

13

IMPROVING SEED-TO-WARE, WARE AND KNOWLEDGE CHAINS IN POTATO CULTIVATION IN EASTERN AFRICA

P. Struik¹, A. Abdurahman^{1,2,3}, W. Dersseh^{1,2,3}, Y. Gebresilase^{1,2,3}, D. Griffin³, J. Weakliam⁴, G. Woldegiorgis⁵, S. Schulz⁶, C. Almekinders⁷, R. Schulte²

¹ Centre for Crop Systems Analysis, Wageningen University, Wageningen, NETHERLANDS

² TEAGASC, Johnstown Castle, Wexford, IRELAND

³ TEAGASC, Oak Park, Carlow, IRELAND

⁴ Vita, Dublin, IRELAND

⁵ Ethiopian Institute for Agricultural Research, Holetta, ETHIOPIA

⁶ International Potato Center, Addis Ababa Office, Addis Ababa, ETHIOPIA

⁷ Knowledge, Technology and Innovation, Wageningen University, Wageningen, NETHERLANDS

Potato is becoming increasingly popular in Eastern Africa. It is widely grown by millions of farmers replacing traditional root and tuber crops. Potato is often grown by poor farmers as hunger breaker as it has a short cycle and can be harvested before cereal crops have matured. Certain areas are suitable for production of quality-declared seed for local use or export. Ware potato can be marketed and processed provided suitable storage and processing facilities are available. Many European countries are eager to invest in Eastern Africa.

Potato production in Eastern Africa, however, is still facing many constraints. Some constraints are institutional, e.g., feminisation of agriculture, weak seed systems, poor access to agricultural inputs and credit, poor infrastructure limiting transport, and less developed knowledge chains. Other constraints are economic, e.g., poor incentive of producing high-quality seed or ware, small difference in price between seed and ware, and high costs of fertilizers and fungicides. Moreover, for the poorest farmers it is difficult to become 'adult' players in the value chains. Their production levels are low because of small farm sizes and because technology development is often under-addressing their problems and potentials.

Although in Eastern Africa most seed potato production is still based on farmer-saved seed, most countries produce basic seed, often based on a combination of tissue culture and minituber production on hydroponics. Incipient formal systems or alternative systems bridging the gap between farmer-saved seed and formal seed are developing. A strong driver is the continued interest in new cultivars, with high quality combined with resistance against major diseases. There are also promising developments in the informal seed sector: seed supply improved over recent years by scaling up diffuse light storage and producing seed tubers through positive selection. Positive selection is a simple, robust technique with a large immediate effect; it might even reverse the process of degeneration over several generations of traditional production of seed tubers, e.g., by lowering the virus load. Unfortunately, seed potato production in Eastern Africa is not only suffering from viruses; bacterial wilt, late blight and physiological age are also major constraints. Bacterial wilt is indigenous in many areas of Eastern Africa and very hard to control. Late blight can occur very early in the growing season, with a continuously high inoculum pressure high. Getting seed in the proper physiological age in regions with several growing seasons per calendar year is also a major challenge.

For ware the main problems are the lack of proper storage facilities as the diffuse light stores are only suitable for seed. Processing is becoming more popular and this could create the necessary pull to bring the entire chain to a higher level of added value.

Future research of our consortium aims at investigating further how to improve seed-to-ware chains, value chains and knowledge chains by increasing output, efficiency, quality, food security and safety, involving breeders, seed companies, (basic) seed suppliers, intermediaries and ware growers, extensionists, researchers and universities. We aim at supporting the development of seed systems and variety improvement, processing plants, a community-based control strategy for bacterial wilt and functional networks of knowledge transfer.