



cordially invites you, members, students, alumni and other interested persons to a Seminar on

Nutrients and Food Security: feast or famine?

Should scarcity, recycling and redistribution of plant nutrients be on the priority agenda for global food security and the environment?

Date: **Thursday 13 June 2013, at 15:00 h**

Venue: **Hotel De Nieuwe Wereld, Marijkeweg 5, 6709 PE Wageningen**

Programme:

14:30 **Welcome**, coffee, tea

15:00 **“Opening”** by ir. Cor de Jong, president of SKOV

15:05 **“Introduction to the programme”** by dr. ir. Prem Bindraban, Director of ISRIC – World Soil Information; Leader International Agrosystems Research, Wageningen UR, chairman of the Seminar and discussion leader

15:10 **“Overview of challenges and dilemma’s”** by prof. dr. ir. Oene Oenema, Professor of Soil Fertility, Wageningen UR

15:30 **“Organic and mineral nutrient resources - from local to global dimensions”** by prof. dr. Ken Giller, Professor of Plant Production Systems, Wageningen UR

15:55 **“Opportunities and threats for the industry”** by drs. ing. Johan Vollenbroek, International Consultant with Mobilization for the Environment, Nijmegen

16:20 **Tea break**

16:45 **“Policies for sustainable plant nutrient management”** by prof. dr. Michiel Keyzer, Director of the Centre for World Food Studies (SOW-VU), Vrije Universiteit, Amsterdam

17:10 **Plenary discussion.** Chair: Dr. ir. Prem Bindraban

18:00 **Closure** by ir. Cor de Jong, followed by ‘Drinks and Bites’ for all participants

19:00 **Dinner (optional)** at “Hotel De Nieuwe Wereld” for speakers and participants

Participation in the Seminar, including aperitif, is free of charge

Please register by return e-mail to huydtsbm@pt.lu or by surface mail to the Secretariat of SKOV (see below) by June 10, 2013. Subsidized dinner fee is € 20,-- for old and new SKOV members and € 30,-- for non-members (payment in cash on the spot). Please indicate whether vegetarian or non-vegetarian. **Dinner registration is required and binding.**



Nutrients and Food Security; Feast or Famine?

Will there be enough plant nutrients to feed a world of 9 billion in 2050?

This is the fundamental question addressed by the Foresight Study of the Joint Research Centre (JRC) of the European Commission (2012).

N (Nitrogen), P (Phosphorus) and K (Potassium) are three essential nutrients for plant growth. Their availability in the form of fertilizers represents a key factor in the overall question of global food security as we move towards a population of 9 billion. Moreover, over 90% of population growth between 2010 and 2050 will occur in developing economies. **Over 90% of the 1 billion poorest people live in these economies where food security is and will remain a serious challenge unless appropriate policy and technical measures are taken to ensure fertilizer security.**

Phosphorus (P) is a finite, non-renewable resource, which is produced in only a few countries. Nitrogen (N) is ample available in the atmosphere. But, its transformation into ammonia is highly demanding both in hydrogen and energy. In a volatile energy market this may become a problem. Potassium (K) is also a non-renewable resource. Its reserves (in the form of potash) are in the hands of a few countries and companies.

Based on current demand, usable reserves in P will be reduced by 25% in 2100. These usable reserves will be further reduced if demand for (P) will have more than doubled in the mean time. Furthermore we can assume that

- i) the quality of P reserves will create soil contamination;
- ii) excess use of compound fertilizers continues to give rise to water pollution and
- iii) energy cost for production of N double in the same period.

These trends are subject to permanent adjustment.

New approaches to evaluate the matching between effective demand and supply will have to:

1. Take into account not only the crop requirements for food production but also the application efficiencies, soil rehabilitation, environmental linkages and socio-economic determinants of access, per crop and per region.
2. Go beyond economics to consider geostrategic elements in a more uncertain global political situation.

Obviously, the problem has to be tackled at different levels, because the NPK question is a global issue, access to it is a regional issue and management of crops is a local dimension. The discussion will have to move away from the normative approach to sustainability, to more practical and geographically adapted solutions, integrating the results of research into socio-economic contexts.

It is legitimate to assume that in a more rapidly changing geopolitical situation and a less stable world, the question of the security of NPK supply could one day become relevant. It is, therefore, generally accepted that, whatever the existing proven resources, our complete dependence on non-renewable resources such as P and K must be confronted in any long term food security strategy.

Therefore, the questions that need to be addressed are:

1. When (in terms of residual uses of reserves) do we need to start assembling and implementing a global strategy for NPK use (with respect to geographical determinants, efficiencies, requirements, access etc.)?
2. When do we need to have applicable and practical alternatives developed, fully tested and implemented at the required regional/global scale?

To adequately tackle the above-mentioned problems, the JRC study underlines the need for a global governance system, ensuring sustainable management of the three essential plant macronutrients in the context of long-term food (and political) security to the world. The recently proposed FAO Global Soil Partnership is a step in that direction.