INTERVIEW

OPPORTUNITIES, CHALLENGES AND LESSONS FOR AGRICULTURAL EXTENSION AND COMMUNICATION

Agricultural biotechnology and genetically modified foods have become both a solution and a controversy in efforts to deal with the need for higher agricultural productivity and lesser invasive threats to harvesting of crops. Ackson Joseph Mwanza was a member of a multi-national panel of experts on bio-technology in Africa and DevCom took the opportunity to interview him about the challenges and opportunities related to biotechnology in his country where he is Senior Agricultural Officer in the Ministry of Agriculture of Zambia. His observations point to important challenges for agricultural extension and communication in the age of agricultural bio-technology.

DevCom: Who are the farmers in your country?

Ackson: Zambia has the majority of its rural dwellers engaged in farming. There are three categories of farmers in Zambia and these are the Commercial, Medium-Scale and Small-Scale farmers. These categories pertain to a number of reasons with some being farm size and the scale of production. Zambia has a population over 14 million and more than 60% of that population are found in the rural areas of which close to 80% of the rural population rely on farming as a means of livelihood. The staple food in Zambia is Maize (Zea mays) as the main meal with any protein, vitamin and mineral sources with various condiments. As a result, the bulk of the Zambian farmers produce Maize which stands at over 3.6 million metric tons while annual national maize consumption stands at almost 1.5 million metric tons. Maize production currently stands at Commercial farmers 5%, Medium-scale farmers at 15%, and Small-scale farmers at 80%. Therefore, the bulk of most of production is done by the small-scale farmers who are mostly women. The majority of the small-scale farmers are generally poor people who engage in subsistence type of farming. Efforts have been upped in the recent past by all sector players especially the Government of the Republic of Zambia to empower the farming communities with subsidies, technologies, equipment, market linkages and management capacity among many other interventions to uplift farmers and their well-being to break out of the intergenerational poverty cycle to get to medium-scale type of farming and beyond.

DevCom: How would agricultural biotechnology applications fit into Zambian farmers current practices? How might genetically modified seeds and practices

change the character of farming in your country? What is the potential of that technology?

Ackson: The challenges and issues vary among the various categories of farmers. The commercial farmers for example, would be dealing with issues around saturated or flooded market due to importation of some products which are produced locally to fully cover the local demand and as a result have excess post-harvest losses and sometimes they might incur some challenges centering around the bureaucracies in the exportation of their produce and the efforts in meeting international standards while the small-scale farmers are dealing with the issues of low yields, rainfall dependent type of farming among many others. The small-scale farmers are usually the worst hit in case of an eventuality due to little or no access to financial services (loans) and inadequate access to technical knowhow in running farming as a profitable business enterprise and not only a means of subsistence livelihood.

Farming is a major contributor to the alleviation of rural poverty, and though most farmers produce from hand to mouth, a number of them have come out of that bracket and now take farming as a business. Their type of farming has been through the use of open pollinated varieties like local traditional seeds that have adapted to the local conditions over a period of time. The farmers are also using the higher yielding hybrid seeds. The local seeds being planted are seeds like 'gankata' (maize seed) or 'longo' (sorghum seed) among many others. Hybrids have been a major contributor to the increase in agricultural production building up from the 1920s-1930s although the introduction of hybrids was faced with resistance among the farming community especially the small-scale farmers. Farmers felt swindled by seed companies because they used to re-use the traditional seeds and now they were being told not to recycle the then new hybrid seeds but rather buy certified hybrid seeds each farming season from authorized dealers for them to realize better yields due to reduced hybrid vigour in subsequent seasons. The majority of the farmers regardless of scale realised the benefits accrued from growing hybrids and later accepted them as part of their farming routine. Therefore, the onset of Genetically Modified Seeds raised a lot of questions among the farming community about what Genetically Engineered (GE) seeds are. There were quite a number of concerns raised by the farming community as well as the general populace. Some of those concerns, according to the farmers, were not satisfactorily addressed as there was no biosafety regulatory body at the time. Some of the concerns are the effects of GE crops on non-GE crops. Therefore, a Biosafety Act was later passed in 2007 that led to the establishment of the National Biosafety Authority whose mandate was to regulate research, development, application, import, export, transit, contained (regulated) use, release or placing on the market of genetically modified organisms.

DevCom: What happens to non-GMO crops when planted alongside GMO crops, and how is cross-pollination restricted among farmers with small pieces

of land who may depend on the rain fed type of farming? What are some of the health concerns or side effects if any in the consumption of GMO products?

Ackson: As earlier alluded to, the small-scale farmers form the large bulk of farmers and contribute very significantly to the national food and nutritional security. Most of these farmers rely on rain fed type of farming and, as a result, most of them plant around the same time of the year (October – February) depending on the rainfall patterns. The fields used by small-scale farmers are relatively small (<2ha) and close to each other in search of arable land. Therefore, one of the main concerns raised was that of containment of cross-pollination of non-GE and GE crops at pollination because there is not enough space to observe the isolation distance. All farmers plant at the same time of the year because they all depend on rain fed type of farming which occurs between November and May, and so farmers cannot plant at different times of the year to avoid cross pollination of GMO and non-GMO crops because only a handful are engaged in irrigated farming to work with variation in planting time between GE and non-GE crops as a mitigation measure against cross pollination. Therefore, there is risk of 'contamination' or crossing either way due to cross pollination.

DevCom: What is the process for helping farmers adopt new practices such as biotechnology? Is there an active extension system? Does it reach all or most farmers?

Ackson: There are extension services provided by various sector players. These are mainly three extension providers and these are public, private and civil society (NGOs). The public extension sector has been the main provider of extension and it therefore has undergone massive criticism over the past couple of decades because of the dawn of private extension as well as extension by the civil societies plus the availability of e-extension [electronic extension]. This debate has been on-going for a couple of years and the question one asks is whether the farming community is homogenous looking at literacy levels, accessibility to services and the scale of production. The various governments especially in developing countries have been the gatekeepers trying to protect especially the small-scale farmers who are usually victims especially against unscrupulous private entities, companies or businesses. The public extension has proven to stand the test of time despite the numerous challenges faced as it has been there the longest because private sector extension tends to be driven by the market forces and thus easily switches from one area to another while the civil society extension is usually run alongside/through the project cycles and what happens when the projects come to an end? Most projects have been unsustainable due to lack of or poor exit strategies. So, when it came to GE promotion or lack thereof, extension players — be they public or private — work in line with government's stance and policy direction. It is the understanding of government that any technology or advancements being advocated for should not in

any way undermine the existing knowledge and technologies. The cautious approach taken by government through direct line institutions or stakeholders is so because an assessment has to be conducted to ascertain that the technology does not in any way possess risks to human and animal health, non-genetically modified crops, biological diversity, the environment, socio-economic conditions and cultural norms. Such an assessment will have to be verified independently and free from bias.

DevCom: What are the principal obstacles to the adoption of GM resources and inputs — competition with traditional technologies, lack of effective communication by GM sources? Are there organised or cultural resistances to the adoption of agricultural biotechnology?

Ackson: Paying a deaf ear to the needs or concerns of the farmers of all categories will not help. Whether their claims are unfounded or not, they have to be fully addressed and if solutions regarding their concerns are already in circulation, such information has to be packaged as simply as possible for the lay person to grasp and buy into the agenda but maintaining integrity and principles along the process. That is why the governments in this case become the gatekeeper protecting the interests of the poor farmers who are the majority who have limited access to information, services and have time and again been used as bait by unscrupulous business entities.

There is need to put the poor small-scale farmers or small-holder farmers at the centre of all developmental efforts and hear their concerns in the quest to address their plight through a well-structured and coordinated system of extension and engagement every step of the way, and for them to have a say and buy into all the proposed initiatives and technologies being developed and proposed. The farmers are the end-users of all the programmes, initiatives and technologies developed; be it by governments, private organisations or the civil society. For this reason, the farmers have to be involved and consulted on what their real-time issues are that need to be addressed. It is only when the grassroots are involved in the decision making that sustainability of the technologies, projects and programmes will be realised. It is they who implement and presumably have to adopt the technology for their own good and the good of the nation at large; be it increase in yields to guarantee food and nutritional security, ease of operations to save on time and costs — to mention but a few.

DevCom: What extension/communication strategy would be appropriate in dealing with small scale farmers? Do they have access to mass media, mobiles or the internet? What is the extension service's primary means of contact?

Ackson: Extension has evolved over time. It is a concept that originally sought to transfer interventions from the central government, development agencies and organisations. In the agricultural sector, extension agents have been, over the years, perceived as technology transfer conduits. Then, the role of extension

officers has been realigned to not only be technology transfer based but as well as that of facilitation to promote not only technology transfer but education, human development and problem solving as well. The agricultural extension officers are the primary contact persons for the small-holder farmers because they are frontline staff. Therefore, there is need to equip the field staff by building capacity to ensure quality, efficiency and effectiveness in service delivery to improve the well-being and livelihoods of small-scale farmers.

The access to media by small-holder farmers is limited to either one of the following: extension officers and other players like non-governmental organisations and non-profits, some traditional leaders, local community radio stations, local teachers, and in some extreme cases the national television broadcaster. There has been an increase in the possession of mobile cellular phones among the farming community and this has eased communication and information dissemination. Internet accessibility on the other hand has not registered major significance among the small-scale farmers. It is different in urban areas and in the rural towns where most people have access to internet services but the momentum of perforation in villages among small-scale farmers is moving at a very slow pace. The extension service's primary means of contact is the frontline officers who stay in the villages among the farming communities. The officers conduct farmer facilitation activities which include farmer visits and field monitoring. The Zambia National Farmers Union (ZNFU) which is a national farmer association has, over the years, introduced various mobile services in the quest to promote e-extension services like text messaging to obtain agronomic advice as well as market information. This and many other efforts in promoting e-extension services have not been fully exploited due to a number of challenges like high illiteracy among farmers and rural dwellers as well as lack of or limited internet connectivity in several rural areas among many other challenges.

DevCom: Thank you, Ackson. It seems likely that these biotech and communication issues will be relevant to farmers and agricultural officers in other countries as well as in Zambia.