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CELL TRAY TECHNOLOGY: A TOOL FOR VEGETABLES ENTREPRENEURIAL DEVELOPMENT IN NIGERIA

Key words: cell tray, vegetables, entrepreneurial development, seedlings, transplant

Abstract. Cell trays technology provides one of the methods that with better treating time, enhanced products quality, reduced chemical hazards, low consumption of energy, and is environmentally friendly. The paper is aimed at providing an insight on advantages of cell tray production of vegetable seedlings in order to meet entrepreneurial development which might be a stepping stone for Nigeria's 23 percent of the youth that are involved in agricultural practice. This is as a result of the economic mismanagement, laziness on the part of the youth; relative neglect of agricultural resources as well as population upsurge amongst others, the country has lost her top position among agro-food exporting countries in the universe.

Introduction. Vegetables are a significant component of agricultural farming systems in Nigeria and have recently moved into the focus of research organizations, development partners and policy makers. Vegetables are important components of daily diets in Nigeria and important sources of income, especially in urban and peri-urban areas. Beyond income generating opportunities for producers, vegetable production for domestic and export markets is an important driver for growth due to employment opportunities in production, processing and trade. The major vegetables produced in Nigeria include vegetables include onion, tomato, okra, pepper, amaranthus, carrot, melon, Corchorus olitorus (ewedu), Hibiscus sabdariffa (sobo), Adansonia digtata (baobab leaves) etc [1].

Apart from income generation vegetables are widely recommended for their health-promoting properties [2]. According to NICUS, 2007 and WHO, 2003 the average level of intake of fruit and vegetables deemed adequate to

prevent disease such as stroke, ischemic heart disease and cancers of the lung and gastrointestinal tract was estimated to be 330 grams per day in children aged 0 - 4 years, 480 grams in children aged 5 - 14 years and 600 grams/day in adults. Therefore, it is widely accepted that fruit and vegetables are important components of healthy diet, and that their consumption could help prevent a wide range of diseases such as cardiovascular diseases, cancer, hypertension, diabetes and obesity [3, 4, 5]. Insufficient consumption of fruit and vegetables was among the risk factors recognized as contributing to the worldwide non-communicable disease burden [6].

Fruits and vegetables play a role in providing dietary fiber, vitamins, minerals, and phytochemicals, including polyphenols, phytoestrogens, and antioxidants which all provide support for the biological plausibility in health.

Cell Tray Seeding Technology

Strong and healthy seedlings are the fundamental elements of vegetables production because more than 60% of vegetable need seedlings [7]. In the past, vegetable transplants were either grown in greenhouses using flats or ground beds or in outdoor ground beds by the vegetables farmers. This method of raising seedlings by placing one seed in a certain space and at certain depth is cumbersome and mostly results to poor quality transplants which die before being transplant to the field. However, the method requires large labour in order to meet with the short planting period requirements. Now most growers have made the transition to greenhouse-grown transplants using various types of containers, primarily (plug) trays. With this system, each transplant grows in an individual cell so there is less competition among plants and greater uniformity. Less labour is required for mixing and sterilizing soil, filling flats and pulling plants. Plug transplants establish better in the field because roots are not damaged in pulling.

a *b*

Figure 1. Cell trays for seeding (a) and tomato seedlings in cell tray ready for transplanting (*b*)

Nigeria is an agrarian economy with a total population of 187 Million, 70 percent of which are youth [8]. The Nigerian economy has slipped into recession; the big question now is how to come out of it. Citizens keep referring to agriculture as a way out of poverty, food scarcity and development of Nigerian economy. Cell tray seeding of vegetable seedlings (Figure 1) is a great business opportunity for one to venture into, especially for women and youth to enable them to improve their source of revenue and be able to succeed in this receding economy.

The advantages of cell tray seeding technology are as follows:

- Faster and more accurate sowing which saves time, labour and seeds
- Little or no transplanting shock to young plants
- Transplanting is done later, with little or no damage to plant
- Less spread of disease
- Easier to handle plants, which reduces the transplanting time
- Saves overall space and allows for extra crops in the same unit area
- Uniform transplants, and transplanting can be mechanized
- Increased productivity and yield quality
- Full preservation of the root system during transplanting
- The maximum decrease in herbicide load on soil and air pollution
- Acceleration of ripening period by 15-20 days.

Commercial scale application of cell tray technology is still limited due to unavailability of tray manufacturing factory in the country. What Nigerians need to do is embark on massive production of vegetables seedlings in cell trays which will definitely ignite mass harvest for enhancing the establishment of many processing industries. The development of these industrial will stimulate large scale production of the vegetables and enhanced diversification of entrepreneur to site processing plants in the rural areas which will improve the quality of life of the rural population and reduce the rate of rural-urban migration.

Conclusion and recommendations

Vegetable production in Nigeria is a serious business because it provides a means of livelihood for some people and also plays an important role in the improvement of the health of Nigerians. Raising of vegetable seedlings in cell tray can be done even indoor not necessarily on the farm, as such women while at home may successfully run the techniques. Finally, Nigerian scientists, agronomists and agricultural engineers are urged to carry out research in cell tray technology to locally demonstrate the feasibility, application, and adaptation of this technology and help improve the quality fruit and vegetables supply in order to reduce poverty and provide diets high in fruits and vegetables that are widely recommended for their health-promoting properties. This eventually results to achieving entrepreneurial development in agricultural sector.

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ФОРМИРОВАНИЕ УПРАВЛЕНЧЕСКОГО КАДРОВОГО ПОТЕНЦИАЛА КАК ВАЖНЕЙШИЙ ФАКТОР ЭФФЕКТИВНОСТИ АПК

Ключевые слова: агропромышленный комплекс, управленческие кадры, кадровый потенциал, управленческий кадровый потенциал АПК.

Key words: agro-industrial complex, management personnel, human resources potential, managerial potential of the agro-industrial complex.