



10th International Conference
on

**Controlled Atmosphere and
Fumigation in Stored Products**

7-11 November 2016

at
Hotel The Ashok
Chanakyapuri, New Delhi 110 021



PREAMBLE

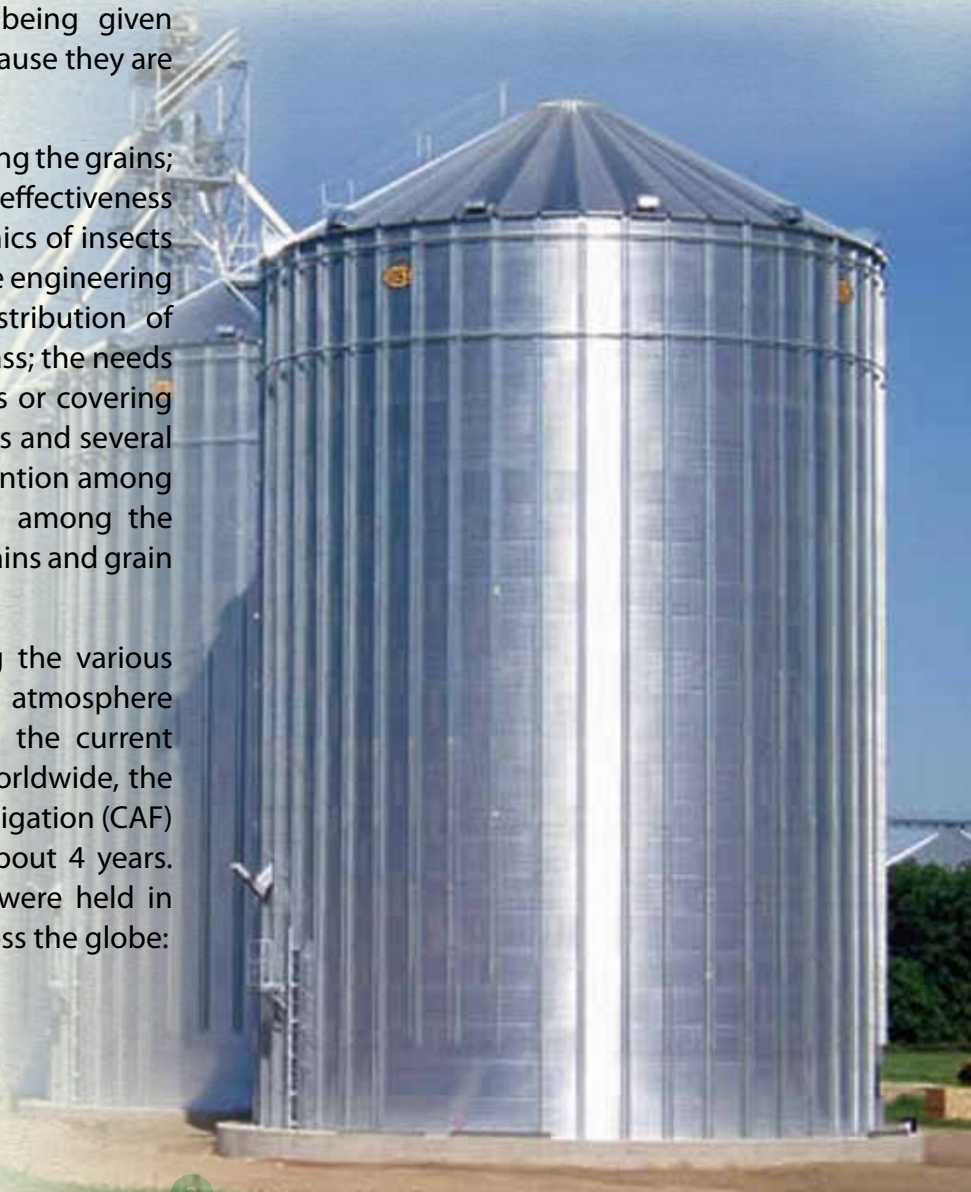
Maintaining food supplies throughout the year necessitates storing the grain safely for periods ranging from few days to several months. Storage is an inevitable intervention in the postharvest system. The duration of stay in storage warehouses depends on market demand, need for maintaining buffer stocks and processing requirements.

Stored grains are fumigated using chemicals, generally phosphine or combinations of phosphine and other gases to protect them from spoilage. Application of chemicals on stored grains are discouraged because of the residues they leave on the grain and the increasing resistances of insects against the chemicals. Controlled atmosphere storage using gases like carbon dioxide or nitrogen are also being given greater attention worldwide because they are safer than chemicals.

Choice of protectants for saving the grains; the methods of application; the effectiveness of applied chemicals; the dynamics of insects against the grain protectants; the engineering aspects of application and distribution of protectants within the stored mass; the needs for sealing the bulk storage bins or covering effectively the bag storage stacks and several such issues demand greater attention among the researchers worldwide and among the government agencies storing grains and grain storage managers.

To create awareness among the various stakeholders on controlled atmosphere and fumigation and to update the current developments on the subject worldwide, the Controlled Atmosphere and Fumigation (CAF) conferences are held once in about 4 years. The previous CAF conferences were held in the following various places across the globe:

Year	Venue
1980	Rome, Italy
1983	Perth, Australia
1989	Singapore
1992	Winnipeg, Canada
1996	Nicosia, Cyprus
2000	Fresno, USA
2004	Gold-coast, Australia
2008	Chengdu, China
2012	Antalya, Turkey



DATE AND VENUE

Conference Dates

7- 11 November 2016

Conference Venue

Hotel The Ashok, 50 B Diplomatic Enclave,
Chanakyapuri, New Delhi-110021, INDIA

OBJECTIVES

- Understanding the problems of and updating the current scientific advancements on the controlled atmosphere and fumigation techniques worldwide.
- Creating a confluence of internationally known contemporary leaders in the science of controlled atmosphere and fumigation and sharing their experiences.
- Interfacing industry and academia, learning from each other and deciding the future directions of research and development in the subject.

IN ASSOCIATION WITH

Indian Council of Agricultural Research

The Indian Council of Agricultural Research (ICAR) is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India. Formerly known as Imperial Council of Agricultural Research, it was established on 16 July 1929 as a registered society under the Societies Registration Act, 1860 in pursuance of the report of the Royal Commission on Agriculture. The ICAR has its headquarters at New Delhi. The Council is the apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. With 101 ICAR institutes and 71 agricultural universities spread across the country this is one of the largest national agricultural systems in the world. The ICAR has played a pioneering role in ushering Green Revolution and subsequent developments in agriculture in India through its research and technology development.

CAF Permanent Committee

The International CAF Permanent Committee (PC) is a voluntary organization and has been an influential organization in attracting many researchers around the world and its Proceedings are valuable scientific publications that contribute very much to our knowledge to the development of novel technologies on fumigation and controlled atmospheres of stored products. CAF PC is currently composed of 17 active members representing 12 countries, for more information and about previous CAF Conferences Proceedings please visit the CAF website: <http://ftic.co.il/caf-en.php>

Indian Society of Agricultural Engineers

The Indian Society of Agricultural Engineers (ISAE) was established in 1960. The specific objectives of ISAE are: to strengthen the

Society by promoting programs of professional interest; to facilitate larger participation of the members in professional activities and ensure continuity in membership; to organize regional conferences, seminars and symposia on topics of current interest; to prepare special study reports related to Agricultural Engineering as applicable to a region and to disseminate information about Agricultural Engineering programs and employment. The Society publishes two Scientific Journals namely Journal of Agricultural Engineering (JAE) and Agricultural Engineering Today (AET). Both are being published quarterly.

The Entomological Society of India

Entomological Society of India was established in 1938. The main objective of the Society is to encourage and promote the dissemination of entomological knowledge. It arranges meetings of entomologists at the

headquarters and at various places where the branches of the Society are located. These meetings provide opportunities to the members and others interested in the subject to keep in touch with the entomological activities, both in India and abroad. The membership of the Society is open to all persons, above 18 years of age, who are interested in Entomology. The society also publishes journals such as:

1. The Indian Journal of Entomology published quarterly.
2. Memoirs-sixteen such Memoirs on different topics have been published so far.
3. The Bulletin of Entomology published half yearly. Entomologist who wishes to publish lengthy manuscripts can publish in this Bulletin.

CONFERENCE SESSIONS & SCIENTIFIC TOPICS

1. Biological responses of organisms to CA and fumigants

- Responses of insects, mites, microflora and other bioagents
- Ecology, population and development
- Metabolism and physiology
- Toxicology and mode of action
- Interaction of CA-fumigants

2. Quality preservation, safety and protection of the environment

- Effect of CA and fumigants on quality of stored products
- Fumigant residues on products
- Safety apparatus or equipment
- Protection of the environment, human health issues
- Cargo safety associated with plant quarantine treatment technique and method
- Fumigation techniques and safety issues
- Residue treatment and waste disposal

3. Methyl bromide alternatives and novel fumigants

- Alternative treatments for commodities, space and structures
- Alternative treatments for non grain treatments, such as beverages (coffee and cocoa), bulbs, seeds, herbs and spices
- Alternative treatments for quarantine
- MB recovery techniques; scrubbing / recapture / reuse technology

4. Fumigant application technologies

- Fumigants and other gases application technology
- Flour / rice mill fumigation
- Warehouse/ Museum/ structural fumigation
- Improved application methods and technologies
- Vacuum fumigation
- Gastight chamber fumigation and CA application

5. CA and hermetic storage application technologies

- Application of CA or hermetic storage on non grain commodities such as beverages (coffee and cocoa), bulbs, herbs and spices
- Application of CA or hermetic storage in rigid structures
- Application of CA or hermetic storage in flexible structures
- Application of CA or hermetic storage for subsistence agriculture

6. Sealing techniques for CA / fumigation

- Sealing materials and techniques
- Storage design to facilitate application of CA and fumigants
- Pressure testing of chambers, containers and facilities
- Control technologies for CA and fumigants
- Affordable, usable fumigation sealing practices

7. CA/ fumigation engineering aspects

- Modelling gas flow, distribution and loss
- Gas supply
- Gas monitoring techniques
- Fumigant generators
- Recirculation of gas
- Optimising sealing and gastightness
- Fumigant dosage calculation

8. Insect resistance to fumigants and pest management strategies

- Resistance to fumigants and other pesticides
- Management of pesticide resistance
- Monitoring, surveys and detection methods for pesticide resistance

9. Quarantine and regulatory issues

- Registration status of new products
- Label review and re-registration status of existing products
- Quarantine and pre-shipment (QPS) regulations (ISPM-15, ISPM-28, etc)
- Methyl bromide phase-out status (Critical Use Exemptions, carryover stocks, etc)
- Montreal Protocol and International Plant Protection Convention coordination efforts

- Fumigant emissions, emissions profiles, and buffer zone requirements
- Regulatory issues affecting CA and fumigant adoption and use in various countries

10. Integrated commodity CA management

- Loss assessment in relation to CA and fumigation
- Decision support systems
- Integration of CA / fumigation with the other techniques
- Economics of CA / fumigants
- Use of ICT (mobile devices, expert systems, imaging) for improving fumigation, traceability, etc

11. Storing commodities in coastal and tropical climates

- Dealing with high temperature and moisture content
- Economics of storage
- Integration of CA / fumigation with the other techniques
- Issue caused by high humidity
- Impact on commodity transportation
- Research needs for coastal regions

12. Traditional storage systems

- Local practices and traditions
- Potential problems encountered during storage
- Innovative solutions implemented in different regions
- Economics of bulk storage in India and challenges
- Traditional storages globally

PROPOSED CONFERENCE WORKSHOPS

1. CAP (Cover and Plinth) storage and fumigation techniques
2. Management of stored products against losses
3. Management and logistic protocols for safe handling and international transport of grains
4. Grain quality measurement techniques
5. Converting existing bag storage structures to bulk handling facilities
6. Contingency storage and distribution techniques

ABSTRACT SUBMISSION

Visit conference website <http://caf2016.org/abstract.jsp> for online submission of abstracts.

REGISTRATION FEES

International Participants	USD 500
Indian Participants	INR 15000
International Students	USD 100
Indian Students	INR 5000
Companies who require display stall space (10'x10')	USD 1000
Least Developed Countries	USD 230

After July 15, 2016 the registration fee will increase by USD 50 for all categories of delegates.

After September 15, 2016 the registration fee will increase by USD 100 for all categories of delegates.

MODE OF PAYMENT

WIRE TRANSFER/ON-LINE BANK TRANSFER

Account Name	Entomological Society of India
Account No.	033201004840
Bank Name	ICICI Bank Ltd
Bank Address	W-2/6 West Patel Nagar New Delhi 110008
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MULTICITY CHEQUE/DEMAND DRAFT

Multicity Cheque or Demand Draft may be drawn in favor of Entomological Society of India payable at New Delhi (India) and sent to Dr Devinder Dhingra, Principal Scientist (Process Engg.), 411, KAB-II, Indian Council of Agricultural Research, Pusa, New Delhi – 110012.

DATES TO REMEMBER

Details	Date
Paper Submissions	
Last date for submission of Abstracts	Feb' 29 2016
Communication of decision on acceptance of Abstracts	Mar' 15 2016
Submission of Full Manuscripts by authors	May 12 2016
Feedback to authors after peer review	Jul' 01 2016
Deadline for payment of registration fee by at least one author for inclusion of the accepted paper in the conference proceedings and in the final program	Sep' 01 2016
Submission of final revised Manuscript	Sep' 15 2016
Participation & Registration	
Deadline after which the announced registration fee will increase by \$50 for each category of delegates	Jul' 15 2016
Deadline after which the announced registration fee will increase by \$100 for each category of delegates	Sep' 15 2016



SPONSORSHIP OPPORTUNITIES

- Sponsoring workshops
- Sponsoring technical sessions
- Hosting conference banquet dinner
- Hosting individual lunch/dinner
- Hosting individual days
- Hosting technical trips
- Hosting kits
- Platinum sponsor – Rs. 5 lakh
- Diamond sponsor – Rs. 3 lakh
- Gold sponsor – Rs. 1 lakh

For Sponsorship Opportunities email enquiries to: caf2016@icar.gov.in

ACCOMMODATION

The Official Venue of the Conference is,

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