



**The 3rd International Symposium on
Precision Aerial Application & Agricultural Automation**

College Station, TX 2012

Agenda

USDA ARS SPARC APMRU AAT

The 3rd International Symposium on Precision Aerial Application and Agricultural Automation

College Station, TX, US, Aug. 1st-3rd, 2012

Sponsored by

USDA-ARS (Agricultural research service, U.S. Department of Agriculture)

TAMU (Texas A&M University)

CSAE (Chinese Society of Agricultural Engineering)

NERCITA (National Engineering Research Center for Information Technology in Agriculture, China)

NERCIEA (National Engineering Research Center of Intelligent Equipment for Agriculture, China)

Organized by

USDA ARS SPARC APMRU AAT

Co-sponsored by

AOC (Association of Overseas Chinese Agricultural Biological Food Engineers)

CAU (China Agricultural University)

CIGR-Precision Aerial Application Working Group

Supported by

NERCITA

OmniStar

Organizing and Academic Committee

Chairman:

Lan, Yubin USDA-ARS

Co-Chairman:

Hoffmann, W. Clint USDA-ARS, College Station

Wang, Yingkuan Chinese Academy of Agricultural Engineering

Zhao, Chunjiang NERCITA (China)

Members:

Chen, Liping Texas A&M University, NERCIEA (China)

Cui, Ming Chinese Academy of Agricultural Engineering

Fritz, Brad USDA-ARS, College Station

Ge, Yufeng Texas A&M University

Han, Shufeng John Deere

Huang, Yanbo USDA-ARS, Stoneville, Mississippi

Li, Minzan China Agricultural University

Liu, Gang China Agricultural University

Popescu, Sorin C. Texas A&M University

Sheng, Zhuping Texas A&M University

Sui, Ruixiu USDA-ARS, Stoneville, Mississippi

Thomson, Steve J. USDA-ARS, Stoneville, Mississippi

Thomasson, J. Alex Texas A&M University

Wang, Ning Oklahoma State University

Yang, Chenghai USDA-ARS, College Station

Yang, Fuzeng Northwest A&F University, China

Yang, Qing Northwest A&F University, China

Zhao, Lingying Ohio State University

Zheng, Yongjun China Agricultural University

Zhou, Zhiyan South China Agricultural University

Secretariat

Secretary General:

Zheng, Yongjun USDA-ARS, China Agricultural University

Members:

Jank, Phil. USDA-ARS

Song, Peng USDA-ARS, China Agricultural University

Wang, Shirley USDA-ARS

Wang, Zhigang USDA-ARS, Jilin University

Wei, Xiao China Agricultural University

Zhang, Zhitao USDA-ARS, Northwest A&F University, China

Conference Program

Aug. 1st, 2012, Wednesday

Registration and Social

Aug. 2nd, 2012, Thursday

Location: Conference Room, Bldg. 1, USDA-ARS

Time	Program	Chairs
08:10-08:30	Welcome Reception Dr. Westbrook, John, Dr. Hoffmann, W. Clint Dr. Zhao, Chunjiang, Dr. Cui, Ming	
08:30-10:00	Session I: Precision Aerial Application	Dr. Fritz, Brad Dr. Chen, Liping
10:00-10:20	Break & Group photo	
10:20-12:05	Session II: Remote Sensing	Dr. Thomasson, J. Alex Dr. Yang, Chenghai
12:05-14:00	Lunch Time	
14:00-17:00	Session III: Visit to USDA Labs-Riverside Campus	Dr. Hoffmann, W. Clint
17:30-18:00	Cash Bar (Ballroom 1, Hilton)	
18:00-20:00	Banquet & Ceremony (Ballroom 1, Hilton)	

Aug. 3rd, 2012, Thursday

Time	Program	Chairs
08:30-10:00	Session IV: Agricultural Automation I	Dr. Thomson, Steve Dr. Li, Minzan
10:00-10:15	Break	
10:15-12:00	Session IV: Agricultural Automation II	Dr. Wang, Ning Dr. Sheng, Zhuping
13:30-17:00	Visit to Texas A&M University	

Presentation Titles and Speakers

Session I: Precision Aerial Application

Time: 08:30-10:00 2nd, August, 2012

Session Chair:

Dr. **Fritz, Brad**, Agricultural Engineer, USDA-ARS-SPARC-APMRU

Dr. **Chen, Liping**, Professor, Texas A&M University, NERCIEA (China)

No.	Time	Titles
1	08:30-08:45	Dr. Hoffman, W. Clint , USDA-ARS, College Station, Texas Aerial Application Research Projects within ARS
2	08:45-09:00	Dr. Zhao Chunjiang , NERCITA ,China Automation: the solution making PA practical
3	09:00-09:15	Dr. Thomson, Steve J. , USDA-ARS, Stoneville, Mississippi Innovative Systems for Precision Aerial Agri. Management
4	09:15-09:30	Dr. Li, Minzan , China Agricultural University Development of Sensors for Precision Agriculture in CAU
5	09:30-09:45	Dr. Nithya Rajan and Stephan Maas, Texas A&M University Potential of Precision Agriculture in the Texas High Plains
6	09:45-10:00	Dr. Lan, Yubin , USDA-ARS, College Station, Texas Precision Aerial Application Group Review (Slide Show)

Session II: Remote sensing

Time: 10:20-12:05 2nd, August, 2012

Session Chairs:

Dr. **Thomasson, J. Alex**, Professor, Texas A&M University

Dr. **Yang, Chenghai**, Agricultural Engineer, USDA-ARS-SPARC-APMRU

No.	Time	Titles & Speakers
1.	10:20-10:35	Dr. Popescu, Sorin , Texas A&M University Investigations of Spatially Coincident Terrestrial, Airborne, and Satellite Lidar Data for Deriving Vegetation Structure Metrics
2.	10:35-10:50	Dr. Yang, Chenghai , USDA-ARS, College Station, Texas Detecting Crop Pests Using Airborne Multispectral, Hyperspectral and Thermal Imagery
3.	10:50-11:05	Dr. Thomasson, J. Alex , Texas A&M University Site-specific and Remote-sensing Solutions to Cotton Root Rot Disease
4.	11:05-11:20	Dr. Huang, Yanbo , USDA-ARS Remote Sensing for Crop Production in the Mid South Area of USA
5.	11:20-11:35	Dr. Herbst, Andreas , Institute for Chemical Application Technology, Federal Research Centre for Cultivated Plant, Germany Precision Spray Applications in Germany
6.	11:35-11:50	Dr. Xue, Qingwu , Texas AgriLife Research at Amarillo Phenotyping Drought Tolerance and Water Use Efficiency in Wheat Using Remote Sensing Tools
7.	11:50-12:05	Mr. Pointon, John , OmniStar Company Alternative Methods for Improving Real-time Accuracy of GNSS Systems

Session III: Site visit to USDA Labs, Riverside Campus

Time: 14:00 – 16:30 2nd, August, 2012

Session Chair:

Dr. **W. Clint Hoffmann**, Agricultural Engineer, USDA-ARS-SPARC-APMRU

See the agricultural airplanes, VRT systems, airborne remote sensing system, wind tunnels and droplet size measurement systems.

Session IV: Agricultural Automation I

Time: 08:30-10:00 3rd, August, 2012

Session Chairs:

Dr. **Thomson, Steve**, Agricultural Engineer, USDA-ARS, Stoneville, Mississippi

Dr. **Li, Minzan**, Professor, China Agricultural University

No.	Time	Titles & Speakers
1.	08:30-08:45	Dr. Yang, Fuzeng , Northwest A&F University, China Design and Preliminary Test of Tiny Remote Controlled Electric Tractor Used in Greenhouse
2.	08:45-09:00	Dr. Sui, Ruixiu , USDA-ARS Wireless Sensor Network for Irrigation Scheduling
3.	09:00-09:15	Dr. Wang, Ning and Yeyin Shi, Oklahoma State University Modern Sensing Technology for Real-time by-Plant Crop Monitoring
4.	09:15-09:30	Dr. Han, Shufeng , John Deere Recent Development on Machinery Automation for Precision Agriculture
5.	09:30-09:45	Dr. Sheng, Zhuping , Texas A&M University Effects of Precision Agriculture/irrigation on Water Resources in Texas, Myth & Reality
6.	09:45-10:00	Dr. Zhou, Zhiyan , South China Agricultural University The Initial Test of the Wind Field Distribution in UAV Pollination for Rice Seed Production

Session IV: Agricultural Automation II

Time: 10:15-12:00 3rd, August, 2012

Session Chairs:

Dr. **Wang, Ning**, Associate Professor, Oklahoma State University

Dr. **Sheng, Zhuping**, Associate Professor, Texas A&M University

No.	Time	Titles & Speakers
	10:15-10:30	Dr. Ge, Yufeng , Texas A&M University Soil Spectroscopy from Lab to Field: Removing the Effect of Moisture Content
7.	10:30-10:45	Dr. Shi, Yeyin , Oklahoma State University In-field Determination of Corn Stalk Location Using Rapid Line-scan Technique
8.	10:45-11:00	Dr. Zheng, Yongjun , USDA-ARS, China Agricultural University Crop Condition Measurement with an Unmanned Ground Vehicle (UGV)
9.	11:00-11:15	Dr. Wang, Zhigang , USDA-ARS, Jilin University Development of an Unmanned Agricultural Robotics System for Measuring Crop Conditions for Precision Aerial Application
10.	11:15-11:30	Dr. Zhang, Zhitao , USDA-ARS, Northwest A&F University The Effect of Different Fertilizer Levels and Times on NDVI of Different Crops
11.	11:30-11:45	Song, Peng , USDA-ARS, China Agricultural University Crops Spectral Reflectance in Different Fertilizers Treatments
12.	11:45-12:00	Closing Remark

Participants

	Name	Organization
1	Bonds, Jane	Bonds Consulting Group LLC
2	Chang, Qingrui	Northwest A&F University, China
3	Chen, Junying	Northwest A&F University, China
4	Chen, Liping	USDA-ARS, NERCIEA (China)
5	Cheng, Bin	Shihezi University, Xinjiang, China
6	Cui, Ming	Chinese Academy of Agricultural Engineering
7	Deng, Lie	Chinese Academy of Agricultural Sciences
8	Dong, Feng	Texas A&M University
9	Feng, Juan	China Agricultural University
10	Fritz, Brad	USDA-ARS-SPARC-APMRU
11	Ge, Yufeng	Texas A&M University
12	Han, Qinghua	Xinghua Luhe Foods Co., Ltd.
13	Han, Shufeng	John Deere
14	He, Baocheng	Wulanbuehza Irrigation Scheme Management Bureau Inner Mongolia, China
15	Herbst, Andreas	Institute for Chemical Application Technology, Federal Research Centre for Cultivated Plant, Germany
16	Hoffmann, W. Clint	USDA-ARS-SPARC-APMRU
17	Hu, Yaohua	Northwest A&F University, China
18	Huang, Wenqian	NERCITA , China
19	Huang, Yanbo	USDA-ARS, Stoneville, Mississippi

20	Kan, Za	Shihezi University, Xinjiang, China
21	Lacey, Ron	Texas A&M University
22	Lan, Yubin	USDA-ARS-SPARC-APMRU
23	Li, Hong	Jiangsu University, China
24	Li, Li	China Agricultural University
25	Li, Lili	Chinese Academy of Sciences
26	Li, Minzan	China Agricultural University
27	Li, Xiaoyu	Huazhong Agricultural University, China
28	Li, Xin	Xinjiang Shihezi Bureau of Science and Technology Advisory Service Centre
29	Li, Yinggang	Jiefangzha Irrigation Scheme Management Bureau Inner Mongolia, China
30	Lin, Fubao	The Administration of Hetao Irrigation District, Inner Mongolia, China
31	Liu, Gang	China Agriculture University
32	Liu, Junping	Jiangsu University, China
33	Liu, Yanhua	South China Agricultural University
34	Liu, Yonghe	The Administration of Hetao Irrigation District, Inner Mongolia, China
35	Liu, Zhijie	Northwest A&F University, China
36	Lu, Qiang	Chinese Academy of Agricultural Sciences
37	Martin, Dan	USDA-ARS-SPARC-APMRU
38	Nie, Weibo	Xi'an University of Technology, China
39	Jank, Phil.	USDA-ARS-SPARC-APMRU
40	Pointon, John	OminStar

41	Popescu, Sorin C.	Texas A&M University
42	Qi, Liang	National Agricultural Science and Technology Park of Shihezi, Xinjiang, China
43	Rajan, Nithya	Texas AgriLife Research and Extension Center, Texas A&M University
44	Risch, Eric	Prairie View A&M University
45	Sheng, Zhuping	Texas A&M University
46	Song, Peng	USDA-ARS, China Agricultural University
47	Sui, Ruixiu	USDA-ARS, Stoneville, Mississippi
48	Thomasson, J. Alex	Texas A&M University
49	Thomson, Steve J.	USDA-ARS, Stoneville, Mississippi
50	Tu, Qin	Jiangsu University, China
51	Wang, Caifen	Crop Institute of Ningxia Academy of Agriculture and Forestry Sciences, China
52	Wang, Ning	Oklahoma State University
53	Wang, Shengwei	China Agricultural University
54	Wang, Shirley	USDA-ARS
55	Wang, Xinkun	Jiangsu University, China
56	Wang, Yingkuan	Chinese Academy of Agricultural Engineering
57	Wang, Yuanjie	Northwest A&F University, China
58	Wang, Zhigang	USDA-ARS, Jilin University, China
59	Wang, Zhiqiang	China Agricultural University
60	Wei, Xiao	China Agricultural University
61	Westbrook, John	USDA-ARS

62	Wu, Guangwei	NERCITA, China
63	Wu, Qijin	Gaochun Station of Irrigation and Water Conservancy Service Management, Jiangsu, China
64	Xie, Qiubo	Guangdong Agricultural Machinery Research Institute
65	Xue, Qingwu	Crop Physiology Texas AgriLife Research at Amarillo
66	Yang, Chenghai	USDA-ARS, Weslaco, Texas
67	Yang, Fuzeng	Northwest A&F University, China
68	Yang, Minli	China Agricultural University
69	Yang, Qing	Northwest A&F University, China
70	Zhang, Bin	Hunan Agricultural University, China
71	Zhang, Jinjiang	Institute of Agricultural Machinery Guangdong, China
72	Zhang, Linan	China Agricultural University
73	Zhang, Man	China Agricultural University
74	Zhang, Miao	China Agricultural University
75	Zhang, Xiaowen	Beijing Agricultural Machinery Institute, China
76	Zhang, Zhitao	USDA-ARS, Northwest A&F University, China
77	Zhao, Chunjiang	NERCITA, China
78	Zhao, Lingying	Ohio State University
79	Zhao, Youliang	Northwest A&F University, China
80	Zhao, Yuelong	Chinese Academy of Agricultural Engineering
81	Zheng, Yongjun	USDA-ARS, China Agricultural University
82	Zhou, Zhiyan	South China Agriculture University
83	Zhu, Xingye	Jiangsu University, China

General Information

USDA-ARS

Build #1, 2881 F&B Road, College Station, TX 77845

Texas A&M University Riverside Campus

Texas 47, TX 77807

Country Inn & Suites

1010 Southwest Parkway East, College Station, TX 77840

(979) 693-7777

Holiday Inn Hotel & Suites College Station-Aggieland

2500 Earl Rudder Freeway And Hwy 6, College Station, TX 77840

(979) 485-8300

China King Buffet

2402 Texas Ave S, College Station, TX 77840.

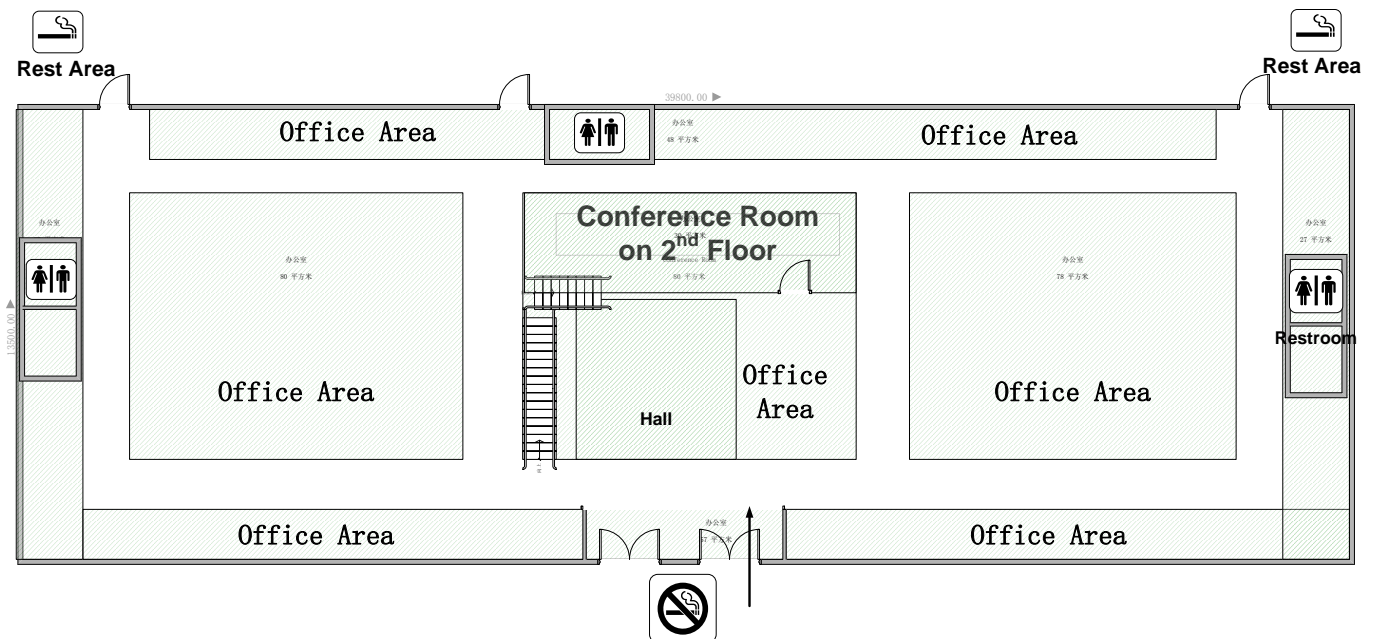
(979)-694-7959

Hilton College Station & Conference Center

801 University Drive East, College Station, TX 77840

(979) 693-7500

Layout of BIDG 1, USDA-ARS



第三届中美“精准农业智能装备与测量技术”国际研讨会

2012 Sino-US International Symposium on Intelligent Equipment for Precision Agriculture and Measurement Techniques for Agriculture

College Station, Texas, USA

2012年8月1日 - 8月3日, 大学城·德克萨斯·美国

随着科学技术的发展和社会的进步, 传统农业逐步发展为现代化与智能化农业。农业信息技术在这个转变中发挥着关键作用。由于农业是主要依靠自然资源从事生命物质生产的产业, 地域性、季节性、变异性很强, 可控性和稳定性很差。正是由于这个复杂的系统, 才更需要信息技术武装和支撑, 实现农业信息化。只有通过发展信息要素为主要特征的数字农业、精准农业和智能农业, 通过农业信息关键技术的突破和高技术的武装, 才能突破传统的农业生产方式, 实现农业信息服务网络化、农业资源管理数字化、农业生产过程管理精准化、农业装备智能化、农业虚拟化, 大幅度提升农业生产效率、资源利用效率、农产品的产量和质量 and 农业持续创新能力, 节约能源, 节本增效, 减少环境负效应, 实现自然、社会、生态全面协调的可持续农业发展。可见, 研究和发​​展数字农业、精准农业和智能农业, 对于实现发展现代农业, 促进可持续发展, 都具有重大的现实意义和深远的历史意义。

为深入研究和探讨精准农业、数字农业、智能农业领域的前沿问题, 加强该领域美中两国学者的交流与合作, 美国农业部南方平原农业研究中心和德克萨斯农学院将联合中国农业工程学会《国际农业与生物工程学报》(IJABE), 拟定于2012年8月1日—8月3日在美国德克萨斯大学城举办“第三届精准农业智能装备与农用遥感测量技术”国际研讨会, 届时将邀请美中两国著名专家、学者作专题报告。欢迎中国专家学者参加本次会议, 现将会议有关事项通知如下:

一、组织机构

- ◎ 美国组织机构: 德克萨斯农工大学生物与农业工程系
美国农业部南方平原农业研究中心
- ◎ 中国组织机构: 中国农业工程学会《国际农业与生物工程学报》(IJABE)
- ◎ 美国协助机构: ABE Publishing & Communications, LLC (ABE 出版与传播)

二、会议主要议题

- 精准农业智能装备
 - (航空) 机载遥感 (有人和无人)
- 地面遥感
 - 变量技术(VRT)与变量技术应用
 - 作物、土壤、自然资源的空间变异
 - 作物生产与保护航空应用技术
 - 喷雾滴测量与减少漂移技术(DRT)
 - 电子鼻与挥发性有机化合物 (VOC) 分析仪
 - 自动导航和全球定位系统 GPS
 - 模拟模型、地理统计学、地理数据与分析软件
 - 传感器在作物管理中的应用
 - 遥感在精准农业中的应用

精准农业工程技术装备与进展
精准农业中的新兴问题（能源、生物燃料、气候变化）
精准农业的全球蓬勃发展及其应用

三、会议时间和地点

时间：2012年8月1日——8月3日（说明：ASABE 2012会议结束后，8月1日
抵达大学城，8月2-3日开会交流、参观试验站）

地点：2771 F & B Road, College Station, TX 77845

美国农业部南方平原农业研究中心 (USDA-ARS)

美国德克萨斯农工大学 (Texas A&M University, College Station, Texas)

美方联系人：Yubin Lan（兰玉彬）博士

中方联系人：王应宽（Wang Yingkuan）博士

四、会议组织形式

- 1、会议语言：英文
- 2、会议报告：分特邀专家报告和优秀论文作者报告两种形式
- 3、会议主要内容：包括主题演讲、专题讨论、论文交流等

五、会议论文

- 1、会议论文请参照国际英文刊 IJABE 的格式与规范要求（请参见期刊网页作者指南）
撰写，会议组委会将从中遴选优秀论文作者做学术报告，还将择优推荐在 IJABE
刊物发表。
- 2、请参会者于2012年5月31日之前提交参加研讨会的论文摘要(1000字，中英文，
阐述论文主要观点)，以及个人简历(包括姓名、职务、职称、社会兼职、电话、E-mail)
提交到以下信箱：ijabecohost@gmail.com。
- 3、会议论文全文提交日期截止2012年6月30日。

六、联系方式

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会议网址：http://www.ijabe.org

中国农业工程学会
《国际农业与生物工程学报》(IJABE)编辑部
二〇一二年三月二十八日

附：大会拟邀请报告的专家名单(按姓氏字母顺序)

Brad Fritz, USDA-ARS-Southern Plains Agricultural Research Center

美国农业部南部平原研究中心研究员，德克萨斯农工大学兼职（助理）教授，主要从事农业航空喷雾技术，减少药物漂移等研究。

Yufeng Ge, Research Assistant Professor, Department of Biological and Agricultural Engineering, Texas A&M University

德克萨斯农工大学研究助理教授，主要从事精准农业和传感器等的研究。

Shufeng Han (韩树峰), Senior Design Engineer, John Deere Company, Des Moines, Iowa, USA

现代农业装备技术

W. Clint Hoffmann, USDA-ARS-Southern Plains Agricultural Research Center

美国农业部南部平原研究中心研究员，任德克萨斯农工大学兼职教授，主要从事药物漂移模型、农业航空喷雾技术等研究。

Yanbo Huang, USDA-ARS, Jamie Whitten Delta States Research Center

美国农业部密西西比研究中心研究员，德克萨斯农工大学兼职副教授。主要从事应用遥感技术、精准施药、精准农业决策支持系统、图像处理等。

Ron Lacey, Professor, Department of Biological and Agricultural Engineering, Texas A&M University

教授，主要从事传感器、仪器开发、遥感等的研究。

Yubin Lan (兰玉彬), USDA-ARS-Southern Plains Agricultural Research Center

USDA-ARS 南部平原研究中心研究员。AOCABFE 前任主席，德克萨斯农工大学兼职教授。主要从事精准农业智能装备，农业航空遥感与测量技术，和精准农业等研究。

Dan Martin, USDA-ARS-Southern Plains Agricultural Research Center

美国农业部南部平原研究中心研究员，主要从事农业航空遥感，变量控制的研究。

Sorin Popescu, Professor of Remote Sensing, Spatial Sciences Lab, Texas A&M University

教授，主要从事激光雷达（Lidar-Light Detection and ranging）应用和遥感研究。

Nithya Rajan, Assistant Professor, Texas AgriLife Research Center, Texas A&M University System. 主要从事农业信息化、农业遥感研究

Zhuping Sheng (盛祝平), Associate Professor, Texas AgriLife Research Center at El Paso, Texas A&M University, El Paso, Texas, USA

副教授，AOCABFE 即任主席，主要从事农业节水，精准灌溉，生态用水，区域水资源规划和管理，气候变化对水资源的影响等方面的研究。

Ruixiu Sui (隋瑞秀), USDA-ARS, Jamie Whitten Delta States Research Center

美国农业部密西西比中心研究员，德克萨斯农工大学兼职副教授，主要从事传感器，地面遥感系统，精准农业，棉花加工，生物能源等方面的研究。

Alex Thomasson, Professor, Department of Biological and Agricultural Engineering, Texas A&M University

教授，主要从事新型传感器和地面作物扩充和大气状态监测的研究。

Steve Thomson, USDA ARS, Jamie Whitten Delta States Research Center

美国农业部密西西比中心研究员，主要从事农业航空遥感，变量控制的研究。

Ning Wang (汪宁), Associate Professor, Oklahoma State University, Stillwater, Oklahoma, USA

信息和传感器技术

John Westbrook, Research Leader, USDA-ARS-Southern Plains Agricultural Research Center
美国农业部南部平原研究中心研究员，任德克萨斯农工大学兼职教授，主要从事用 GIS 追踪。

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The 3rd International Symposium on Precision Aerial Application & Agricultural Automation

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College Station, TX



Design and Preliminary Test of Tiny Remote controlled Electric Tractor Used in Greenhouse

Yuanjie Wang, Fuzeng Yang, Yubin Lan, Yang Qing

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*U.S. Department of Agriculture(USDA) Agriculture Research Service(ARS)
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2012-07-26

USA

Recent Development On Machinery Automation For Precision Ag

Dr. Shufeng Han

John Deere, Intelligent Solutions Group

August 2, 2012



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Measuring Crop Conditions With an Unmanned Ground Vehicle (UGV)

Yongjun Zheng^{1,2}, Liping Chen¹, Zhigang Wang³, Yubin Lan¹

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**2012 International Symposium on Precision Aerial
Application and Agricultural Automation**

The Effect of different Fertilizer levels and times on NDVI of different crops

Zhitao Zhang & Yubin Lan

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Wireless Sensor Network for Irrigation Scheduling

Ruixiu Sui
Agricultural Engineer

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Crop Production Systems Research Unit
Stoneville, Mississippi

3rd International Symposium on Precision Aerial Application
College Station, TX
August 1-3, 2012

Effects of Precision Agriculture/Irrigation in Texas: Myth & Reality

Dr. Zhuping Sheng, P.E., P.H.G.

Dr. Chenggang Wang, TTU

Texas A&M AgriLife Research



The 3rd International Symp. on Precision Aerial Application
& Agricultural Automation
College Station, Texas, August 2012

the 3rd International Symposium on Precion Aerial Application and Agricultural Automation

Automation: Solution Making PA Practical

Dr. Chunjiang Zhao

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Aug. 1-3, 2012





Innovative Systems for Precision Aerial Agricultural Management

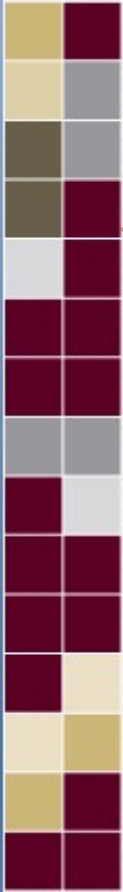
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Accuracy of GPS based boom section switching systems

Andreas Herbst, Hans-Jürgen Osteroth and Maïke Spranger



Phenotyping Drought Tolerance and WUE in Wheat Using Remote Sensing Tools


Q. Xue¹, D. Verbree², P. Gowda³, S. Ajayi¹



¹Texas AgriLife Research at Amarillo; ²University of Tennessee;
³USDA-ARS, Bushland TX

Ground Based Technologies for Cotton Root Rot Control

Curtis D. Cribben, J. Alex Thomasson, Yufeng Ge, Matthew D. Korte, Cristine L. S. Morgan, Chenghai Yang, Robert L. Nichols



Investigations of Spatially Coincident Terrestrial, Airborne, and Satellite Lidar Data for Deriving Vegetation Structure Metrics



Sorin C. Popescu

Associate Professor
Department of Ecosystem Science and Management
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Development of Sensors for Precision Agriculture in CAU

Li Minzan, Liu Gang, Zhang Man
Zhang Miao, Gao Hongju, Li Li

China Agricultural University

The 3rd International Symposium on Precision Aerial
Application & Agricultural Automation
College Station, TX, Aug. 2-3, 2012



USDA-ARS Aerial Application Research in College Station, TX

**Clint Hoffmann, Brad Fritz, Yubin Lan, Dan
Martin, Chenghai Yang, and John Westbrook**

USDA-ARS-Aerial Application Technology
College Station, TX

Remote Sensing for Crop Production in the Mid South Area of USA



Yanbo Huang



USDA-ARS Crop Production Systems Research Unit

*Mississippi State University, Texas A&M University,
Delta State University*

USDA ARS APMRU

Aerial Application Technology Research Group

Yubin Lan

Problems Addressed by My Research

- Current remote sensing systems are expensive and not designed to withstand the extreme conditions under which agricultural aircraft operate.
- New approaches are needed to rapidly monitor and combine multiple forms of crop-related data for use in precision agriculture.
- Sensors are needed that rapidly and/or remotely detect pest presence, crop condition, spray droplets, and volatile organic compounds.

Potential of precision agriculture in the Texas High Plains

[Nithya Rajan](#)

Assistant Professor, Texas A&M [AgriLife](#) Research, Vernon,
TX

[Stephan Maas](#)

Professor, Texas Tech University, Lubbock, TX



Spectral Reflectance for Crops Fertilizers at Different Treatments

Preliminary Studies

Peng Song, PhD Student, CAU.China
Yubin Lan, PhD, USDA-ARS



Detecting Crop Pests Using Multispectral, Hyperspectral and Thermal Imagery



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DEVELOPMENT OF AN UNMANNED AGRICULTURAL ROBOTICS SYSTEM FOR MEASURING CROP CONDITIONS FOR PRECISION AERIAL APPLICATION

MODEL WL 2012-1

YUBIN LAN, W. CLINT HOFFMANN, ZHIGANG WANG
USDA ARS JILIN UNIVERSITY

