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Regional Radio in Tunisia
Linking Indigenous Innovation and Formal Research and Development

When the Arid Region Institute (*Institut des Régions Arides*, IRA) in Médenine, Tunisia, set out to seek the dynamics of IK in marginal rural areas of central and southern Tunisia, it discovered a large number of farmers —both men and women—who were developing their own innovations without the support of formal research and development services. In order to spread information about these innovations and to forge links among farmer innovators, and between these and other researchers and extensionists, the multi-disciplinary research team at IRA organized field visits. However, a much further-reaching mechanism to disseminate and stimulate farmers' ideas and experiments proved to be a weekly radio program on agricultural innovation.

Since most of the farmer innovators who had been identified were living in the part of Tunisia covered by the Gafsa regional radio station. IRA sought to collaborate with this radio station. The existing program on "Agricultural Extension" was replaced by a new program on "Agriculture and Innovation." The new two-hour program was broadcast on the same weekday and at the same time as the old one, and the presenter of the earlier program (El Ayech Hdaidi) assumed responsibility for the new one.

Closing the distance between stakeholders

The broadcast was, in itself, an innovation. It was the first time that a Tunisian radio station had systematically invited farmers to present and discuss their knowledge and experience. In the past, it had been scientists and technical advisors who passed on information and recommendations to farmers, in line with the "transfer-of-technology" model of research and extension. In Tunisia, as in so many other countries in the world, agricultural extension meant talking to and teaching farmers, not listening to and learning from them.

The radio program not only invited farmers to present their innovation, it also involved researchers, training spe-

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cialists and development agents in debates about these innovations. Sometimes these stakeholders in development sat together in the studio; sometimes they phoned in. This meant that innovators did not need to travel long distances to the radio station to share their ideas with others. Innovative farmers and other listeners with telephones could take part in the debate from anywhere in the region.

To stimulate the participation of as many listeners as possible, the "Agriculture and Innovation" program was announced in the weekly bulletin of the National Union of Agriculture and Fisheries. IRA also made sure that all regional Departments of Agriculture in central and southern Tunisia were informed about the topics of upcoming broadcasts, and invited staff to take part.

Farmers from the region (about 85 percent men and 15 percent female) presented a wide range of innovations, including economizing on water use in rainfed crop production, managing soil fertility, fruit-tree husbandry (grafting fruit trees on to the roots of a shrub that indicates good soil fertility and soil humidity) and various innovations related to small ruminants and bee keeping.

To encourage listeners to follow the program closely, a system of prizes was introduced. Once every two weeks, a prize of 50 Tunisian dinars (about US$35) was awarded to a listener who had responded by post to a question posed during the program about the innovators and innovations. Not only IRA but also the agricultural cooperative in Gabès provided prizes. Listeners were also invited to report on new innovations. This proved to be a good way to identify additional innovative farmers, both men and women.

Letters from listeners

After each weekly broadcast, Radio Gafsa received 20–30 letters from listeners, mostly from rural areas and by far the majority from women. In the case of older, illiterate women, the letters were written for them by their school-going children or by younger women in the village. Some listeners wrote to offer information about their own innovations, and many requested an opportunity to present them on the radio. Innovations identified in this way included techniques for planting cactus and fig trees, local remedies for diseases of fowl and small ruminants, and managing rainfed vineyards to produce table wine. Some listeners asked for more details about specific innovations they wanted to try out for themselves. Some described how they had already tried out innovations presented on the radio. These included hatching chicken eggs in piles of dry manure (see Box 1), grafting prunes and peaches on jujubier (*Zizyphus lotus*), planting olive trees on cactus paddles, and drip irrigation using plastic bottles.

Many of the letters offered congratulations and encouragement to the presenters to continue the radio program. Some listeners even suggested starting a parallel television program to show the best innovations.

Box 1: A woman's innovation—Incubating chicken eggs in cattle dung

Ms. Mbirika Chokri, a 70-year-old woman living in Sidi Aich (Gafsa), practices rainfed farming and specializes in poultry. On her own initiative, she developed a way of incubating chicken eggs in cattle dung. She puts the eggs with some straw in plastic bags to preserve some humidity. Each bag contains 16–20 eggs. She puts the bags in small holes dug in the manure, covers them with a piece of cardboard to protect them against damage, and covers the cardboard with a thin layer of manure. Each day, she opens the bags to check the temperature of the eggs and to turn and aerate them. From day 20, the eggs start to hatch. She puts the chicks into a box to protect them from the cold and feeds them couscous, vegetables, and bread.

Mbirika started this innovation in 1995 when one of her hens, whose eggs were about to hatch, suddenly died. She tried to save the chicks by putting the eggs into a pile of dry cattle dung. After some days, the chicks indeed hatched. Delighted at this success, she continued to use manure to hatch eggs and tried out different ways to improve the technique. She is now an expert who produces numerous chicks in this way. She had not been very open in sharing her new knowledge with her neighbors, but she proudly accepted IRA's request to present her innovation in the "Agriculture and Innovation" program on Radio Gafsa and later also on television.

Since then, Mbririka has been invited several times to Tunis to present her innovation at agricultural fairs and meetings, and has received several awards.

Impact of radio on extension

A socio-economist in IRA (Noureddine Nasr) evaluated the impact of the radio program on "Agriculture and Innovation." He analyzed the listeners' letters for content and visited the men and women who had presented their innovations on the radio in order to find out whether they had continued to develop their innovations and whether other farmers or extensionists had visited them. He visited listeners who had received prizes. He interviewed farmers in villages along the Gabès-Gafsa and Gafsa-Maknassy-Mazouna roads in places where farmers frequently meet, such as in shops, at reforestation sites, and in the local offices of the extension service. This evaluation revealed that the radio program had four major areas of impact.

• **Providing an incentive to continue innovating.** For most of the men and women farmers who had presented their innovations on Radio Gafsa, this experience had been an important social incentive. After the broadcast, several innovators continued to develop their innovations or started to develop new ones (see Box 2).

• **Encouraging visits to innovators.** After they had spoken on the radio, most innovators were visited by other farmers and experts. During his presentation, one innovator who distils cosmetic plants asked other farmers listening in if they would like to grow these plants on a contract basis. A few days later, a group of farmers visited him. This visit was organized by the team of the Presidential Pilot Project on Agricultural Extension based in Gafsa, which records all broadcasts of "Agriculture and Innovation" for use in its extension workshops. A few months later, when the farmer was interviewed on radio again, he reported that he had already signed production contracts with 20 farmers. The Director of the Gafsa Regional Department of Agriculture visited four of the innovators, including one woman. These visits were incentives to both the innovators and the extensionists, and indicated the development of new relationships between farmers, development workers, scientists, and policymakers.

• **Stimulating adoption and adaptation by listeners.** Analysis of the survey results and of the letters to the radio station showed that several listeners had adopted and, in many cases, adapted the innovations presented on the radio. For example, it was found that more than 50 men and women farmers had tried out the bottle method of drip irrigation developed by Rgaya Zammouri, an elderly woman from Zammour village who had presented this on Radio Gafsa and on national television. Five women were found to be using cattle dung to hatch chicken eggs, as had been described on radio by Ms. Mbirika Chokri (see Box 1).

• **Changing attitudes in research and extension.** The broadcasts also started to influence the attitudes of scientists and development agents. When the research team first started to seek local innovations as stimuli for rural development, this approach was strongly criticized by the majority of conventional research and extension staff, and some individuals even openly ridiculed it. After the first innovators had been identified and particularly after the program "Agriculture and Innovation" started, even some of the more skeptical staff members began to show an interest in this new approach to research and development building on the dynamics of indigenous knowledge (IK).

Box 2: Farmers stimulated to continue innovating

Mr Béchir Nasri, an innovator in Médenine Region, invented a new system for pumping water from cisterns and a new technique for conserving wax honeycombs in beehives. He then developed a simple mechanical system to control the timing and amount of water used in localized irrigation, and a technique to filter sediment from runoff water in order to avoid deposition in cisterns. Together with the IRA research team, he further developed his water-pumping and irrigation systems.

Mr Khlifa Dadi, an innovator in Mareth Region, developed new techniques of localized irrigation in order to economize the use of water. These were adaptations of an innovation he saw during a visit to another innovator featured on the radio.

Ms Naziha El-Fahem increased her production efforts after she was interviewed on the radio about her innovations in poultry-keeping. She began to supply chicks to other women who had started raising poultry, taking advantage of a women's micro-credit scheme developed by a project in Mazouna as a result of Naziha's radio presentation.

Mass media and innovation

The costs of the first year of broadcast on local innovation (5000 Tunisian dinars or about US$ 3,600) were covered out

of project funds. (The work of IRA Médenine in promoting local innovation was carried out as part of the Indigenous Soil and Water Conservation (ISWC) project funded by the Netherlands Government.) Because the program was so popular among farmers and development agents, and because the radio station received more positive letters than it had ever previously received, Radio Gafsa decided to continue the program and to fund it entirely from its own resources. The program is still on the air today (June 2004).

Since January 2002, Noureddine Nasr has been working with the International Plant Genetic Resources Institute (IPGRI) as coordinator of a project of the Global Environmental Facility / United Nations Development Program (GEF-UNDP): "Participatory management of date-palm genetic resources in the oases of the Maghreb". This project linked up with the "Agriculture and Innovation" program of Radio Gafsa and developed a similar program with Ghardaia regional radio in Algeria.

Listeners have requested not only that the regional radio broadcasts on local innovation be continued but also that they be extended to still more regional stations and to national radio. This can be done in an effective way only when development agencies and, in particular, farmers' organizations become "co-owners" of these broadcasts, by making contact between local innovators and the radio station, encouraging farmers to listen to the program, and helping farmers to form groups to listen, phone in, and discuss.

Other mass media (the press and television) should be used more systematically to convey the message that men and women farmers are taking initiatives and using their IK and creativity in developing useful technologies to improve their livelihoods. A strong thrust in this direction was taken in October 2003, when the Maghreb date-palm project organized a workshop on "Public Awareness in Conserving Biodiversity," involving media specialists from radio, television, newspapers, and magazines in Tunisia, Syria, Egypt, Libya, Algeria, and Morocco. At this workshop, an Arabic network of public awareness specialists in agro-biodiversity was established, under IPGRI coordination. This will provide many opportunities for local innovation and farmer-led experimentation to be made more widely known.

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