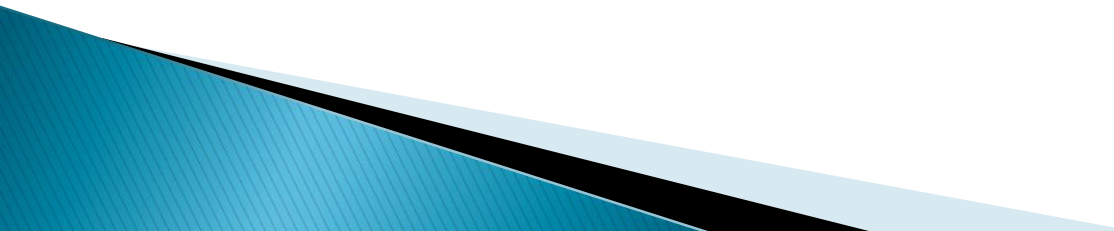


# **Market Potential of Miracle Berry (*Synsepalum dulcificum*, *Schumacher & Thonn.* Danniell) in West Africa: Production, Consumption and Trade.**

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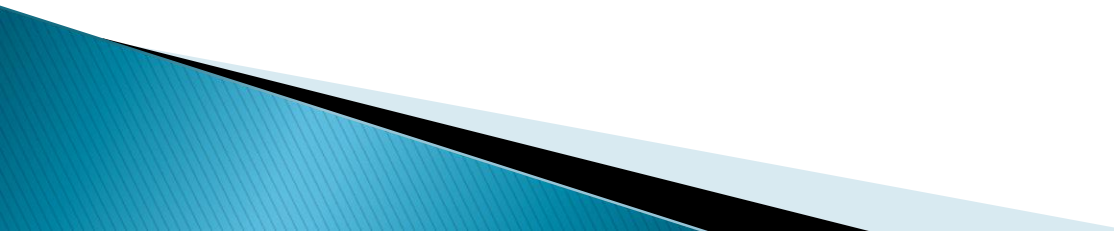
# INTRODUCTION

- ▶ Miracle Berry (*S. dulcificum*) is known as Agbayun (Yor, Nig.)
- ▶ *Synsepalum dulcificum* generally referred to as Miracle Fruit, Miracle Berry
- ▶ *Synsepalum dulcificum* fruit is small bright red in colour; it is an ellipsoid berry approximately 2 to 3 cm long.
- ▶ Originates from West Africa
- ▶ Magic berry is grown in West African tropics.
- ▶ Grown as intercrop with other tree crops
- ▶ When consumed, makes sour foods sweet
- ▶ Can be used to enhance the flavour of food.



Figure1: A fruit bearing Miracle Berry Plant

# PRODUCTION

- ▶ Grows well in sandy loam soil (pH 4.5 to 5.8).
  - ▶ Cannot tolerate frost but loves partial shade with high humidity.
  - ▶ Small tree (15ft), tolerate drought and full sunshine and slopes
  - ▶ Propagation by seed which should not be sundried.
  - ▶ Germination 14–21 days and plant could be spaced 4 x 4m to give 625 plants/ha.
  - ▶ No established production figures in literature
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**Table 1: Miracle Berry Production in Ghana, Puerto Rico, Taiwan and South Florida**

| S/N | Country       | ----- tons/year ----- |      |      |       |      |
|-----|---------------|-----------------------|------|------|-------|------|
|     |               | 2010                  | 2011 | 2012 | Total | Mean |
| 1   | Ghana         | 1.2                   | 2.0  | 2.2  | 5.4   | 1.8  |
| 2   | Puerto Rico   | 5.5                   | 7.1  | 7.8  | 20.7  | 6.9  |
| 3   | Taiwan        | 4.3                   | 5.2  | 6.5  | 16.0  | 5.3  |
| 4   | South Florida | 6.9                   | 8.2  | 10.8 | 25.9  | 8.6  |
| 5   | Nigeria       | 1.8                   | 4.2  | 5.0  | 11.0  | 3.7  |

# Cultivation

- ▶ *Synsepalum dulcificum* is propagated by seeds.
- ▶ Seeds should not be dried out before planting.
- ▶ It grows best in soils with a pH as low as 4.5 to 5.8
- ▶ Grows in tropical environment and in partial shade with high humidity.

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# Consumption

- ▶ Magic Berries are eaten fresh.
  - ▶ In its raw form, Africans sometimes use the fruits to improve the taste of stale food.
  - ▶ Fruits are being investigated as a possible source for a natural food sweetener.
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# TRADE

- ▶ No distinct trade marketing channels
  - ▶ Most fruits produced are eaten fresh in West Africa
  - ▶ Sold in small quantities in local markets
  - ▶ Sold for as high as USD50,000/ton
  - ▶ No records of export from Nigeria and other West African countries.
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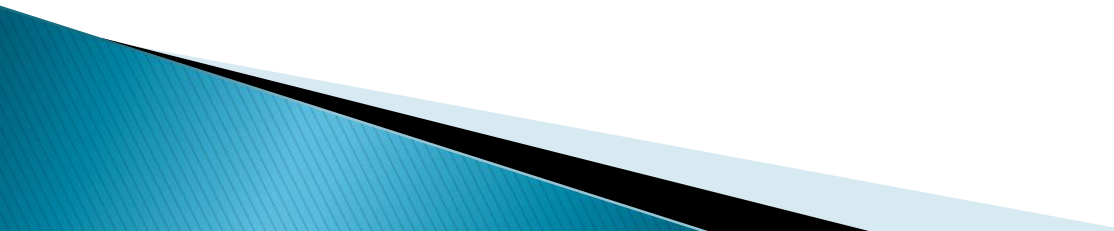
**Table 2: Miracle Berry Trade in Ghana, Puerto Rico, Taiwan and South Florida**

| S/N | Country       | ----- USD/year ----- |           |           |           |            |
|-----|---------------|----------------------|-----------|-----------|-----------|------------|
|     |               | 2010                 | 2011      | 2012      | Total     | Mean       |
| 1   | Ghana         | 50,200               | 68,000    | 80,000    | 198,200   | 66,066.67  |
| 2   | Puerto Rico   | 650,000              | 767,000   | 900,000   | 2,317,000 | 772,333.33 |
| 3   | Taiwan        | 250,000              | 401,882   | 558,000   | 1,210,382 | 403,460.67 |
| 4   | South Florida | 1,200,400            | 1,600,200 | 2,000,000 | 4,800,600 | 1,600,200  |
| 5   | Nigeria       | 60,800               | 88,400    | 98,800    | 248,000   | 82,666.67  |

# CONCLUSION

- ▶ Miracle Berry is well known but less studied.
  - ▶ Available population are facing danger of genetic erosion and threat of extinction.
  - ▶ I recommend the immediate intervention of interested agencies to rescue the crop.
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# FUTURE OUTLOOK

- ▶ Need for reduction in crop growth cycle through grafting or budding.
  - ▶ Development of agrotechnics: flower induction, weed control, postharvest and storage systems etc.
  - ▶ Use of biotech to develop mutants
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# References

- ▶ Capitanio, A. Lucci, G. Tommasi, L. Capitanio, A. Lucci, G. Tommasi, L. 2011. Mixing taste illusions: the effect of miraculin on binary and trinary mixtures. *Journal of Sensory Studies* - 2011, Vol. 26, No. 1, pp. 54-61.
- ▶ Chen ChangChihLiu IMinCheng JueiTang Chen ChangChih Liu IMin Cheng JueiTang. 2006. Improvement of insulin resistance by miracle fruit (*Synsepalum dulcificum*) in fructose-rich chow-fed rats. *Phytotherapy Research* - 2006, Vol. 20, No. 11, pp. 987-992.
- ▶ James A. Duke, Judith L. DuCellier, ed. (1993). CRC handbook of alternative cash crops. CRC Press. pp. 433–434. ISBN 0-8493-3620-1.
- ▶ Wiersema, John Harry; León, Blanca .1999. World Economic Plants: A Standard Reference. CRC Press. p. 661. ISBN 0-8493-2119-0

**THANK YOU FOR LISTENING.**

Any Question?