

# **Sweetpotato and Garden egg intercrop compatibility studies in Umudike, Nigeria.**

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# Introduction

- **It is the growing of two or more crops on the same piece of land simultaneously during a growing season in definite patterns or arrangements (Filho, 2000).**
- **Improves food security and productivity per unit area of land.**
- **Yield attributed to better use of environmental resources and weed control (Okoli *et al.*, 1996; Muoneke and Asiegbu, 1997, and Anuebunwa, 2000)**



- **Sweetpotato (*Ipomoea batatas* (L)) is one of the World's most widely grown crop.**
- **Used in confectioneries as cakes, pancakes, buns, and puff-puff, as sweetpotato garri.**
- **Garden egg (*Solanum aethiopicum* L) is a fruit vegetable eaten as dessert fruit type or used as salad item.**
- **Garden egg is an erectophile while Sweetpotato is a planophile.**



# Objective

- **To determine the compatibility of sweetpotato and garden egg intercropping system**



# **MATERIALS AND METHODS**

- **The study was conducted in NRCRI, Umudike Nigeria experimental field in 2011 cropping season.**
- **Design was RCBD, plot size 6m x 5m (30m<sup>2</sup>), replicated 3 times.**
- **Two sweetpotato creeping varieties (NRSP05/022 and TIS87/0087) were planted at 1m x 0.30m spacing.**
- **Three garden egg plant spacing (1m x 0.5m, 1m x 1m, and 1m x 1.5m).**
- **Recommended agronomic practices were applied.**



# DATA COLLECTION

- **Sweetpotato vine length, number of leaves, garden egg plant height and number of leaves at 8 and 12 WAP were collected.**
- **Root yield of sweetpotato at 16 WAP and garden egg fruit yield from 8 – 13 WAP were measured in t/ha**
- **Data were analysed with computer package, Genstat discovery edition (2003).**







**Sweetpotato and Garden egg Intercrop**

# RESULTS

**Table 1: Effect of intercropping on the growth, yield and LER of sweetpotato in sweetpotato/garden egg intercrop**

Treatments	Vine lengths (cm)		Number of leaves/plant		Yield (t/ha)	LER
	8 WAP	12 WAP	8 WAP	12 WAP	16 WAP	
<b>Sole NRSP05/022</b>	<b>72.2</b>	<b>95</b>	<b>23.6</b>	<b>50</b>	<b>15.23</b>	<b>1.0</b>
<b>Sole TIS87/0087</b>	<b>226.5</b>	<b>438</b>	<b>17.67</b>	<b>34</b>	<b>9.26</b>	<b>1.0</b>
<b>NRSP05/022 + GE @ 1m X 0.5m</b>	<b>56.5</b>	<b>86</b>	<b>22.67</b>	<b>45.3</b>	<b>4.74</b>	<b>1.12</b>
<b>NRSP05/022 + GE @ 1m X 1m</b>	<b>63.3</b>	<b>83</b>	<b>26.67</b>	<b>49.3</b>	<b>6.42</b>	<b>1.58</b>
<b>NRSP05/022 GE @ 1m X 1.5m</b>	<b>67.7</b>	<b>80</b>	<b>26.33</b>	<b>53.7</b>	<b>8.69</b>	<b>1.34</b>
<b>TIS87/0087 + GE @ 1m X 0.5m</b>	<b>188.4</b>	<b>443</b>	<b>16.67</b>	<b>33.7</b>	<b>3.19</b>	<b>0.89</b>
<b>TIS87/0087 + GE @ 1m X 1m</b>	<b>210.4</b>	<b>398</b>	<b>18.67</b>	<b>36.3</b>	<b>3.39</b>	<b>1.36</b>
<b>TIS87/0087 + GE @ 1m X 1.5m</b>	<b>226.14</b>	<b>404</b>	<b>18.3</b>	<b>37.7</b>	<b>4.59</b>	<b>1.07</b>
<b>LSD (0.05)</b>	<b>77.4</b>	<b>117.4</b>	<b>NS</b>	<b>NS</b>	<b>3.66</b>	

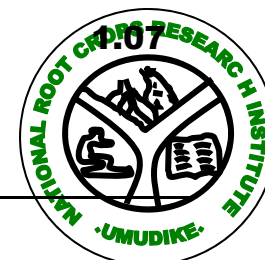
GE = Garden eggs, SP = Sweetpotato





**Table 2: Effect of intercropping on the growth, yield and LER of garden in \ sweetpotato/garden egg intercrop**

Treatments	Plant lengths (cm)		Number of leaves/plant		Yield (t/ha)	LER
	8 WAP	12 WAP	8 WAP	12 WAP	8-13WAP	
<b>Sole GE @ 1m x 0 .5m</b>	<b>53.3</b>	<b>143</b>	<b>24.4</b>	<b>209</b>	<b>8.0</b>	<b>1.0</b>
<b>Sole GE @ 1m x 1m</b>	<b>50.3</b>	<b>129</b>	<b>25</b>	<b>272</b>	<b>5.29</b>	<b>1.0</b>
<b>Sole GE @ 1m X 1.5m</b>	<b>49.1</b>	<b>115.3</b>	<b>32</b>	<b>248</b>	<b>6.81</b>	<b>1.0</b>
<b>NRSP05/022 + GE @ 1m X 0 .5m</b>	<b>41.3</b>	<b>173.3</b>	<b>17.7</b>	<b>119</b>	<b>4.45</b>	<b>1.2</b>
<b>NRSP05/022 + GE @ 1m X 1m</b>	<b>44</b>	<b>116</b>	<b>20.3</b>	<b>204</b>	<b>6.11</b>	<b>1.58</b>
<b>NRSP05/022 + GE @ 1m X 1.5m</b>	<b>55.8</b>	<b>133</b>	<b>31.3</b>	<b>269</b>	<b>5.29</b>	<b>1.34</b>
<b>TIS87/0087 + GE @ 1m X 0 .5m</b>	<b>39.9</b>	<b>127.7</b>	<b>24.3</b>	<b>125</b>	<b>5.45</b>	<b>0.89</b>
<b>TIS87/0087 + GE @ 1m X 1m</b>	<b>50.6</b>	<b>121.3</b>	<b>20.3</b>	<b>16.5</b>	<b>5.94</b>	<b>1.36</b>
<b>TIS87/0087 + GE @ 1m X 1.5m</b>	<b>39.2</b>	<b>114</b>	<b>22.7</b>	<b>267</b>	<b>5.29</b>	<b>1.07</b>
<b>GE = Garden egg SP = Sweetpotato</b>	<b>2.92</b>	<b>8.75</b>	<b>NS</b>	<b>59.5</b>	<b>NS</b>	<b>1.07</b>



# CONCLUSION

- **Intercropping sweetpotato variety NRSP 05/ 022 with garden egg planted at a spacing of 1m x 1m gave optimum productivity of the system. LER great than 1 was also obtained at various spacings studied.**



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