CCEA Newsletter

Volume 8 # 2 **April 1999**

CCEA is a research organization dedicated to the improvement and vitality of the Controlled Environment Agriculture Industry. CCEA is funded by Industrial and Grower Partners who contribute a yearly partnership fee. Satellite partnership is available to growers for a modest fee. Information on CCEA is available from:
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Progress on Open-Roof Greenhouse

Work is continuing on the new MX2 greenhouse despite setbacks in weather and lack of equipment to work easily on the building. At this writing the greenhouse roof section is nearly complete waiting only for the drive motors and shafts to be functional.

Steve Kania, our Horticultural Engineer is doing most of the work with some help from Eugene Reiss, a student currently working on his coursework so he can graduate in May. Occasionally your editor gets involved but scheduling has been a problem recently.

Greenhouse Construction Trends

NGMA, the National Greenhouse Manufacturers Association surveys the amount of new construction each year among its members. In the last 10-year period, they reported new construction was more than 22.7 million square feet in 1986 and 22.5 million square feet in 1994. The curve is continuing to climb, however, for in 1996 new construction topped 25 million square feet.

During this ten-year time period new construction accounted for $49 million dollars in 1986 and $96 million dollars in 1996 of the gross sales of the reporting companies.

NGMA is at 7800 South Elati, Suite 113, Littleton CO.80120

Photo taken by Steve Kania March 3, 1999

Vision Statement

CCEA, The Center for Controlled Environment Agriculture of NJAES of Rutgers University, a partnership among growers, industry and researchers, will devote itself to research and transferring information required for an economically viable and environmentally aware controlled environment agriculture industry. We will particularly strive to identify future trends, critical issues, appropriate emerging technologies and provide leadership for opportunities which challenge world-wide controlled environment agriculture in the 21st century.

"ACESYS III"

Many of our friends remember the conference ACE_SYS sponsored by CCEA and held July 1994 in New Brunswick, NJ. This excellent initial conference featuring combining, Automation, Culture and Environment was an attempt to envision greenhouse production as a system.

Following this, a very successful ACE_SYS II was held in Tokyo Japan in 1996. This conference, sponsored by several Japanese organizations was spearheaded by Dr. Tadashi Takakura who was honored on the occasion of his retirement. This conference built on the successes and accomplishments of ACE_SYS 1.

ACE_SYSIII, whose theme is **From Protected Cultivation to Phytomation** will be held on Friday July 23, 1999 here at Rutgers University in New Brunswick, NJ.

This one-day event, will feature a lecture forum, a "visioning" session, and an evening banquet in honor of William J. (Bill) Roberts who is retiring. This conference offers a unique opportunity to influence the future of Phytomation. ASAE members will note that ASAE International Meeting in Toronto will end on Wednesday, July 21, allowing one-day travel to New Brunswick prior to the CCEA Conference.

The Phytomation Forum will be chaired by Drs. Tadashi Takakura and K.C. Ting. The forum will provide a foundation for the day's program, providing a solid footing and a firm background for the visioning of Phytomation discussion which will follow in the afternoon. It will be the professional highlight of the conference.

The banquet will provide the opportunity for friends to honor Bill. If you will not be able to attend, and wish to submit your best wishes, we will be preparing a "retirement book", which will include congratulatory letters from friends and colleagues.

"ACESYS III" continued

If you would like to offer a short note to be included, please provide this by June 30, 1999. If you are interested in attending the retirement conference [9 a.m. - 6 p.m.], or only the banquet [7 - 10 p.m.], please register on our website:

[http://aesop.rutgers.edu/~ccea/],

or return a message to Gene Giacomelli. A payment of $25 is required for the conference events of the day, and an additional fee of $35 is required for the banquet. Provide check, money order or purchase order, payable to "CCEA, Rutgers University" in U.S. Dollars by June 30, 1999 to:

Ms. Ruth Novak,
Department of Bioresource Engineering,
Cook College,
Rutgers University, 20 Ag Extension Way,
New Brunswick, New Jersey
08901-8500
(732) 932-9753 (Phone)
(732) 932-7931 (FAX).

You will receive confirmation of the registration and information about travel.

Dr. Gene A. Giacomelli
Chair ACESYS III

Roberts Lectures in Crete

Recently your editor had the privilege of again lecturing to the Greenhouse Management and Design, 20-hour, course at MAICH in Chania, Crete. MAICH is the Medeterranean Agronomic Institute of Chania. They are an instuitution with a small faculty. They hire in faculty like myself from around the world to teach their courses. The class of 11 students was from 8 different countries. Armenia, Syria, Jordan, Greece, Algeria, Bulgaria, Romania and Lebanon. You might say it represented the ***United Notions.*** While there I had the opportunity of advising them on some research greenhouse reconstruction and remodeling.

Program of the Day

Cook College Campus Center, Room 202,
8:30-9:00 AM, Registration $25

Phytomation Forum

9:00 AM-1 PM, Room 202,
Session Chairs: Dr. Tadashi Takakura, Nagasaki University, Japan
Dr. K.C. Ting, Rutgers University, USA

9:00-9:30 (1) Automation
Dr. Naoshi Kondo
Okayama University, Japan

9:30-10:00 (2) Culture
Dr. Merle Jensen
University of Arizona, USA

10:00-10:30 (3) Culture
Dr. Toyoki Kozai
Chiba University, Japan

10:30-11:00 (4) Environment
Dr. Lou Albright
Cornell University, USA

11:00-11:20 Break

11:20-11:50 (5) Environment
Dr. John Sager
NASA/Kennedy Space Center, USA

11:50-12:20 PM (6) Systems
Dr. Haruhiko Murase
Univ. of Osaka Prefecture, Japan

12:20-12:50 (7) Commercialization Dr. Irwin Chu
Taiwan Flower Biotechnology, Inc.,
Taiwan

12:50-1:00 (8) Epilogue
Dr. David Mears
Rutgers University, USA

1:00-2:00 PM, Lunch Multipurpose Rm

"CCEA Visioning Discussions"

2:00-6:00 PM, Room 202,

7 -10 p.m. Multipurpose Room
Retirement Banquet
in Honor of Prof. William Roberts
[$35 banquet only]

Creating a Master Plan

Creating a Master Plan for Greenhouse Operations, Rutgers Cooperative Extension publication E221, written by your editor, discusses the necessary components for preparing a master plan and keeping it up to date. This column contains excerpts from this publication. John Hoogeboom, former CCEA partner and president of Agronomico International, contributed significantly to this publication.

"Don't sew a shirt to a button." This is a statement my predecessor, W.C. Krueger who was extension Agricultural Engineer from 1930-1962, always said to someone contemplating growth and expansion in an operation. The older I grow the more I realize that this is very sage advice. People who are the most unhappy after a change are those who altered existing facilities, tried to make them work, and ended up spending as much money as if they had built new, without the benefit of a new facility.

Changes in the greenhouse industry during the past 10-15 years have made greenhouse facilities much more expensive. This makes it necessary to plan the overall design of the facilities with extreme care in order to avoid costly retrofits at a later stage. A comprehensive master plan is required which reflects how the owner/ operator intends the completed facility to look. A key component of the plan is the integration of all the systems and buildings comprising the entire greenhouse system.

For financial reasons, it is usually not possible to include all the desired systems and installations in the initial design of the facility. However, the overall plan should provide that these systems and installations are included and that they can be added at a later date without trouble or high costs.

It is always a good idea to establish priorities and not to compromise in the plan. The priorities and systems selected and included in the first installation should always be options that provide the greatest returns. The 'luxury items' can be added at a later date.

The selection of equipment and facilities to operate the greenhouse is a major and difficult decision. For instance, should a transportable bench system be installed before an excellent heating system? The answer is, unless the greenhouse has an excellently controlled environmental heating and cooling system, don't waste money on a transportable bench system. Consider a greenhouse with transportable benches and a poorly controlled heating system. The produced crop will not be uniform from end to end. Consider the problem of moving transportable benches to the headhouse and having some of the crop ready, some almost ready, and the rest at other stages. How do you handle the crop? Several paths of product travel have to be established. This is expensive, inefficient, and very unprofitable. A transportable bench system must deliver 90-95% uniformity to the headhouse or there will be nightmares with the materials handling system. The answer to the hypothetical questions raised above is, of course, there has to be an excellent heating system installed before a transportable bench system should be considered.

E221 also contains a greenhouse checklist which a grower can use in planning so that all potential equipment and facilities are considered even though they may be added to the operation at a later date.

A good master plan is composed of many components. Considerable thought and evaluation has to be made before the plan is completed and before the intended program of growth or expansion is undertaken. The important issues include a business plan, a site evaluation, an evaluation of the type of growing structures, equipment desired and required and the impact the expansion might have on the community at large. The listed references contain information helpful in preparing a master plan for the grower who would like to enlarge current facilities or erect new ones.

Creating a Master Plan for Greenhouse Operations, Rutgers Cooperative Extension publication E221, is available at modest cost from your editor.

28th National Agriculture Plastics Conf.

May 19-22, 1999

Ramada Inn Tallahassee Florida.

This conference features research presentations on the use of plastics in Agriculture and trade show exhibits. Several tours are planned, to see the vegetable industry and the greenhouse and ornamental industry.

Information is available from ASP

Ms Pat Heuser

526 Brittany Drive

State College PA, 16803

Tel 814 238 7044

Recent articles written by your editor.

- Storage Principles and Quality Assurance P03130-04-99.
- Open Roof Plastic Greenhouse Design Scenario P03130-05-99.
- Managing the Greenhouse Environment for Ventilation and Cooling P03130-07-99.
- Greenhouse Facilities Expansion P03130-08-99
- Greenhouse Design P03130-09-99
- M&M'S of Energy Conservation P03130-10-99

Some of these publications are extensive re-writes of existing articles and others were prepared specifically for proceedings of conferences.

Individual copies are available free of charge to CCEA partners and Scientific Advisory Panel members.