# Dcfrn-~1Developing Countries Farm Radio Network

# Package 79, Script 4

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Micro-doses of Fertilizer Increase Yields in the Sahel

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**Notes to Broadcaster**

Desertification is a major problem facing many African countries. Land degradation due to desertification results in poor yields and grazing capacity, loss of farmland and rangeland, reduction or disappearance of forests, and serious economic difficulties for producers, herders, and the general population.

The Desert Margins Program (DMP) is a collaboration among nine African countries: Burkina Faso, Botswana, Mali, Namibia, Niger, Senegal, Kenya, South Africa, and Zimbabwe, assisted by five International Agricultural Research Centers and three Advanced Research Institutes. Its objectives are: 1) To understand land degradation; 2) To assess dryland management practices; 3) To improve natural resource management; 4) To design policies, programs and institutional options; 5) To formulate drought management strategies; 6) To enhance institutional capacities; and 7) To exchange technologies and information. The key goal is to enhance the food security of poor rural populations and alleviate poverty by halting or reversing desertification. The 120 million inhabitants of these nine countries depend mainly on rainfed agriculture and natural rangelands for their survival. But their livelihoods are at risk due to land degradation. The problem of biodiversity loss is particularly critical in very dry areas where ecosystems are less likely to recover once they are seriously damaged. This script focuses on a DMP project which uses ‘micro-doses’ of fertilizer to increase crop yields in the Sahel region.

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**Characters:**

Host

Hassane Ousmane

**Host:** This broadcast brings good news about one of African agriculture’s success stories. The semi-arid zone of the Sahel in Western and Central Africa is one of the poorest regions in the world. The climate is extremely harsh and the variability in annual rainfall causes drought. The soils are infertile. These conditions make it more difficult to grow the main food crops in the area – millet and sorghum – and farmers remain poor.

The International Crop Research Institute for the Semi-Arid Tropics in Niger has found a way to improve the yield of both millet and sorghum with a combination of chemical and natural fertilizers. Years of tests in Niger have shown that small applications of fertilizer, or what is called ‘micro-doses', can increase crop yields.

Today we welcome to our program Mr. Ousmane Hassane, from the International Crop Research Institute for the Semi-Arid Tropics in Niger. Hello, Mr. Ousmane.

**Ousmane Hassane:** I’m very happy to be given this opportunity.

**Host**: What is a micro-dose fertilizer application?

**Ousmane Hassane**: Micro-dosing is applying only small quantities of fertilizer in a planting hole. Micro-dosing uses fertilizer more efficiently and improves yields.

**Host:** Can you explain a bit more about this technology?

**Ousmane Hassane**: Farmers have long been told that they need to use a great deal of fertilizer. But our research has shown that, even when rainfall is low, if a farmer uses two grams of Diammonium Phosphate or six grams of NPK with the formula 15:15:15 in planting hills, millet yields are doubled. So farmers can increase their yields by using only 20 kilograms of Diammonium Phosphate with the formula 18-46-0 or 60 kilograms of NPK with a 15-15-15 formula per hectare. The project has also been helping farmers form groups to purchase inputs together at the beginning of the growing season, when input prices are lower.

**Host:** Where was this micro-dosing technique tested?

**Ousmane Hassane:** Some successful studies were conducted on farms in Niger. Building on this success, the International Crop Research Institute for the Semi-Arid Tropics conducted a fertilizer micro-dosing project in three West African countries: Burkina Faso, Mali and Niger.

**Host:** And what were the results in these three countries?

**Ousmane Hassane:** Micro-dosing raised yields in sorghum and millet by almost 50% to more than double. Also, farmers received higher incomes; from 50% more to almost double. More than 12,000 households were involved in the two years of the project.

**Host:** We’ll be back in a moment to talk more with Mr. Ousmane Hassane of the International Crop Research Institute for the Semi-Arid Tropics.

# *Musical pause*

**Host:** Welcome back. Mr. Hassane, I understand that you spread the good news about micro-dosing to other farmers in these three countries.

**Ousmane Hassane:** Yes.We used farmer field schools to publicize the micro-dosing technique. In Niger, farmer field schools were established at four villages. Each field school was one hectare in size. Micro-dosing was used on one half of the area and traditional methods on the other half.

**Host:** So other farmers in the village and neighbouring villages learned about this technique?

**Ousmane Hassane:** Yes, we held open house or demonstration days for other farmers. These were very popular. The number of participants varied from 100 to 500, with more than half being women.

**Host:** Were the participants impressed by what they saw?

**Ousmane Hassane:** Yes, I would say so. Farmers guided the field visits as well as visits to a grain storage facility. They explained the micro-dosing technology to other farmers. They also demonstrated other innovations for water and soil conservation, including how to use barriers, dikes and stone lines and improved varieties. The farmers did a wonderful job of mastering and explaining the different techniques, and there was a lot of good interaction. The farmers also explained the system of ‘warrantage’.

**Host:** What is ‘warrantage’?

**Ousmane Hassane**: In the warrantage system, farmer groups receive post-harvest credit in exchange for storing their grain. Their grain is treated as collateral. This allows farmers to sell crops later in the season for higher prices and higher profits. Having cash early in the season means that they can afford to purchase crop inputs earlier, which increases yields and helps them sell their grain. Hundreds of farmers’ organizations are now using the warrantage system.

**Host:** In your opinion, has the farmer field school and open house approach been effective?

**Ousmane Hassane:** Yes, the techniques have been spread tovillages that had not been part of the original project, and links were made between farmer organizations at the different demonstration sites. Open houses allow farmers to see promising technologies in action, and quickens the adoption of these practices. Another benefit is that producers take ownership of methods such as micro-dosing and they sell the ideas themselves. The farmers become the technical experts at open house days.

**Host:** Thanks so much for telling us about this exciting project. And good luck with it!

**Ousmane Hassane:** Thank you for inviting me.

Acknowledgements

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