andalas, Indonesia *Speech Topic: Simulation Model of Indonesia Palm Oil Industry: Issues, Challenges and Policy* 印尼安达拉斯大学资深讲师 *演讲主题：印尼棕榈油行业的模型：问题、挑战和策略*
	15:20	**Sjaak Van Der Tak** Chairman, LTO Glaskracht Nederland, Netherlands *Speech Topic: The Efficient Production of the Netherlands Equipment* 荷兰设施农业协办主席 *演讲主题：荷兰设施高效能生产*
	15:40	**Hung-Nan Tung** Chief Executive Officer (CEO) of BOTTLE-TOP Machinery Co., Ltd. *Speech Topic: UMAMI MATP/S GROCERANT as An Innovative Foodservice Business System* 董鸿楠 合默麟机械股份有限公司执行长 *演讲主题：一个创新的食物服务商业系统-UMAMI MATP/S GROCERANT*
16:00-16:30		**Tea Break and Networking 茶歇与交流时间**
16:30-18:00	**16:30**	**Dr. Kothandapani Ganesh** Knowledge Expert & Global Head, SCM Centre-of-Competence at McKinsey & Company, India *Speech Topic: Dig ital Applications in Agriculture* 印度麦肯锡公司 资深领导与专家 *演讲主题：农业中的数字应用*

16:30-18:00	**16:50**	**Dr. Ravi Khetarpal** Executive Secretary, Asia-Pacific Association of Agricultural Research Institutions (APAARI) *Speech Topic: APAARI and its Role in Agri-food Innovations in Asia Pacific* 亚太农业研究机构联盟执行秘书 *演讲主题：亚太农业研究机构联盟与其在亚太地区的农产创新上所扮演的角色*
18:00-20:00		**Gala Dinner 晚宴** **23F, Jinma Hotel / Restaurant** **金码大酒店23层 / 云景四季**

Day 2 Saturday, October 13th, 2018 3F, Jinma Hotel Beijing 2018年10月13日(六) 北京金码大酒店, 3层	
Time	**Information**
08:30-09:00	Reception & Registration 报到
09:00-12:00	**Session (1)** **Agricultural Globalization and Cross-Border E-Commerce Strategy** **Room 1** **专场一** **农业全球化与跨境电子商务策略** **第一会议室**
	HONG Yong E-commerce Research Institute of CAITEC *Speech Topic: Current Situation and Trend of Cross-border E-commerce in China* 洪 勇 商务部研究院电子商务研究所副研究员 *演讲主题：我国跨境电商现状及其趋势*
	WANG Jian Cainiao Logistics *Speech Topic: Construction of Global Intelligent Logistics Backbone Network* 王 健 菜鸟公共事务总监 *演讲主题：全球智慧物流骨干网建设*
	SUN Haigang Tianmao Fresh *Speech Topic: Characteristics and Regularities of Fresh Products in Cross-border E-commerce* 孙海港 天猫生鲜运营专家 *演讲主题：生鲜跨境电商特点及其规律*

09:00-12:00	**LI Min** JingDong Group *Speech Topic: Intelligent Supply Chain for Fresh Products in Cross-border Fresh E-commerce* 李 敏 京东集团公共战略研究院高级研究员、博士 *演讲主题：跨境生鲜电商智能供应链*
	GUO Rongmin China E CO-OP *Speech Topic: The Innovation in Cross-border E-commerce model of China E CO-OP* 郭荣敏 供销E家 副总裁 *演讲主题：供销E家跨境电商模式创新*
	DONG Songlei Suning Fresh *Speech Topic: Suning Fresh Full Channel Operation of E-commerce* 董松雷 苏宁生鲜 副总裁 *演讲主题：苏宁生鲜电商全管道运营*
	QI Deming Beijing Futong Dachaolai Agricultural Science&Technology Development Co.,Ltd. *Speech Topic: New Models to Match Innovative E-commerce and Agri-Business* 亓德明 北京富通大潮来农业科技发展有限公司总经理 *演讲主题：创新电商农商对接新模式*
	PENG Nanfeng Yimutian Group *Speech Topic: Model Innovation of Rural Cross-border E-commerce* 彭南峰 一亩田副总裁 *演讲主题：农村电商跨境电商模式创新*

09:00-12:00	**CHENG Dan** Hna Cold Chain Holdings Limited *Speech Topic: Model Innovation of Cold Chain Logistics in Cross-border E-commerce* 程 丹 海航冷链控股有限公司 董事长 *演讲主题：跨境电商冷链物流模式创新*
	ZHONG Xiaoyu Qinkun Co. Ltd. *Speech Topic: Cross-border E-commerce and Rural Revitalization Sstrategy* 钟晓瑜 沁坤股份有限公司 董事长 *演讲主题：跨境电商与乡村振兴战略*
	GUAN Hongyan China E CO-OP *Speech Topic: Korean Venue and Its Operation of China E CO-OP* 关鸿雁 供销E家农产品事业部副总经理 *演讲主题：供销E家韩国馆及其运营*
	KOU Rui Agricultural Products Circulation Association, Harbin Institute of Technology *Speech Topic: Brand Development of High Value-added Agricultural Products under the Environment of Cross-border E-commerce* 寇 锐 哈尔滨工业大学农产品流通协会秘书长 *演讲主题：跨境电商环境下的高附加值农产品品牌发展之路*
	Mei-Hsiang Yang Asia University *Speech Topic: The Application of Blockchain in Traditional Market* 亚洲大学 *演讲主题：区块链在传统市场中的应用*
	Mei-Hsiang Yang Asia University *Speech Topic: The Guideline of International Agricultural Curriculum Design* 亚洲大学 *演讲主题：国际农业课程设计指南*

09:00-12:00	**Chin Lin Chang** Chung Hsing University *Speech Topic: The Dendrobium Farm in Taiwan-Adapting the ABC System* 中兴大学 *演讲主题：台湾石斛农场—采用ABC系统*
	Session (2) **International Agricultural Carnival and Festival** **Room 2** **专场二** **国际农业节庆活动交流会** **第二会议室**
	Pekka Antero Kess University of Oulu *Speech Topic: The Carnival/Festival in Finland* 奥卢大学 *演讲主题：芬兰节庆活动*
	Kothandapani Ganesh Knowledge Expert & Global Head, SCM Centre-of-Competence at McKinsey & Company, India *Speech Topic: The Carnival/Festival in India* 印度麦肯锡公司 资深领导与专家 *演讲主题：印度节庆活动*
	Prof. SC Lenny Koh The University of Sheffield *Speech Topic: The Carnival/Festival in UK* 谢菲尔德大学 教授 *演讲主题：英国节庆活动*
	ZHU Wenquan Guangxi Zhongnong Fuyu International Agricultural Technology Co., Ltd. *Speech Topic: The Agricultural Carnival in Watlam, China* 朱文全 广西中农富玉国际农业科技有限公司总经理 *演讲主题：玉林农业嘉年华*
	XING Lili Jiangsu Fujiang Agricultural Technology Development Co., Ltd. *Speech Topic: Yanghe Agricultural Carnival* 邢利利 江苏富江农业科技发展有限公司总经理 *演讲主题：洋河农业嘉年华*

09:00-12:00	**DU Mingyang** Institute of Agricultural Planning Science, China Agricultural University *Speech Topic: Case Study of the Plan and Design on Agricultural Carnival* 杜名扬 中国农业大学农业规划科学研究所副所长 *演讲主题：农业节庆规划设计与案例解析*
	ZHANG Jianguo Beijing Rising Yard Agriculture Technology Development Co., Ltd. *Speech Topic: Beijing Strawberry Festival* 张建国 北京瑞正园农业科技发展有限公司 总经理 *演讲主题：北京草莓节*
	Session (3) **The Innovation of Agricultural Business & Industry Session** **Room 3** **专场三** **农企经营与创新案例分析与产业论坛** **第三会议室**
	Yi-Ting Tseng Chung Hsing University *Speech Topic: Agriculture Purchasing Managers' Index for Taiwan: The New Findings of the Case of Taiwanese Hog Industry* 中兴大学 *演讲主题：台湾农业采购经理人指数：台湾养猪业的新发现*
	Waripas Jiumpanyarach Thailand Chulalongkorn University *Speech Topic: Economics and Social Impacts on Growing Crops after Rice Harvesting for Small-scale Farmers Community* 泰国朱拉隆功大学 *演讲主题：适用于小规模农民社区的水稻收获後种植作物的经济和社会影响*
	Tansiphorn Janhom Thailand Chulalongkorn University *Speech Topic: Drivers and Constraints of Conversion to Organic Farming in Nan Province, Thailand* 泰国朱拉隆功大学 *演讲主题：泰国南部有机农业转型的驱动因素和制约因素*

09:00-12:00	**Chao-Chien Chen** Taiwan University *Speech Topic: Application of Theory of Planned Behavior to Examine the Factors Influencing Entrepreneurial Intentions in the Agriculture Industry in China* 台湾大学 *演讲主题：运用计划行为理论考察我国农业产业创业意向的影响因素*
	Industry Session 产业专场 | Business Owners 厂商 / 企业主
	Session(4) **Green Agriculture and Sustainable Development** **Room 8** **专场四** **现代农业绿色与可持续发展** **第八会议室**
	Candice A. Pitts University of Belize, Belize City Council *Speech Topic: Space, Agriculture, and Social Concerns in Urban Spaces* 伯利兹大学 *演讲主题：城市空间中的空间、农业和社会问题*
	FENG Yuxuan HHH LED Lighting Co., Ltd. *Speech Topic: High Efficiency Agricultural Technology for Fully Plant Growth LED Spectrum Lighting* 冯瑜璇 广东华辉煌光电科技有限公司专案总监 *演讲主题：满长植LED高效农业科技*
	Yang yang Beijing Zhongnong Futong Horticulture Co., Ltd. *Speech Topic: Research and Application of Precise Control in Fish and Vegetable Symbiotic Technology* 杨　扬 北京中农富通园艺有限公司 *演讲主题：鱼菜共生技术精确控制的研究与应用*

09:00-12:00	**ZHANG Zhili** Beijing Zhongnong Tianlu Micro-nano Bubble Water S&T Co., Ltd. *Speech Topic: Effects of Micro-Nano Bubble Water on Cucumber Seed Germination* 张志立 北京中农天陆微纳米气泡水科技有限公司 *演讲主题：微纳米气泡水在黄瓜浸种催芽中的试验研究*
	Hao Wang Feng-Chia University *Speech Topic:"Green-to-Social"Entrepreneur's Challenge in Taiwan Toward Biogas Energy-Based Resilient Community* 逢甲大学 *演讲主题："绿色社会"企业家在台湾的挑战——基於弹性社区的沼气发展*
	Zhong Chen Singapore Nanyang Technological University *Speech Topic: Smart Nanogel Formulation to Regulate Water Supply to Plants* 新加坡南洋理工大学 *演讲主题：智能纳米凝胶配方调节植物供水*
	Session(5) **Agriculture Intelligent Technology** **Room 12** **专场五** **农业智慧科技研究与应用** **第十二会议室**
	Ching Yi Wang Chung Hsing University *Speech Topic: Compositional Models for Agriculture Data* 中兴大学 *演讲主题：农业资料的组合模型*
	REN Rubing Beijing Zhongnong Futong Horticulture Co., Ltd. *Speech Topic: Research Progress on Intelligent Plant Factories* 任如冰 北京中农富通园艺有限公司 *演讲主题：智慧化植物工厂的研究进展*

09:00-12:00	**LIU Yan** Zhongnong Fuxing 3D Printing Technology Co., Ltd *Speech Topic: The Application of 3D Printing and Materials in Agriculture* 刘　岩 中农富兴三维列印科技有限公司 *演讲主题：3D列印及材料在农业中的应用*
	Matthew Laurenson The New Zealand Institute for Plant and Food Research Limited *Speech Topic: Publicly Accessible APIs for Science Delivery from New Zealand Crown Research Institutes* 新西兰植物和食品研究所有限公司 *演讲主题：新西兰皇家研究所提供的可公开访问的科学APIs*
	Albert Kuo-Chung Mei Taiwan University of Technology *Speech Topic: A Case Study on the Execution of Data Decision System and Business Application using Planting Trees in the Social Enterprise* 台湾科技大学 *演讲主题：社会企业植树实施资料决策系统与业务应用案例研究*
	Chun Yao Wang Tsing Hua University *Speech Topic: A Novel Approach to Body Weight Estimation in Commercial Broiler Production* 清华大学 *演讲主题：肉鸡生产中体重估计的一种新方法*
	LI Yiming Suzhou LinkDotter Co., Ltd. *Speech Topic: LinkDotter-Based on Smart Agriculture Precision Service International Platform* 李益明 苏州联点数据技术有限公司 总经理 *演讲主题：耘管家-基於物联网的智慧农业精准化服务平台*
	GUO Lingjuan Beijing Zhongnong Futong Horticulture Co., Ltd. *Speech Topic: Diurnal Variation of Carbon Dioxide in Venlo Glass Greenhouse in Nanhe City* 郭玲娟 北京中农富通园艺有限公司 *演讲主题：中国南和设施农业产业集群 芬洛型玻璃温室内二氧化碳日变化分析*

12:00-13:00	Lunch 午餐 23F, Jinma Hotel/Restaurant 金码大酒店23层/云景四季
Field Trip 园区参访	
13:00-14:30	From Jinma Hotel to Beijing International Urban Agricultural Science and Technology Park 出发前往北京国际都市农业科技园
14:40-17:00	Beijing International Urban Agricultural Science and Technology Park 园区参观讲解
17:00-18:30	Back to Jinma Hotel 返程

Conference Member
大会成员

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Cheng-I Wei 魏正毅

Director, International Programs in Agriculture & Natural Resources, University of Maryland, USA

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Editor in Chief, the International Journal of Agriculture Innovation, Technology and Globalisation (IJAITG)

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Ching-Sen Liu 刘庆森

President, Chriskey Biomedical Technology Corporation

凯基生医科技股份有限公司 总经理

Keynote Speaker
主讲嘉宾

Mao-Hua Wang 汪懋华

中国工程院院士

国际欧亚科学院院士

Mao-Hua Wang is the Professor of College of Information & Electrical Engineering at China Agricultural University (CAU); Member of Chinese Academy of Engineering (CAE) and International Eurasian Acadenmy of Sciences (IEAS); Chairman of Academic Committee of Key Laboratory of Modern Precision Agriculture System Integration Research, Ministry of Education; Fellow of CIGR (International Commission of Agricultural Engineering) and the Institution of Agricultural Engineers, UK. He is Honorary President of Chinese Society for Agricultural Machinery (CSAM) and as active president of Chinese Society of Agricultural Engibeering (CSAE). Prof. Wang has completed his undergraduate education with speciality of agricultural machinery at former Beijing Institute of Agricultural Mechanization in 1956 and got Candidate Doctor Degree of Technical Science in Moscow majored on Rural electrification and automation in 1962. Since October of 1962, he has started his carrier in his mother university up to now. He was appointed as Vice president of Beijing Agricultural Engineering University (1984 – 1990) and worked as guest professor in Asian Institute of Technology (Bangkok) in 1991 / 1992, Adjunct Faculty Member, Kansas State University, USA (since 2004). He had been as a Member & Convener of Discipline Assessment Group on Agricultural Engineering under National Academic Degree Commission, State Council, P.R. China (1986 – 2003); Vice President of Agricultural Education and Teaching Supervising Committee, Ministry of Agriculture; Member of Standing Committee,

Commission of Science and Technology, Ministry of Agriculture. In the beginning of 1990s', he was appointed as Panel Expert Member of Agricultural Engineering Services at FAO, Deputy Director of Session IV of CIGR, Full Member of the International Club of Bologna on Strategies for the Development of Agricultural Mechanisation, He is now as member of Advisory Committee of the China's Ministry of Agriculture, active President of CSAE and member of Technical Committee of the Centre for Agricultural Engineering and Machinery (UNAPCAEM) under UNESCAP. His recent research fields are: Intelligent Information Technologies and System Integration Research for Precision Agriculture, ICT for Agriculture & rural development; Strategic Research of Agricultural and Biological Systems Engineering Discipline and Agricultural Mechanazation and equipment engineering in China. As a member of Chinese Academy of Engineering, he is required to continue his all-life professional activities.

汪懋华，（1932- ），中国工程院院士，国际欧亚科学院院士。农业工程和资讯与电气工程技术专家。中国农业大学资讯与电气工程学院教授，博士生导师，院学术委员会和学位委员会委员，教育部重点实验室学术委员会主任，农业部重点实验室主任。我国农业工程学科与教育事业承上启下的开拓者。连续担任国务院学位委员会学科评议组召集人之一。先後担任一系列国际学术职务，是国际农业工程协会和英国农业工程学会会士。中国农业工程学会和中国农业机械学会名誉理事长。

20世纪90年代中期，汪懋华院士根据国际农业工程的发展趋势，在中国率先传播了“精细农业”的概念和知识，科学地解析了发达国家迅速发展中的相关工程科技与系统集成技术的研究进展，直接组织参与了我国第一个精细农业示范基地“北京小汤山精细农业示范园区”的规划和建设，促进其在我国示范应用的蓬勃发展。2000年，教育部“现代精细农业系统集成研究”重点实验室在中国农业大学成立，汪懋华任学术委员会主任。近十多年来紧跟时代步伐，在国内宣导和引领农业物联网技术及“智慧农业”的发展，致力於农业资讯感知智慧化、农业与农村资讯化、精细农业智慧农业装备与新一代资讯技术等农业应用研究及科研成果的产业化。先後在农业与生物工程及相关领域重要国际会议上做大会发言、特邀报告、主旨报告等百馀场次，在国内外学术刊物上发表科技论文、学科建设与教学改革等论文约150篇，主编或副主编专著约15册，培养研究生近百人。

Speech Topic: The Innovative Development of Informationization on Agriculture
主讲题目：农业资讯化创新发展

Dr. Helen Li李溦

国研智库首席经济学家
国研智库国际研修院院长
原中央财经大学培训学院院长

Dr. Helen Li is Ph.D. in Management, the Senior Research Fellow and the Chief Economist of Development Research Think Tank (DRTT), the Dean of DRTT World Academy, Former Dean of the Central University of Finance and Economics Training School, independent director of listed company in Shenzhen Stock Exchange.

Member of The Central Economic Committee of the JiuSan (Sept.3rd) Society; supervisor of JiuSan WangXuan Care Fund; Visiting professor of Shanxi University and Dongbei University of Finance and Economics.

Received Ph.D. in Economics in 1992, started postdoctoral research in 1993 and received senior professional title. From 1997, have worked in China Southern Securities as Deputy General Manager of Beijing Branch, Deputy Director of Research Institute, Executive Deputy General Manager of Human Resources, and Deputy GeneralManager of Investment Banking; qualification personnel for Senior Management Certificate in China Securities Market. Helped many local governments, private and state-owned enterprises in investing and financing strategic planning, and served as an independent director. Worked as the Chief Economist of Beijing Equity Exchange in 2005, familiar with China property market, Zhongguancun agent shares trading and multi-level capital markets.

Since 2006, worked as dean of the Central University of Finance and Economics Training School, deputy director of China Securities and Futures Institute. During this period, havetrained around thousands government officials from 94 developing countries around world, such as South America, South Pacific, Eastern Europe, Southeast Asia and Africa

countries, in addition, trained around 40 thousands government officials for China major provinces, relevant ministries, local cities and governments, financial institutions and various types of financial companies; and sent around 400 students to 37 oversee universities in United States, Britain, Canada, Australia, and New Zealand.

In 2008, worked as China columnist for South Korea's 'Central Daily News', the analysis and investment advice in China's capital market got many appreciated from Korean investors.

Since mid-1980s, published hundreds of articles on "Economic Research", "People's Daily", "China Securities Journal", "Shanghai Securities News", "Securities Times", "Securities Market Guide", "21st Century Economic Report", "Journal of Marketing", "China Business Guide", "Journal of Marketing Development", "Journal of Applied Economics", "Journal of Applied Business and Economics".

Monograph "Agricultural Surplus and Industrialization of Capital Accumulation" won the State Education Commission's "Outstanding Achievements", Zhejiang and Liaoning province's "Social Science Excellent Achievement".

Speech Topic: The Latest Trend of Agricultural Innovation in China
主讲题目：中国农业创新最新趋势

Dr. Pekka Antero Kess

芬兰奥卢大学教授

Pekka Kess (Dr Sc, Dr Eng) is a Professor of industrial engineering and management at the University of Oulu, Finland. He received his Dr of Science degree at the University of Oulu and Dr of Engineering at Kasetsart University.

Professor Kess has an extensive managerial experience from both universities and industrial enterprises. He has worked in managerial positions in chemical, steel and electronics industries, as well as in the software business.

He has been an active project evaluator for the European Commission, as well as a manager of international research and development projects. His research areas cover smart cities, business ecosystems, strategic management, production organisations, and knowledge management with specialisation in knowledge transfer and e-learning. New are of interest is the business opportunities based on natural forest based resources.

He has supervised more than 300 graduate and close to 30 doctoral students in the area of Industrial Engineering and Management.

Professor Kess has collaborated with Asian universities closely in the areas of research and education and services to the society.

Speech Topic: Processing Super Food from the Nordic Wild Berries
主讲题目：使用北欧野生浆果加工超级食品

Prof. SC Lenny Koh

英国谢菲尔德大学首席教授

Professor Lenny Koh, BEng (Hons), PhD, FRSA, is a Chair Professor in Operations Management, Founders and Directors of the Logistics and Supply Chain Management (LSCM) Research Centre at the Management School & the Faculty's Centre for Energy, Environment and Sustainability (CEES), at The University of Sheffield, UK. She is also the co-founder of Supply Chain Management and Information Systems (SCMIS) Consortium, a global network of leading academic and practitioners driving research and knowledge exchange on supply chain and information systems. A World leading mind recognised amongst FRSs and Nobel Laureates within the University, Professor Koh is a Senior Chair Professor, an internationally renowned and established authority in supply chain especially on low carbon and sustainability, with a high H-index (World number 2) and high research income generation in her discipline internationally. She is active in leading a 2022 Futures initiative advancing resource efficiency and supply chain disciplines, navigating a new translational model for connecting invention / basic science at lower TRL to higher TRL.

She has successfully led and supervised Business Development Director / Project Managers / research fellows / PDRAs / RAs / research students / staff, examined many PhDs, reviewed research grant applications for EU, ESRC, EPSRC, Leverhulme Trust, British Academy, Canada Research Council, Hong Kong Research Council, Israel Science Foundation and NWO The Netherland. She is a Fellow of the Institute of Leadership and Management, Fellow of the Royal Society of Arts, panel member for ESRC Quantitative Research, panel member for NWO The Netherland, panel member for REF equivalent in Sweden, and an advisor to National Development and Reform Commission of China (NDRC) (super ministry), Confederation of Indian Industry (CII) and UK Government on impact of climate change and low carbon supply chain, Doncaster Chamber Knowledge

and Enterprise Group, EPSRC future research themes, a committee member of the Sheffield City Region (SCR) LEP Low Carbon Sector Group and Sheffield Environment Partnership. She is also a regular speaker with government, industry and NGO events / conferences both nationally and internationally, e.g. with EU, BIS, UKTI, local and city region partnership, Councils, Actions for Involvement etc.

Speech Topic: Agrifood System and Supply Chain: Now and Future
主讲题目：农产品系统和供应链的现在与未来

Dr. Göran Svensson

挪威克里斯提亚大学教授

Göran Svensson is Professor at Kristiania University College, Norway. He is also Professor at Halmstad University, Sweden. In addition, he is Visiting Professor at University of Johannesburg, South Africa; and Adjunt Professor at Monash South Africa.. He holds a Ph. D. at the School of Economics and Commercial Law, Göteborg University, Sweden.

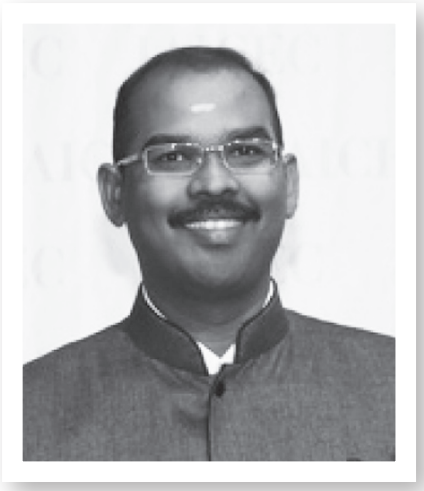
He is the editor of European Business Review (Emerald). He is also an active and dedicated member of numerous editorial boards and editorial review boards of international research journals. Furthermore, he is a committed member of numerous international research and scholarly networks and associations.

He is a frequent author of international journal articles (240+) and international conference contributions (260+). He is also engaged as a book author.

Occasionally, he gives speeches in business and writes columns for business magazines and newspapers. During the 1980s he was an industrialist and entrepreneur in South America (Bogotá, Colombia).

His research agenda consist of various research subjects and has published in areas such as Business Ethics, Logistics Management, Industrial Marketing, Leadership, Relationship Quality, Services Marketing, Supply Chain Management, Business Sustainability.

Speech Topic: An Ecological Cycle
主讲题目：可持续农业：一种生态循环系统
Co-Speaker: Dr. Carmen Padin, Professor, Vigo University, Spain
共同作者：Dr. Carmen Padin, 西班牙维戈大学教授



Dr. Kothandapani Ganesh

印度麦肯锡公司资深领导与专家

Dr. K. Ganesh is knowledge expert and global head of SCM Center of Competence at McKinsey & Company . Dr.Ganesh graduated in Mechanical and Production Engineering from Annamalai University, Chidambaram with the university first rank. He pursued his Masters' degree in Industrial Engineering at National Institute of Technology, Tiruchirapalli and secured college first. He then moved to Indian Institute of Technology Madras where he obtained his doctoral degree in Logistics and Supply Chain Management. He was a half-time teaching and research assistant for 4 years at IIT Madras awarded by MHRD research fellowship. He joined as Assistant Consultant at Integrated Supply Chain, Manufacturing Industry Solutions Unit, Tata Consultancy Services Limited, Mumbai and worked mainly in the areas of supply chain network design and optimization. Later he joined as Senior Consultant in Global Business Services-Global Delivery of IBM India Private Limited, Mumbai, India and worked in Supply Chain Transformation projects for various industries. He worked as visiting professor for 6 institutions. He is having total 14 years of research and consulting experience in supply chain domain.

He has published 100+ papers in leading international research journals and 10+ papers in leading national journals. He has presented and published 100+ papers in the reputed international conferences and 8 research articles in the national conferences. He has written a chapter for 6 books. He has been honored with 4 awards for academic excellence. He has obtained 3 awards from TCS. He has received 2 thanks award and 3 appreciations in IBM India Private Limited. He is editor-in-chief for 5 International journals (IJGC, IJLSCM, IJDMSCL, IJOSHRM and AJMS), Editor for IJENM and associate editor for IJLEG, AJCST and IJISSCM. He is in the editorial board for various international journals.

Speech Topic: Digital Applications in Agriculture

主讲题目：农业中的数字应用

Dr. Joanna Paliszkiewicz

波兰华沙大学生命科学学院教授

Dr. Joanna Paliszkiewicz was employed as an assistant professor at the Technical University of Czestochowa, Poland after completing her master's degree in 1999. At the time, her main topic of research was intellectual capital. In 2004 she earned her PhD. Her multiple research writings were published in scholarly outlets including a book entitled "Development of organization by management of intellectual capital". In 2006 she moved from Czestochowa to Warsaw to start employment at Warsaw University of Life Sciences where she was conducting research in the area of knowledge management. In 2009 she earned her habilitation degree. As a result, she published her research in the form of articles and the book entitled "Knowledge management in small and medium enterprises – concept of estimating and models". In 2011 she was promoted to the rank of professor at Warsaw University of Life Sciences. Her research in the area of trust management began after 2009.

Dr. Paliszkiewicz was the recipient of a research project grant supported by the Polish Ministry of Sciences and Higher Education. Her research work on this grant appeared in the 2013 book "Trust in management" and other scholarly publishing outlets. She was taking part in different research projects usually as the leader. In addition to acquiring her research experience in Poland, she was a part of many scholarship endeavors in Ireland, Egypt, Slovakia, Hungary, Georgia, Serbia, USA. She was actively involved in participating and presenting research results at international conferences.

Currently, Dr. J. Paliszkiewicz serves as the deputy editor in chief of the international journal, Management and Production Engineering Review and editor of Issues in Information Systems. In addition, she serves as a member of editorial board of several reputable and high impact international journals such Expert System with Application and the Journal of Computer Information Systems. Dr. Paliszkiewicz has successfully

supervised Ph.D. students leading them to completion of their degrees. She has also served as an external reviewer for several Ph.D. students including a one in the University of Vaasa in Finland in 2011. She is actively involved in participating in scientific committees of many international conferences. She was chair of the scientific committee of International Farm Management Congress IFMA 19, which was held in July 2013 at Warsaw University of Life Sciences.

Speech Topic: Knowledge Management and Innovation: New Trends
主讲题目：知识管理和创新的新趋势

Dr. Tan Wee Liang

新加坡管理大学副教授

Dr. Tan Wee Liang joined SMU in 1999 as a member of the Core Planning Team of the then new university, SMU, when he developed the predecessor offices of the present day Office of Student Life and Office of Career Services. He joined academe beginning his career with the Faculty of Accountancy and Business Administration at the National University of Singapore in 1985. Prior to SMU, he had served as sub-dean, vice-dean and director of the Entrepreneurship Development Centre at NTU.

His current research interests lie in the domains of entrepreneurship, family business, international cooperation and corporate governance. His initial research was in law as he began his career as a law professor, when he had publications in the Malayan Law Review. He has since moved into entrepreneurship research. He has published in the Journal of International Business Studies, Entrepreneurship Theory and Practice, Family Business Review, Journal of High Technology Management Research, and Journal of Business Research. In addition to journal publications, he has co-authored Entrepreneurship and Enterprise Development in Asia (2001) and edited a number of books. He serves on the editorial boards of Journal of Small Business Management, International Entrepreneurship and Management Research, and Small Business Research.

He has served as national expert for entrepreneurship and SMEs for APEC, Asian Productivity Organization, the Colombo Plan Secretariat and the Commonwealth Secretariat.

Speech Topic: The Challenges of Developing New Agri-tech Ventures Supplying "Safe" Foods

主讲题目：新型农业科技企业在"安全"食物供应中所面临的发展挑战

Dr. Nirote Sinnarong

泰国湄州大学助理教授

Dr. Nirote Sinnarong is the Chairman of Doctoral Program in Applied Economics and also the Assistant Professor in Maejo University, Thailand. He specializes in the fields of Logistics, Applied Econometrics, Econometric Analysis, Production, Climate Change Adaptation, Marketing, Panel Data Econometrics, Customer Satisfaction, Econometrics, Climate Change Economics, Marketing Strategy, Agricultural and Environmental Economics, Applied Econometrics for Panel Data.

Speech Topic: Agricultural Innovation and Climate Change Adaptation under Thailand 4.0 National Policy

主讲题目：在泰国4.0国家政策下的农业创新与气候变化适应

Dr. Rika Ampuh Hadiguna

印尼安达拉斯大学资深讲师

Dr. Rika Ampuh Hadiguna is a senior lecturer at Department of Industrial Engineering, Universitas Andalas. He received Ph.D. in Agro-Industrial Technology from Bogor Agricultural University. His research interest is logistics and supply chain systems. His professional experience is Head of Logistics and Supply Chain Research Group, Vice Dean for Academic Affairs at Faculty of Engineering (2012-2016) and currently, Vice Dean for Academic Affairs at Faculty of Information Technology, Universitas Andalas. He is a professional engineer certified from Indonesia Institute of Engineers since 2015. He is the member of professional organizations such as IIE, PEI, ISLI, IPRPI, APTA, ISTMI dan MAKSI.

Speech Topic: Simulation Model of Indonesia Palm Oil Industry: Issues, Challenges and Policy

主讲题目：印尼棕榈油行业的模型：问题、挑战和策略

Sjaak van der Tak

荷兰设施农业协办主席

Sjaak van der Tak is a Dutch Director and Politician for the CDA. He was Mayor of the municipality of Westland from 1 September 2004 to 1 October 2017 . Since 1 October 2017, he is chairman of the market gardening organization LTO Glaskracht Nederland .

Van der Tak became a member of the CDA in 1981 and was active locally within the department in Rotterdam-Pernis. He worked as an official at the municipalities Nieuw-Beijerland , Piershil and Cromstrijen . In 1990 he was elected to the Rotterdam city council. In 1996 he became an alderman with the portfolio of Traffic and Transport, Finance and Sub-municipalities. In 1998 he became alderman again, now from Social Affairs and Sub-municipalities. Even after the 2002 elections he remained alderman, now for Social Affairs, Integration and Education. With the rise of the new party of Pim Fortuyn, Leefbaar Rotterdam, after 50 years a college without PvdA. Van der Tak was succeeded as alderman by party colleague Leonard Geluk , when on 2 September 2004 he replaced interim mayor Rein Welschen as the first mayor in the municipality of Westland . This municipality came into existence on 1 January of that year from a merger.

In 2010 Sjaak van der Tak was eligible for the position of party chairman of the CDA, where he lost to Ruth Peetoom .

In 2012, De Volkskrant reported that Van der Tak, in his time as a Rotterdam alderman for education, had put a million-euro fraud in the BOOR schoolhouse upside down. In a reaction, Van der Tak said that in his period as alderman there was no fraud and that no cases had been covered. In doing so, he relied, inter alia, on the fact that during the period that he was an alderman in the audit, no indications were found for fraud.

Van der Tak has announced that it will step down as mayor as of 1 October 2017. He then becomes chairman of LTO Glaskracht Nederland .

Speech Topic: The Efficient Production of the Netherlands Equipment
主讲题目：荷兰设施高效能生产

Hung-Nan Tung

合默麟机械股份有限公司执行长

Hung-Nan Tung is the CEO of BOTTLE-TOP Machinery Co., Ltd. He assists the company accomplished the first highly efficient MATP/S technology.
He's in charge of the MATP/S on food process application, business marketing planning and execution.
Now actively assisting the UMAMI MATP/S GROCERANT series promotion in the domain of food service and dedicated to implementing the community public nutrition.

Speech Topic: UMAMI MATP/S GROCERANT as An Innovative Foodservice Business System

主讲题目：一个创新的食物服务商业系统-UMAMI MATP/S GROCERANT

Dr. Tzong-Ru (Jiun-Shen) Lee 李宗儒

中兴大学行销学系教授

Dr. Tzong-Ru Lee is the professor of Department of Marketing and the Advisor of Global Research & Industry Alliance at Chung Hsing University. He is also the Vice Chairman of International Association for Agricultural Sustainability and the Editor in Chief of the Jorunal "IJAITG".

Dr. Lee is the former Chief of Media Relations Division and the former Chairman of the Department of Marketing, the Institute of Electronic Commerce and the Center for Electronic Commerce and Knowledge Economics Research in Chung Hsing University. His contributions in the academia are outstanding that he has been awarded by International Biographical Center, Cambridge, England as 2000 outstanding intellectuals of the 21st century in the field of Marketing and Logistics in 2003 and 2000 outstanding intellectuals of the 21st century in 2005. He also serves as the associate editor of multiple journals, IJLEG, IJGC

He has been invited to be the Advisory Committee Member at International Conference on Modelling Optimization and Computing (ICMOC-2012) by Department of Mechanical Engineering, Noorul Islam Center for Higher Education, Tamil Nadu, South India in 2013. His research interests are Internet Marketing and E-commerce, Service Management and Marketing, Nonprofit Marketing, Industrial Marketing, Corporate strategy, competitive dynamics, Product & Brand Management, Technology and Innovation and Supply Chain Management

Speech Topic: The Application of PMI in Agriculture
主讲题目： PMI在农业上的应用
Co-Speaker: Dr. ZENG Yurong, Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences
共同作者： 曾玉荣, 福建省农业科学院农业经济与科技信息研究所

Dr. Ravi Khetarpal

亚太农业研究机构联盟执行秘书

Dr Ravi Khetarpal is currently the Executive Secretary of Asia-Pacific Association of Agricultural Research Institutions (APAARI) and based at Bangkok. has served for CABI – South Asia (India) as Regional Director and also as its Regional Advisor on Strategic Science Partnerships for a span of more than seven years. Prior to this he has worked for National Agricultural System in India for three decades. He holds PhD in Life Sciences (Plant Pathology) from University of Paris and was a Visiting Scientist in an EU Collaborative Project at INRA, Versailles, France for three years. His areas of interest include research, development, policy issues and capacity building in areas of biosecurity, biosafety, seed certification and biodiversity. He has worked as Consultant of a total of twelve FAO / World Bank / USDA Projects notably in Indonesia (as Team Leader), India, Bangladesh, Thailand, Nepal, Mauritius and Cambodia. He also represented Asia as a Developing Country SPS Expert in STDF Working Group (2016-2017) in WTO. He has published 108 research papers, 18 books, 59 book chapters, 16 review articles and policy papers.

Speech Topic: APAARI and its Role in Agri-food Innovations in Asia Pacific

主讲题目：亚太农业研究机构联盟与其在亚太地区的农产创新上所扮演的角色

Oral Presentation
口头发表

Session(1)专场一
Agriculture Globalization and Cross-Border E-Commerce Strategy
农业全球化与跨境电子商务策略

Saturday, October 13th, 2018　09:00-12:00　Room 1 第一会议室

Current Situation and Trend of Cross-border E-commerce in China (Abstract not Included)
HONG Yong｜*E-commerce Research Institute of CAITEC*

Construction of Global Intelligent Logistics Backbone Network (Abstract not Included)
WANG Jian｜*Cainiao Logistics*

Characteristics and Regularities of Fresh Products in Cross-border E-commerce (Abstract not Included)
SUN Haigang｜*Tianmao Fresh*

Intelligent Supply Chain for Fresh Products in Cross-border Fresh E-commerce (Abstract not Included)
LI Min｜*JingDong Group*

The Innovation in Cross-border E-commerce model of China E CO-OP (Abstract not Included)
GUO Rongmin｜*China E CO-OP*

Suning Fresh Full Channel Operation of E-commerce (Abstract not Included)
DONG Songlei｜*Suning Fresh*

New Models to Match Innovative E-commerce and Agri-Business (Abstract not Included)
QI Deming｜*Beijing Futong Dachaolai Agricultural Science&Technology Development Co.,Ltd.*

Model Innovation of Rural Cross-border E-commerce **(Abstract not Included)**
PENG Nanfeng | *Yimutian Group*

Model Innovation of Cold Chain Logistics in Cross-border E-commerce **(Abstract not Included)**
CHENG Dan | *Hna Cold Chain Holdings Limited*

Cross-border E-commerce and Rural Revitalization Strategy **(Abstract not Included)**
ZHONG Xiaoyu | *Qinkun Co. Ltd.*

Korean Venue and Its Operation of China E CO-OP **(Abstract not Included)**
GUAN Hongyan | *China E CO-OP*

Brand Development of High Value-added Agricultural Products under the Environment of Cross-border E-commerce **(Abstract not Included)**
KOU Rui | *Agricultural Products Circulation Association, Harbin Institute of Technology*

The Application of Blockchain in Traditional Market
Mei-Hsiang Yang | *Asia University*
Tzong-Ru Lee | *Chung Hsing University*
Ting-Chang Chang | *Asia University*

The Guideline of International Agricultural Curriculum Design
Tzong-Ru Lee | *Chung Hsing University*
Chun-Yu Chien | *Asia University*
Kuo-Chang Fu | *Vital Wellspring Education PTE Ltd*
Lucie Váchová | *University of Economics*

The Dendrobium Farm in Taiwan - Adapting the ABC System
Tzong-Ru Lee | *Chung Hsing University*
Chin-Lin Chang | *Chung Hsing University*
Jin-Bin Wu | *Nihon Pharmaceutical University*
Wen-Ping Jiang | *China Medical University*

The Application of Blockchain in Traditional Market

Mei-Hsiang Yang [1], Tzong-Ru Lee [2], Ting-Chang Chang [1]

[1] *Department of Business Administration, Asia University*
[2] *Department of Marketing, Chung Hsing University*

Abstract

The traditional market has huge business opportunities in fish, meat, vegetables, fruits, ingredients, raw food, cooked food, groceries, hardware, daily necessities, clothing, and accessories. However, it takes a lot of time and energy to walk around the traditional markets; for example, each traditional market has its own problems with parking, environment, stands, independent purchasing, and environmental protection (plastic bags).

This study is referred to the application of blockchain in the outpatient clinics and prescription in hospitals to apply the blockchain in traditional market to solve the problems of purchasing the food and the ingredients for the career women. The food and ingredients can be purchased efficiently and delivered to the places that customers order. The blockchain can satisfy the customers' needs and provide the services for the customers and save customers' time. In addition, the blockchain of traditional market will be applied to the new generation in the future. The characteristics of blockchain development are included as following,

1. The characteristics of unchangeable data: After ordering, the items will ship directly to improve the efficiency.
2. Blockchain is a trusted mechanism for the clients and sellers even the sellers and buyers do not know each other.
3. The platform, third party, will complete the purchasing process and get profits.
4. Each account is separately.
5. Enter the purchase: There are private and public keys; a list of text appears after purchasing, so the customers can see the order information online.
6. Each traditional market has its own logistics
   The selected items are sent to the traditional market logistics（the logistics is based on its own traditional market; the items are sent out immediately to retain the freshness）.
7. Each logistics will definitely get the money, and no need for a central manager that solve the difficulties of manpower management.

The blockchain applies in traditional market can make can solve the problems of shopping in the traditional markets and make people's lives more convenience.

The Guideline of International Agricultural Curriculum Design

Tzong-Ru (Jiun-Shen) Lee [1]; Chun-Yu Chien [2], Kuo-Chang Fu [3], Lucie Váchová [4]

[1] *Marketing Department, Chung Hsing University*

[2] *Department of Business Administration, Asia University*

[3] *Vital Wellspring Education PTE Ltd., Singapore*

[4] *Faculty of Management, Jindrichuv Hradec, University of Economics, Prague*

Abstract

Agriculture is one of the most important economic activities. As the production technology has improved, agricultural overproduction has been a problem for many countries to solve. The export of agricultural products to foreign countries is a way to solve the overproduction problem. However, to do the business abroad, languages and taking agricultural courses is one of the main tools for improving the exporting process of agricultural products. To design the agricultural courses for people who are in the business field, 8 steps are stated as follows:

1. Search and collect the international agriculture-related courses from renowned agricultural universities and know the purposes for designing the agricultural courses.
2. Based on the agricultural courses from renowned agricultural universities, the courses could be categorized into four areas: agricultural economy, agricultural art (horticulture / agronomy / living), agricultural technology, and agricultural science.
3. Based on the four areas of agricultural courses, the course levels can be designed as "Elementary Agricultural English", "Intermediate Agricultural English", "Advanced Agricultural English".
4. Having the agricultural experts and English teachers together to design the agricultural theories and agricultural English lessons based on the four areas of agricultural courses. It is important for both of agricultural experts and English teachers in the classes at the same time because while the students have questions about agricultural English words or sentences, they can ask and get the answer right away.
5. In each level of agricultural English course, agricultural experts will teach agricultural theories and share their experiences. English teachers will be in the classes at the same time to teach agricultural vocabulary words and sentences after the agricultural lectures; therefore, the students know the agricultural English words and how to communicate with foreigners when they export the agricultural products.

6. The implementation courses, the implementation and the film sharing will help the general practitioners learn and understand the contents of the course and agricultural English easily.
7. Practice to fill in the document applications and understand the export procedures.
8. Case studies will introduce in the classes. Through the case study, the general practitioners will know the agribusiness and realistic situations.

Through the process, the students will have knowledge of agriculture, the abilities to fill in the document applications and speak foreign language in agricultural field. In addition, a case study will be discussed in this article.

The Dendrobium Farm in Taiwan - Adapting the ABC System

Tzong-Ru Lee [1], Chin-Lin Chang [2], Jin-Bin Wu [3], Wen-Ping Jiang [4]

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[4] *China Medical University*

Abstract

The Dendrobium has been an effective Chinese traditional medicine in Chinese culture. In Taiwan, there is one of the factory that has a farm that specially grows the Dendrobium candidum which has just started up. It mainly sells the seedling sprout of the Dendrobium candidum to those medicine factory which needs the certificate for this kind of plant. Because of the fact that the endangered existence of the wild Dendrobium which has been listed as protected species by the government. This has created a dominating market in Taiwan.

However, China has started the Dendrobium business earlier and have a larger dominance for the Dendrobium market with a complete supply chain. In this paper, the purpose is to calculate the production cost of growing the plant by using a mathematical approach in order to state the value of the Dendrobium candidum in the present Taiwanese market. Also, to give approaching outlook for the industry. The data and the information are collected from the founder of the company.

Session(2)专场二
International Agricultural Carnival and Festival
国际农业节庆活动交流会

Saturday, October 13th, 2018　09:00-12:00　Room 2　第二会议室

The Carnival/Festival in Finland (Abstract not Included)
Pekka Antero Kess | *University of Oulu*

The Carnival/Festival in India (Abstract not Included)
Kothandapani Ganesh | *McKinsey & Company*

The Carnival/Festival in UK (Abstract not Included)
SC Lenny Koh | *The University of Sheffield*

The Agricultural Carnival in Watlam, China (Abstract not Included)
ZHU Wenquan | *Guangxi Zhongnong Fuyu International Agricultural Technology Co., Ltd.*

Yanghe Agricultural Carnival (Abstract not Included)
XING Lili | *Jiangsu Fujiang Agricultural Technology Development Co., Ltd.*

Case Study: The Plan and Design of Agricultural Carnival (Abstract not Included)
DU Mingyang | *Institute of Agricultural Planning Science, China Agricultural University*

Beijing Strawberry Festival (Abstract not Included)
ZHANG Jianguo | *Beijing Rising Yard Agriculture Technology Development Co., Ltd.*

Session(3)专场三

The Innovation of Agricultural Business & Industry Session
农企经营与创新案例分析与产业论坛

Saturday, October 13th, 2018　09:00-12:00　Room 3　第三会议室

Agriculture Purchasing Managers' Index for Taiwan: The New Findings of the Case of Taiwanese Hog Industry

Tzong-Ru Lee｜*Chung Hsing University*
Yi-Ting Tseng｜*Chung Hsing University*
Lucie Váchová｜*University of Economics*

Economics and Social Impacts on Growing Crops after Rice Harvesting for Small-scale Farmers Community

Waripas Jiumpanyarach｜*Chulalongkorn University*

Drivers and Constraints of Conversion to Organic Farming in Nan Province, Thailand

Tansiphorn Janhom｜*Chulalongkorn University*

Application of Theory of Planned Behavior to Examine the Factors Influencing Entrepreneurial Intentions in the Agriculture Industry in China

Chao-Chien Chen｜*Taiwan University*
Chao-Yun Liang｜*Taiwan University*
Hsiu-Ping Yueh｜*Taiwan University*

Agriculture Purchasing Managers' Index for Taiwan: The New Findings of the Case of Taiwanese Hog Industry

Tzong-Ru Lee [1], Yi-Ting Tseng [1], Lucie Váchová [3]

[1] *Marketing Department, Chung Hsing University*
[2] *Faculty of Management, University of Economics, Prague, Czech Republic*

Abstract

Taiwan has introduced Purchasing Managers' Index (PMI) for manufacturing industries since 2006 and the results have been released monthly from 2011 till today. However, we discovered that one of the important industry in Taiwan, agriculture still not have PMI. Therefore the motivation is to create Taiwan's agriculture PMI which is Agriculture Purchasing Managers' Index (APMI). These APMI are able to provide Taiwan agricultural macro-economic status. In this article we used The Trial Compilation of Agriculture Purchasing Manager's Index for Taiwan: The case of Taiwanese Hog industry (Tien, 2018) as key paper that focused on the research and analytical methods. The purpose of this research is to find out the feasible hog results of APMI. We collected hog data sets from the six variables combination of the key paper, including total traded amount, weight per pig, average price per kilogram, slaughtered amount, farms amount and total weight. Due to enhance analytical efficiency, we decided to use the new software that does not affect the result. The research methods consisted with three parts. First, conducted hog data sets of principal component analysis (PCA) with new software. Second, calculated the contributions of variables with eigenvalue and APMI of each data set. Third, found the highest correlation coefficient between APMI and total revenue.

Findings of this research had already found one data set is able to interpret good variability of total revenue in hog industry. Considering the persuasion of the finding, we would interview with specialists to know whether it meets the practical status.

Economics and Social Impacts on Growing Crops after Rice Harvesting for Small-scale Farmers Community

Waripas Jiumpanyarach

School of Agricultural Resources, Chulalongkorn University, Thailand

Abstract

This objective was to estimate potential financial benefits and activities of growing crops after rice harvesting of small-scale farmers. In-depth interview 46 farmers in Amphor Khangkoi, Saraburi, Thailand, were collected. These areas were rice paddle field and integrated fruit farm. Farmers had 6 – 8 month free time after harvesting. Government provides extension for Mung beans and related crops. They provided subsidy to the farmers who was in the program. Program expected farmers to have alternative income and improve soil at the same time. The economic benefits to the community from the extension were determined. The study found that marketing was the most important. The farmers could not access to market. This program appeared to be limited in physical (technology, labor) and economics (value added, marketing) factors. The study found those individual farm households become engagement of the community. The suggestion for agricultural and commercial policies should support farmers (knowledge, technology, and standards) and markets (quality and quantity).

Drivers and Constraints of Conversion to Organic Farming in Nan Province, Thailand

Tansiphorn Janhom

School of Agricultural Resources, Chulalongkorn University, Bangkok, Thailand

Abstract

This study explores the drivers and constraints of conversion from conventional farming to organic farming in Nan province, the 2nd biggest maize cultivation area of Thailand since 2016. The environmental, social and economic crises are of concern from this intensive agriculture as results of deforestation, excess agricultural chemical usage, open burning of postharvest residue, etc. Moreover, the farmers are now facing on debt crisis due to the rising of production cost but lowering of maize price. Local government sectors and private organizations are trying to introduce some alternative agricultural ways to solve the problems caused from conventional agriculture. Organic agriculture is one of the most powerful tools for the farmers to restart their agri-business and restore their cultivation area. The organic agricultural movement with the constructive approach of participatory guarantee system (PGS) has been promoted and implemented to the Nan farmers to relieve those crises for 5 years. However, there are few numbers of organic farming in Nan province, even in other parts of Thailand. Thus, the information of drivers and constraints of organic farming in the particular area of agriculture would be useful and powerful for planning and designing the policies and strategies of organic farming promotion. The main drivers and constraints of organic farming in Nan province were investigated via using the interview and questionnaire with 23 farmers of NAN PGS Group membership. The result suggests that environmental awareness, health benefit, economic benefit and employment and education benefits are the predominant drivers for organic production. The main driver in the conversion to organic agriculture is the financial concern as shown that the external cost from the external inputs such as chemical fertilizer, herbicides, pesticides was significantly reduced by a hundred percent. Since the cost of agrichemical is really a huge amount of money. So, it was the main reason of the farmers suffered from debt. The personal health concern was also found to be another main driver. As the pesticide and herbicide can be effectively used to control pests and weeds, these agricultural chemicals can also affect directly to farmers' health such as vomiting, respiratory problem, woman reproductive ability. So, the farmers decided to change from conventional farming to organic farming to produce organic foods for household consumption and their customers.

Constraints experienced by the farmers includes low productivity, natural disasters, market aspects, education and research aspects, and economic and financial aspects. To promote organic farming, the relevant sectors should consider overcoming barriers through investment in research, greenhouse, market intensification, policy support, information and awareness and formation of groups and cooperatives.

Application of Theory of Planned Behavior to Examine the Factors Influencing Entrepreneurial Intentions in the Agriculture Industry in China

Chao-Chien Chen, Chao-Yun Liang, Hsiu-Ping Yueh

Department of Bio-Industry Communication and Development, Taiwan University

Abstract

Entrepreneurship plays a huge role in a country's economic growth, as it can not only promote economic activity but also help the country to achieve stable development (Chen & Lai, 2007). In order to transform the agriculture industry into a driver of the country's economic development, attract young talents to join the industry, and address the problems faced in the industry, it is necessary to provide guidance aimed at promoting agricultural entrepreneurship (Morshedi, 2013). Taiwan has been promoting the New Farmers Development Plan, which seeks to guide and nurture young talents in a holistic manner and attract them to join the agriculture industry, in order to stimulate value-added agricultural innovation and boost the rural workforce (Chen, 2018). China has similarly implemented its New Professional Farmer Development Project, which involves the establishment of a multi-dimensional and diverse employment and entrepreneurship framework at the institutional level. Through policy guidance, a boom in agricultural entrepreneurship can be ushered in.

Session(4)专场四
Green Agriculture and Sustainable Development
现代农业绿色与可持续发展

Saturday, October 13th, 2018　09:00-12:00　Room 8　第八会议室

Space, Agriculture, and Social Concerns in the Urban Setting
Candice A. Pitts｜*University of Belize*

High Efficiency Agricultural Technology for Fully Plant Growth LED Spectrum Lighting
Yuxuan Feng｜*HHH LED Lighting Co., Ltd*

Research and Application of Precise Control in Fish and Vegetable Symbiotic Technology
Liping Gao｜*Beijing Zhongnong Futong Horticulture Co., Ltd.*
Yang Yang｜*Beijing Zhongnong Futong Horticulture Co., Ltd.*
Xiao Wen Chen｜*Beijing Zhongnong Futong Horticulture Co., Ltd.*

Effects of Micro-Nano Bubble Water on Cucumber Seed Germination
Zhili Zhang｜*Beijing Zhongnong Tianlu Micro-nano Bubble Water S & T Co., Ltd.*
Tianzhu Zhang｜*China Agricultural University*
Wenhua Yang｜*Beijing Zhongnong Tianlu Micro-nano Bubble Water S & T Co., Ltd.*
Xiaoli Xue｜*Beijing Zhongnong Tianlu Micro-nano Bubble Water S & T Co., Ltd.*
Tianmin Hao｜*Beijing Zhongnong Futong Horticulture Co., Ltd.*

"Green-to-Social" Entrepreneur's Challenge in Taiwan - Toward Biogas Energy-Based Resilient Community
Hao Wang｜*Feng-Chia University*
Chyi-How Lay｜*Feng-Chia University*

Smart Nanogel Formulation to Regulate Water Supply to Plants
Kin Yuen Ian Choi｜*Nanyang Technological University*
Yeng Ming Lam｜*Nanyang Technological University*
Chin Foo Goh｜*Nanyang Technological University*
Zhong Chen｜*Nanyang Technological University*

Space, Agriculture, and Social Concerns in the Urban Setting

Candice A. Pitts

University of Belize | Belize City Council

Abstract

Belize is one of the youngest democratic nation states in Central America, with an estimated population of 498,000 inhabitants (Statistical Institute of Belize, 2018). Between 60 to 70,000 of those inhabitants reside in Belize City, which is the country's largest municipality. This city and urban space is locally divided into the north side and the south side, designations that are loosely characterized by socioeconomic factors, such as class. 60% of the City's population lives on the Southside, and roughly 25% of this population lives below the poverty line. The country's crime rate and homicide rate have been increasing significantly. In 2016, Belize averaged 138 murders, with Belize City accounting for 70 of them. Likewise, there were 145 murders in Belize in 2017, with Belize City accounting for 90 of those murders. Illiteracy, unemployment, gangs and the drug trade, and poverty are some of the leading factors that contribute to the high crime rate. 50 to 60 years prior, when the society was largely agrarian, and prior to the infiltration of gangs and drugs in the 1980s, the crime rate was significantly lower. This paper therefore seeks to determine how agricultural initiatives in the urban space can help reduce poverty and can be an alternative to crime. The city's local government, of which I am a member, has made a commitment under the social infrastructure objectives of its manifesto to repurpose empty spaces and overgrown lots in ways that can be of economic and cultural values for the city. Aside from the ecological and aesthetic benefits, agricultural initiatives, such as back yard gardens and green spaces, can provide employment for at risk youths and those already involved in criminal activities, and can also make urban environments less crime-proned. Vulnerable groupings in the city can engage initially in subsistent agriculture and then sustainable agriculture; address their personal lack of food by producing their own, and then eventually producing enough to barter and sell. Ultimately, this paper indicates that a remapping, redistribution, and reappropriation of "space" for the purpose of agriculture can help to reduce poverty and therefore reduce crime in urban spaces, such as Belize City.

High Efficiency Agricultural Technology for Fully Plant Growth LED Spectrum Lighting
满长植LED高效农业科技

Yuxuan Feng
冯瑜璇

HHH LED Lighting Co., Ltd.
广东华辉煌光电科技有限公司

摘要

满长植LED高效农业科技项目是研发生产一种通过物理方法使农作物增产增收的植物灯，拥有宽蓝光激发全光谱植物灯珠的发明专利以及多项实用新型和外观专利，为农业向高效现代黑科技结合互联网转型，以及农业高科技增产增收应用升级提供了LED产业链整合优势、海内外专家团队理论与实践优势、细分精准市场研产销资讯快速优化优势、经济作物培育配套设施产业性价比急速攀升等不可颠覆的优势等。其创新点一是植物灯珠三合一，为全光谱波段光，更有效适应植物生长阶段所需的种子发芽、长成植株、开花以及结成果实这几个关键阶段对蓝光及红光的需求。二是Fito针对植物生长过程中，PAR（光合作用有效辐射率）所测试的结果为＞50。即，植物生长对光的有效吸收值，而PAR值＞50，突破了传统植物灯PAR值仅为16-30的格局。三是将LED灯原120°的发光角度有效减至60°，使得光的光均匀性密集性更高，光的散射损失减少，有效使用度增加。

在市场应用方面，全光谱发明专利——植物灯珠（三波段，三合一）的使用，品质好、重量轻的高品质追求及人性化设计，高光吸收率（PAR）、高光使用率、低瓦数的绿色电路，防水、防锈细节性能的考虑，高品质驱动搭配，时尚的外观设计作为满长植植物灯项目的主推系列产品，目前已经推出升级版160瓦，适用於不单是欧洲市场，还有新兴的北美家庭种植政策开发市场。该植物灯“品质有保障、组装更便捷、安装减人工、安装无负重、运输更低本”。从电费成本角度分析，Fito低功率的设计，更从消费者的使用电器时所产生的额外支出考虑，从某种意义上无形地减少了客户的使用成本。减少产品频繁更换次数，更有效适应植物生长各阶段所需的不同波段光的需求，高光量子吸收密度PPFD以及高光合作用辐射率PAR值的检测更具有经济发展效益及时代意义。

Research and Application of Precise Control in Fish and Vegetable Symbiotic Technology
鱼菜共生技术精确控制的研究与应用

Liping Gao, Yang Yang, Xiao Wen Chen
高莉平、杨扬、陈小文

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北京中农富通园艺有限公司

摘要

鱼菜共生（Aquaponics）是一种新型的复合耕作体系，它把水产养殖（Aquaculture）与水耕栽培（Hydroponics）这两种农耕技术，通过巧妙的生态设计，利用蔬菜充分吸收鱼类排泄物中的养分，起到净化水体的作用，将净化後的水再流回鱼池中使用，达到鱼菜科学的协同共生，高效环保的解决了传统水产养殖业中因饲料利用率低造成的水体富营养化与恶化，甚至各种疾病的爆发。但是目前大多数鱼菜共生管理系统还不完善，造成鱼菜死亡、水质净化不完全等现象，无法更有效的发挥鱼菜共生技术回圈、生态、可持续的特性。近几年，针对鱼菜共生技术的研究越来越多，从环境微生物的角度探讨水质调节机理，对菌群种类、结构组成进行研究，利用微生物对鱼的排泄物进行分解，调节水体环境，有效的降低水体中含氮化合物的浓度，提高有益菌和氮回圈细菌的含量；进行脱氮趋零排放系统研究，在常规利用生物膜脱氮机理的基础上，采用电迁移+膜浓缩技术，一方面分离出高氮水满足植物的营养需求，另一方面得到能够用於养殖鱼类的回圈水；进行双回圈鱼菜共生实验系统研究，通过贝类养殖、人工湿地、厌氧处理池等对鱼产生的排泄物废水进行净化处理，清水流回鱼池，含有养分的水体流向菜地，残渣经过处理池流向菜地，达到无废弃物产出的目的。虽然鱼菜共生技术越来越成熟，但是大多数鱼菜共生研究中环境监测、管理等采用人工监测管理或部分自动化监测管理的方式，人工管理方式费时费力，环境参数调节全凭劳动经验，缺少精准监控环境参数管理，很难保证生态系统一直处於最佳状态。随著物联网技术在现代农业中的应用越来越广泛，部分专家逐步开展物联网技术在鱼菜共生技术中的应用的研究，基於物联网的精准监控、环境参数监测，通过资讯感知模组、资讯传输模组、资讯处理模组，监测共生系统的温度、湿度、光照强度、水温、水溶氧量、pH值等各种环境参数，实现环境资讯自动化、智慧化管理，为保持生态平衡提供资料支援，可有效解决人工劳力，提高科学化管理水准。并且在科学实验研究中，将鱼菜共生相关技术研究与物联网技术相互结合，可有效提高研究结果的可控性、资料的准确性，为鱼菜共生技术的进一步完善提供更有效的理论和技术支撑。

Effects of Micro-Nano Bubble Water on Cucumber Seed Germination
微纳米气泡水在黄瓜浸种催芽中的试验研究

Zhili Zhang [1], Tianzhu Zhang [2], Wenhua Yang [1], Xiaoli Xue [1], Tianmin Hao [3]
张志立 [1]、张天柱 [2]、杨文华 [1]、薛晓莉 [1]、郝天民 [3]

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摘要

近年来，微纳米气泡技术作为一种新兴技术被广泛应用在农业种植、水体修复、水产养殖和绿色清洗等方面，经过近几年推广实践已经证明：用微纳米气泡水能促进生物的生理活性。为了探索研究微纳米气泡水浸泡黄瓜种子後对发芽率的影响，进行的研究主要主要包括：微纳米气泡水的增氧与衰减特性、不同水浸泡黄瓜种子後对发芽率的影响以及不同浸泡时间对黄瓜发芽率的影响。研究表明：微纳米气泡快速发生装置氧气源曝气15分钟後超纯水和地下水水体中溶解氧浓度分别为38.11mg/L和40.76mg/L，7天后分别衰减至9.94mg/L和9.65mg/L；充氧微纳米超纯水、充氧微纳米地下水、地下水、超纯水分别浸泡黄瓜种子，浸泡98小时後发芽实验结束时，充氧微纳米超纯水、充氧微纳米地下水、地下水、超纯水的浸种液中溶解氧浓度分别为10.28mg/L、10.62mg/L、7.59mg/L、8.23mg/L；浸泡24小时後试验组充氧微纳米气泡超纯水、充氧微纳米气泡地下水的发芽率为2%和16%，69小时即2.9天后充氧微纳米超纯水、充氧微纳米地下水、地下水、超纯水浸泡的黄瓜种子最终发芽率为96%、100%、68%、76%。因此得出结论，微纳米气泡水对黄瓜浸种後可以提高发芽率，相比对照组，充氧微纳米气泡水可以使黄瓜种子提前发芽，可以将微纳米气泡水用於黄瓜浸种催芽。

"Green-to-Social" Entrepreneur's Challenge in Taiwan - Toward Biogas Energy-Based Resilient Community

Hao Wang [1], Chyi-How Lay [2]

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Abstract

Green Entrepreneurs are the entrepreneurs making use of opportunities and starting business for promoting resilient community. They start normally from technological innovation that address the problems regarding environment in the present scenario such as global warming and agricultural loss. (Choudhary et. Al. :2) Besides, the use of renewable energy sources incl. biomass / biogas has become most important issue for tackling social and economic problems of disadvantaged vulnerable community under greenhouse gas emissions as well as its effect - social exclusion.

Community based biogas plants were not easily built because the technology was not applicable in a community context. As a result, it cost years before an initial idea can be learned and communicated within the community. In most matured biogas markets, for example in Sweden, intermediary organizations and green entrepreneurs have increased their capabilities and now provide help in the implementation process. "However, the expertise offered is predominantly knowledge-based and only contributes in small ways to farmers' practical know-how. As support organizations reach out to biogas entrepreneurs within the field, their most important role is to act as a link between established biogas operations and farmers interested in developing their own ventures." (Hilm: 3)

"Green-to-Social" entrepreneurship is therefore "irreplaceable", functioning as intermediary communicators of problem-solving within the stakeholders which technology alone can't afford. The question is whether a social enterprise can find a sustainable business model to meet the needs of the local farmers and governance bodies by promoting farming utilizing green energy solution. Indeed, the intermediary functions have advantages of values creating. The biggest challenge is then to develop unique business model through self-empowerment and tackling entrepreneurial risks.

As the technologies of biogas production in entrepreneurial process develop from knowledge to stakeholder communication and public awareness, risk assessment and risk

management become the most important issues. The discussion and adjustment of biogas policies and regulations must be embedded in the stakeholder governance scenario of needs and wants, "which may influence the development of the sector in the future, as well as the operation of existing biogas facilities and their income level." (Zeverte-Rivza et. Al.:1)

Proactively detecting the sustainability problems through social and environmental thinking and institutional design, i.e. social entrepreneurship, for creating "win-win" situations is critical. For example, institutional purchasing through cash-for-work programs help local farmers supply constantly their biomass, consume biogas enterprise products and promote local agriculture in favor of the disadvantaged families at the vulnerable regions. Public acceptance of the biogas plants relates with successful communication and performance of the enterprise.

Table 1 summarizes a two-dimensional situation a community "green-to-social" entrepreneur may confront. "The role of entrepreneurs can be providing the green products in more cheap and economic rates. Also promoting the local innovation and investing on the ideas to make it practically possible to provide cheaper energy options to all and find out solutions to the present problems which can be more economic and practical, (…). Government, rather than importing the ideas and techniques form the other countries which is neither practical and nor economical, and should accentuate the innovation and production of such ideas within the country which might be economic and can be practiced easily." (Choudhary et. Al. : 8)

Table 1: Holistic context of "green to social" entrepreneurial problems

		Goals dimension: multiple bottom lines of a resilient community			
		Business	Social	Environment	Governance
Procedure dimensions: biogas-energy entrepreneurship	Technology / knowledge				
	Stakeholder / procedure				
	Public Awareness / concept				

A renewable energy-based resilient community may cost a lot to set up, is hard to get profit, and it needs expertise and long-term business strategy, not to mention the potential challenges under current policies and social exclusion in many places. The challenge for a "green-to-social" entrepreneur is then to develop a sustainable business model through a problem solving and risk management procedure to reach multiple bottom lines.

Communicative participatory process can significantly raise public awareness which can therefore lead to attracting investments. “Successful community energy projects include the provision of a motivation mix that mostly target social (job opportunities) and financial (energy ownership, tax reliefs and subsides) incentives as well as of environmental and regulation related ones.” (Delioglanis: 6)

The paper will use method of participatory action research through observing some entrepreneurial cases in Taiwan and engaging in an entrepreneurial project in a most vulnerable community in Changhua county to map a dynamic problem context (see tab. 1) from which a “green to social” entrepreneurial approach for engaging renewable energy-based resilient agricultural community will be highlighted.

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Smart Nanogel Formulation to Regulate Water Supply to Plants

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Abstract

Global warming has been suggested to be the cause of increasingly adverse weather conditions, resulting in higher global temperatures with reduced precipitation in various parts of the world. Increased irrigation and manpower are required for garden and landscape maintenance as well as crop farming, leading to higher expenditure from increased water and labour costs. Two soil conditioner formulations, based on a mixture of surfactants and super absorbent polymers (SAPs), were synthesised by our collaborating lab to combat soil water repellency (SWR) and increase water retention of the soil. The performances and toxicity of the two formulations were evaluated with four different soil types and two different crop plants, mung beans and green round amaranth. Results showed general improvements in water retention of the different soil types. Mung beans grown in formulation treated soil showed decreased drop in water content over time compared to control samples, with decreased wilting of amaranth seedlings. However, toxicity testing revealed a toxic component of the formulations, surfactant Lutensol XL70. Observations also suggested that the pH of the formulations could be contributing to the overall toxicity. Additionally, both formulations caused a decrease in germination rate and reduced radicle development of the crop plants' seeds.

Session(5)专场五
Agriculture Intelligent Technology
农业智慧科技研究与应用

Saturday, October 13th, 2018 09:00-12:00 Room 12 第十二会议室

Compositional Models for Agriculture Data
Tzong-Ru (Jiun-Shen) Lee | *Chung Hsing University*
Ching-Yi Wang | *Chung Hsing University*
Chun-Yu Chien | *Asia University*
Radim Jiroušek | *Institute of Information Theory and Automation*
Vladislav Bína | *University of Economics*
Václav Kratochvíl | *Institute of Information Theory and Automation*
Lucie Vachova | *University of Economics*

Research Progress on Intelligent Plant Factories
Rubing Ren | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

The Application of 3D Printing and Materials in Agriculture (Abstract not Included)
Yan Liu | *Zhongnong Fuxing 3D Printing Technology Co., Ltd.*

Publicly Accessible APIs for Science Delivery from New Zealand Crown Research Institutes
Matthew Laurenson | *The New Zealand Institute for Plant and Food Research Limited*

A Case Study on the Execution of Data Decision System and Business Application Using Planting Trees in the Social Enterprise
Albert Kuo-Chung Mei | *China University of Technology*
Yu-Hua Chen | *Green Hope Spring Social Enterprise Company*

A Novel Approach to Body Weight Estimation in Commercial Broiler Production
Chun-Yao Wang | *Tsing Hua University*
Chen-Fu Chien | *Tsing Hua University*

LinkDotter-Based on Smart Agriculture Precision Service International Platform
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Diurnal Variation of Carbon Dioxide in Venlo Glass Greenhouse in Nanhe City
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Tianzhu Zhang | *Beijing Zhongnong Futong Horticulture Co., Ltd.*
Lujiang Liu | *Beijing Zhongnong Futong Horticulture Co., Ltd.*
Changzhi Fu | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

Compositional Models for Agriculture Data

Tzong-Ru (Jiun-Shen) Lee [1], Ching-Yi Wang [2], Chun-Yu Chien [3], Radim Jiroušek [4], Vladislav Bína [5], Václav Kratochvíl [4], Lucie Váchová [5]

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[2] *Department of Forestry, Chung Hsing University*
[3] *Department of Business Administration, Asia University*
[4] *Department of Decision-Making Theory, Institute of Information Theory and Automation, Prague, Czech Republic*
[5] *Faculty of Management, University of Economics, Prague, Czech Republic*

Abstract

The goal of the project is to establish the research cooperation between the mutually complementary Taiwanese and Czech research teams. For Czech team, they can obtain the following research value : (1)Disseminating the compositional models on a broader international scope, (2)Examining the practicability of the Czech software and adapting the software into the Asian consumer data base. For Taiwan team, we are able to (1)Acquire a new modern technique for data mining and data analysis, (2)Classify different user habits among Western and Eastern countries and (3)Add value for further software designing in Taiwan.

The Taiwan team provided the data from agriculture which is conducted by questionnaire, and 2696 consumers were interviewed from July 1, 2016 to November 30, 2017. The data use to analyze by MUDIM online 1.0 (design from R software) to see the connection between different variables. The results are as following.

The researchers analyzed the data by using MUDIM online 1.0 and found out that the variables that are correlation in the food that interviewees want to provide to their family are farm ecological travel, supporting small farmers, and farmers' experience sharing. The products or stories that they are interested in are native cereals (Millet Glutinous), organic ginger, and bitter tea oil. The correlated variables for the workshops that are Interested in are natural and healthy ingredients used in cooking classrooms and the experiences on natural farming course. In addition, the correlated variables for he eco-trip in the farms that want to experience are farming experience, understanding how the crops are grown and eating local natural ingredients. Based on the results above, we can conclude that to from large survey data, we can narrow down the research results directly through the software and find the correlated variables that consumers want.

Therefore, the software can also be applied to a large number of agricultural data, and by identifying the relevance of different agricultural data, it will be possible to develop more time-saving and convenient applications.

Research Progress on Intelligent Plant Factories
智慧化植物工厂的研究进展

Rubing Ren
任如冰

Beijing Zhongnong Futong Horticulture Co., Ltd.
北京中农富通园艺有限公司

摘要

智慧化植物工厂是利用高新技术打造的现代农业可持续生产系统。通常被定义为一种通过设施内高精度环境控制，实现作物周年连续生产的高效农业系统，是由电脑对作物生长过程的温度、湿度、光照、CO2浓度以及营养液等环境要素进行自动控制，不受或很少受自然条件制约的省力型生产方式。在这个生产系统中，采用先进的栽培环境与栽培技术，进行周年生产，植物产量是传统农业产量的几十倍甚至上百倍。植物工厂通过科学的栽培技术改变了传统农业的栽培模式，是设施农业的最高阶段，是一个地区或一个国家农业发展水准的重要标志，是21世纪世界农业发展的方向。

近几年来，随著国民经济快速发展，我国智慧化植物工厂国际水准有了明显提高。(1)政府扶持力度不断加大。近年来，各级政府不断加大农业投入，在高新技术农业产业投入与扶持力度明显增多。(2)应用范围越来越广。随著智慧化植物工厂技术的不断提高，一些适用於办公室、咖啡厅、厨房等迷你型植物工厂应运而生，实现了蔬菜从生产到舌尖的零距离。(3)投资规模越来越大。植物工厂产业的发展吸引了大量的社会资金和财团的关注。投资兴建的植物工厂连年增长，不断提升中国农业产业竞争力和盈利水准， 开创我国农业产业新格局。(4)科技含量越来越高。我国植物工厂栽培技术由基质培、营养液水培逐渐向雾培前沿技术转变，由化学液肥向矿物质肥和光碳核肥转变，由温室控制向远端控制转变，由单向的技术和装备引进向引进和输出双向转变。植物工厂虽然拥有众多优势以及广泛的社会需求，但在实际发展过程中也面临诸多问题。如初期建设成本过高、光源与空调能耗较大以及经济效益不高等，突破这些瓶颈是实现植物工厂持续健康发展的关键。

展望未来，将有更多高产、高抗、高质的蔬菜、花卉、香草、药材、苗木、粮食作物、珍稀植物等在植物工厂中生产；也将会有更多个人、企业和财团投入到植物工厂中来，形成资金聚集、人才集中和技术集成，建设更多、更大的植物工厂；更多新能源、新材料、新装备将在植物工厂中使用，使植物工厂成本更低、品质更好、效益更高；植物工厂将更加集约化、产业化、智慧化、网路化、多功能化。

Publicly Accessible APIs for Science Delivery from New Zealand Crown Research Institutes

Matthew Laurenson

Information & Knowledge Services, The New Zealand Institute for Plant and Food Research Limited, New Zealand

Abstract

New Zealand's Crown Research Institutes (CRIs) are companies owned by the government. These institutes are expected to operate profitably, but their primary purpose is to benefit the country. Three of these institutes are closely associated with New Zealand (NZ)'s export-oriented primary industries, which include production of dairy, meat, wool, timber, seafood, fruit, vegetable, food and wine.

The NZ Government is keen to see its investments in primary-industry research adopted by industry. Over the last 30 to 40 years researchers have seen information technologies, such as personal computers, the internet, and then mobile phone apps, as media for technology transfer.

However, there remain significant challenges in developing, distributing, and supporting Web applications and mobile apps. Robust, supportable applications remain relatively expensive to design, create and maintain.

Some science institutions have set up small internal software development teams supporting commercial products. These have struggled with:

- An under-developed internal product-development, sales and support culture
- A tendency to be risk averse rather than entrepreneurial
- A perception that software development was not part of agricultural research
- Dependence on specific individuals and their knowledge.

Those interested in using applications for technology transfer have long sought to encourage private industry to develop applications that would integrate with their own, and frameworks have been designed with that in mind. Such an approach would take research institutes out of significant direct interactions with users, away from the "noise" of ongoing application development, and let independent developers explore and develop market niches.

Currently a common architecture for Web applications is to have a Web browser-based JavaScript presentation layer communicating with a RESTful API (Representational State Transfer Application Programming Interface). The main computational capabilities of the application are typically held behind the API, rather than in the presentation layer. The API can then potentially be used by other applications, providing a way for core capabilities to be tapped by a range of companies.

APIs provide a way to make organisational intellectual property available in a readily usable and maintainable form. Independent software houses can work directly with potential industry users to develop and refine applications, without necessarily directly involving research institutes. Monetizing the API is a potential means to provide the income stream necessary to sustain the operation and support of the API and associated research within the organisation.

As an example of the potential of an API, Plant & Food Research has just launched a Web-based Food Composition Data Search application. That application calls an underlying API that makes available nutrient information for over 2,500 foods. The nutrient and composition data include protein, fat, carbohydrate, sugars, fibre, ash, fatty acids, vitamins, minerals, cholesterol, caffeine and alcohol, amongst the 80+ data for each food. There is a significant ecosystem of software applications (e.g. for diet planning) that require these data. Rather than periodically downloading an annual update of all the data, such applications can now potentially call the Food Composition API to obtain the latest information as it becomes available.

A Case Study on the Execution of Data Decision System and Business Application Using Planting Trees in the Social Enterprise

Albert Kuo-Chung Mei [1], Yu-Hua Chen [2]

[1] *Department of Business Administration, China University of Technology*
[2] *Green Hope Spring Social Enterprise Company*

Abstract

Green Hope Spring (GHS) social enterprise's mission is to save earth by planting trees. That's why GHS has dedicated to plantation of one of major native species in Taiwan: stout camphor tree. Meanwhile, GHS has executed a developing strategy, namely, one person plants one tree with NTD1,000; a tree brings a lot of gain. Nevertheless, global warming is still getting worse and ecosystems are gradually destroyed by human beings. GHS then decided to speed up execution of the plan. To let more people recognizing value of trees, GHS, by planting stout camphor trees or other species, begins to study on how to establish a complete data decision system and assist in business application in the future.

Since 2017, GHS has first started the strategy of "a tree brings a lot of gain; 4G tree-adding project" and cooperated with some partners from the industry, relevant authorities or scholars to design tree sensors and mobile applications, in order to gather, analyze, calculate, and upgrade various kinds of data of tree species, environment, climate, etc. After that, GHS moves forward to using some modern technologies, such as cloud computing, Internet of Things, and big data, so that users can grasp all instant information of trees and share their experiences through interactive social media. Next, GHS will use this camphor tree planting experience to urban architectures to create brand-new green-building-type products and applications. At last, the ecological value of tree quantization created from artificial intelligence technology will be able to bring people more wealth and achieve the goals of sustainability of environment and enterprises. Therefore, both public welfare and business income can be balanced.

GHS is the first social enterprise in Taiwan that has taken use of planned tree plantation for data decision system and business application. From observing GHS's planning process and initial achievements in 2017, we can say we have further acknowledge to tree values and found out the importance of trees' ecological value and their influence on the environment in the future. We also expect that, through this kind of management model, development strategy and creative service in social enterprises, we can bring a good chance of sustainable development for both GHS and the environment on earth.

A Novel Approach to Body Weight Estimation in Commercial Broiler Production

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Abstract

In recent year, the infrastructure of acquiring data from production cycles is getting more mature. Technologies such as cloud technology, big data analysis and machine learning methods are applied into industries and help people make decision more precisely.

The boiler industry supply chain is comprised of hatchery, growth and humane killing phase. According to previous research (Brown and McCartney, 1982; Warren and Emmert, 2000; Vandegrift, 2002; Vandegrift et al., 2003), the growth period of broiler can roughly divided into three period: starter, grower and finisher due to the significance on the economics and growth. The farmers need to monitor the growth during production period to meet the specifications of different customers in time. However, Lack of precise estimation of weight not only make the batch weight out of specifications of customers but also lead to feed waste in the finisher period.

The weighing method includes manual and automatic weighing system. In mass production, manual weighing cause considerable human burden and make stress to the broilers. To avoid the outbreak of infectious diseases, farmers tend to monitor the human activities in farming house and reduce the interaction between human and chickens unless it's necessary. In this case, automatic weighing system is getting more important. Nevertheless, automatic weighing system encounters several challenges. The first issue comes to the sampling error of automatic weighing system. Secondly, when it comes to mass production, the environment conditions would make estimation bias. Last but not the least, animal behavioral reaction influence the estimation. For instance, according to previous study (A. Chedad et al., 2003), they found out that the weighing system was used less frequently by heavier animals.

Recently, image processing and artificial intelligence techniques are applied to solve the weighing problem (L. De Wet et al., 2010; Md Bazlur R. Mollah et al., 2010; Anders Krogh Mortensen et al., 2016; S. Amraei et al., 2017). Nevertheless, the quality of raw image affects the accuracy of the weight estimation model. In addition, the breeds of broilers and the breeding environment cause the inaccuracy of estimation.

This study aim to focus on the automatic weighing system. We integrate the automatic weighing system, cloud database and a proposed method including statistical methods such as Gaussian mixture model and student T test to estimate real-time weight in mass production. The estimation result was compared to the reference weight of manual weighing in day 14, 21, 28 and the delivery day. We validate the proposed method in 12 batches. The relative mean error is lower than 5% between estimation and the reference weight.

This study has performed a real-time weight estimation in commercial level. Farmers can use the result to control the feed to save feed cost or to plan an optimization strategy to maximize the profit of every batch.

LinkDotter-Based on Smart Agriculture Precision Service International Platform
耘管家-基於物联网的智慧农业精准化服务平台

Yiming Li
李益明

Suzhou LinkDotter Co., Ltd.
苏州联点数据技术有限公司

摘要

该平台使用了最新的物联网技术，创新性的结合AI自学习，基於大量来自於科研机构、农业院校等专业作物种植资料，为不同种类的作物建立精确的生长模型，并将模型反应用於物联网系统中，真正实现自动化、智慧化种植，解决当前企业人工成本高、种植专家不足等问题。同时，结合物联网系统，使用区块链技术，我们还提供独家的作物种植阶段原始资料，为农产品品质追溯、食品安全保障带来技术上的革新，填补国内对於农产品生长阶段监管缺失的空白。

愿景是通过对AI技术和物联网技术的研发，最终让中国农业进入精准种植养殖、准确市场价格预估的时代，融合三产，提升整个农产业的国际竞争力，让国人能享受到质优安全的农产品。

Diurnal Variation of Carbon Dioxide in Venlo Glass Greenhouse in Nanhe City
中国南和设施农业产业集群
芬洛型玻璃温室内二氧化碳日变化分析

Lingjuan Guo, Tianzhu Zhang, Lujiang Liu, Changzhi Fu
郭玲娟、张天柱、刘鲁江、傅常智

Beijing Zhongnong Futong Horticulture Co., Ltd.
北京中农富通园艺有限公司

摘要

本文对中国南和设施农业产业集群芬洛型玻璃温室内二氧化碳溶度变化进行了半年的追踪记录和分析，以期对於二氧化碳精准施肥提供依据。结果表明：温室内二氧化碳日变化和季节有关，高峰和低谷随著日出和日落时间的变化，即外界光照强度的变化，高峰逐渐提前，低谷逐渐延後；温室内二氧化碳高峰和低谷之间差值逐渐减小，并且变化逐渐趋於平缓。

高效设施农业的快速发展，对於种植作物环境温、光、水、肥、气五大因素的精准控制，已经成为促进高效农业规模化的有效途径,对提高农业竞争能力、促进增产增收具有十分重要的意义。20世纪末和21世纪初国内对於日光温室内二氧化碳变化规律的研究较多，中国特定气候环境下芬洛型玻璃温室内二氧化碳的研究极为少见，本文就中国南和芬洛型蔬菜种植温室内二氧化碳的日变化规律进行大量资料的分析，得出其变化规律，以期对京津冀地区芬洛型蔬菜种植温室内二氧化碳施肥调控提供参考。

Paper Presentation
文章发表

Innovation without Technology: Dabbawalas's Lunchbox-delivery Case in India

Tzong-Ru Lee｜*Chung Hsing University*
Yi-Ting Tseng｜*Chung Hsing University*
Václav Kratochvíl｜*Academy of Sciences of the Czech Republic*
Kuo-Chang Fu｜*Vital Wellspring Education PTE Ltd.*

The Competitiveness of Taiwanese Mango in Japanese Market

Tzong-Ru Lee｜*Chung Hsing University*
Chin-Lin Chang｜*Chung Hsing University*

Collation of Cross-border Electronic Quarantine Information Management in Different Countries

Tzong-Ru (Jiun-Shen) Lee｜*Chung Hsing University*
Ching-Yi Wang｜*Chung Hsing University*
Radim Jiroušek｜*Institute of Information Theory and Automation*

Study on Inclusive Innovation: The Example of "Maker & Westerner" Business Idea

Qian Li｜*Huazhong Agriculture University*
Xing Pan｜*Gansu Agricultural University*
Zhifan Zhang｜*Beijing Huaxia Innovation and Enterpreneurship Industrial and Information Technology Research Institute*

A Brief Discussion on Future Developing of Agriculture

Zhizhong Tian | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

The Development Trend of Family Balcony Gardening in China

Yu Hou | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

Research Progress on Circular Agriculture in China

Fang Liang | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

Development and Popularization of A Series of New Grape Varieties

Ping Wei | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

Innovative Methods and Landscape Effects of Ornamental Tomato

Liya Zhang | *Beijing Zhongnong Futong Horticulture Co., Ltd.*

Analysis on the Evolution and Development of Research Hotspots in the Field of Agricultural Policy in China

Yuanyuan Duan | *Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences*
Shuwen Lin | *Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences*
Yurong Zeng | *Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences*

Mode and Problems and Countermeasures of Agricultural Science and Technology Poverty Alleviation in Fujian Province

Jun Yang | *Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences*

The Research on Promoting Characteristic Agricultural Industry Competitiveness Based on Gem Model－Making Jinjiang Carrot Industry as An Example

Zhi-feng Chen | *Institute of Agricultural Economics and Scientific and Technical Information, Fujian Academy of Agricultural Sciences*

Innovation without Technology: Dabbawalas's Lunchbox-delivery Case in India

Tzong-Ru Lee[1], Yi-Ting Tseng [1], Václav Kratochvíl [2], Kuo-Chang Fu [3]

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[2] *Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Czech Republic*
[3] *Vital Wellspring Education PTE Ltd., Singapore*

Abstract

Technologies has been introduced into our life that individuals lived under the generation of internet. Most of the living style have strong connection to technologies. However, there are one group of people live in Mumbai, India called *Dabbawalas*, who are semi-literacy or illiteracy and classify as the bottom level of Caste hierarchy. *Dabbawalas* built a lunchbox-delivery system in 1890s and grew a community of around 5,000 members. This system are capable to deliver over 100,000 lunchboxes per day from homes to offices and the error rate is approximate six sigma. The system can deliver efficiently and accurately through their railway without assisting from social media and high-technology software. The purpose of this paper is to identify the innovative activities in their service process. In this article, we provide discussion with the methods of case studies and add the related theories of non technological innovation.

The research result indicated that religion of the social culture, word of mouth（WOM）from the customers and the Mumbai's railway with north-south direction played an important element for *dabbawalas* succeed. The discussion of the paper is to demonstrate the advantages of non technological delivery system. Thus, the people without good educated can learn the concept from this innovative service system that provide career opportunities for them.

The Competitiveness of Taiwanese Mango in Japanese Market

Tzong-Ru Lee [1], Chin-Lin Chang [2]

[1] *Marketing Department, Chung Hsing University*
[2] *International Program of Agribusiness, Chung Hsing University*

Abstract

Throughout the summertime, Taiwanese Irwin mango is one of the most popular fruit. The exporting of Taiwanese Irwin mango to Japan has been one of the most valuable market for the farmers in Taiwan. The Japanese favor the sweetness and the scent of Irwin mango because of the high quality and the good reputation of the Taiwanese fruit industry in spite of the fact that the price of Irwin mango is higher than other cultivars produced in Japan.

There has been a decrease in sales to Japan prior to a peak in market sales in 2011. The reasons include rival exporting countries developing better business models or have developed new mango cultivars of better quality or lower pricing. SWOT analysis and the data collected from The Council of Agriculture in Taiwan illustrates the status of the mango industry as well as several issues being faced. To meet the needs of improving of the industry and potentially returning it to peak sale levels, recommendations and analysis are given in the paper.

Collation of Cross-border Electronic Quarantine Information Management in Different Countries

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Abstract

Establishment of a cross-border electronic quarantine system accelerates the export and import process of agricultural products. Technology has play a crucial role to shorten the transaction time between countries during goods exchange. In order to understand current cross-border trading status and implementation the quarantine system, the main objective of this study is to understand the current development status of electronic quarantine information exchange in nine different countries international partners. This helps us to understand current technology and cross-border trading status that can be utilized to build a platform for smooth operation.

Methods used in this study were literature review and data collection that used to understand cross-border quarantine system of domestic and international trading partners (ex. New Zealand, Australia, Canada, United States, European Union, Netherland, Japan, South Korea, mainland China, and etc.). The current status of the electronic quarantine platform needs the information on international standards and related information, promotion history of electronic quarantine message exchange, set up process, equipment, agreement of information security, partners' cooperation mechanism and also other information.

Study on Inclusive Innovation: The Example of "Maker & Westerner" Business Idea
包容性创新研究—以“创客·西部人”商业构想为例

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摘要

包容性创新研究的概念自世界银行首次提出後，便被认为是解决贫困这个世界性难题的有力途径，巴西、印度等国家对其已进行了很好地实践，并总结下了很多宝贵的经验。中国近年来对此也开始了重视，并已通过不同途径、不同方式来进行尝试，农村电子商务的发展已经成为中国包容性创新研究的有力佐证。而在“双创”和“扶贫”问题上如何有效地结合并实践包容性创新研究理论,“创客 · 西部人”运营模式的商业构想则值得研究。

A Brief Discussion on Future Developing of Agriculture
浅谈未来农业的发展

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摘要

本文主要三方面来研究探讨未来农业的发展。首先是研究农业、农田、农民近二十的变化。近20年资料调查结果显示：随著城镇化推进，大量乡村人口进城务工，务农人员老龄化，从事农林牧渔人员的逐渐减少；农业机械总动力呈现显著上升态势，一方面是绝对数量的增加，另一方面是因为大的农场引入了大型机械进行规模化作业；农田水灌溉面积明显提升，化肥施用量亦显著增加。

其次是粮食产量与科学技术发展水准相关性探讨。人均国内生产总值越高，人均能源消费量也越多，相应的粮食单位面积产量也越大。即随著科学技术发展水准的发展粮食产量也越高。

最後是对未来100年农业发展的预测。通过前面两部分的分析，我们可以发现未来农业一定是无人干预、全智慧化的全新生产方式。可能的方式有以下几种。第一种类型，立体生态农场：城市中仿佛摩天大楼一般形式的立体农场将随处可见，这些农场不同楼层拥有不同功能，各楼层分别种植著高大乔木、热带植物、果树、蔬菜、稻谷、渔场、草场、牧场等。农场中忙碌的各式机器人有条不紊地在进行各项原本需要人的工作。农场不再限於传统的农林牧渔，针对不同消费者需求可能会产生一些定制化的产品。这一类农场面向习惯于传统食物来源，愿意亲近自然的人群。第二种类型，分子食物工厂：这一类则打破了传统。这些分子食物工厂区别於当今特定专业类别只生产饮料、小食品、肉制品等的方式，而是采用从多种原料包在分子层面加工转化赋予能量并添加味道、色泽等需求，直到成品的过程，也就是说只要你想到的食物都可以随意定制生产。直白的讲就是完全不需要动植物这一中间转化步骤，所需要的仅仅是能量和原材料。原材料可以是传统农作物，可以是过期食品，还可以是不可直接食用的木材，甚至可以是人体排泄物。以上原材料到了分子食物工厂首先会分解到分子级别，归类到不同容器，成为基础分子材料；接著，加工机器人收到个性化的定制指令开始加工，这一步骤能够完全实现真实食物的质感、味道、色泽，甚至於创造从未有过的新奇食品。第三类是小型化全营养充能设备：这些设备可以供家庭使用。只要购买原料包放入，就可以产出胶囊一样的食品，里面包含了人体所需营养元素同时满足能量消耗，携带方便，食用简单。

The Development Trend of Family Balcony Gardening in China
我国家庭阳台园艺的发展趋势研究

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摘要

在我国经济快速平稳发展的大形势下，随著人们的生活水准的不断提高，对於物质文化与精神文明的追求也越来越高。在城市人口逐年增加的大趋势下，城市高楼林立，建筑密度越来越大，生活在钢筋水泥中的人们生活节奏也在不断加快，由此，家庭阳台园艺应运而生。它利用较小的空间（阳台、窗台等）就可以为城市中忙碌的人们提供一片精致的静心场所，为他们单调的生活增添一抹“绿色”；也可以通过大面积种植来提高空气品质、改善生态环境、拉近人与自然之间的距离，而且还可以具备一定的农业生产能力，为种植者提供农产品，美化和实用价值兼备。目前，在我国的一线城市，家庭园艺已经开始兴起，这种利用园艺植物进行栽培和装饰的活动，不仅美化了我们的生活环境、增添了生活的乐趣，更是为我们传达了一种健康、绿色、安全的生活理念，是都市人群居住理念的一种转变。

本文主要通过文献研究、案例分析等方式，对世界各地的经典案例进行较为系统的分析：

(1) 通过对家庭阳台园艺的相关文献进行搜集、研究及整理，分析国内外家庭阳台园艺的发展现状、模式，分析其发展意义。

(2) 详细分析国内外家庭阳台园艺成功案例，总结其成功的因素及需要改进的内容，以世界各地家庭阳台园艺的成功案例为指导，给予我国家庭阳台园艺的未来提供新的发展思路。

(3) 阐述我国家庭阳台园艺的发展现状，发现其存在的问题（例如，植物水肥控制有难度；病虫害防治；速生蔬菜及时更换难等），并通过前文的成功案例对这些问题产生的原因进行一定的分析，提出一定的解决方向。同时，对我国家庭阳台园艺未来的发展做出设想，为今後我国大中型城市的开展家庭阳台园艺活动提供一定的参考。

我国家庭的阳台、窗台、露台和庭院面积虽小，在人们的日常生活中却充当著更为重要的角色。用植物装点阳台、窗台，充分利用狭小空间创造“迷你花园”，对缓解工作和学习的压力、安定情绪、减少疾病等有很大作用，对人们的身心健康极为有益。不仅如此，家庭阳台园艺也是培育孩子从小学科学、爱科学、爱劳动的良好习惯的方便之所，也有益於家庭之间的交流，促进人际关系的和谐发展。

Research Progress on Circular Agriculture in China
我国回圈农业的研究进展

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摘要

回圈农业是指以生态规律为基础，以资源高效回圈利用和生态环境保护为核心，以减量化、再利用、资源化为原则，以低消耗、低排放、高效益为基本特徵，建设资源节约型、环境友好型农业，实现农业可持续发展理念的农业发展模式。回圈农业通过调整和优化农业生态系统内部结构及产业结构，提高资源利用率，延伸产业链条，促进农业产业化发展，不仅为人们提供安全、健康的食品，同时改变传统的生产和生活方式，缓解农业经济活动对生态环境的压力，为人们提供优美环境和清洁能源。回圈农业在节水、节地和减少能耗的前提下，积极稳妥地调整农业结构，形成结构合理的农、林、牧、渔全面发展的大农业格局，使各行业之间相互依存、相互支持。回圈农业协调了农业产前、产中、产後之间的关系，使农业向产前、产後延伸，形成了“种、养、加”和“农、工、贸”配套的农业产业体系。积极发展回圈农业，减少资源浪费，减少环境污染和农业生态破坏，使农业生态环境与农村经济形成良性回圈，综合生产能力和可持续发展能力得到提高，实现农业经济效益、社会效益与生态环境效益最大化。回圈农业作为一种环境友好型农作方式，具有较好的社会效益、经济效益和生态效益。只有不断输入技术、资讯、资金，使之成为充满活力的系统工程，才能更好地推进农村资源回圈利用和现代农业持续发展。近年来，中国工业发展迅速，促使经济快速增长。相比较而言，中国农业发展极其缓慢，社会主义新农村建设未取得实质性的进展。目前，中国农业生产仍以粗放式增长为主；同时，影响中国农业发展的农业资源与农村生态环境约束不断凸现。回圈农业是一种节约型的生产方式，它可以缓解中国农业资源紧张的状况，并有效改善农村的生态环境。为此，应当宣导大力发展回圈农业，从大力宣传、培训劳动力、增加投入、提供技术、政策支援等多方面著手，推动中国回圈农业的快速发展。

本文将主要从回圈农业的内涵、国内回圈农业的发展现状、存在的主要问题及应对对策等方面对国内回圈农业的研究进展进行阐述，为我国回圈农业今後的发展提供参考。

Development and Popularization of A Series of New Grape Varieties
一系列葡萄新品种的研发及推广

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摘要

葡萄在世界种植果树总面积中排在第二，仅次於柑橘，广泛的分布於地中海气候的世界各地。我国是世界葡萄主要生产国之一，自葡萄引入我国种植後，因其适应性强、结果早、营养价值高、效益好等特点，葡萄产业发展十分迅速，到2015年底，葡萄种植面积达80万hm2，产量1366万t，已真正成为世界葡萄生产大国，尤其是鲜食葡萄的产量与面积我国已经连续多年位居世界首位，葡萄产业已经成为我国许多地方的特色优势产业和农民增收致富的支柱产业。

在葡萄产业快速发展的基础上出现了许多亟待解决的新问题，例如葡萄新品种的培育、引进及推广等问题，因在葡萄的生产过程中，优良品种是提高葡萄品质和种植效益的必要条件，也是产业持续发展的重要保障。近20年来，世界各国对葡萄新品种的选育愈加重视，加快了科学研究的速率，培育了很多优质的葡萄新品种，而我国目前种植的品种主要有巨峰、红地球、夏黑、玫瑰香、巨玫瑰、醉金香、赤霞珠、藤念、霞多丽、西拉子、无核白鸡心、克瑞森等品种，新品种比较缺乏，育成的新品种种植利用率低，果品品质和产量没有保证，种植的葡萄品种较单一，没有呈现多元化发展。同时在新品种发展上，乱引乱种问题突出，把新品种和良种混淆，认为新的就是好的，没有严格按育种程式选种并进行区域化试验，引来就种，给果农带来了巨大的损失，所以新品种对促进葡萄生产的发展正发挥越来越重要的作用。

随著科技的发展，科研力度投入的加大，培育出了数以千计的葡萄新品种，国内的葡萄市场竞争越来越激烈，葡萄品种逐渐趋於优化，由於我国研究葡萄的科研力度在加大，葡萄新品种层出不穷，而我国的葡萄种植面积广阔，由西向东，由北向南都有种植葡萄的主要生产区，各地气候条件不同，不同的葡萄品种在不同区域的表现会出现差异性。在同一地区，同一气候，同一土壤条件的情况下，通常只有几个品种是最适合的，目前最迫切地是需要研发培育适合当地气候和当地居民喜好的葡萄新品种，因地制宜，发展相应的葡萄新品。

Innovative Methods and Landscape Effects of Ornamental Tomato
观赏番茄创新方法与景观效果

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摘要

随著社会的不断发展，生活水准的快速提升，人们越来越注重精神需求的满足。尤其是近年来观光农业的火爆开展，使大家有更多机会接受到来自世界各地的奇特观赏蔬菜。栽种观赏型蔬菜也逐渐成为都市家庭怡情养性、体验收获的途径之一。而观赏番茄以其色彩明艳的果实、奇特优雅的株型赋予人们无限的遐想空间，同时让爱好者通过奇思妙想的创造力，不断地刺激人们的视觉。观赏番茄是一类既可以食用又可以观赏的新型品类。品种选择方面我们改变了传统的育种方向，育种目标在注重口感、品质的基础上增加了品种的观赏性、创新性。

在栽培技术方面，我们通过嫁接、多年栽培等技术手段，提高了单株的观赏性。现有的番茄嫁接类型主要有番茄之间的同种嫁接、茄果类相互嫁接及瓜茄类蔬菜异属间嫁接等3个类型，嫁接技术有插接、劈接、斜切接及靠接等。多年栽培技术，就是将番茄定植在特定环境内，进行多年精心管理、修剪，达到观赏效果。

生产中比较常见的有一树多果、茄薯共生、一茄多果、番茄树等效果形式。一树多果，就是先选择生长势良好的砧木，通过嫁接技术，最後使一颗植株上结多种果实。茄薯共生，又叫番茄薯，是由同属植物番茄与马铃薯嫁接而成，属於“一藤双生”植物。一茄多果，又叫地三鲜，就是把番茄和辣椒幼苗嫁接到野茄子秧上，加强管理，可同时结3种果实，故名“地三鲜”。番茄树，主要是以观光为目的。利用先进的栽培技术，配套的设施，及秧体支撑设施等管理措施，经多年生长，得到树状的番茄。番茄树对环境条件要求比较严格，尤其是北方，要求冬季要有加温设施，夏季要有外遮阳、风机及水帘降温设施。

在栽培方式方面，我们将番茄种植在各种规格的花盆或其他设施内，再用支架或容器作为骨架，使之形成理想造型来吸引游客。常见形式有各种造型的盆栽番茄，番茄墙等。家庭盆栽番茄，通过摘心、打杈等措施可育出一个造型优美的小盆景。而对需要支架支撑的种类，采用单干整枝的方法，在生长到一定时期，去除基部过多的侧枝，留取强壮主干枝使其依架生长并结果，垂悬下来的果实可形成良好景观。番茄墙，即通过修剪、摘心等整形措施将多株番茄打造成一面绿墙的景观。

文章主要通过新品种培育、栽培技术、栽培方式等3种途径，培育出形状各异、色彩丰富的观赏番茄，形成独特的景观效果，旨在为居民栽种观赏番茄提供参考。

Analysis on the Evolution and Development of Research Hotspots in the Field of Agricultural Policy in China

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Abstract

Using knowledge map visualization analysis, the literature on the field of Chinese agricultural policy research published since 1987~2016, using Citespace III software to analyze the key words, co-occurrence and clustering, and draw knowledge maps, analysis for nearly 30 years The evolution of China's agricultural policy research and its research hotspots. Provide a theoretical reference for grasping the research progress in this field. Studies have shown that from 1987 to 2016, China's agricultural policy research has different research themes in different historical periods, and it has strong characteristics of the times. It can be roughly divided into two stages: the 1980s to the end of the 1990s and the beginning of the 21st century to 2016. The research hotspots in this field are mostly concentrated on four aspects: fiscal support policies, agricultural modernization development, rural financial policies, and rural land policies. Future agricultural policy research will further focus on land transfer policies, agricultural financial subsidies, and agricultural supply. Research on structural reforms, expand the scope of agricultural policy research, pay attention to the study of the relationship between agricultural policies and non-agricultural policies, play a guiding role of policies, and promote the development of rural agricultural economy in China.

Technology Poverty Alleviation in Fujian Province
福建省农业科技扶贫的模式、问题与对策

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摘要

科技扶贫效果的优劣与扶贫主体及其采取的扶贫模式密切相关，通过对福建省不同科技扶贫主体的实地调查与案例分析，综合已有的文献研究认为，福建省目前已形成了8个细分类型的科技扶贫模式，在具体实践中，存在针对性、系统性、长效性、能动性、风险性等5个方面的问题，最後结合问题导向，从技术、模式、培训、人才、制度等方面提出相应的对策建议。

The Research on Promoting Characteristic Agricultural Industry Competitiveness Based on Gem Model—Making Jinjiang Carrot Industry as An Example

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Abstract

As people's income level rises, food consumption structure upgrades continuously, people's consumption demand changes from being concerned about the quantity to the quality of agricultural products, and the main contradiction of agricultural production has transformed from the insufficient total amount to the structural contradiction. The characteristic agriculture being as a regional brand of the regional, how to promote the structural reforms of supply side and promote transformation and upgrading of modern agriculture, is a hotspot of current research. Therefore, starting from the direction of the characteristic agriculture industry, making Jinjiang carrots industry as an example, this paper uses the GEM model and related theories to analyze how to further improve the market competitiveness of the regional industry and product and realize the agricultural industry transformation and upgrading. The results show that the development of six factors from the characteristic industry competitiveness of Jinjiang carrots is not balanced. It has advantages for resources, facilities and external market, but insufficientin for the manufacturer's structure or strategy, suppliers or related companies and local market, and the overall competitiveness level is common.

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$$\int_0^{r_2} F(r,\varphi)\, dr\, d\varphi = [\sigma r_2 / (2\mu_0)] \qquad (1)$$

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