CIEC

The International Scientific Centre of Fertilizers
Organization • Aims • International Conferences and Publishing

A historical Review Part I
1933 – 1997

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INTERNATIONAL SCIENTIFIC
CENTRE OF FERTILIZERS (CIEC)

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(pictures and documents are assembled on this website in the "Time Line of CIEC")

WHAT IS CIEC?

CIEC is a non-profit and non-governmental international scientific society engaged in the following fields:
– Plant nutrition and plant nutrient cycles in various land-use systems for food, commercial and energy plant products
– Soil testing for plant nutrient assessment and fertilizer demand
– Evaluation, application and technology of fertilizers (mineral and organic)

As an association of scientists, scientific institutions, fertilizer industries and trade companies, agricultural consulting services and any other fertilizer-minded institution or person, CIEC is a centre for international studies and activities experienced with the whole cycle of plant nutrients and their dynamics in the soil-plant system.
By organizing international meetings such as congresses and symposia in particular concern of fertilizers as means for improving yield, crop quality, soil fertility and sustainability of land-use management, CIEC holds the function of a bridge between science, agricultural services, fertilizer industries and practice.

CIEC'S AIMS

There is a great need for food in the world. By the end of the century, shortage of land will have become a critical constraint for about 2/3 of the population of the developing countries.
Up to the year 2000, the amount of arable land available in these countries is expected to fall from 0.37 to 0.25 ha/head. The most difficult situations are in Africa, in Asia and in the Pacific. The necessary increase in food production requires more plant nutrients due to its continued exploitation non-productive by crop removal accompanied by unavoidable non-productive losses on cultivated land by erosion, leaching and emmissions into the atmosphere. Furthermore, urban waste and waste water – rich in plant nutrients – need more consideration for their recycling by waste-processing, upgrading and evaluation (composts, etc.).
In all these problems, CIEC plays its role for optimizing fertilizer production and fertilizer consumption in all parts of the world.

HISTORY of CIEC

Nearly 65 years have elapsed since the memorable First International Conferences on Chemical Fertilizers (Rome 1932 and Amsterdam 1933), and it was at that time that delegates from 29 countries (Australia, Belgium, Brazil, British India, Canada Czechoslovakia, Denmark, the Dutch East Indies, Egypt, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Latvia, Marocco, Norway, Peru, Poland, Puerto Rico, Romania, Sweden, Switzerland, Rep. of South Africa, USA and Yugoslavia) decided to establish an association dealing with the scientific and technical aspects of chemical fertilizers. After a preparatory phase and thorough plunning, and in connection with the 2nd International Conference in Amsterdam (1933) the organization was definitely founded under the name: **Centre International des Engrais Chimiques (CIEC)** with headquarters in Rome (Technical Director) and Zurich (President and Secretary General).
One year later, a 3rd International Conference had already been organized in Berne (1934).
The first World Congress of the new foundation was held 1938 in Rome. In four sessions the economics, production, distribution and consumption of commercial fertilizers were discussed an a world-wide scale.
In those early days of CIEC's activities important contributions on the role of mineral fertilizers for the improvement of agricultural production were made by the first Secretary General, Prof. **Franco Angelini**, from the University of Naples and CIEC's first President, Dr. **E. Feisst**, Minister of the Swiss government in Berne. Both have formed CIEC to a respected international scientific centre dealing with fertilizers.
The Society's budding continuity of work was interrupted by World War II for nearly 10 years. Again it were the initiatives of Prof. Angelini and Dr. Feisst to organize the IInd World Congress of CIEC for 1951 in Rome, after foregoing gatherings and meetings of preparatory character in Zurich (1949) and Paris (1949 and 1950). The main subject of this congress was connected with problems of fertilizer production and manufacturing, methods of fertilizer use, and the effects of fertilizers on microorganisms in the soil and on human and animal health.
Apart from the regular conferences, a special meeting of CIEC (3rd General Assembly) had been organized in 1953 in Darmstadt on the occasion of the 150th anniversary of the birth of Justus von Liebig. It was the President of CIEC, Dr. E. Feisst, who was asked by the festive committee to present the ceremonial speech.

The IIIrd World Congress of CIEC took place at Heidelberg in 1957. It was a very spectacular event and intensively accompanied by press commentaries with a considerable echo in the public. The congress was held under the

patronage of the Minister of the German Federal Ministry of Nutrition, Agriculture and Forestry, Dr. h. c. H. Lübke. Congress president was Prof. Dr. **Ludwig Schmitt**, long-standing President of VDLUFA (Association of the German Agricultural Experiment and Research Stations).
The main task of this large congress in Heidelberg was to give account of the results of the first century of modern fertilizing measures. 28 leading experts from almost every continent of the world dealt with the problems concerning the increase of soil fertility and its maintenance by fertilization. The effects of macro- and microelements on plant life, their decisive influence on the quality, and the nutritive value of the agricultural and garden pro ducts were the focal points of the discussions as well as the economic effects of modern fertilizing measures.
To be mentioned here is a plenary paper of the Nobel Prize winner, Prof. Dr. **A. I. Virtanen**, Helsinki with the title: „Our system of manuring in the light of modern nutritional research". His lecture was a high light of the Congress program.
It is also noteworthy to mention that the President of CIEC, Minister Dr. E. Feisst, was honored at this Congress with the „SPRENGEL-LIEBIG Medal" in Gold, the highest award of VDLUFA conferred for outstanding merit in Agricultural Chemistry.
The next CIEC World Congresses after Heidelberg was organized in 1961 in Opatija (Yugoslavia), 1964 in Zürich and 1968 in Lisbon. Expecially, it was the latter, at which the main subject was focussed on principles and aims of „Fertilizer Extension Services" as a bridge between the interests of the fertilizer industries and the farmers as fertilizer applicants.
The World congress in Portugal was organized under the new CIEC President, Ing. agr. **Rafael Montjardino**, who was elected President at the 9th General Assembly in 1964 in Zürich after Minister Dr. E. Feisst had announced his retirement due to his age.
As the election of Mr. Montjardino was preferentially oriented at the VIth World Congress in Lisbon, and by reason of his declaration to be at disposition in this function only for one term of office, the General Committee of CIEC had to increase the concern at the next election for the aspect of a permanent practice in this essential function.

At the 11th General Assembly, held in 1969 in Geneva, as consequence of the conclusion of the General Committee previously, Prof. Dr. **D. Dj. Jelenic** from the University of Belgrade-Zemun was elected President of CIEC and Prof. Dr. **E. Welte** from the University of Goettingen Vice-President responsible for publishing activities, research programming and conference planning.
New activities were programmed and the necessary preparations for the VIIth CIEC World Congress realized with Prof. Dr. **A. Zeller** from the Agricultural University in Vienna.
The congress was based on a separate concern of the different fertilizer problems in the highly developed and in the developing countries. Corresponding with this subdivision, the subject of this congress was titled „Fertilization in the face of abundance and dearth". The meeting was attended by more than 300 participants from 29 countries.
It is remarkable that in the discussions one of the viewpoints was concentrated intensively on water pollution and eutrophication problems caused by an inadequate application of fertilizers and/or overfertilization.

What the VIIth CIEC World Congress has demonstrated at a relatively small scale came once more into the focus in a prominent manner at the VIIIth CIEC World Congress held in 1976 in Moscow with the title „Fertilizer – Harvest – Nature". This congress was subdivided into 8 sections as follows:
– The theory of plant nutrition and world practice of effective fertilizer application (80 papers)
– Mechanization of fertilizer application (15 papers)
– Agrochemical services (10 papers)
– Chemization of agriculture and environment control (34 papers)
– Fertilizers and crop quality (68 papers)
– Economics of fertilizer production and application (23 papers)
– Production technology and agrochemical evaluation of new forms and types of fertilizers (36 papers)
– Atomic technique in chemization of agriculture (30 papers)

About 3000 delegates – nearly half coming from foreign countries – attended the Congress.
The scientific discussions on the role of fertilizers for higher plant production and better food quality became a real driving force-initiating and accelerating the manufacturing of mineral fertilizers in the Soviet Union.

Due to this very efficient congress the ensuing years were marked by a strong interest on the part of fertilizer companies of numerous European countries in membership of CIEC.
Another milestone, necessary to be mentioned in the history of CIEC is the 50th anniversary organized as IXth CIEC World Congress in 1984 in Budapest.

The great value of effective contacts between CIEC as a non-governmental international organization (NGO) with the governmental ones (such as FAO, UNEP, UNESCO, UNIDO, IAEA etc.) was pointed out once more at this joint conference with the Hungarian Academy of Sciences, the Hungarian Society of Agri cultural Sciences, the Hungarian Soil Science society and the Federation of Technical and Scientific Societies of Hungary (MTESz).
Scientists from 35 countries contributed with new ideas on the congress subject - ideas of great importance in the field of interactions between mineral fertilizers, the function of trace elements, novel fertilizers, granular formulations, liquid fertilizers etc. New techniques in fertilizer application and the use of modern machinery in the distribution of fertilizers, effects of fertilizers on plant quality and the environment, economics in fertilizer use, better methods in extension services were the main subjects put into the focus of discussions.
The President of the Congress was the Hungarian Academician Prof. Dr. **I. Lang**.

Welcoming speeches of representatives of FAO, UNEP and the International Soil Science Society (ISSS) underlined the highly qualified subject of this successful CIEC Congress.

With increasing industrialization in Europe, a severe problem came up which did not favor improvements of cropping by fertilization. That was the pollution of waters and ground water reserves, for which the attained high level of fertilizer use was mainly made responsible. Especially, commercial nitrogen fertilizers came into the focus of public critics. Later on, after intensive studies of this phenomenon, additionally polluters of industrial and urban origin (waste waters) were recognized to be a decisive cause for the pollution of the waters as well as the atmosphere, supplemented by liquid organic waste (slurries) originating in an animal production of an industrial scale which is based on fodder imported from overseas.
By the non-agricultural animal husbandry the use of commercial mineral fertilizers has been strongly restricted and increasingly replaced by animal waste (excreta).
Moreover, the progressive growth in the production of meat, milk and eggs at an industrial scale by using fodder from abroad, an overproduction of food became a real economic and ecological problem. The political measures in Europe to reduce food production, even in the face of growing hunger in the Third World, are well known.
As an unavoidable consequence of this development, and because of other problems lying in the economic structure of the international trade, the fertilizer industries in Europe declined. This explains the reduced level of CIEC's activities since then.
But despite this negative tendency CIEC organized the Xth World Congress in 1990 in Nicosia/Cyprus. In a successful co-operation with the Agricultural Research Institute of the Ministry of Agriculture and Natural Resources of Cyprus, attention was focussed on urgent subjects dealing with „Efficient fertilization, manuring, and irrigation for improving yield, food quality, and renewable resources." President of the congress was Dr. C. S. Serghiu and Secretary General Dr. I. Papado-pulos. About 350 representatives from 51 countries attended, presenting 125 papers as oral or poster contribution. The congress was a great success.

One year later (in 1991) the sudden death of CIEC's long-standing president yugoslavin Prof. Dr. Dj. Jelenic was a heavy blow - and additionally so with the outbreak of the civil war in during 1992 and the confiscation of the General Secretariat's bank accounts in Belgrade by the official government of former Yugo slavia.
Having consolidated its activities at the 19th General Assembly in June 1996 in Vienna by the election of Prof. **Christian Hera** from Romania as the new President and 28 new staff members, the organization is again in a progressive phase, fulfilling according to its statutes the objectives of a well-balanced plant nutrition. The maintenance of a crop production in sustainable conditions as already requested since the establishment of *Agricultural Chemistry as a science* in 1840 is the essential aim – namely, to compensate the nutrient removal from the soil by cropping and the unavoidable losses through soil cultivation (erosion, leaching, denitrification) by the application.
In view of the challenge caused by the increasing world demand for more food to fill the gap of hunger and malnutrition in the developing countries *Fertilizer Science* will again become a fundamentally important discipline to work out suitable and adequate measures of compensation for the increasing „export of plant nutrients" from the soil.
Such a challenge requires a new protocol on the part of CIEC, that is built on an infrastructural change an staff renewal as realized by innovative directions created already on the 19th General Assembliy of June 1996 in Vienna.

Despite a long depression period (1990 - 1996), CIEC has organized numerous international meetings: The 7th symposium on „Agroforestry" 1994 in Berlin with about 150 representatives of 18 nations, and in the same year, the 8th symposium „Fertilizers and Environment" in Salamanca/Spain (about 200 participants from 28 countries). In 1995, the 9th symposium was mainly oriented by special fertilizer problems in the Near East regions and was held in

Kusadasi/Turkey. This successful conference was frequented by representatives from 12 countries.
The 10th symposium was organized as a joint conference together with the Institute of Plant Nutrition and Soil Science of the German Federal Agricultural Research Centre (FAL) in Dec. 1996 in Braunschweig/Germany. In concern of the urgent problems dealing with recycling of industrial waste, this symposium was engaged in the subject „Recycling of plant nutrients from industrial processes“ and frequented by experts submitting numerous papers.

In view of the tremendous work load necessary to organize all these conferences, and the publishing of their corresponding Proceedings during this depression period, it becomes evident, what a small but highly-qualified and fully motivated international scientific staff, operating on a voluntary base, is able to accomplish. This is only possible due to an idealistic attitude and scientific responsability of its members.

Throughout a long tradition of about 65 years, CIEC works as a „brain trust“ having organized all these international meetings mostly as joint conferences together with well-known scientific institutions of universities, academies and state research centres.

CIEC again offers a great opportunity to engage in overcoming the world-wide problems of hunger and malnutrition, and to fight for the realization of sound agricultural scientific findings as an efficient tool to assure a living for everybody in tolerable human conditions.
CIEC is well aquainted with these great problems connected with an adequate management of fertilization and type of fertilizer application for the maintenance of a sustainable agricultural production as well as soil fertility.

The central aspect of CIEC's activities is based – as in the past – on the conception of Liebig, in which the replacement of all nutrients removed by soil cultivation through harvesting (productive loss) and unavoidable non-productive losses (erosion, leaching, volatilization) is the only measure to maintain the nutrient equilibrium. This process was put into the focus of the XIth CIEC World Congress held from 7–13 September, 1997 in Gent/Belgium as a joint conference together with the Faculty of Agricultural and Applied Biological Sciences of the University. The Congress was attended by more then 300 scientists from 67 countries. Prof. O. van Cleemput was President of the Congress and Prof. G. Hofman Secretary General.

In concern of the nutrient cycle – being the comprehensive basic concept of this congress – it is very clearly and convincingly shown that a sustainable management of agricultural production is not applicable without an adequate fertilization in accordance with the following formula (statical aspect):

$$N = (N_F + N_Y) - (N_L + N_R + N_I + N_W)$$

whereby N = nutrient and
N = fertilizer demand for maintenance of nutrient equilibrium,
N_F = nutrient removal by the crop,
N_Y = nutrient removal by erosion, leaching, volatilization,
N_L = nutrient release from weathering and mineralization,
N_R = nutrient input by immissions,
N_I = nutrients from crop residues remaining on the field.
N_W
The demographic development and the continuous growth of the market for cash crops make the compensating nutrient input by fertilization a „condition sine qua non“.
Therefore, more scientific activities and propagation of these measures is a very important and urgent task.
The operative goal of the future program of CIEC is aimed at two essential aspects - firstly, at *the soil-plant system* as a whole in relation to its provision with a sufficient pool of rootavailable nutrients in different stress conditions of nutrient outputs by harvesting and non-productive losses - and secondly, a critical *evaluation of all fertilizing materials* in concern of their suitability for restoring the nutrient pool of the soil in an adequate form and quality.
Within this concept, recycling processes dealing with waste and waste waters of various origin will play an essential role in the future fertilizer policy, in order to bring them back to the soil/plant system as suitable and standardized commercial fertilizers.

The nutrient balance equation reveals problems wich are decisive to the survival of mankind. This may be focussed on a world-wide scale as follows:

– The increasing demand for food caused by the steady world population growth is responsible for the increasing „export of nutrients“ from the soil. This gap must be filled by suitable nutrient containing materials from outside (fertilisers) in order to maintain or even to improve the soil yield potential.
– The „non-productive“ nutrient losses which are related to erosion, leaching, fixing or atmospheric emissions. and which regularly accompany cropping management of cultivated soil, must be more efficiently monitored and reduced.
– The content of plant nutrients and harmful substances in the processed materials originated from recycled wastes and waste waters must be monitored by appropriate analytical methods and certified before being permitted to enter the commercial market and to apply to the soil.
– A controlled adaptation of fertilizers and their dosage in relation to the specific requirement of soil type, kind of crop on the basis of soil testing and the assessment of crop nutrient demand in optimum application conditions (placement, splitting, timing and fertilizer properties).
Thes tasks are a permanent challenge to CIEC's strategy and will be treated preferentially in its international joint meetings as Symposia or World Congresses according to
CIEC's tradition since its foundation in 1933 and long-standing experience in favor of fertilizer science and the welfare of mankind.

MEMBERSHIP

CIEC - as the oldest and most experienced international scientific organization of non-governmental character taking care of a sustainable nutrient management of soil for food production since its foundation in 1933, has now widened its activities by establishing *National Branches* in all countries, chiefly interested in strengthening their own natural resources for food production. The branches are part of a developing network of international relationships and cooperation concerning new findings, further achievements and research progress in the fertilizer field.
Therefore, membership in CIEC is a good business card for your own active work, enabling you to disseminate your own scientific contributions world-wide in a very effective manner.

For further information on membership, contact the General Secretariat.

General Secretariat of CIEC

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CIEC - its international conferences

Since 1932

A) International Conferences, World Congresses and General Assemblies

1932	1. International Conference	Rome
1933	2. International Conference	Amsterdam
1934	3. International Conference	Berne
1938	I. World Congress	Rome
1949	1. General Assembly	Zurich
1951	II. World Congress	Rome
1952	2. General Assembly	Bad Kreuzmach
1953	3. General Assembly	Darmstadt
1953	4. General Assembly	Rome
1954	5. General Assembly	Zurich
1956	6. General Assembly	Belgrade
1957	III. World Congres	Heidelberg
1960	7. General Assembly	Lisbon
1961	IV. World Congress	Opatija
1962	8. General Assembly	Portici
1964	9. General Assembly	Zurich
1964	V. World Congress	Zurich
1966	10. General Assembly	Warsaw
1968	VI. World Congress	Lisbon
1969	11. General Assembly	Geneva
1971	12. General Assembly	Bucharest
1972	13. General Assembly	Baden/Vienna
1972	VII. World Congress	Baden/Vienna
1974	14. General Assembly	Madrid
1976	VIII. World Congress	Moscow
1976	15. General Assembly	Göttingen
1979	16. General Assembly	Benghazi
1984	17. General Assembly	Budapest
1984	IX. World Congres	Budapest
1990	X. World Congress	Nicosia
1990	18. General Assembly	Nicosia
1996	19. Gen. Ass. (Statutes)	Vienna
1997	XI. World Congress	Gent

B) International Symposia

1977 1.Symposium „Liquid Fertilizers - a Solution for the Future?“ Febr. 2, 1977 Vienna
1978 2. Symposium „Efficient Fertlizer Use in High Productive Agriculture“,
April 27-28, 1978 Vienna
1979 3. Symposium „Water and Fertilizer Use for Food Production in Arid and Semiarid Zones“
Nov. 26 – Dec. 1, 1979 Benghazi
1987 4. Symposium „Agricultural Waste Management and Environmental Protection“
May 11-14, 1987 Braunschweig
1987 5. Symposium „Protection of Water Quality from harmful Emmissions, with special regard to Nitrate“
Sept. 1 – 4, 1987 Balatonfüred
1990 6. Symposium „Allelopathy in Agriculture“
Oct. 27, 1990 Nicosia
1994 7. Symposium „Agroforestry and Land Use Change in Industrialized Nations“
May 30 – June 2, 1994 Berlin
1994 8. Symposium „Fertilizers and Environment“ Sept. 26 – 29, 1994 Salamanca
1995 9. Symposium „Soil Fertility and Fertilizer Management - Bridge between Science, Industry and Practice“
Sept. 25–30, 1995 Kusadasi
1996 10. Symposium „Recycling of Plant Nutrients from Industrial Processes“
Dec. 9 – 11, 1996 Braunschweig

CIEC - its publishing activities

I. Publications before 1976 Out of print

II. Publications since 1976

Abstracts in English of all 196 lectures presented at the
VIIIth World Congress of CIEC in Moscow, 21–27 June, 1976
1977, 240 pp. Out of print

Proceedings of the 1st CIEC Symposium on
Liquid Fertilizers - a Solution for the Future?
1977, 144 pp. ISBN 3-88452-605-7

Proceedings of the 3rd CIEC Symposium on
Water and Fertilizer Use for Food Production in Arid and Semiarid Zones
held at Benghasi, Libya, 26. Nov. – 1. Dez. 1979 under the joint auspices of CIEC and Garyounis University, Benghasi.
1981, 357 pp. Out of print

Documentation of worldwide literature on
Irrigation and Fertilization
in the decade 1970 – 1979 with an appendix of research projects on irrigation sponsored by the European Communities and an author index.
1981, 370 pp. Out of print

Proceedings of the 9th CIEC World Fertilizer Congress on
Fight Against Hunger Through Improved Plant Nutrition
held at Budapest, Hungary, 11 – 16 June, 1984
1985, vol. 1, 285 pp. Out of print
vol. 2, 508 pp. Out of print
vol. 3, 552 pp. Out of print

Proceedings of 4th CIEC Symposium on
Agricultural Waste Management and Environmental Protection
Joint Conference of the International Scientific Centre of Fertilizers (CIEC) and the German Federal Agricultural Research Centre (FAL)
held at Braunschweig-Völkenrode, Fed. Rep. of Germany, 11 – 14 May, 1987
1988, vol. 1, 512 pp. Out of print
vol. 2, 448 pp. Out of print

Proceedings of the 5th CIEC Symposium on
Protection of Water Quality from Harmful Emissions with Special Regard to Nitrates
Joint Conference of the International Scientific Centre of Fertilizers (CIEC) together with the Hungarian Society of Agricultural Sciences (MAE) and the Hungarian Hydrological Society (MHT)
held in Balatonfüred, Hungary, 1 – 4 September, 1987
1989, 432 pp. Price 44,00 DM ISBN 3-88452-625-1

Proceedings of the Xth World Fertilizer Congress on
Efficient Fertilization, Manuring and Irrigation for Improving Crop Yield, Food, Quality and renewable Resources
held at Nicosia, Cyprus, 21 – 27 October, 1990
1993, 596 pp., Price 58,00 DM ISBN 3-88452

Proceedings of the 7th CIEC Symposium on
Agroforestry and Land Use Change in Industrialized Nations
Joint Conference of the International Centre of Fertilizers (CIEC) together with the Technical University Cottbus and the Institute of Forest Ecology, Eberswalde held at Humboldt University Berlin, Germany, May 30 – June 2, 1994
1994, 657 pp. (42 contributions) ISBN 3-88452-628-6

Proceedings of the 8th CIEC Symposium on
Fertilizers and Environment
held in Salamanca, Spain, 26 – 29 September, 1994
1996, in: Developments in Plant and Soil Sciences, Vol. 66,
Kluwer Acad. Publishers, Dordrecht, Boston, London
ISBN 0-7923-3729-8

Proceedings of the 9th CIEC Symposium on
Soil Fertility and Fertilizer Management
Joint Conference of the International Centre of Fertilizers (CIEC) together with Adnan Menderes University Aydin and Gazios-manpasa University Tokat
held at Kusadasi-Söke/Turkey, 25 – 30 September, 1995, 422 pp. (54 contributions) ISBN 975-7328-09-X

Proceedings of the 10th CIEC Symposium on
Recycling of Plant Nutrients from Industrial Processes
Joint Conference of the International Centre of Fertilizers (CIEC) together With the Federal Agricultural Research Centre, Braunschweig-Voelkenrode
held at Federal Agricultural Research Centre, Braunschweig-Voelkenrode, Germany,
December 9 – 11, 1996, 273 pp. (30 contributions)
ISBN 3-9800475-7-1

Proceedings 11th Int. Symposium of CIEC : Schnug, E. and Fotyma, M. eds. (1998) Proceedings 11th Int. Symposium of CIEC Codes of Good Fertilizer Practice and Balanced Fertilization, JUNG Pulawy, Poland.