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Two major food and industrial intercrops (citrus/cocoa), a positive step to partly control hunger and alleviate poverty, induce organic agriculture and control climate change

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Citrus (*Citrus sinensis var valencia*) and oil-palm (*Elias guinensis*) crops were planted on a five acre (2 ha) plot in the Ejisu-Bosumtwi District of Ashanti Region of Ghana (West Africa) from 1997-2001 in the tropical rainforest. Temperatures are normally high (between 20 and 35°c with high humidity) and receive more than 200cm of rains per year.The two crops were grown separately with citrus at 6m x 6m in suare pattern and the oil-palm at 10.6m in triangularity on a well-drained, deep and fertile soil of 5.5 – 6.0 PH range and both were monocropped. When canopies were about closing and weeds were found to be persistent, both citrus and oil-palm were intercropped with cocoa. Citrus plants which were 5 years and older were fertilized with 1.8 – 4.6 kg (NPK). Subsequently, poultry droppings of about 5kg/tree were applied as and when necessary. This included the cocoa plants when the trees grew older with supplements from foliar fertilizers.Cocoa intercropped in the oil-palm were better established compared to those in the citrus. However, when citrus canopy grew larger, cocoa seedling death reduced and grew better. When flowering and podding of the cocoa plants began in about three years' time, cocoa pods in the citrus/cocoa intercrop grew more rapidly with brighter pods. Weeds under the citrus were controlled and mirids infection, which is a serious pest on cocoa (in the citrus intercrop) were greatly reduced. These infections were a major problem under the oil-palm/cocoa intercrop. A second problem which was greatly addressed under the citrus/cocoa intercrop was the black pod fungus which was prevalent under the oil-palm/cocoa intercrop. More cocoa pods were realized under the citrus than under the oil-palm. When thinning was done after 6-10years of some of the oil-palm plants, mirids and black pod infestation of the cocoa under the oil-palm reduced. No citrus plant was, however, removed but more cocoa pods were harvested from the citrus/cocoa intercrop. Citrus plants and fruits were not affected by the intercrop and fruit sizes were good. Pesticide use was Greatly reduced in the citrus/cocoa intercrop compared to the oil-palm/cocoa intercrop. This means that apart from the increased pod harvests of the cocoa, citrus fruits were normal and both could be organically produced under a careful spacial arrangement of the citrus /cocoa intercrops.

Biography

Professor Paul Yaw Adjei is an Associate Professor at the Kwame Nkruma, University of Science and Technology (KNUST), Kumasi-Ghana. I started to do my national service in the University, Department of Horticulture, from 1984-1986,with Bsc (Agriculture) from the same University. Did Teaching Assistanship in 1987 (Department of Horticulture). Promoted to Assistant Lecturer in 1988. I went to the University of Nottingham (U.K) to do postgraduation in Agronomy/Horticulture and Tissue Culture in 1992/93. I was promoted to a Lecturer's grade in 1994. Promoted to Seniour Lecturer in 2003 and to Associate Professor in 2011. Head of Department(2005/2006 and 2009/2010). Member, Faculty Board; College Board and University Academic Board (2005/2006 and 2009/2010). Consultancies in Agronomy and Horticulture. Have about 50 academic papers in reputable journals, articlesproceedings and two (2) books on " papaya/pawpaw" and "Cashew" published in Germany. I have established Agronomic and Horticultural farms for several purposes.

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