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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Effect of Fish Pond Effluents Irrigation on French Beans in Central Kenya

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Abstract: When fish are recovered from ponds, the effluent is often drained presenting both an environmental challenge and an agricultural opportunity. The effects of irrigation with pond effluent and its interaction with applied fertilizer were assessed in a field experiment using French bean (*Phaseolus vulgaris*) over two growing seasons near Sagana, Kenya. Fresh yield of beans was recorded at harvest, and leaf samples were collected for determination of tissue nutrient concentration. In the first season plots receiving canal water and fertilizer at recommended rates had the highest yield (9.1 Mg fresh pod ha⁻¹), while those receiving no fertilizer or irrigation had the least yield (1.3 Mg fresh pod ha⁻¹). In the second season, the highest (4.4 Mg ha⁻¹) fresh pod yield was observed in pond effluent irrigated and fertilized plots, while the lowest (1.3 Mg ha⁻¹) was observed in nonirrigated/unfertilized plots. Low nutrient status in the pond water was responsible for low yield where it was substituted for canal water. Pond water from the Sagana Fish Farm supplied low amounts of nitrogen (N) and phosphorus (P) for crops, indicating that recommended rates of mineral fertilizers should be used when pond water is used for irrigation.

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