Policy on Advanced Training Grants

Ken Giller and Saidou Koala

Submission date: 10/6/2010

N2Africa

Putting nitrogen fixation to work for smallholder farmers in Africa

N2Africa is a project funded by The Bill & Melinda Gates Foundation by a grant to Plant Production Systems, Wageningen University who lead the project together with CIAT-TSBF, IITA and many partners in the Democratic Republic of Congo, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda and Zimbabwe.

Email: n2africa.office@wur.nl
Internet: www.N2Africa.org

Authors of this report and contact details

Name: Ken Giller   Partner acronym: WU
Address: Plant Production Systems, P.O. Box 430, 6700 AK, Wageningen, The Netherlands
E-mail: ken.giller@wur.nl

Name: Saidou Koala   Partner acronym: CIAT-TSBF
Address: P.O. Box 30677, Nairobi, Kenya
E-mail: s.koala@cgiar.org

If you want to cite a report that originally was meant for use within the project only, please make sure you are allowed to disseminate or cite this report. If so, please cite as follows:

K. Giller, S Koala, 2010. Policy on advanced training grants, www.N2Africa.org, 12 pp.

Table of contents

1   Background

We have two types of grants for advanced training, PhD and MSc/MPhil grants. The advanced training has two goals: i) to conduct research on topics that will contribute directly to the core research and development objectives of N2Africa, and ii) to build the capacity of key partner institutions in expertise related to all aspects of nitrogen fixation research, including delivery to farmers. This means that priority will be given to training staff from key institutions who are partners in N2Africa, and particularly those who may carry forward activities after the lifetime of the project. Research topics will be chosen depending on and assessment of the key skill gaps in each of the countries. The research projects of students will be conducted within the N2Africa project action sites and may be co-supervised by project staff. At least 50% of the grantees must be women.

The N2Africa project is built around the idea of targeting different varieties of the major grain legumes and varieties (of common bean, cowpea, groundnut and soyabean), and forages to agroecological niches within African farming systems:

$$(G_L \times G_R) \times E \times M$$

Where:

G_L = legume genotype
G_R = rhizobial strain
E = environment
- climate (temperature, rainfall, daylength etc) - to encompass length of growing season.
- soils (nutrient limitations, acidity and toxicities)
M = management
- agronomy, seeding rates, plant density (row spacing etc), weeding, basal nutrients (P, K, Ca, Zn etc)

All training grants should contribute to the project directly, going beyond this equation to recognize the diversity in farmers objectives and capacity to invest, The E term can also be interpreted as the 'socioecological niche' as proposed by Ojiem et al. (2006).

Topics of importance are:
a) Rhizobiology: microbiology, rhizobiology, population studies (MPN counts, diversity studies), strain identification, host-strain interactions etc - to support the inoculant work.
b) Inoculant development: inoculant carriers, formulations, quality control systems from laboratory to application in the field, understanding responses to inoculation.
c) Agronomic studies to unpack the $(G_L \times G_R) \times E \times M$ interactions for different target legumes in the various action sites. All studies should go beyond single factors to use this equation as a theoretical background and probing the interactions between factors. Topics may include crop agronomy, genotype × strain interactions, yield gap analysis, intercropping, balanced plant nutrition. All projects should include measurements of nitrogen fixation and residual benefits to other crops.
d) Farming systems studies to identify socioecological niches for different legumes on smallholder farms.
e) Nitrogen fixation in forages - ranging from rhizobia to impacts on the farming system.
f) Social sciences: exploring key approaches and methods for monitoring and evaluation of nitrogen fixation benefits to smallholder farmers, understanding differentiation among beneficiaries, linking to wealth and health (nutrition) indicators, understanding markets and market access etc.

2   MSc or MPhil grants

We will fund 16 MSc grants, at least 2 per country. Through collaboration with RUFORUM we hope to be able to increase the number of candidates trained to MSc. Depending on the opportunities in the countries these could be taught MSc (with research projects) or MPhil by research.

The topics and disciplines for MSc training will follow the guidelines indicated above. Projects will be identified by the N2Africa team in discussion with the country collaborators to ensure that key expertise gaps will be filled. All MSc training will be done in Africa, though students could be sent to neighbouring countries for training where relevant courses are not available in their own country. The universities where these students will be selected based on the courses available, and the expertise to supervise the research projects.

3   PhD grants

We aim to train PhD students using the best supervisory expertise available, whether in Africa or outside. There is an opportunity to increase the number of PhD fellowships through collaboration with AGRA. A further benefit to the N2Africa project of placing PhD students in some of the leading laboratories around the world is to buy in the expertise of the PhD supervisors to advise N2Africa in general.

All PhD students will work on a 'sandwich construction' with periods of around 6 months initially at the host university to write the proposal and attend courses. This is followed by a period of 1.5-2.5 years in their home country for field, glasshouse and laboratory research. Finally a period of approximately 12 months is spent conducting final research and writing the thesis in the host country. Depending on the host university the PhD programme could be three or four years in total.

Costs vary between countries, with Australia and the USA seemingly more expensive. Some universities can provide matching funds to reduce the overall costs. We will actively seek co-funding for more PhDs and aim to train at least one PhD per country, although the available budget at the start of the project is sufficient for roughly six PhDs.

Given the small number of grants we try and match countries, PhD topics and candidates. Decision on acceptance of candidates has to be done by the university at which the student will register so countries should propose a number of candidates from whom the selection will be made. Award of the PhD training grant will be conditional on finding suitably qualified candidates and their acceptance into the nominated university.

Key universities/supervisor partners for training in specific skills related to nitrogen fixation already identified and willing to participate are:

1) Rhizobiology and inoculants– John Howieson, Centre for Rhizobium Studies, Murdoch University. Opportunities to provide matching funds.

2) Plant nutrition and soil fertility - Roel Merckx, Katholiek Universiteit Leuven, Belgium.

3) Legume intercropping and benefits to the farming system - Pablo Tittonell, CIRAD, Montpelier, France.

4) Farm and farming system scale modelling of benefits of legume nitrogen fixation – Mark van Wijk, Ken Giller, Plant Production Systems, Wageningen University, Netherlands.

5) Inoculant quality control and inoculant technology - David Herridge, University of Sydney, Australia.

6) Legume/rhizobium matching through selection and breeding - Mariangela Hungria, EMBRAPA-Soy, Londrina, Brazil

7) Dynamics of adoption processes / social organization of markets - Cees Leeuwis, Communication and Innovation Studies, Jos Bijman, Management Studies, Wageningen University

The research topics will be matched with the needs identified by partner institutions, striving to achieve balance across the whole of N2Africa in terms of research emphasis. It is clear that there is a critical need for training in rhizobiology in most countries, and extra funds need to be sought for this. A PhD topic will be selected for each country by the N2Africa team together with key partners, and advertised individually.

4   Selection procedure

All potential candidates will initially be screened for basic qualifications and their applications acknowledged if they qualify as eligible. Based on a summary table of the applicants and their individual applications, they will be evaluated by a committee consisting of Dr Saidou Koala, Dr Ken Dashiell, Prof Ken Giller, Dr Bernard Vanlauwe and at least one local partner representative. This committee will short list candidates and make recommendations pending final admission by the chosen University.

References

Ojiem, J.O., de Ridder, N., Vanlauwe, B., & Giller, K.E. (2006) Socio-ecological niche: A conceptual framework for integration of legumes in smallholder farming systems. *International Journal of Agricultural Sustainability*, **4**, 79-93.

List of project documents

1. N2Africa Steering Committee Terms of Reference
2. Policy on advanced training grants

Partners involved in the N2Africa project

Diobass

Université Catholique de Bukavu

University of Zimbabwe