Global Opportunities and Current U.S. Agriculture

August 5-9, 2007
Beijing China

H.W. Ockerman and Lopa Basu
52nd International Congress
Meat Science and Technology
Harnessing and exploiting Global Opportunities

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Beijing, China
North Pole 2005
Dry Cured Hams, SW China
Dry Cure Ham Ageing, SW China
Water Buffalo, SW China 2005
Mud and Straw Construction, Farm Building, SW China 2005
Fruit, SW China

2005
Tea Twisting, SW China 2005
Dali Univ.
SW China
2005
Erosion Control on Highway Cut, SW China

2005
Night Food Market, Squid
Banner at a 2007 China Conference suspended by a helium balloon. Banner brought back and photographed at OSU.
Dr Chen, Professor in Taiwan and an OSU alumni who established this experimental farm in mainland China and organized the conference in China.
Trends of Modern U.S. Agriculture in the Last Decade
过去十年来美国农业之发展状况

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2007
Illegal Agriculture Labor

- Often uneducated – lower price labor
- More international competitive
- Vote for a more social welfare system
- Food organ not particularly important
- Quality at a reasonable price
Types of Crops 作物种类

- **Organic – no fertilizer, pesticides, hormones**
  有机产品－不施以化学肥料杀虫剂、荷尔蒙

- **Local crops – less time in transport**
  本地所产之作物－减少运输所需时间

- **Country of origin – some countries lack controls, standards vary**
  来源地－部分国家管控较松，标准不一

- **Tractability – difficult when sources are mixed**
  追溯系统－当来源混合时困难执行

- **Farm to plate safety important**
  从「农产到餐桌」安全概念之重要性

- **Pollution, important but difficult to control**
  污染属重要议题，但较难管控

- **DDT has its place when used in appropriate location and sparingly**
  使用DDT需要特别留意使用场所及谨慎小心
Horticulture

- Genetically Modified Products 基因改造产品
- Some consumers don’t want – marketing problems 部分消费者接受度低－销售困难
- Some fear weeds will modify 部份人士担心野草可能被基因改造
- Scientist - after approval they are safe 科学证明基因改造产品之安全性

2007
Genetically Modified Food Labeling 基因改造食品之标示

- In 1992 FDA ruled – Labels not required unless modification significantly alters the properties. 1992美国食品药物管理局规定－除非食品的特性明显地因基因改造而改变，否则无须标示

- ~87% of UA Soybeans are GM to tolerate herbicides, Roundup ready (no-till possible). 大约87%的美国黄豆属于基因改造，用以减少除草剂之使用

- ~35% if US corn crop are GM to resist European Corn Borer and corn rootworm, high lysine. 大约35%的美国黄豆属于基因改造，具有抗欧洲玉米螟及抗玉米根虫及高离胺酸含量之特性

- USDA – says indistinguishable from non GM. 美国农部－无需与非基因改造食品有所区隔

- If labels were required – 66% of US food would have to be labeled. 若是规定标示必须标出－66%美国食品就必须标出其为基因改造食品
Animal Industries  动物生产产业

- Animals must be healthy and well cared for  动物应保持健康状态，更需要良好的照顾，可藉由下列事项达成:
- Receive medical care, vaccinations and treatment  接受健康医疗照顾，疫苗注射及治疗
- Nutritious diet, access to fresh clean water  营养的食物及干净饮水之供给
- Healthy living conditions  健康的生活状况
- Handling gently  温和非粗暴地对待
- Comfortable surroundings  舒适之生活环境

2007
Animal Production

- Animal welfare is important and being addressed
  - 动物福祉非常重要，且日益受到重视
- Embryo transfer is successful but expensive
  - 胚胎移置已可成功操作，但费用昂贵
- Cloned animals are currently being researched
  - 动物复制相关研究持续进行中
- Animal identification is needed
  - 动物识别之需要
Dairy Industry 乳类产业

- **Sex Seamen – Select Sires, 75% usage**
  精液－公畜选拔

- Brazilian Co. Purchase of Swift, Largest Meat Conglomerate – Easier route to Asia 巴西公司并购Swift 最大之肉品集团公司，更易打入亚洲市场

- DDT is starting to make a come-back DDP卷土重来

- **Illegal Labor – 5 of 50 states more than 50%, 50% drop out of school before finishing High School**
  非法劳工－美国50州中的5州，有超过50%的学生在完成十二年的义务教育前辍学

- **Safety (sanitation and pasteurization) and quality critical**
  产品安全(卫生及杀菌)及质量非常重要

2007
Dairy Continued 乳类产业

- No antibiotics, animals may be treated but milk does not go into food supply 抗生素可使用来治疗动物疾病，但不可因此而进入供人饮用之乳类中

- No pesticides 不可施用杀虫剂

- Hormones are naturally present in plants and animals 天然存在于植物及动物体内之荷尔蒙

- BGH (bovine somatotropin) occurs naturally in cows – helps direct milk production BGH(牛生长素)天然存在母牛体内，有助于乳牛之生产

- rBST (synthetic copy of BGH) approved by FDA in 90’s and is species-specific, not labeled r BST(合成之BGH)在1990年代获得美国FDA(食品及药物管理局)之批准，可使用于特定之品种，而且不必标示

- FDA – voluntary moratorium on food from cloned animals FDA关于源自于复制动物所产制食品之义务延期偿付
Poultry 家禽生产

- Driven by consumers 生产受到消费者需求而影响
- Egg – more space for layers – McDonald led the way 蛋—提供产蛋鸡更多生活空间，由麦当劳推动开始
- Meat – convenience – preparation in 20 min. or less 鸡肉—食用方便性，可在20分钟(或更少时间)内完成烹调或准备
- Corn, ethanol – distillers grain and solubles will be used 玉米 乙醇—蒸馏谷物与可溶解物之使用
- Decrease production – first time in many years 生产量减少—过去多年来首见
- Antibodies out – probiotics in 减少抗生素使用 改用益生菌
- GM grains are important to this industry 基因改造之谷物 非常重要

2007
Meat Harvesting and Processing
肉用动物屠宰与加工

- Food Safety must be stressed with a strong inspection program and HACCP - this requires commitment, personal training, participation of problems, motoring production, controlling critical control points, keeping records.

- 藉由严格的屠宰与肉品检查及HACCP系统之执行，以确保食品的安全，其成功与否亦需要依赖：执行的决心、员工训练、积极参与、监测、重要管制点之控管，纪录保持等工作。
Consumers is demanding convince and fast (microwaveable) preparation

Precooked is gaining popularity

Gourmet, often precooked, is starting to appear, often with take out capabilities

Variety and ethnic foods are in demand

Size selection is increasing from single households to banquet

2007
Odors – a good handling system is important and communication with neighbors is critical, don’t haul manure during their outdoor activates.

Waste water, feed lot runoff, liquid manure, silage leakage, getting into ditches and streams, management critical.

Tracking waste onto road – management.

Fish kill down stream – management.

Dead animals in sight – management.
Restaurant consumption is increasing
餐厅进食的人口增加

- Fancy, white table cloth for the affluent and special occasions 新颖、高档的餐饮内容，例如：特别丰盛的餐点或是特别场合及时间之聚餐

- Fast food with variety (hamburger, pizza, chicken, fish, desserts) food and ethnic choices 各式快餐餐厅(例如：汉堡、披萨、鸡肉、鱼肉、甜点及异国美食等)

- Fast food is also trying to cater to the health concupiscence crowd with lower calorie offering and to the over eaters by offering king sizes 快餐餐厅亦有所转变，例如：提供低卡热量之餐点，不同份量需求(例如：King size大份量的餐点提供给食量大之顾客)

- This industry is also driving many reforms such as animal welfare, elimination of some additives, elimination of tars-fatty acids, no smoking and etc. 快餐餐厅受到许多外在因素影响，也必须有所调整，例如：动物福祉考虑、减少特定添加物之添加量、不使用反式脂肪酸、餐厅内禁烟等。
Beverages 饮料

- Beer is favorite drink particularly of the college group, sports enthusiast, physical labors. 啤酒是最受欢迎的含酒精饮料，大学生、球迷及劳工等特别喜欢饮用啤酒

- Wine is gaining in popularity, and is considered a more sophisticated drink. 酒精含量较高之酒类的消费量日增，而且饮酒文化更复杂多元

- Soft drinks are consumed in great quantities, and is usually offered on both sweet and diet formats in a large number of flavors. 软性饮料(指不含酒精之饮料)消费量大幅增加，目前除一般普通甜度外，各种口味的代糖(或低热量)饮料也渐受欢迎

- Coffee and tea is also consumed in large quantities with some coffee houses offering special flavors and internet connections. 咖啡及茶消费量也很大。有些咖啡厅不仅供应各种口味之特调咖啡，也提供消费者网络上网之服务。
Sweets and salted 各式甜、咸点心

- Candy, cookies, cakes, pies in all types of combination and flavors. Available in ready to eat or box mixes or cook at home.

- Peanuts (or other nuts), popcorn, pretzels, potato chips, puffed items often cheese flavored, party mixes, pork rinds are all popular snacks

2007
Frozen foods and TV dinners

Variety here is also important, prepackaged ready to cook (microwave or boil in bag), vegetables, pizza, breads, desserts, meats and meals.多样化非常重要，事先包装好，买回家简单料理(例如：微波炉加热或直接原包装放入热水中加热)即可食用，例如：蔬菜、披萨、面包、点心、肉类及餐盒等

Locker plants have diminished in number but some are still very popular where you can purchase a whole animal, have it cut packaged and frozen to your specifications and take it with you to your locker or rent frozen storage at the plant. “Locker plant”型态的工厂数目日益减少，但仍有部分存在(locker 原亦是指置物柜，此指肉品屠宰加工厂内之低温贮藏库)在厂内，消费者可先购买整头家畜屠体，然后依据消费者个人的喜好与规格要求，进行分切、包装、冻藏，消费者再将其带回家或是存放在工厂内之冷冻库中。
American Agriculture - Animals
by Professor Ockerman & Lopa Basu

From
The Ohio State University
http://photolib.ag.ohio-state.edu/

USDA
http://www.ars.usda.gov/is/graphics/photos/

2007
Round bales of hay
Corn
Soybean harvest
Fermented Feed Storage
Alfalfa-pasture/hay
Angus Beef

2007
Meat
Dairy Calf
Dairy Cows

2007
Young pigs

2007
Sheep
Chicken meat
Fish Farmed Wild

2007
American Agriculture - Buildings
by Professor Ockerman & Lopa Basu

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2007
Farm
Barns
Dairy Farm
Farm
Stairs on side of grain bin
Silos
Silos
Silos & Feed Wagon

2007
Milking Parlor

2007
Equipment Shed
Lighted Greenhouses
American Agriculture – Equipment by Professor Ockerman

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2007
Soil Sampling Equipment
Planting Equipment
Combine
Winrowing wheat
Harvester
Corn harvest
Harvest soybeans
Robot Tomato Picker
Computer for Tractor
Meter for Tractor
Spraying trees

2007
Spraying
American Agriculture - Extension
by Professor Ockerman & Lopa Basu

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2007
Community Development
2007
Introduction to Poultry
Fish Demonstration
Ear tag
Wind Power
Pollution Control

2007
Farm Science Review

2007
Farm Science Review

2007
Farm Science Review
Farm Science Review
Safe Travel
is a decision you make every time you drive

Motorists

Don't follow too closely
Only pass when legal

2007

Slow farm equipment
Safety
4-H Quilt
Bee Keeping

2007
Awards
Dairy Conference
Showing at the State Fair
Ag Day at the University
Volunteerism

2007
Food Pyramid
American Agriculture - Crops by Professor Ockerman & Lopa Basu

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2007
Diesel + Biodiesel – from Soybeans

2007
Spraying Soybeans for Corn Root Worm

2007
Soybean ready for harvest
Mature Soybean

2007
Wheat
Wheat

2007
Bread
Corn

2007
Corn Harvest

2007
Shelled Corn Harvest 2007
Loading Corn

2007
Grain Train

2007
Sweet Corn
Wheat
Potatoes

2007
Pumpkin
Strawberries
Apple and Pear
Tomatoes
Picking tomatoes
Greens

2007
Center
Pivot
Irrigation

2007
Watershed Management
Cotton Stalk Puller
Cotton Harvested 2007