TRIAL, ERROR AND SUCCESS IN POTATO FARMING IN WAJIR

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In Kenya, the perception is that potatoes only grow in colder and wet areas like Meru, Molo and Kinangop. There has been unwillingness to try out potato farming in hot and dry counties in the North Eastern part of Kenya such as Wajir. Agrico East Africa and the County Department for Agriculture in Wajir pursued a joint trial with 4 farmers who had access to irrigation and grew potatoes in Wajir.

Through the Penn State University FEW Nexus and Paracclete Consult, the Agricultural Extension team was linked to potato seed producer Agrico East Africa. With support from the Penn State University FEW Nexus the Agriculture team in Wajir had successfully engaged in growing leafy vegetables, tomatoes, onions and capsicums under irrigation. The population in Wajir is now moving from pastoral to more agro-pastoral activities, and have also embraced farming of maize, cereals and sorghum and have reduced overreliance of potatoes supply from Moyale and Meru. With access to irrigation and good care, farmers in Wajir County should be able to produce potatoes from a variety called Destiny, a potato that has a short maturing period and some good heat tolerance. Although the trial was not a success at once, it presented an opportunity to learn more and 'proof of concept' to scale up in the near future. Given that Kenya has declared Food Security as one of the items on its Big Four agenda, improving farmer productivity and expanding to non-traditional potato growing zones in Kenya is key in executing this bold vision.

Lessons learned: Contrary to popular belief, potatoes can actually grow almost everywhere in Kenya, as long as there is no frost at night (<0 degrees Celsius) and no extreme heat (>40 degrees Celsius). Availability of water supply is important either on rainfall or on irrigation.

From the Wajir Agricultural Extension team –in July 2018 a team of 4 agricultural officers visited Agrico's farm in the cool and green potato seed multiplication farm in Nakuru, and learned a lot about potato farming. The importance of good land preparation, use of the right inputs like certified seed, fertilizer and crop protection, good potato management, and on how to manage irrigation for a potato crop are crucial.

Agrico East Africa issued the Wajir team with 1ton of Destiny potato seeds, which was distributed to 4 different farms with all sites planting only ¼ acre, since the seed input is usually 1000 kgs / acre. The areas in Wajir around Bute border and Habaswein which have conducive soils for potato farming (sandy-clay, sandy loam and pure clay) are suitable for potato farming. Due to time pressure, the team did not manage to do soil testing which turned out to be a costly mistake. It was learnt that 2 out of the 4 demo sites were not suitable due to high alkalinity and salinity. This was only learned *after* having planted the seeds and noticing lack of or poor germination.

Lesson learned: Soil testing is an important factor

The site in Bute was well-tended and sufficient water available for irrigation but the site in Habaswein did not have enough water at that specific time to feed the potato plants throughout the season. Potato water needs depends a lot on the soil type, temperatures and variety hence you need

moisture in the soil at planting, then at tuber setting, and later showers during full growth period. Generally if you can clump soil in your hand and it remains a solid piece, this is an indicator the soil is moist enough. If you clump the soil and you have a lot of water draining from your hand then it is too wet. If you clump the soil and it falls apart then it is too dry. Through irrigation you can look at 15mm a week, depending on soil type. During the trial, one more site failed, and left with just 1 plot of ¼ acre that seemed to be performing well.

Lesson learned: Potatoes need close management and sufficient water to survive in hotter, dryer areas.

The Bute site remained our final hope for success to proof the concept. The farm in Bute region is about 200 miles away from Wajir town, towards the mountanous border region with Ethiopia. Apart from Bute, the county also has other areas with enough water harvesting structures such as pans and boreholes in the ASAL areas. Although most farmers in Wajir area are traditionally pastoralists and not used to crops production, there is a shift happening towards agro-pastoral activities. This specific farmer, Mr. Omar Haile Abdirahman, took a lot of care of the crop, and it seemed to bear fruits with a healthy vegetative stage. However, the farmer did not see any flowers forming in the potato plant, and wondered whether that would mean there is also no tuberisation taking place. Although flowering can help to identify different potato varieties and usually happens at tuber formation stage, no flowers does not mean no tubers. Farmers are encouraged to try and carefully dig up one of the potatoes at the time when they are supposed to flower, and observe tuber formation taking place.

Lesson learned: Not all potatoes produce flowers, but that is no cause for alarm.

After 3 months of caring for the potatoes, the farmer in Bute was told it is now time to start harvesting. The Destiny variety planted being an early maturing variety and tubers should have matured in 90 days. However, it can sometimes be a few less or more days, depending on the circumstances. The best way to check if potatoes are ready for harvesting is the following: make sure the foliage has completely dried up and wilted, confirm that the stem feeding the tubers into the ground has also dried up, then dig up a plant and do the ‘finger test’ on the tubers. The finger test means, you rub your thumb over the skin of the potato. If the skin still peels off, the potato is not ready for harvesting. Leave the potatoes in the soil for another week to harden, and repeat the same process. A skin that is well-set on potatoes helps to prevent it from harvest damaging such as superficial cuts and bruises.

Lesson learned: Harvesting potatoes too early means a lower quality product and less weight on the plant.

Finally potatoes were being harvested in Wajir County and the concept of potato farming has proven viable in part of Wajir where there is access to good soils, good water sources and hard-working farmers.

The farmers and extension officer views were that the Destiny potato they harvested is much more palatable and sweet when cooked with other vegetable recipes than the potatoes coming from other parts of the country such as Moyale and Timau potatoes although variety was not specified.

A food secure Kenya through potato farming is possible. The shared lessons learned can help willing parties to start out own trials. Interested groups in potato farming can contact local Agricultural Officer and begin on a small scale and then scale up.

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