

Spreading the word: making stakeholders aware of new chickpea options

RIU

Validated RNRRS Output.

Important lessons have been learned from an integrated crop management project to increase chickpea production in Nepal. These have been used to make decision makers aware of the crop's importance and to boost its spread through Nepal and other areas of Asia. As part of this work, a strategy for chickpea promotion was developed in partnership with Nepal's government. Other outputs included the production of policy documents and information bulletins—which were widely distributed to senior agricultural policy makers and scientists in Nepal, Bangladesh and India. As a result of these efforts, around 8000 farmers in Nepal were growing new chickpea varieties in 2005.

Project Ref: **CPP36:**

Topic: **1. Improving Farmers Livelihoods: Better Crops, Systems & Pest Management**

Lead Organisation: **Natural Resources Institute (NRI), UK**

Source: **Crop Protection Programme**

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Description

CPP36

A. Description of the research output(s)

Research into Use

NR International
Park House
Bradbourne Lane
Aylesford
Kent
ME20 6SN
UK

Geographical regions included:

[Nepal](#),

Target Audiences for this content:

[Crop farmers](#),

1. *Working title of output or cluster of outputs.*

In addition, you are free to suggest a shorter more imaginative working title/acronym of 20 words or less.

A policy and supporting strategy for the increased generation of wealth and enhanced food security by poor farmers in rain fed cereal systems of South Asia and Africa through the supplemental growing of high yield legumes

A policy and strategy for wealth generation through chickpea production

2. *Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.*

Crop Protection Programme

The project also benefited from (and contributed to) activities under IFADs Rice Wheat Consortium projects in North-East India.

3. *Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.*

R8366 1 April 2004 – 31 March 2005

Policy and strategy for increasing income and food security for poor farmers in Nepal and South Asia through improved crop management of high yielding chickpea in rice fallows

Lead Institute: **The Natural Resources Institute**, University of Greenwich, Central Avenue, Chatham Maritime, Kent, ME4 4TB, UK

Lead person: **Dr Philip C. Stevenson**
Email: p.c.stevenson@gre.ac.uk; Tel: +44 (0)1634 883254

Main partners:

Institute: **ICRISAT Asia Centre**, Patancheru PO, AP 502 324, India
Contact: **Dr Suresh Pande** s.pande@chgiar.org
Mr J Narayana Rao jnrao@cgjar.org

Institute: **Grain Legume Research Centre**, (NARC) Rampur, Chitwan, Nepal.
Contact: **Mr RK Neupane** neupane_ramkrishna@hotmail.com

Institute: **Nepal Agricultural Research Council**, Singh Durbar Plaza PO Box No. 5459, Kathmandu, Nepal
Contact: **Executive Director** (various) ednarc@ntc.net.np

4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? (**max. 400 words**). This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.

The issue being addressed was the collapse of chickpea cultivation in Nepal and other areas of Asia between 1990-2000 due to failure to manage pests and diseases that seriously reduced national supply of this nutritionally important foodstuff and reduced the income of smallholder farmers in an already seriously impoverished system.

The principal outputs were

1. **Lessons** from promotion of an **integrated crop management strategy (ICM) for chickpea production in Nepal** (R7885/R8427) were **identified and documented**.
2. **Awareness of policy makers** and implementers of ICM on the value of chickpea rehabilitation were **raised** in the target institutions and countries. This was implemented through a **formal conference held in Kathmandu** - attended by **Minister** and Assistant Minister, (Ministry of Agriculture and Cooperatives - MoAC), members of the **National Planning Commission**, Director (Department of Agriculture - DoA), Executive Director (Nepal Agricultural research Council - NARC) and various other senior staff from the agricultural institutes across **Nepal, India, Bangladesh** and Pakistan but also by **farm leaders** from all the regions in which the project had operated in Nepal. This provided a unique opportunity for senior agricultural leadership to meet with farmers to discuss the benefits of the ICM package and learn from the primary stakeholders.
3. **A strategy for wider promotion of chickpea rehabilitation** was also developed with key policy makers in Nepal and produced as a 20pp bulletin (1000 copies) by ICRISAT as Stevenson PC, Pande S, Pound B and Neupane RK. 2005. A strategy for wealth generation through chickpea production. Information Bulletin No. 70. Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics 24 pp. ISBN 92-9066-482-7. This bulletin has been distributed widely to senior agricultural policy makers, politicians and scientists in Nepal, Bangladesh and India. The Document clearly sets out a strategy for implementation for the outputs of R7885 across the whole of Nepal but also across the rest of the Indian sub-continent.
4. An additional output has been **embedding the ICM strategy** as a major **extension objective of DoA** Nepal that has resulted in many more farmers benefiting from the project outputs demonstrating the actual impact that this output is having on rehabilitating chickpea in Nepal.

5. What is the type of output(s) being described here?
Please tick one or more of the following options.

Product	Technology	Service	Process or Methodology	Policy	Other Please specify
	X	X	X	X	

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

Main commodity: **Chickpea**

Yes. The outputs could have broad impact. The concept of integrated (multifunctional) crop management could be applied to other similar high value nutritionally important legume crops such as pigeonpea and lentil.

Moreover, these outputs could be applied to the growing of legumes in similar rain fed cropping systems across India (Jharkhand and Chattisgarh), Bangladesh and Pakistan as well as new regional foci in Africa (Tanzania, Ethiopia, Kenya etc)

Crop diversification, especially as part of an improvement program for legumes in rainfed cropping is considered by most policy makers to be a key element of any national development strategy, in this case for Nepal. The Agricultural Perspective Plan Support Program (APPSP) of the Ministry of Agriculture and Cooperatives in Nepal for example recognises the importance of crop diversification particularly for legumes.

Developing chickpea as part of a farming system (e.g., rainfed rice systems) rather than as a single commodity may also be a good way to broaden the scope for taking the strategy forward. It may also show how the introduction of low input technologies could benefit production of other crops.

7. What production system(s) does/could the output(s) focus upon?

Please tick one or more of the following options. Leave blank if not applicable

Semi-Arid	High potential	Hillsides	Forest-Agriculture	Peri-urban	Land water	Tropical moist forest	Cross-cutting
X		X					

8. What farming system(s) does the output(s) focus upon?

Please tick one or more of the following options (see Annex B for definitions).

Leave blank if not applicable

Smallholder rainfed humid	Irrigated	Wetland rice based	Smallholder rainfed highland	Smallholder rainfed dry/cold	Dualistic	Coastal artisanal fishing
X		X		X		

9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**).

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

The main purpose of this project was to develop policy guidelines and detail a strategy to enable and enhance the uptake of the successes of the earlier project R7885/R8427 into the mainstream activities of Nepal's agriculture extension strategy, through DoA agricultural extension and non-government extension vehicles. The policy ideas developed in this project could be clustered with the outputs of plant science projects on seed priming in legumes

(R6395, R7438 R7540 R8221 R8269) though the strategy developed has already integrated the only specific technology output from these projects (pre-soaking seed prior to planting) into its existing ICM of chickpea system. Other candidates for clustering are with the management of pigeonpea technologies project (R8481, R8205, R7452) and reducing Aflatoxin levels in groundnut (R8483, R7809 and R8298) also based at ICRISAT for an **“Improved legume management in Asia and Africa”** cluster aimed at promoting new safe legume crop technologies to improve income generation by rainfed smallholder farmers in Asia and Africa.

The most obvious non RNRRS innovations platform to cluster this work with is the IFAD supported Rice Wheat Consortium (RWC) for Indo Gangetic plain, with which the project has already been working in its final phase. The RWC is seeking to promote improved and more sustainable cropping systems in this semi-arid agro-ecosystem in Asia by working with NARS and poverty focussed NGOs in India, Pakistan Nepal and Bangladesh as well as appropriate ARI's, including ICRISAT, CIMMYT and IRRI.

Validation

B. Validation of the research output(s)

10. How were the output(s) validated and who validated them?

Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the “who” component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (max. 500 words).

The policy document has itself not been validated through a formal process of evaluation such as a socio-economic survey. However, the output being discussed in this document was based on outputs from R7885 in which a group of agricultural technologies, that were proven through participatory trials to more than double yields and guarantee a harvest, were developed and promoted to 3500 farmers (end users). The impact of the technologies promoted in R7885 was validated via a formal survey (questionnaires) of approximately 500 farmers who had experience of using the technologies. This survey has been published as Pande, S, Bourai, VA, Stevenson, P.C. and Neupane RK (2003) Empowerment through enrichment. IPM of chickpea in Nepal 2. Information Bulletin No 65 Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics, 28pp ISBN 92-9066-463-0. This validation evaluated the impact of the promotion of chickpea ICM on family income, production, changes in crop preference, on housing, labour, and other family spending changes or additions resulting from chickpea production and finally on livestock ownership. Specifically, the impact on farmer's wealth was evaluated in terms of seed transaction benefits, sale of surplus product, reduced fertilizer burdens and subsequent increase in crop yield. Thus the components of the output have been validated before their incorporation into the policy document. In addition, significant contributions have been made to the development of the policy document from staff in MoAC (both DoA NARC and Ministerial officers) (government department), SMEs (private sector), NGOs and farmers (end users) at a workshop held in Nov 2004, and provides some validation of the policy by the all stakeholders from government departments to

end users.

DoA, the principal governmental agricultural extension vehicle of Nepal under the Ministry of Agriculture has validated the outputs of this project cluster and it has adopted the policy promoting to farmers in areas the present project was unable to reach. This upscaling has depended on information provided in the output. This project cluster provided training for trainers in DoA and the information sheets to accompany the training and to distribute with the technologies.

Internationally the work has been validated by scientific peers by international peer review: Pande, S., Stevenson, P.C., Narayana Rao, J., Neupane RK, Chaudhary RN, Grzywacz, D., Bourai VA, & Krishna Kishore, G. (2005). Reviving Chickpea Production in Nepal Through Integrated Crop Management, with Emphasis on Botrytis Gray Mold. *Plant Disease*, 89, 1252-1262.

11. Where and when have the output(s) been validated?

Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above (max 300 words).

The outputs that formed the basis for this policy study were validated throughout the Terai in Nepal, across the following districts Bhardia, Banke, Rupandehi, Nawalparasi, Bara, Parsa, Rautahat, Sarla, Mahotari, Siraha, Saptari, Sunsari, Morang, Jhapa by farmers from a variety of ethnicities including Tharus, Thamangs (who have migrated from the hills) and Rajbansis but the ethnic diversity of the people in Terai is high.

The impact of their use was evaluated in all of these areas through interviews with approximately 500 farmers. In considering that originally the production system in focus for the project cluster was hillsides it became apparent that the outputs were equally relevant to the semi-arid system especially with respect to western Nepal which has very little rain during the winter months at all. In the eastern districts chickpea is harvested earlier owing to a wetter climate and so is more susceptible to root rots and Botrytis Grey Mould. All farmers were from smallholder farms in which community groups played important roles in developing support networks and for information disseminations. These groups were from rainfed humid, rainfed dry/cold and wetland rice based cropping systems

Current Situation

C. Current situation

12. How and by whom are the outputs currently being used? Please give a brief description (max. 250 words).

The strategy paper developed along with policy guidelines published as ICRISAT Bulletin 70 continues to be used by the Department of Agriculture, Nepal to implement the promotion and adoption of The ICM technologies developed under this cluster of projects to farmers.

The policy change to engage a dialogue and collaboration between DoA and NARC through a training programme in which DoA extension workers were trained in the ICM technologies and in how to demonstrate them has left DoA with a project outputs that continues to be used today.

The output continues to be used by thousands of farmers in 14 districts where they were demonstrated in farmer field schools and through participatory trials. In some places they have expanded the area under chickpea production so that it replaces entirely other crops.

13. *Where are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used (max. 250 words).*

The ICM technologies about which the policy has been developed are currently being used in 14 of the 20 districts of Nepal (Bardia, Banke, Rupandehi, Nawalparasi, Bara, Parsa, Rautahat, Sarla, Mahotari, Siraha, Saptari, Sunsari, Morang, Jhapa). As part of the up-scaling outputs from the final project extension (to Jan 2006), the Department of Agriculture (extension wing of MoAC) were trained in the use and promotion of the technologies and they continue to implement the production of chickpea using the developed ICM technologies under the umbrella of DoA extension activities in the districts.

The policy document itself has been distributed throughout Nepal and the rest of South Asia through ICRISAT networks. 1000 copies were printed and these have now all been distributed to relevant agriculture organisations institutes and department in the region.

14. *What is the scale of current use? Indicating how quickly use was established and whether usage is still spreading (max 250 words).*

When the project cluster started in 2000, 503 farmers were recorded as taking up the new technology. By 2005 adoption had increased to an estimated 8000 (3500 directly) and was actively expanding in the Terai area traditionally responsible for 90% of the chickpea production in Nepal. Impact studies have estimated that if adoption continues to grow at the current rate then the technology would reach at least 20,000 farmers by 2010. However, direct involvement of Department of Agriculture extension services through training of extension staff and prioritising this strategy at Ministerial level was achieved in the final year of the project cluster thus much greater take up could ultimately be achieved.

15. *In your experience what programmes, platforms, policy, institutional structures exist that have assisted with the promotion and/or adoption of the output(s) proposed here and in terms of capacity strengthening what do you see as the key facts of success? (max 350 words).*

The cooperation and support for this output (the policy document and associated outcomes) from the Minister of Agriculture and Cooperatives, Members of the National Planning Commission and various other senior political and scientific individuals enabled the profile of the output to be raised to the very highest level in the press (TV, radio and newspaper). This encouraged the engagement of all agricultural institutions, and major agricultural NGOs in Nepal to contribute to the workshop that formed the basis for the development of the policy document. In particular, the project and this workshop facilitated rare cooperation between the DoA, the principal extension vehicle in the Nepal, and NARC, the principal research vehicle in the Nepal and the institute who facilitated the

original evaluation of the technologies with NRI and ICRISAT. DoA and NARC continue to work together on promoting this cluster of technologies to farmers.

Training workshops run by NARC for DoA extension officers provided capacity building opportunities to enable DoA to embed the ICM strategy into their suite of extension activities.

Environmental Impact

H. Environmental impact

24. *What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? (max 300 words)*

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

Because the chickpea production system developed uses better focused and less frequent application of pesticides for disease and pest control than used by farmers previously it has a direct effect in reducing environmental contamination by pesticides. As part of the project was to reduce the use of chemical insecticides even further the use of biological control using podborer NPV, a biological pesticide was introduced on a trial basis in Nepal. However while promising this is not yet reliable or available widely and quantitatively enough to be scaled up though it represents a potential further component of the ICM that could be environmentally beneficial.

Another indirect benefit is that farmers have taken up chickpea in preference to tomato that itself involved much higher use of chemical pesticides to control tomato pests and diseases thus again reducing overall contamination levels in the farming system.

A further environmental benefit is the organic nitrogen fixing activity of chickpea which improves soil fertility without the need to apply chemical fertilizers that are a cause of runoff pollution to water bodies.

25. *Are there any adverse environmental impacts related to the output(s) and their outcome(s)? (max 100 words)*

No. On the contrary, the fact that chickpea has replaced crops in some areas that formerly required very high pesticide inputs (tomato) and that chickpea require very low inputs means that their adoption will actually benefit the environment and farmers health.

26. *Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? (max 200 words)*

The adoption of chickpea as a fallow season crop in addition to the staple cereals of wheat and rice means households have an alternate source of food and income in the event of a failure of the main crop. Furthermore

chickpea is a highly drought tolerant crop and thrives in the dry conditions that will increasingly characterise climate change in the Nepal Terai. As rainfall becomes less reliable farmers will be able to still rely on chickpea as a high yielding crop and valuable source of protein. Chickpea also has the potential when prepared correctly to be stored for a very long time and can be an excellent source of food in crisis.

