

## Research findings

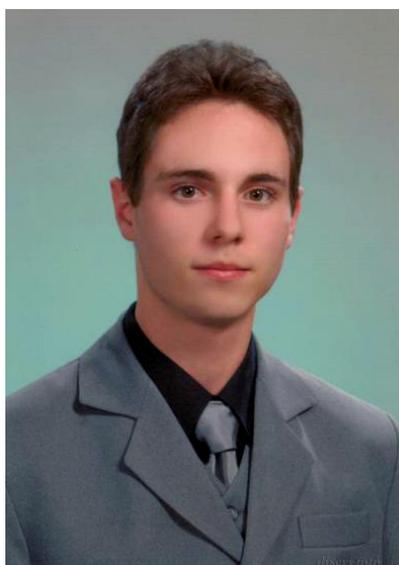
### III IPI Award for scientific work on plant nutrition in Hungary

I. Terbe<sup>(1)</sup>

It has become the tradition for the International Potash Institute (IPI) to invite applications every three to four years from interested students at agricultural research facilities and universities in Hungary for an award for the best diploma thesis covering "Potassium in soils and plants". In 2008, the prize was awarded for the fourth time during the "Farmer-Expo" at the agricultural university of Debrecen. Dr. Thomas Popp, IPI Coordinator for Central Europe, was a member of the evaluation panel and presented the prizes to the winners, as well as handing out book prizes to the runners-up. As is the practice in other European countries, Hungarian students studying agriculture must produce a scientific thesis at the end of their studies (BSc and MSc). The topic is of their choice, but must be approved by the institution. The theses are usually based on experimental research or technologies, and are often part of larger research projects lead by the research institute. Usually 10-12 theses are submitted and a five-member panel, consisting of internationally-renowned agrochemists, professors and experts, evaluates the submissions. The theses topics are varied, ranging from the importance of potassium as a plant nutrient, its behaviour in the soil to its manifold physiological effects in plants. As well as focusing on important agricultural crops, i.e. maize, potato and others, many horticultural crops such as grapes, peppers, radish, apple and gooseberry are also included. In addition to results on yield studies, some theses focus on important

problems and potential solutions in tree nurseries and ornamental plant production. Besides traditional growing techniques, more and more theses are dealing with advanced growing methods such as "container" and hydro-culture.

In 2008 Norbert Lukács' work "The relationship of the potassium supply and the vegetative production of monthly radish growing" (Pannon University, Georgikon Faculty of Agriculture, Keszthely, under the supervision of Prof. Dr. habil. Katalin Sárdi) was chosen by the jury as the best thesis. The effect of potassium on radish yield at different levels of nitrogen and phosphate was investigated in this work. The amount and ratio of the nutrients contained in the foliage and radish crop was investigated along with the NPK requirements. The most suitable nutrient content of the soil for high quality and quantity of yield were also shown.



Norbert Lukács, award winner for the best thesis.

Second place was awarded to Attila Szabolcsi (University of Debrecen, Centre of Agricultural Sciences, Faculty of Agriculture, supervised by Dr. habil. Imre Vágó and Dr. Csaba Varga, University Lecturer) for his thesis "The role of the potassium in the growing of gooseberry". The data evaluated in this

work was part of a larger research project at the University of Debrecen investigating the nutrient and fertiliser requirements of gooseberries, which was commissioned by IPI. In addition to studying the relationship between potassium supply, yield, and yield quality, the effect of chloride and sulphate were also studied. Pectin content was included in the investigation since it is an important parameter during processing of gooseberries. Pectin is used to improve the texture of many products in the food industry.



Attila Szabolcsi, recipient of the award for second place.

Third place was awarded to Márta Heller Szabóné Molnár (University of Debrecen, Centre of Agricultural Sciences, Faculty of Agriculture, under the supervision of Dr. Tamás Monostor, University Lecturer and Dr. József Kruppa, Scientific Assistant), for her thesis "New possibilities for foliar fertilization in potato". The work investigated the effect of potassium on yield increase and quality improvement in the early production of potato in farm trials. The student was looking for a correlation between the availability of potassium and quality parameters, such as starch content and vitamin C content, as well as an interaction with micro-nutrients. Based on the trial, the student

(1) Prof. Dr. István Terbe, Director, Institute of Vegetable and Mushroom Growing, Corvinus University of Budapest, and IPI Program Leader in Hungary.

## Research findings

was able to make recommendations for the timing of application, and amount of potassium fertiliser.



Márta Heller Szabóné Molnár, recipient of the award for third place.

Several other theses that did not win a prize are worth mentioning as the results of the studies are impressive and important for agriculture and horticulture:

- Rita László (Pannon University, Georgikon Faculty of Agriculture, Keszthely,

Supervisor: Dr. habil. Katalin Sárdi, University Lecturer): “Examination of annual ornamental plants nitrogen and potassium utilization”.

- Péter Sziráczi (University of Debrecen, Centre of Agricultural Sciences, Faculty of Agriculture, Supervisor: Dr. József Kruppa, Scientific Assistant): “The effect of K- and Mg fertilization in landscape potato crops”.
- Ilona Kellermann (University of Debrecen, Centre of Agricultural Sciences, Faculty of Agriculture, Supervisor: Dr. József Kruppa, Scientific Assistant): “The biological bases and opportunities of development of open field early potato”.
- Bernát Poós (Budapest Corvinus University, Faculty of Horticultural Science, Supervisor: Dr. habil. Károly Hrotkó, University Lecturer): “Evaluation of the effects of different cherry rootstocks in nutrient uptake and

utilization” (IPI sponsors this research project).

- Zoltán Kocsis (Pannon University, Georgikon Faculty of Agriculture, Supervisor: Dr. habil. Katalin Sárdi, University Lecturer): “The potassium supply effect in the nutrient uptake of malting barley on clayed brown forest soil”.

Based on the number of entries and their results, it can be seen that more and more scientific research considers potassium as a major nutrient affecting yield quality and quantity. The young scientists who submit their theses gain publicity through IPI and its work including ongoing trials, and scientific and applied research publications. The published results are also made available in the country so they can be readily incorporated in to agricultural and horticultural practices. As a result of increased interest and the excellent quality of submissions, IPI will accept the next round of submissions by BSc and MSc students in 2010. More details will be made available during 2009. ■

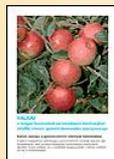
### IPI publications in Hungarian

IPI encourages the publishing in a variety of languages. Currently we have publications in 22 languages, among them Hungarian. The following publications in Hungarian are available on our website. For more details, please contact IPI Coordinator Central Europe, Dr. Thomas Popp, [thomas.popp@kali-gmbh.com](mailto:thomas.popp@kali-gmbh.com).



Balanced Plant Nutrition in Viticulture for High Yield and Quality. 2006. ISBN 9638512679. Proceedings of the symposium in Keckemét, Hungary, 6-7 September, 2005.

To order a copy, go to <http://www.ipipotash.org/publications/detail.php?i=207>.



Fertilization of fruit trees.

To order a copy, go to <http://www.ipipotash.org/publications/detail.php?i=127>



A kálium jelentősége a vöröshagyma tápanyagellátásában (The importance of potassium for nutrient supply of onion; 2007). By A. Barnóczki and Z. Némethy.

Z. Némethy.

To download the leaflet, go to <http://www.ipipotash.org/publications/detail.php?i=235>



A kálium jelentősége a fűszerpaprika tápanyagellátásában (The importance of potassium for nutrient supply of spice pepper; 2006).

To download the leaflet, go to <http://www.ipipotash.org/publications/detail.php?i=208>



Yield and quality of sugar beet as affected by use of potash.

To download the leaflet, go to <http://www.ipipotash.org/publications/detail.php?i=152>.



Potash for yield and quality. IPI Research Topics No. 15. 2006. By Jakab Loch, István Terbe, and Imre Vágó.

To download the leaflet, go to <http://www.ipipotash.org/publications/detail.php?i=31>