



Photo: William Critchley

Evelynna Tibemanya harvesting leaves and seeds from her tephrosia bush.

# Controlling ticks and influencing policy

Ronald Lutalo and William Critchley

The international PROLINNOVA network seeks to promote local innovation in ecologically-oriented agriculture and natural resource management. While PROLINNOVA is actively engaged in influencing policy at the international level, it also has its feet on the ground – in vibrant country programmes. Uganda is at the forefront of these. With its foundations built on a practical programme of working with local innovators, PROLINNOVA-Uganda reaches out through partner NGOs to the national extension and research agencies in Uganda. The idea is to demonstrate that local innovation, allied with farmer-to-farmer extension, can be part of an overall national strategy in support of small scale farmers. Here we present an example of one of those innovators – Evelynna Tibemanya – with her innovation of a tick and mite-killing solution (an acaricide) derived from a leguminous tree, and then describe how PROLINNOVA-Uganda works at “higher” levels.

## An innovator and her innovation

*Tephrosia vogelli* is a leguminous shrub which has been promoted in Kabale District of south-west Uganda by various research and development organisations. Apparently it was first introduced there by the World Agroforestry Centre (ICRAF) in 1999, and is now widely grown for soil fertility improvement. It is known to thrive at a wide range of altitudes, at least up to 2000 metres above sea level, making it suitable for most agro-ecological zones of Uganda. About 4 - 6 tons of biomass per hectare can be produced in less than a year. If used as mulch, the leaves and small branches release high quantities of plant nutrients, especially nitrogen, on decomposition. Furthermore, tephrosia fixes nitrogen in the soil through its roots. These effects have a significant impact on crop yields when tephrosia is grown as an intercrop or as a short duration fallow crop.

Evelynna Tibemanya observed that crops interplanted with tephrosia were relatively insect-free. At the same time she heard that others were using dried, crushed tephrosia leaves for control

of weevils in stored beans. She began to follow their idea – with success. Her stored beans remained free of weevils. So, thought Evelynna, “If tephrosia works against weevils in beans why shouldn’t I try it to keep ticks off my pigs?” Although the effect of tephrosia as a tick-killer has been noted before in East Africa, Evelynna was unaware of this, and she came up with the idea independently. After her initial success, she went on to develop a specific concoction of ingredients. Her procedure involves crushing about 250 grams of young, dried tephrosia leaves before mixing in a soap solution. This solution is prepared by dissolving about 100 grams of common laundry soap in 5 litres of water. Mrs. Tibemanya says she uses the soap solution to increase the “stickiness” of the acaricide as well as to remove dirt and skin microbes, thus increasing overall efficiency of the mixture. Five litres of this tephrosia-soap mixture is said to be adequate to treat one large pig, weighing over 50kg.

As we have noted, PROLINNOVA-Uganda works through partners, and in this case the Africa 2000 Network (A2N) is the NGO promoting PROLINNOVA’s agenda in south-west Uganda. By happy coincidence, Evelynna is not only one of A2N’s client farmers, but she also, literally, houses a community-based library: one of a network set-up under A2N’s programme. These libraries are ideal dissemination points for innovative ideas, and it is not surprising that her idea has spread around the neighbourhood, as people have visited her library, walked through her farm and seen this development themselves.

One reason that this particular innovation has taken off locally is that the farming system here (as elsewhere in Uganda) is characterised by low use of external inputs, especially fertilizers and pesticides. This is mainly due to the prohibitive costs, which puts them out of the reach of small-scale farmers. Thus the need for organic pesticides and fertilizers that can provide substitutes for commercial options. Farmer-led action research often yields results that are not only tailor-made to suit farmers’ needs, but which are easily acceptable and sustained. Such innovative solutions are most likely to be generated through farmers’

indigenous knowledge and innovative skill – but this process needs to be integrated into the official research agenda. In fact this example is a case in point: the effectiveness of this mixture has not yet been independently verified, nor is the active ingredient of tephrosia known. Researchers are required to take part in joint experimentation to verify this innovation, before wide scale dissemination takes place.

### How PROLINNOVA-Uganda works

PROLINNOVA-Uganda began its inception phase in 2003 with a national stakeholders workshop. A “training of trainers” course on Participatory Innovation Development (PID) was organised in August 2004. This event was attended by field officers from NGOs, researchers, representatives of governmental organisations, the Ministry of Agriculture, Animal Industry and Fisheries, and researchers and lecturers from Makerere University in Kampala. This course ended with a session on action planning which included strategy discussions on mainstreaming Participatory Innovation Development into the participants’ institutions. One of the action points was to participate in the process of identification and documentation of local innovations in ecologically oriented agriculture and natural resource management. PROLINNOVA-Uganda initially commissioned surveys of local innovations through its core team partners. The areas of focus included organic pesticides, livestock management, bee-keeping, energy conservation, and community mobilisation (social innovation).

The innovations found were submitted to the PROLINNOVA-Uganda core working group, who assessed them and selected those that were most suitable for either immediate dissemination (if they were judged appropriate already) or for “joint experimentation”. This process of joint experimentation is either for validation of the innovation – where it is compared with a control to verify whether it is actually better than common practice, or for value addition – where the innovation clearly

### Two other innovations and their development

Farmers in the district of Nakasongola are currently trying to control the presence of termites, having opted for the use of predatory ants after a detailed analysis of the options available. And in Wakiso district, a modification to conventional poultry keeping has led to longer laying periods (hence more eggs) and reduced infections, ensuring faster chicken growth. In both these cases, as in others, the entry point to working together was what farmers were already trying: their own efforts to solve their problems. These “entry points”, however, do not refer simply to technologies. A closer look at innovation in agriculture has shown that this goes beyond technologies to socio-organisational arrangements such as novel ways of regulating the use of resources, or new forms of stakeholder interaction. The term Participatory Innovation Development (PID) embraces this broader understanding and is gradually replacing Participatory Technology Development (PTD).

can be improved. Memorandums of Agreement for the whole process of joint experimentation were considered to be important: these were drafted and shared and signed. They spelt out the various roles of the three partners involved in the process, namely the farmer innovators, the extension agents and researchers. These Agreements also help protect the intellectual property rights of the innovator, by acknowledging his/her role and assuring that any publication includes his/her name and contribution.

### Sustaining awareness amongst key decision-makers

Decision makers are made aware of Participatory Innovation Development and local innovation through their involvement in the steering committee of PROLINNOVA-Uganda. In these meetings, the policy makers are briefed about the country programme and progress. Their guidance is sought: this is a two way, participatory process. Pressing policy issues regarding local innovation and support of local innovators, through creation of a favourable policy environment are also raised. Policy makers who are engaged in the steering committee include those from the Ministry of Agriculture, Animal Industry and Fisheries, the National Agricultural Research Organisation, the National Agricultural Advisory Services, local governments, the Uganda National Farmers’ Federation, and Makerere University.

To ensure that the Participatory Innovation Development process is sustained, PROLINNOVA-Uganda continues to work with the various stakeholders towards mainstreaming the process. The progress of the institutionalisation process has been followed regularly and capacity gaps have been addressed in subsequent capacity building events. For example, because of incomplete understanding of the joint experimentation process, PROLINNOVA-Uganda organised a workshop for stakeholders on “Joint Experiment Design and Impact Assessment” in April 2006. Interestingly, this workshop stimulated a particular interest amongst participants who are involved in an urban agriculture project: innovation in this field has become an area of potential expansion for PROLINNOVA-Uganda as a result.

Other examples of reaching “up and out” include the sponsoring of two local innovators to participate in the Forum on Agricultural Research in Africa exhibition (held in Uganda in 2005), where they demonstrated and exhibited their innovations -and through this process made connections with the private sector and research institutions. Finally, this year, a series of “topical presentations” at Makerere University began. The idea here is to introduce the concept of local innovation and Participatory Innovation Development to the academic community with a longer term aim of integrating such novel concepts and practices into relevant curricula.

### Future directions

Mrs Tibemanya continues to innovate and is planning to experiment with the tick-killing solution for control of ectoparasites in her cattle. She is also sharing her experience and training other farmers on the formulation and use of the tephrosia-based acaricide. Scientific validation of the acaricide has now begun. Evelynna continues to host the library/community resource centre for Africa 2000 Network farmers in Kabale district, and furthermore is actively involved in PROLINNOVA-Uganda events, where she proudly shares her innovation.

It may sound ambitious, but PROLINNOVA-Uganda hopes that its programme will be effective at all levels: within the fields of south-west Uganda, through the corridors of the Ministry, and in the seminar rooms of one of Africa’s most revered universities. ■

**Ronald Samuel Lutalo.** PROLINNOVA-Uganda Coordinator, c/o Environmental Alert, P.O. Box 11259, Kampala, Uganda. E-mail: rlutalo@envalert.org ; <http://www.envalert.org>

**William R.S. Critchley.** PROLINNOVA-Uganda Backstopper, Natural Resource Management Unit, CIS-Centre for International Cooperation, De Boelelaan 1105 - 2G, 1081 HV Amsterdam, The Netherlands. E-mail: WRS.Critchley@dienst.vu.nl ; <http://www.cis.vu.nl/> ; <http://www.prolinnova.net>

### Reference

- Starkey, P. and P. Kaumbutho (eds), 1999. **Meeting the challenges of animal traction**, ITDG, London, U.K.