An Extension Manual for N2Africa Master Farmers

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Summary

The N2Africa Project in west Kenya relies upon a network of 32 Master Farmers to achieve its outreach objectives. To commission these Master Farmers, a one-week training workshop was conducted on biological nitrogen fixation (BNF) and grain legume enterprise that included instruction, working group assignments, field work and field laboratory practicals. Upon return to their grassroots groups, each Master Farmer worked with 50 farmers to conduct BNF technology tests and initiate community-based seed production of improved varieties of grain legumes. A 17 page extension manual was published and distributed to Master Farmers to assist them in this task. This manual contained information on the role and responsibilities of participating farmers and their organizations; management of nitrogen, grain legumes and BNF; selecting legume inoculants; on-farm technology testing; seed production, post-harvest handling and marketing of grain legumes; opportunities for gender empowerment and concluded with a glossary and Master Farmer skills checklist (right). Special attention is paid to the handling and application of rhizobial inoculants (below).

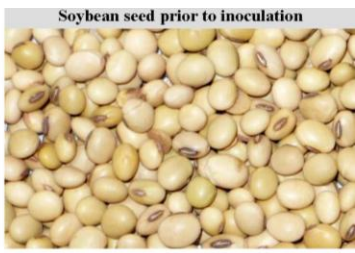
Necessary skill (a Master Farmer is able to ...)
☐ Access improved varieties of grain legumes
☐ Identify common crop pests and diseases
☐ Access fertilizers needed for grain legume production
☐ Diagnose major nutrient deficiency symptoms
☐ Recommend appropriate intercropping and rotation strategies
☐ Practice and explain basic soil conservation measures
☐ Recommend appropriate staking systems for climbing legumes
☐ Identify effective and ineffective legume root nodules
☐ Select a proper inoculant for cultivated legumes and store it properly
☐ Prepare adhesive solutions for seed inoculation
☐ Inoculate legume seed with rhizobia and test response to inoculation
☐ Pellet inoculated seed with finely-ground mineral fertilizer
☐ Design, install and interpret needed diagnostic field tests
☐ Evaluate the need for lime, P fertilizers and starter N by grain legumes
☐ Adjust recommendations and product information to local conditions
☐ Identify and adhere to grain legume industry standards
☐ Handle legume grains in a manner that protects their quality
☐ Establish and supervise community-based seed production
☐ Assist in the design and operations of collective marketing operations
☐ Explain the goals and activities of the N2Africa project
☐ Respond to the special needs of women farmers
☐ Expand the services offered to members of grassroots farmer groups
☐ Contact local extension officers and researchers for special advice

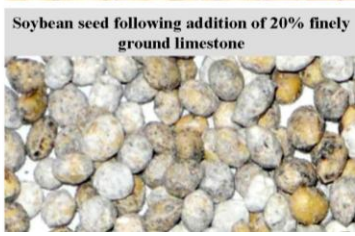
Sticker, inoculant and mineral coating required to pellet different grain legume seed

legume seed	seed weight g/seed	---------- two-step pelleting ---------- sticker ml/kg seed	inoculant g/kg seed	coating g/kg seed
soybean	0.15	28	10	200
bean	0.42	26	10	160
groundnut	0.50	20	10	120
cowpea	0.12	30	10	220

Making the best use of legume inoculants

- ☑ Use the correct inoculant for each legume. Check the label for the legume species you are planting and the product's expiration date.
- ☑ Protect inoculant from sun and heat to keep it alive. The ideal storage temperature is between 4° and 26° C.
- ☑ Store inoculant in tightly closed bags and remove it with clean utensils.
- ☑ Use a sticker when inoculating seeds. Smaller seeds require more sticker.
- ☑ Use the recommended amount of inoculant. Use no less than 10 g per kg of seeds. Smaller seeds have greater surface area and require more inoculant.
- ☑ Inoculate seeds just before planting. Cover the inoculated seeds shortly after planting to protect rhizobia from the sun and drying.





Conclusion

The extension manual was produced with a cost effective design because it consisted of even number of even pages. This permitted the black and white text to be printed on two sides of a large sheet, folded into the color cover, trimmed and center-stapled. Six thousand copies (6000) were printed by UNON (Nairobi) at a cost of $0.34 each, The manual was intended primarily for outreach actions in west Kenya but its information is relevant to dissemination campaigns elsewhere. It was recently modified for conditions in Southern Africa and 2000 copies printed. The manual was first published in English but is now being translated into French and Kiswahili for wider impact. The distribution of the manual in west Kenya was linked to other outreach activities including a BNF technology inputs package (right) resulting in 87 roadside demonstrations, 3420 on-farm technology tests and 24 legume seed production activities.

For more information on the N2Africa Project, contact the Project Leader at *k.dashiell@cgiar.org* or visit our website *www.N2Africa.org*