

Demonstration of Improved Variety of Onion (Bombay Red) with Improved Production Technology at T/Abergelle, Tigray, Ethiopia

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Abstract

The demonstration was conducted at Abergelle Agricultural Research Centre at agbe irrigation scheme in 2015 cropping seasons. It was carried out at farmers' land with one improved variety (bobay red) Vs local cultivar with uniform management practice were used to compare. The parameter recorded from this action are bulb yield (qt/ha) and maturity date. In this demonstration the highest yield was recoded from the improved variety bombay red (285.7ql/ha) but local with equal management practice gives low yield(228.6ql/ha) and in terms of maturity also bombay red has early mature (121) days but local takes (135) days to mature. At this movement, farmers were taking knowledge about the variety and improved management practice. Just they saw the performance of these onion varieties in yield production and they understand that they can enhance their income through onion production. Bombay red was the best performing variety rather than local. Therefore, bombay red variety will be recommended to popularized to potential for onion and have the same agro ecology.

Keywords: Onion variety, Yield and Maturity Date

BACKGROUND AND JUSTIFICATION

Vegetable production is an important component of agriculture and an essential part of a balanced human diet .In recent years, vegetable production has also become an income generating enterprise for those farmers who are located close to markets and road sides (Budathoki, 1991). Vegetable crops are rated as cheap and good source of natural vitamins, minerals, and fibres (Kale et al., 1986).They are the best resource for overcoming micronutrient deficiencies and provide smallholder farmers with much higher income and more jobs per hectare than staple crops (AVRDC, 2006).

Onion is a very important vegetable crop .Onion growers are looking for an alternative planting method for enhancing the productivity of onion. A conversion is occurring from plants grown in the field after transplanting with naked root to the production of plants in trays within greenhouses. The transplant of these plants is feasible and safer (Herison et al., 1993). The local production of plants in green house can be an option for the onion grower (Herison et al., 1993). The technique to obtain onion seedling through the use of multicultural trays leads to a practical and economic method that improved onion production (Weerasinghe & Fordham, 1994; Tessarioli Neto, 1995; Modolo, 1998).

Onion plants with more than four leaves, 0.3 g dry weight and/or 2.5 mm pseudo stem diameter at the time of transplant, can be classified as small seedling. These small plants answer quicker to the photoperiod than the others and initiate bulbing earlier (Mettananda & Fordham, 1999). To onset bulbing the onion plant needs adequate photoperiod and temperature (Currah & Proctor, 1990; Barbedo et al., 1991; Brewster, 1994; Kassab, 1994; Cardoso, 1997). The formation of bulbs is a reply to the long days (Whatley & Whatley, 1982; Wilkins, 1985). When the photoperiod is adequate the onset of bulbing and the rate to full development depend on secondary factors, such as temperature, nutrient availability, and soil moisture and stand density (Sobrinho Illescas & Sobrinho Vesperinas, 1992; Brewster, 1994; Minami & Tessarioli Neto, 1994; Paiva, 1994; Blacksmith, 1999; Mettananda & Fordham, 1999).

Lake of improved variety in Onion is one of the problem in production and in quality bulbs. due to this limitation distribution and marketable bulbs are low. The demand of improved variety in Ethiopia in general and Tigray region in particular is increasing from time to time. Especially in our region, Tigray there is a remarkable increase in vegetable production because of the increased construction of diversions, dams, springs and increased awareness of farmers in horticultural crop production as a means of alleviating poverty as they have high production potential per unit area. Moreover, all this necessitates an opportunity for demonstrated improved variety of onion. Therefore, demonstration of improved variety of onion is very important to the farmers to income generating and consumption. Farmers get good yields by reduce risk of unknown pests and diseases, higher adaptability performance and germination percentages. Therefore, it is important to encourage demonstration of improved variety. Due to this reason the objective of this work is to familiarize and demonstrate the improved variety of onion (Bombay red) production techniques.

2. MATERIALS AND METHODS

2.1. Site Description:

The demonstration was conducted in Tanqua-Abergelle woreda at agbe irrigation scheme .Abergelle is situated in the central zone of the region which is about 120 kms away from Mekelle, the administrative city of Tigray. It is located 13°14'06"N latitude and 38°58'50"E longitude (CSA, 2000 In: Gebreyesus Berhane, 2004).It is agro-ecologically characterized as hot to warm sub-moist low land (SM1-4b) below 1500m.a.s.l.The mean annual rain fall and temperature is 350-700mm & 24-41Co respectively. The rainfall is erratic in nature (Legesse, 1999 .In: Gebreyesus Berhane, 2004).

2.2 Plant Establishment

In nursery site, the Bombay red seeds were planted in well-prepared seedbed and the seedbeds was mulched with grass or locally available materials. After planting 45 days, healthy and vigorous seedlings of Bombay red 12-15cm heights or 3-4 true leaf stages was trans planted to farmers' field. Prior to planting pre irrigation is also carried out to settle the soil around the transplants and facilitate the planting operation. During/ after transplanting 200kg/ha DAP and 100kg/ Urea in split form (50% at fifteen days after planting and 50% after one and half month) was applied. The demonstration was conducted in farmers' field in a plot size of 10mx10m (100m²) and in double spacing of 10*20*40 were planted.(i.e.40cm bed including furrow,20cm between rows on the bed and 10cm between plants. A seed rate of 4kg/ha Bombay red variety was used.

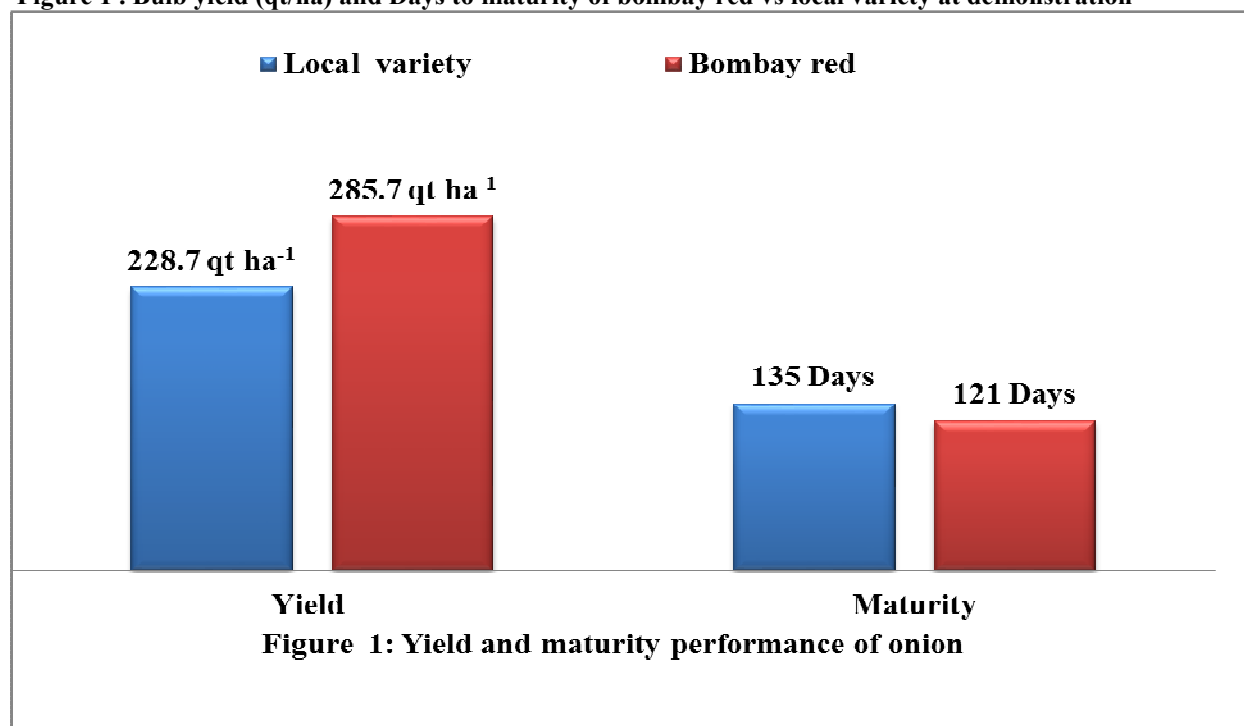
Farmers were participating in the production techniques. All the cultural practice was carried out by farmers but under close follow up and researchers did super vision.

Data Collected

In this activity, Maturity date and total yield per hectare were collected

3. RESULT AND DISCUSSION

Figure 1 . Bulb yield (qt/ha) and Days to maturity of bombay red vs local variety at demonstration



In this demonstration, Bombay red required 121 days for maturity. Due to these farmers, they accept and decided to grow the variety in the next season. Not only this but also the Bulb yield (qt/ha) that they got in their plot was averagely 285.7qt/ha was appreciate. Farmers observed the variety with full package at field, said that 'onion production will turn high income per unit area'. With regard to disease and pest were found in both but the improved variety bombay red has resistant than local and the farmers were much interested to popularize the variety with their recommended practice.

4. SUMMARY AND RECOMMENDATION

Farmers with good involvement on the demonstration were gain good knowledge on the variety with all

agronomic practice and they identify the best performed variety Bombay red. So for further popularization and dissemination of the technology the extension worker should be take over the responsibility.

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