

14th World Fertilizer Congress

*Fertilizers and Fertilization:
Stewardship for Food Security, Food Quality,
Environment and Nature Conservation*

ABSTRACT



*Chiang Mai, Thailand
22-27 January 2006*

programme

Support Organization of the 14th World Fertilizer Congress

Thai Agencies

Land Development Department (LDD)

Department of Agriculture (DOA)

Department of Agriculture Extension (DOAE)

Kasetsart University (KU)

Soil and Water Conservation Society of Thailand (SWCST)

Soil and Fertilizer Society of Thailand (SFST)

International Agency

The International Scientific Centre for Fertilizers (CIEC)

Preface

On behalf of the Organizing Committee of **the 14th World Fertilizer Congress**, we would like to extend our warm welcome to all of your contribution to attend and present research work as oral and poster in this Congress. The World Fertilizer Congress is regular and continuous activity and take place in different locations around the world, this time Thailand is the host of this congress **during 22 – 27 January 2006**, consist of registration, scientific presentation as keynote lectures, oral presentations and poster session, opening and closing ceremony, welcome reception, congress dinner and scientific congress tours. Moreover, we prepare scientific exhibition consist of fertilizers and soil information, chemical and organic fertilizers, fertilizer and fertilization technology for some important economic plant. The focus point is the scientific programme of 15 sessions for oral presentation and 2 sessions for poster presentation under the Congress theme of “**Fertilizers and Fertilization: Stewardship for Food Security, Food Quality, Environment and Nature Conservation**”.

The Congress is cooperatively organized by the Land Development Department (LDD), Department of Agriculture (DOA) and Department of Agriculture Extension (DOAE) of the Ministry of Agriculture and Cooperatives, Kasetsart University (KU), Soil and Water Conservation Society of Thailand (SWCST) and Soil and Fertilizer Society of Thailand (SFST) with the international agency of The International Scientific Centre for Fertilizers (CIEC). We wish to acknowledge the government of Thailand, many above agencies and also many private companies who have contributed to this congress. In this book, we have over 170 papers as both oral and poster presentations form over 35 countries. All of these participants come to joint this Congress with their experiences and knowledge to share and exchange to each others. We do hope that this Congress will make all of participants have more experiences and knowledge from our scientific papers and exhibition.

Secretary Organizing Committee
January 2006

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General Programme

The 14th World fertilizer Congress consists of the following activities:

1. Scientific Programme includes Keynote Lectures in the afternoon of Monday 23 January 2006, oral presentation of scientific papers accepted in 15 sessions of the Congress. The oral presentation takes place in three parallel rooms everyday during 23-27 January 2006 except on 25 January 2006, which has been reserved for all Congress day tours. Poster session takes place in 2 sessions on 23-24 January 2006 and 26-27 January 2006, and run all day from 0900 hrs to 1700 hrs. Details are in the Scientific Program section.

2. Opening Ceremony takes place on Monday 23 January 2006 in the Main Conference Room, starting from 0900 hrs and continuing until noon. Details are in the Opening Ceremony sessions.

3. Welcome Reception has been scheduled to take place during 1830-2130 hrs on Monday 23 January 2006 in the Main Conference Room of the Lotus Hotel Pang Suan Kaew. The Welcome reception will be hosted by the Soil and Water Conservation Society of Thailand.

4. Conference Dinner has been scheduled to take place on Thursday 26 January 2006 during 1800-2130 hrs at the ground floor of the Lotus Hotel Prang Suan Kaew.

5. Closing Ceremony will take place in the afternoon of Friday 27 January 2006 in the Main Conference Room, Detail are in the Closing Ceremony section

6. Exhibition will take place at the ground floor. The exhibition includes; during the congress, commercial and non-commercial fertilizer companies exhibition will be organized in order to provide the most current information and products in both of organic and chemical fertilizer, including new technology in fertilization.

6.1 Fertilizer and Soil Information Exhibition

6.2 Fertilizer and Technology Exhibition

6.3 Scientific and Commercial Exhibition

The exhibition is open to the public everyday during the Congress period.

7. Tour Programme is handled by the Congress Tour Committee at the stand associated with the information counter. The Mid-Congress Tours take place on Wednesday 25 January 2006, which have 4 routes as 1: Mae Rim, 2: Huai Hong Khrai, 3: San Pa Tong and 4: Doi Pui . The tours leave the Hotels at 0730 hrs and return at 1800 hrs.

Opening Ceremony

Monday 23 January 2006

- 07.30- 08.45 All participants arrive and register in the registration hall
- 08.45 All participants are requested to be seated in the Pa Sak Luang Room
- 09.00 Her Excellency the Minister of Agricultural and Cooperatives arrives
- 09.00 –09.30 Welcome Speech
- Governor of Chiang Mai
- Director General, Land Development Department
- Representative of International Scientific Center of Fertilizers (CIEC)
- 09.30 – 09.45 Report by Permanent Secretary of Ministry of Agricultural and Cooperatives
- 09.45 – 10.15 Opening Address by Her Excellency the Minister of Agricultural and Cooperatives
- 10.15 Exhibition Opening Ceremony
- 10.15 – 11.00 Break
- 11.00 – 12.30 Conference Keynote Address
- Prof. Dr. Ewald Schnug
- Prof. Dr. Santad Rojanasoonthon
- 12.30 – 14.00 Lunch

Closing Ceremony

Friday 27 January 2006

14.00 - 15.30 Discussion of the next World Fertilizer Congress

15.30 - 16.00 Closing address
- Representative of Land Development Department (LDD)
- Representative of International Scientific Center of Fertilizers (CIEC)
- Representative of participants

16.00 Closing Congress

Session of the 14th World Fertilizer Congress

Fertilizers play an important role in meeting the greater food demand resulting from the rapid increase in world population. At the same time food quality, soil fertility, the waste of resources and environmental impacts of low fertilizer efficiency are important issues of fertilizer research and fertilization. The 14th World Fertilizer Congress, jointly organized by CIEC and LDD will provide a forum to exchange the latest detailed information and achievements on fertilizer research, development, production and application and will also fully discuss future developments. And the Congress will address the following sessions:

Session 1: Fertilizer Management Strategies I

Session 2: Fertilization and Environment

Session 3: Fertilization and Plant Physiology

Session 4: Fertilization in Precision Agriculture

Session 5: New Fertilizers

Session 6: Micronutrients

Session 7: Recycling of Inorganic and Organic Materials for Fertilization

Session 8: Fertilization and Aspects of Soil Quality

Session 9: Miscellaneous Aspects of Fertilization

Session 10: Organic Fertilizers

Session 11: Fertilizer Management Strategies II

Session 12: Nutrient dynamics

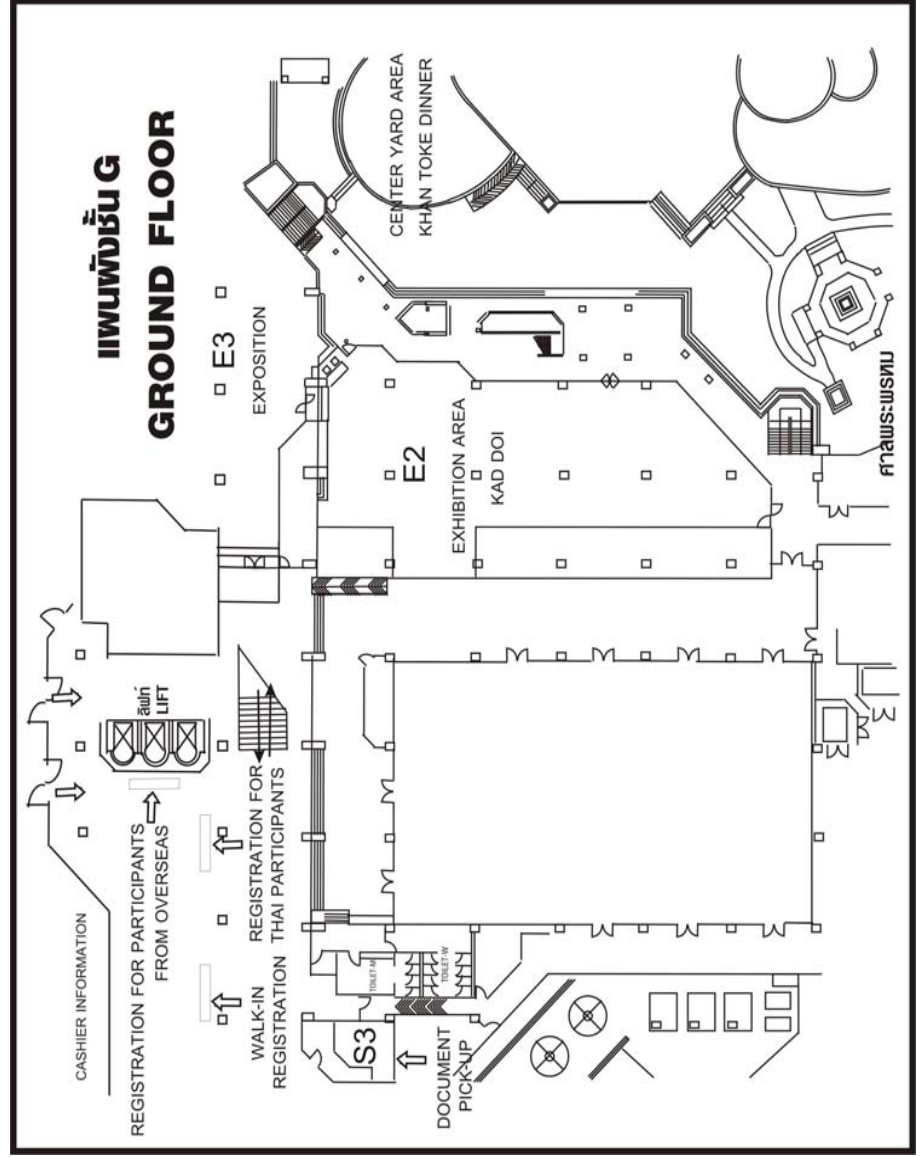
Session 13: Fertilization and Managing Soil Fertility

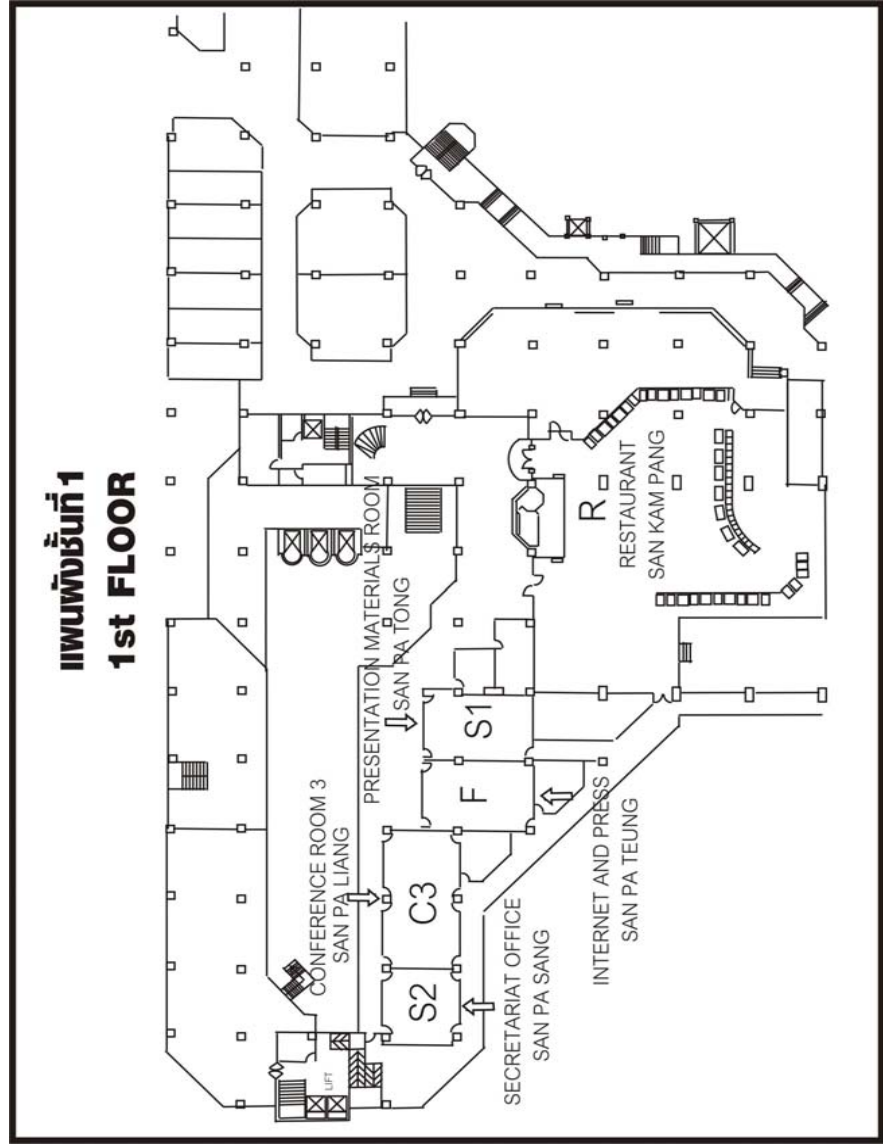
Session 14: Fertilizer Management Strategies III

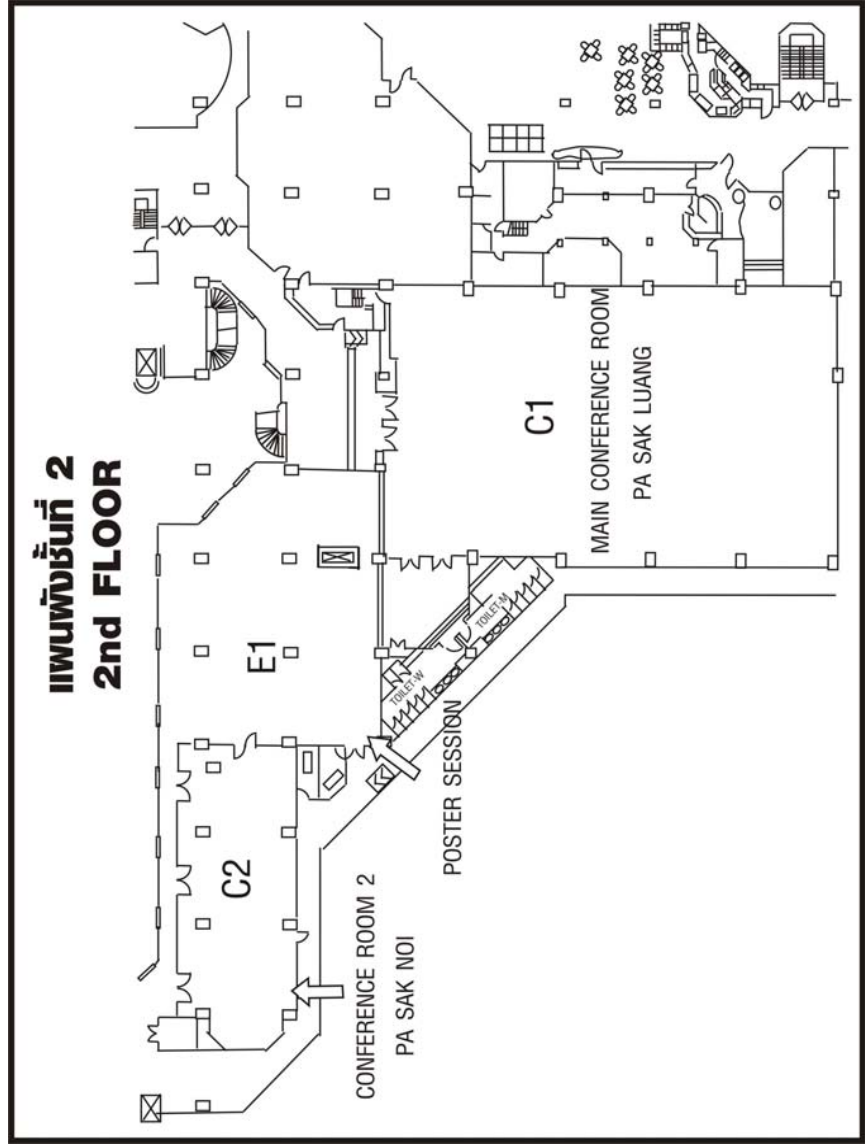
Session 15: Fertilization in Organic Farming

Scientific Programme

Conference Room







Oral Session
PROGRAMME

Session 1

Fertilizer Management Strategies I

Monday 23 January 2006
Afternoon Session

Main Conference Room

Chairmen : Z. Hu; S. Panichsakpatana

- 14.00 - 14.30 Keynote: Soils and Fertilizers Management for Economic Crops of Thailand
K. Saifuk and C. Sittibush
- 14.30 - 14.50 Volunteer soil doctors and their participation in soil resources management in Thailand
P. Inthapan and S. Jeerat
- 14.50 - 15.10 Developing an equation to predict rock phosphate requirement for rice cultivation in flooded acid sulfate soils of Thailand
S. Yampracha, T. Attanandana and R. Yost
- 15.10 - 15.40 Coffee
- 15.40 - 16.00 Effect of repeated application of elemental sulfur on soil chemical and biological parameters
Z. Yang, S. Haneklaus, E. Schnug, and B.R. Singh
- 16.00 - 16.20 Soil fertility management in organic rice farming in Thailand
V.R. Panyakul
- 16.20 - 17.30 Poster Session 1
Poster presenters (No 1 – 45)
- 18.00 – 21.00 Welcome Reception

Session 2

Fertilization and Environment

Monday 23 January 2006
Afternoon Session

Conference Room 2

Chairmen : G. Hofman; P. Parkpian

- 14.00 - 14.30 Keynote: Impact of fertilization and waste recycling on sustainable agriculture
P. Pongsakul
- 14.30 - 14.50 Urea granular sizes in upland soils: nitrogen transformations and movements influencing N₂O, NH₃ and NO_x emissions
M.I. Khalil, U. Schmidhalter and R. Gutser
- 14.50 - 15.10 Effects of nitrogen fertilizer on plant growth and N₂O flux
S. Amkha and K. Inubushi
- 15.10 - 15.40 Coffee
- 15.40 - 16.00 Acidification and shallow injection of biofertility: effects on ammonia and nitrous oxide emission
T. Nyord, K.M. Schelde and S.O. Petersen
- 16.00 - 16.20 Effect of graded doses of potassic fertilizers (MOP and SOP) on pineapple
V.S. Devadas, K.P. Kuriakose, Ashok Bajpai and G. Ebert
- 16.20 - 17.30 Poster Session 1
Poster presenters (No 1 – 45)
- 18.00 – 21.00 Welcome Reception

Session 3

Fertilization and Plant Physiology

Monday 23 January 2006
Afternoon Session

Conference Room 3

Chairmen : S. Haneklaus; T. Attanandana

- 14.00 - 14.30 Keynote: Plant biotechnology and nutrient efficiency of plants
R. Hell, C. Kruse and H. Hillebrand
- 14.30 - 14.50 Use of RAPD-PCR fingerprints to monitor changes in DNA and field
distribution of soybean rhizobia biofertilizers
*K. Chansa-ngavej, W. Chongfuengprinya, D. Emampaiwong,
S. Sulanchupakorn and S. Sawangdee*
- 14.50 - 15.10 Experience of Thailand in promoting participatory extension
approach to IPNS
K. Soitong and T. Vearasilp
- 15.10 - 15.40 Coffee
- 15.40 - 16.00 Nutrient recovery from municipal sewage sludge ash
L. Hermann
- 16.00 - 16.20 Cumulative and residual effects of long-term organic fertilizers
application on soil phosphorus
S. Mohammadi, M. Kalbasi and H. Shariatmadari
- 16.20 - 17.30 Poster Session 1
Poster presenters (No 1 – 45)
- 18.00 – 21.00 Welcome Reception

Session 4

Fertilization in Precision Agriculture

Tuesday 24 January 2006
Morning Session

Main Conference Room

Chairmen : E. Schnug; P. Limtong

- | | |
|---------------|--|
| 9.00 - 9.30 | Keynote: Will Site Specific Nutrient Management live up to expectation?
<i>K. Betteridge, E. Schnug and S. Haneklaus</i> |
| 9.30 - 9.50 | Field identification of soil series - enabling Thai farmers share experience and knowledge
<i>B. Boonsompopphan,, T. Vearasilp, T. Attanandana and R.S. Yost</i> |
| 9.50 - 10.10 | Site-specific nutrient management for farmers of small farms of the tropics
<i>T. Attanandana, C. Suwannarat, T. Vearasilp, S. Kongton, B. Boonsompoppan, R. Meesawat, P. Boonampol, K. Soitong, C. Tipanuka, A. Chareonsaksiri, P. Verapattananirund and R.S. Yost</i> |
| 10.10 - 10.30 | Approaches for precision agriculture and soil fertility management in Asia
<i>H.H. Cheng and D.J. Mulla</i> |
| 10.30 - 11.00 | Coffee |
| 11.00 - 11.20 | Keynote: Application of remote sensing for fertilizer management
<i>H. Daniel, H. Lilienthal and E. Schnug</i> |
| 11.20 - 11.40 | Application of mineral fertilizer with soil amendment materials on Yield and Quality of Papaya
<i>M. Ta-oun, S. Panchaban, S. Pruangka and P. Therajindakajorn</i> |
| 11.40 - 12.00 | Sampling grid determination of German and Hungarian soils by geo-statistical methods for mapping of nutrient supply and site specific fertilizer application
<i>I. Vago</i> |
| 12.00 - 13.30 | Lunch |

Session 5

New Fertilizers

Tuesday 24 January 2006
Morning Session

Conference Room 2

Chairmen : P. Loganathan; A. Suwanarit

- | | |
|---------------|---|
| 9.00 - 9.30 | Keynote: Agronomic and environmental effects of rare earth elements in agriculture
<i>Z. Hu, S. Haneklaus and E. Schnug</i> |
| 9.30 - 9.50 | Mineral fertilizers in Russian agriculture: demands and realness
<i>V.G. Sychev and V.A. Romanenkov</i> |
| 9.50 - 10.10 | Effect of glass matrix fertilizers on soil and soilless cultures
<i>P. Sequi, F. Pierandrei and E. Rea</i> |
| 10.10 - 10.30 | Possible use of new amendments on lettuce: yield, quality and N utilization
<i>D. Ferri, L. D'Andrea, F. Montemurro and G. Convertini</i> |
| 10.30 - 11.00 | Coffee |
| 11.00 - 11.20 | The mechanism, application technique and effect of seaweed bioactive substances on crops
<i>J. Song</i> |
| 11.20 - 11.40 | Managing cooperation between police and soil developer in case of public-oriented soil development
<i>R. Patanathabutr</i> |
| 11.40 - 12.00 | Corn residue incorporation and manure application history influence soil enzyme activities and inorganic nitrogen dynamic
<i>N.Khorsandi and F. Nourbakhsh</i> |
| 12.00 - 13.30 | Lunch |

Session 6

Micronutrients

Tuesday 24 January 2006
Morning Session

Conference Room 3

Chairmen : L. Knudsen; P. Pongsakul

- | | |
|---------------|--|
| 9.00 - 9.30 | Keynote: Managing micronutrients in farming systems
<i>Z. Rengel</i> |
| 9.30 - 9.50 | Rationale for protecting soils against uranium accumulation
<i>E. Schnug, S. Kratz, J. Rogasik and S. Haneklaus</i> |
| 9.50 - 10.10 | Solutions to zinc deficiency problem in crop production and human health
<i>I. Cakmak</i> |
| 10.10 - 10.30 | Research and application of gel-based controlled release fertilization
<i>D. Hong</i> |
| 10.30 - 11.00 | Coffee |
| 11.00 - 11.20 | Effect of elemental sulfur and nitrogen fertilization on the content of essential and beneficial micro-nutrients and undesired heavy metals in nasturtium (<i>Tropaeolum majus</i> L.)
<i>S. Haneklaus, E. Bloem, S. Hayfa und E. Schnug</i> |
| 11.20 - 11.40 | Importance of vanadium and its effect on growth of Chinese green mustard under substrate culture
<i>N. Vachirapatama and Y. Jirakiattikul</i> |
| 11.40 - 12.00 | Effect of molybdenum on nitrate content in pineapple fruit
<i>P. Chongpraditnun, S. Rianrungruang, C. Powtong and Y. Osotsaphar</i> |
| 12.00 - 13.30 | Lunch |

Session 7

Recycling of Inorganic and Organic Materials for Fertilization

Tuesday 24 January 2006
Afternoon Session

Main Conference Room

Chairmen : F. Mohd Noor; K. Saifuk

- 13.30 - 14.00 Keynote: Utilization of the wastewater from pig farms as the nutrient source for oil palm
S. Panichsakpatana
- 14.00 - 14.20 Utilization of natural materials and agro-industrial by products for fertilizer formulation and soil amendment
N. Boonkerd, S. Choonleuchanond, J. Homchan, S. Panyapreuk and A. Bromsiri
- 14.20 - 14.40 Development of “microbial-organic fertilizer” using wastes for effective usage and environmental protection
K.C. Cheung, K.N. Chong, S.C. Wu and M.H. Wong
- 14.40 - 15.00 Utilization by corn crop of residual nitrogen from green manures and urea applied to previous crop
T. Muraoka, E.C. Da Silva, S. Buzetti, P.C.O. Trivelin and F.L.Mendes
- 15.00 - 15.30 Coffee
- 15.30 - 15.50 Bio-organic fertilizer production development from compost and plant growth promoting rhizobacteria
S. Meunchang, S. Panichsakpatana, S. Ando, T. Yokoyama and R.W. Weaver
- 15.50 - 16.10 Bio-fertilizer use at Tambon (sub-district) Mae Pong in Chiang Mai Province, Northern Thailand
M. Potapohn, S. Buranaviriyakul and A. Jintrawet

Session 8

Fertilization and Aspects of Soil Quality

Tuesday 24 January 2006
Afternoon Session

Conference Room 2

Chairmen : A.E. Hartemink; S. Tudsri

- 13.30 - 14.00 Keynote: Fertilizer usage and soil quality for horticultural crops: the needs for reconsideration
A. Bhromsiri
- 14.00 - 14.20 Risk analysis of fertilization practice on the agricultural buffer zone
J. Tamas
- 14.20 - 14.40 Leaf nutrient diagnostic tools for nutritional status of durian (*Durio zibethinus* Murr.)
S. Poovarodom, P. Kanyawongha and W. Chatupote
- 14.40 - 15.00 Aerated static pile composting system in Thailand
T. Sawangpanyangkura
- 15.00 - 15.30 Coffee
- 15.30 - 15.50 A new approach for the preparation of steep land in oil palm plantation
F. Mohd Noor, A. Gassner and W. Kollert
- 15.50 - 16.10 Alternative strategies of phosphorus fertilization
B. Eichler-Loebermann and D. Koeppe

Session 9

Miscellaneous Aspects of Fertilization

Tuesday 24 January 2006
Afternoon Session

Conference Room 3

Chairmen : C. Hera; J. Chanchareonsook

- | | |
|---------------|---|
| 13.30 - 14.00 | Keynote: Derivation of threshold values for heavy metals in fertilizers
<i>C.G. Bannick and I. Vogel</i> |
| 14.00 - 14.20 | Effect of an inorganic inhibitor on the phosphate release by P-fertility
<i>S. Blasioli, S. Albonetti, I. Braschi and C. Gessa</i> |
| 14.20 - 14.40 | Effect of sulfur fertilization on alfalfa morphology and productivity in the Beijing area
<i>S. Wang, S. Haneklaus and E. Schnug</i> |
| 14.40 - 15.00 | Influence of formulation of elemental S fertilizer on yield, quality and S uptake of canola seed
<i>S.S. Malhi, E.D. Solberg and M. Nyborg</i> |
| 15.00 - 15.30 | Coffee |
| 15.30 - 15.50 | P fertilizer loss through leaching in an acid tropical soil
<i>Z. Abdul Raman and E. Gikonyo</i> |

Session 10

Organic Fertilizers

**Thursday 26 January 2006
Morning Session**

Main Conference Room

Chairmen : Z. Rengel; D. Jittanoonta

- 9.00 - 9.30 Keynote: Relationship between soil organic matter and beneficial microorganisms in Thailand
S. Piriyaopin, V. Sunanthapongsuk, P. Nakaprades, C. Leungvutiviroj and N. Pasda
- 9.30 - 9.50 Production and application of mycorrhizal biofertilizer in Thailand
S. Thamsurakul
- 9.50 - 10.10 Effect of azolla applied in combination chemical fertilizer on yield of Chinese mustard
W. Homhaul
- 10.10 - 10.30 Green manure use in rice-based systems of Asia
M. Becker
- 10.30 - 11.00 Coffee
- 11.00 - 11.20 Compost production in Italy: state of art and perspectives in the framework of European Union policy on biowaste
F. Tittarelli and M. Centemero
- 11.20 - 11.40 Compost fertilizer production using tahirong bag
S. Anusontpornperm
- 11.40 - 12.00 Organic manure enhanced soil enzymatic activity and fertility and barley growth in soil subject to secondary salinization
Y. Liang, Jin Si, Yu Peng, Wei Chen and Yun Jiang

Session 11

Fertilizer Management Strategies II

Thursday 26 January 2006
Morning Session

Conference Room 2

Chairmen : K. Betteridge; P. Kantangkul

- 9.00 - 9.30 Keynote: Impact analysis of biosolid application on farmland
P. Parkpian, P. Sangtong, J. Satayavivad and C. Polprasert
- 9.30 - 9.50 Effects of ulexite, pentaborate and boric acid application on cotton yield in an oxisol
C.A. De Abreu, B. Van Raij, M. Yasuda and A. Paz Gonzalez
- 9.50 - 10.10 Unavailability of placed P in dry and wet soils
I. Saarela and K. Saarela
- 10.10 - 10.30 Privileging late N dressing on winter wheat increases recovery and efficiency (yield and quality) of fertilizer N - results of 3 years field experiments using stable ¹⁵N
N. Boulelouah, A. Falisse, B. Bodson and J.P. Destain
- 10.30 - 11.00 Coffee
- 11.00 - 11.20 *The outlook for world fertilizer supply*
T. Phillips
- 11.20 - 11.40 The use of longterm estate data to provide critical nutrient limits for oil palms (*Elaeis guineensis*) in Sabah
A. Gassner, F. Mohd Noor and H. H. Wan
- 11.40 - 12.00 Systems of low fertilization on durum wheat I. N fertilization and legume intercropping.
G. Pacucci, C. Troccoli and B. Leoni
- 12.00 - 13.30 Lunch

Session 12

Nutrient dynamics

Thursday 26 January 2006
Morning Session

Conference Room 3

Chairmen : B. Eichler-Loebermann; S. Pimsarn

- 9.00 - 9.30 Keynote: Nitrogen balances and environmental impacts in intensive farming including animal production
L. Knudsen
- 9.30 - 9.50 Growth and chemical composition of tomato as affected by municipal compost and its leachate and nutrients, salinity and heavy metal concentration in soil
E. Razavy Toosi and N. Karimian
- 9.50 - 10.10 Nature of phosphorous in dairy manure
M. Kalbasi, K. Gungo and K.G. Karthikeyan
- 10.10 - 10.30 Nitrogen fertilization use efficiency and soil deficit in winter wheat grown at different N fertilizer supplies
F. Montemurro, G. Convertini, D. Ferri and A. Buondonno
- 10.30 - 11.00 Coffee
- 11.00 - 11.20 Keynote: Strategies to control fertilizer use and nutrient losses from agriculture – examples from Europe
N. Vagstad and S.A. Borgvang
- 11.20 - 11.40 Comparison of N and P farm gate balances between the intensive agriculture in flanders and the extensive agriculture in Hungary
K. D.Haene, M. Magyar, A. Mulier, S. De Neve, O. Pálmai, J. Nagy, T. Németh and G. Hofman
- 11.40 - 12.00 Update on the international nitrogen initiative (INI)
L. Maene
- 12.00 13.30 Lunch

Session 13

Fertilization and Managing Soil Fertility

**Thursday 26 January 2006
Afternoon Session**

Main Conference Room

Chairmen : M. Becker; R. Imerb

- 13.30 - 14.00 Keynote: Accumulation and dynamics of fertilizer-derived cadmium and fluoride in grazed pastoral soils
P. Loganathan, M.Becker and N.S. Bolan
- 14.00 - 14.20 Liming and soil fertility
J. Rogasik, P.I Kurtinecz, K. Panten, U. Funder, H. Rogasik, S. Schroetterund and E. Schnug
- 14.20 - 14.40 Use of organic manures as liming materials - an overview
R.J. Haynes
- 14.40 - 15.00 Charged clays: a new concept in fertilizer technology
G.P. Gillman
- 15.00 - 15.30 Coffee
- 15.30 - 17.30 Poster Session 2
Poster presenters (No 46 –88)

Session 14

Fertilizer Management Strategies III

Thursday 26 January 2006
Afternoon Session

Conference Room 2

Chairmen : P. Sequi; P. Panpruik

- 13.30 - 14.00 Keynote: Trade and market of fertilizer in Thailand
D. Jittanoonta, M. Somboontanont and K. Permpinyo
- 14.00 - 14.20 “Bonus-NPK” – an innovative foliarly-applied formulation for
enhanced yield and quality in citrus
O. Achilea, E. Barak, Y. Soffer, D. Raber and M. Tamim
- 14.20 - 14.40 Fertigation: how to choose an injection system
R. Eckle
- 14.40 - 15.00 Alternative techniques for water-saving irrigation and optimized
fertigation in longan production
S. Ongprasert and W. Wiriya-alonkorn
- 15.00 - 15.30 Coffee
- 15.30 - 17.30 Poster Session 2
Poster presenters (No 46 –88)

Session 15

Fertilization in Organic Farming

Friday 27 January 2006
Morning Session

Main Conference Room

Chairmen : N. Vagstad; S. Ratanarat

- 9.00 - 9.30 Keynote: N-requirement of mixed-cropping systems with oil crops in organic farming
H.M. Paulsen, M. Schochow, A. Behrendt and G. Rahmann
- 9.30 - 10.00 Keynote: Fertilization in Organic Farming for Tropical Zone
A. Tancho
- 10.00 - 10.20 Fertility supply in organically managed agricultural systems and use of off-farm fertilizers and soil conditioners in different European countries
S. Canali
- 10.20 - 10.40 Dry matter production, nitrogen and phosphorus uptake of soybean with rock phosphate fertilization and dual inoculation of *Glomus manihotis* and *Bradyrhizobium japonicum*
D.R. Lukiwati and R. J. M. Simanungkalit
- 10.40 - 11.00 Nitrogen and irrigation management in organic vegetable production in California
S. Pasakdee, G. Bañuelos, C. Shennan and W. Cheng
- 11.00 - 11.30 Coffee
- 11.30 - 11.50 The potential of local organic residues as P sources in organic farming
F. Mohd Noor, R. Moslin and A. Gassner
- 11.50 - 12.10 Soil fertility management for better farmer livelihood, food security and the environment
H. Hiraoka
- 12.10 - 14.00 Lunch
- 14.00 - 16.00 Closing ceremony

Poster Session
PROGRAMME

Poster Session 1

Fertilization, Food Safety and Food Quality

23-24 January 2006

Ground 2

Poster presenters (No.1-45) are available for discussion at their posters on Monday 23 January 2006 at 16.20-17.30

No. 1

Continuous and controlled-release nutrition in arable-crops

O. Achilea, Y. Levi, A. Shaviv, A. Altissimo, L. Aubertin, E. Ronen and E. Barak

No. 2

'Haifa nutri-net' – an internet operated decision-support software generating crop nutrition recommendations

O. Achilea, E. Ronen and G. Elharrar

No. 3

Study on variation of nitrogen uptake efficiency in local landraces of wheat in Mahabad

K. Alizadeh and J. Ghaderi

No. 4

Effects of different Rates of NPK fertilization on the nutrient status of pea

K. Balikó and K. Sárdi

No. 5

Adaptation of maize to low soil phosphorous supply during the growing season on an alfisol

P.B.S. Bhadoria and S. Singh

No. 6

Effect of long-term integrated application of fertilizer and different manures at various proportions on rice (*Oryza sativa* L.)

A. Chakraborty

No. 7

Effect of calcium sulfate composing with green manure crops on production of *Oryza sativa* cv. "RD" 6 on saline area

T. Chanaboon, S. Yodsiri, K. Wongpakam and K. Boontieng

No. 8

Implement of sweetness sugarcanes by using organic fertilizer

S. Chitchamnong, P. Chutichudet, B. Chutichudet and K. Boontiang

No. 9

Effect of bio-organic fertilizer on soil and crops yield improvement under well-drained and water-logged condition

S. Choonluchanon, P. Somphee, S. Jeerat, C. Suntasup and A. Shutsirung

No. 10

The application of co-compost manure and water supply sludge on lettuce growth

K. Cho-Ruk and J. Kurukodt

No. 11

Effect of different fertilizing formulae on potato (*Solanum tuberosum*) in a two-year rotation

G. Cucci, V. Bianco and G. Lacolla

No. 12

Effect of different fertilizing formulae on durum wheat (*Triticum durum*) in a two-year rotation

G. Cucci and G. Lacolla

No. 13

Effect of different fertilizing formulae on common bean (*Phaseolus vulgaris* L.) a two-year rotation

G. Cucci and G. Lacolla

No. 14

Wheat response to the incorporation of crop residues and two different fertilizing formulae

G. Cucci and V. Marzi

No.15

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