**Eco Green Fertilizer**

**Literature Review and Summaries**

**Qn# C3\_Literature Review/Summaries from ChatGPT**

1. Bokhtiar, S. M., & Sakurai, K. (2005). Effects of organic manure and chemical fertilizer on soil fertility and productivity of plant and ratoon crops of sugarcane. Archives of Agronomy and Soil Science, 51, 325-334.
2. Aschalewetal,2022. Effects of Brewery Beer Bio-sludge and Liquid Biofertilizer on Performance of the Malt Barley Yield, Grain Quality and Soil Fertility at Arsi and West Arsi Zone, Ethiopia Journal of Environmental Impact and Management Policy ISSN: 2799-113X Vol: 02, No. 03.
3. Daniel Abegeja, Tilahun Chibsa, Mulugeta Eshetu. Evaluation of Organic Liquid Fertilizer “ECO-GREEN” on the Yield and Yield Component of Malt Barley. American Journal of Applied Chemistry. Vol. 10, No. 4, 2022, pp. 76-80. doi: 10.11648/j.ajac.20221004.11
4. Hintsa Meresa, Zelalem Mengistu, Misene Bisetegn. 2016. Effects of Integrated Soil Fertility Management on Sustainable Crop Production. Journal of Economics **and Sustainable Development; 7 (1): 25-30.**

**Detailed Notes:**

**1. Bokhtiar, S. M., & Sakurai, K. (2005)**

**Effects of organic manure and chemical fertilizer on soil fertility and productivity of plant and ratoon crops of sugarcane.**

* **Problem Under Study:** Investigates the impact of organic manure and chemical fertilizers on soil fertility and sugarcane productivity.
* **Suggested Intervention:** Examines the effects of using organic manure, chemical fertilizers, and their combinations on soil health and crop productivity.
* **Location of Study:** Conducted in Bangladesh, focusing on sugarcane farming conditions.
* **Impact:** Organic manure improved soil fertility, nutrient availability, and microbial activity, leading to better long-term soil health and productivity.
* **Results & Recommendations:** The combined use of organic manure and chemical fertilizers resulted in higher sugarcane yields and better soil management. The study recommends integrating organic manure with chemical fertilizers for sustainable sugarcane farming.

**2. Aschalew et al. (2022)**

**Effects of Brewery Beer Bio-sludge and Liquid Biofertilizer on Performance of the Malt Barley Yield, Grain Quality, and Soil Fertility at Arsi and West Arsi Zone, Ethiopia.**

* **Problem Under Study:** Evaluates the impact of brewery beer bio-sludge (BBS) and liquid biofertilizer (LBF) on malt barley yield, grain quality, and soil fertility.
* **Suggested Intervention:** Compares BBS and LBF against traditional chemical fertilizers and a control group.
* **Location of Study:** Conducted in Arsi and West Arsi Zones, Ethiopia, known for malt barley production.
* **Impact:** BBS significantly improved soil fertility and malt barley yield while maintaining safe levels of heavy metals.
* **Results & Recommendations:** BBS-treated soils had higher levels of essential nutrients and the highest grain yield (70.34 qt/ha). The study recommends BBS as an effective organic fertilizer for malt barley production.

**3. Daniel Abegeja, Tilahun Chibsa, & Mulugeta Eshetu (2022)**

**Evaluation of Organic Liquid Fertilizer "ECO-GREEN" on the Yield and Yield Component of Malt Barley.**

* **Problem Under Study:** Addresses nutrient deficiencies, particularly nitrogen (N) and phosphorus (P), in the highland vertisols of Ethiopia.
* **Suggested Intervention:** Evaluates the effectiveness of "ECO-GREEN" organic liquid fertilizer on improving malt barley yield.
* **Location of Study:** Conducted in Sinana District, Bale Highlands, Ethiopia.
* **Impact:** The application of 80 liters per hectare resulted in significant improvements in grain yield and biomass production.
* **Results & Recommendations:** The highest yield was observed at the 80 L/ha application rate, supporting the recommendation for its use in similar agro-ecological regions.

**4. Hintsa Meresa, Zelalem Mengistu, & Misene Bisetegn (2016)**

**Effects of Integrated Soil Fertility Management on Sustainable Crop Production.**

* **Problem Under Study:** Examines soil fertility degradation and declining crop productivity in tropical agro-ecosystems.
* **Suggested Intervention:** Proposes Integrated Soil Fertility Management (ISFM), combining organic amendments, mineral fertilizers, agroforestry practices, and conservation tillage.
* **Location of Study:** Focused on sub-Saharan Africa (SSA), where soil degradation is a key agricultural challenge.
* **Impact:** ISFM improved soil structure, water retention, microbial activity, and nutrient-use efficiency.
* **Results & Recommendations:** The study highlights the benefits of combining organic and inorganic inputs, recommending site-specific nutrient management strategies and farmer training to enhance adoption.

**Conclusion**

The reviewed studies collectively highlight the importance of sustainable fertilization strategies in improving soil health, crop yields, and long-term agricultural productivity. The findings reinforce the role of organic and integrated fertilization methods, such as Eco Green, in addressing soil fertility challenges and enhancing food security in Ethiopia and similar agro-ecosystems.