



## Boosting potato production in Eritrea

The Ministry of Agriculture (MoA) is working hard to increase potato production using improved and globally standardized potato varieties.

In Eritrea, two local varieties of potato, known as karneshm and shashemene, have been cultivated for many years. Over time, productivity of these varieties has declined, while their maturity period was long, ranging from 5 to 6 months. As well, they were susceptible to diseases and pests.

According to Ms. Tiberh Gaim, senior seed expert at the Agricultural Extension Department (AED), potatoes are a national strategic crop in Eritrea. However, potato production and productivity have been low due to several factors, including an inadequate supply of improved seeds, diseases and pest infestation, a lack of appropriate agronomic practices, limited water sources for irrigation, and limited knowledge of potato production.



Ms. Tiberh Gaim

One initiative that the MoA has undertaken has been the introduction of several promising potato varieties from Ireland. Since 1999, The National Agricultural Research Institute (NARI) has conducted numerous trials and imported about 70 different types of potato seed varieties. The MoA's preferred potato seed varieties have been: Spounta, Cosoms, Timate, Ajeba, Konder, Picasso, Zafira, Baren, Electra, and Bamba.

Ms. Tiberh explains that these improved seed varieties have a range of comparative advantages: they are highly adaptive to Eritrea's climate; they are tolerant or resistant to many diseases and pests; their period of maturity is short (approximately only 3 months); and they are highly productive, often producing over 300 quintals per hectare.

Ms. Tsige Tombosa, project coordinator of improved potato seed varieties at the National Agricultural Research Institute (NARI) stated that prior to the distribution of the potato varieties several steps were taken. First, all the necessary research methodologies were followed, both in the tissue culture laboratory and farmers' fields, in order to test performance and ensure that the most appropriate varieties were selected.

As a result, NARI released promising highland varieties and is working on selecting suitable potato varieties for the lowlands.



Ms. Tsige Tombosa

As a part of the program, NARI, in collaboration with the Agricultural Extension Department (AED), regional experts, farmers, and other development partners, produced a video tutorial and a manual in local languages to explain the full cycle of potato production. The manual was extracted from a book titled 'Growing the Potato Crop', written by Dr. John Burke, and adopted his practical experience in Eritrea. All



the promotional materials were distributed throughout the country in hard and soft copies.

AED reports explain that the improved potato varieties are being cultivated for seed multiplication purposes in the highlands and for the table in the lowlands. So far, more than 16,000 quintals of improved potato seed varieties have been distributed to over 4,000 beneficiaries.

According to the reports, the MoA constructed a number of potato seed stores in the Central and Southern regions of the country in order to ensure sustainability and purity of seeds. The stores in the Central region, located in Tsa'eda Christian, Serjeka, and Adi-Guadad, have the capacity to hold 1,200, 600, 500 quintals respectively. Meanwhile, the stores in the Southern region are in Adi-Azarna and Adi-Keyih, with each holding up to 1,500 quintals.

These stores are helping to meet the demands of potato farmers throughout the country. Annually, potato seeds are distributed to numerous farmers. Subsequently, after harvesting, farmers sell them back to the MoA at 25% greater than the market price. Notably, the Ministry extends technical advice, support with constructing diffuse light stores, and other types of assistance to farmers.

### Central Region

Mr. Amanuel Weldetsion, head of the crop production unit in Gala-nefhi



Mr. Amanuel Weldetsion



Sub-region, stated that this season the store has received around 1,000 quintals of pure Electra and Baren potato seeds from a number of exemplary farmers.

Furthermore, he explained that partly as a result of support from the MoA, the farmers participating in the program are able to harvest around 300 quintals of potato per hectare.



Mr. Mussie Gebremeskel

Mr. Mussie Gebremeskel is a farmer in the Sub-region of Gala-Nefhi, Adi-Ke village and one of the beneficiaries of the program.

When asked about the importance and outcome of the program, he stated, "I really like the Electra and Baren varieties because of their tolerance to diseases and high productivity. During the previous season, I managed to harvest around 300 quintals per hectare under full guidance of the agricultural experts."

Mr. Mussie also mentioned that proper application of organic fertilizer and crop rotation helped to boost his farm's productivity.

Priest Habtetsion Yosief is another exemplary farmer from Kushet village, Sub-region of Berik. He has been involved in four rounds of the multiplication of potato seed varieties. He declared that the Electra and Baren varieties have been a blessing to him and other farmers. After practicing integrated pest and crop management, such as crop rotation and application of compost, he has been able to produce approximately 150 quintals of potato tuber from 10 quintals of seed (equivalent to around 300 quintals per hectare).



Priest Habtetsion Yosief

Mr. Habtemariam Amenay, head of the agriculture branch office in the Gala-Nefhi Sub-region, explained that due to an impressive potato seed



Mr. Habtemariam Amenay

harvest, there is currently a shortage of space in stores. For this reason, the office has been forced to establish temporary potato seed stores. Mr. Habtemariam confirmed that the Sub-region is now ready to provide adequate potato seeds for those who are interested and comply with the minimum requirements to cultivate seed potatoes in the coming season.

Mr. Major Mengsteab, head of agriculture branch office in the Sub-region of Berik echoes Mr. Habtemariam and expressed pride in the fact that the stores are currently full of potato seeds. He mentioned that the branch office is ready to distribute ample potato seeds to farmers in the Central and Anseba regions. He also advised beneficiary farmers to practice integrated crop and pest management.



Mr. Major Mengsteab

### Southern Region

The Sub-region of Adi-Keyi is situated at an altitude that ranges from 1500-2500 meters above sea level. The sub-region's cold and windy climate is conducive for potato seed cultivation, as it helps to break the lifecycle of many pests (such as aphids, whitefly, and scale insects).

The multiplication of improved seed potato varieties was begun by one farmer in the area in 2015. Currently, the number of potato seed multiplying farmers is 47.

According to Mr. Mengsteab Araya, who is a coordinator of the program in the Sub-region, farmers are often cautious with using unknown potato varieties. Moreover, the farmers in the area established a cooperative group, with support mechanisms and bylaws which stress the use of only certified potato seeds.

Mr. Mengsteab explained that the MoA's branch in the Sub-region provides continuous training and technical guidance to beneficiary farmers to help increase yields. This season's total production was around 17,000 quintals, with the average yield for each farmer about 340 quintals per hectare. Over 2000 quintals of this production were purchased by the MoA for seed multiplication purposes.



Mr. Mengsteab Araya

Mr. Kefele Tsegay, a farmer who lives in Tekondae village, has participated in six rounds of the program since 2016. He explains that the potato seed varieties distributed by the Ministry are highly adaptive and productive, and that their early maturity is an important advantage.



Mr. Kefele Tsegay





Mr. Mohammedkier Mussa

“With the help of continuous supervision of agricultural experts, training, and practicing the necessary cultivation measures, I harvested around 340 quintals from one hectare of land. I would urge the MoA continue its important work to promote and release more improved potato seed varieties, as well as to maintain its assessment and training activities.”

Mr. Mohammedkier Mussa, another farmer, lives in Hayneba, Sub-region of Adi-Keyih. He is known for his extraordinary hard work and cultivating multiple crops year round. This season, in addition to potatoes, he harvested cabbage, apples, oranges, and other field crops.

Mr. Mohammedkier managed to expand his farm by terracing hills and planting around 250 tree seedlings to control soil erosion. In the previous season, he managed to harvest around 112.5 quintals from 7.5 quintals of potato seeds, which translates to about 300 quintals per hectare. Currently, he is expecting to harvest more than 170 quintals of potato from 10 quintals of potato seeds, which is equivalent to about 340 quintals per hectare.

### Anseba Region

Generally, the Anseba region encompasses three agro-ecological zones of different climatic conditions, while its altitude ranges from 900-2,200 meters above sea level.

According to Mr. Kesete Goitom, head of the horticulture unit in the region, the total area cultivated with vegetables is around 1,500 hectares. Potato seed multiplication is practiced in the highland parts of the region (mainly in the Sub-regions of Geleb and Adi-Tekeliezan)

The public relations team of the MoA visited Geleb Sub-region and interviewed coordinators of the program and beneficiary farmers.

Geleb is a Sub-region situated at an altitude that ranges from 1,700-2,100 meters above sea level. Its soil



Mr. Kesete Goitom,

type and climatic conditions are very suitable for a wide range of vegetable and fruit varieties. Reports show that around 600 farmers in the Sub-region practice irrigated agriculture.

According to Mr. Mohammed Haj Osman, a horticulture expert in the Sub-region, the multiplication of potato seeds was begun in 2015 by six farmers and has increased to 57 and rising. Farmers participating in the program explain that the improved potato varieties have great benefits, including high productivity, early maturity, and resistance to diseases.

Moreover Mr. Mohammed explained that, in September 2020, around 550 quintals of improved potato seed varieties were distributed to beneficiaries. The MoA branch in the Sub-region conducted training



Mr. Mohammed Haj Osman

about production, pest management, storage, and compost preparation. In addition, a guiding manual and video tutorial was provided to participants in the program.

During the harvest season, the majority of yields ranged between 250-350 quintals per hectare. To ensure proper storage and reduce post-harvest losses, the MoA office supports farmers in adopting simple diffuse light stores. Mr. Mohammed noted that the biggest challenge farmers face is lacking standardized stores in the Anseba region. As a result, farmers are forced to buy seeds from the Central region and sell harvested potato seeds to the same region.

Mr. Mohamed Ibrahim Kafli is a commendable farmer from Abaqseb village. In 1995, he began cultivating vegetables and fruits (including mangos, coffee, guava, citrus fruits,



Mr. Mohamed Ibrahim Kafli

and different types of vegetables). He has about three hectares of land and has relied upon irrigation. A recipient of the Minimum Integrated Household Agricultural Package (MIHAP), he also keeps bee colonies, poultry, and cattle. Mr. Mohammed explained that he began cultivating potatoes in 2006. However, he was using potato seeds with unknown sources and harvesting less than 70 quintals per hectare for many years.



Mr. Berhane Kibreab

To his benefit, however, he was included in the potato seed multiplication program in 2017. Since his inclusion, he has been harvesting more than 300 quintals per hectare, largely using the Electra and Baren potato varieties. In 2020, he attended two training programs, which he explained were very informative,

especially the content on compost production.

Mr. Berhane Kibreab is another exemplary farmer in the Sub-region of Geleb. He has been involved in irrigated agriculture since 1994. He has relied on a water source which is

about 1.5 kilometres away from his farm and cultivates a range of different fruits and vegetables, including oranges, peaches, and avocados.

In 2015, the MoA regional branch in Anseba included him in the potato multiplication program. He cultivates the improved potato varieties on an area of 4 hectares (his total farm area is 22 hectares), using integrated crop and pest management. This season he is expecting to harvest around 320 quintals per hectare. Notably, Mr. Berhane is well-known in the region for his natural resource management practices. To date, he has planted about 120,000 sisal seedlings on hills to prevent soil erosion and for commercial purposes.

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