



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Thesis Title: **DAIRY PRODUCTIVITY AND CROSSBREEDING TECHNOLOGY ADOPTION IN ASSAM: IMPACT AND DETERMINANTS**

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SHORT ABSTRACT

Livestock is an important component of mixed farming system in an agriculture based state like Assam. Dairy cattle are reared by most of the rural households in the state. However, the cattle population of the state is low yielding indigenous type. It is also to note that the state does not have any recognized indigenous breed which can be conserved. Livelihood of the vast segment of the farmers is thus constrained due to low dairy productivity which otherwise could have been improved through commercial dairying. However, empirical studies carried out across various parts of the world indicate that crossbreeding of the bovine stock through artificial insemination has emerged as economically viable technique to address low dairy productivity. Despite attempts to increase adoption of crossbreeding under various government schemes, the proportion of crossbred cattle in total cattle population in the state is abysmally low. Against this backdrop, the present study is carried out with the objective of (1) understanding the dairy production and bovine population dynamics in the context of crossbreeding technology diffusion in the state; (2) to assess the impact indicators such as productivity, income, employment and consumption of high protein foods at the farmers' economy after adoption of crossbreeding technology; and (3) To examine the determinants of crossbreeding technology adoption at farmers' level and understanding farmers' perception on the constraints to dairying. The study has found that impact estimates based on propensity score matching indicate higher total income (Rs. 46,299.54 to 54389.08), net dairy income (Rs. 44,573.03 to 44,904.27) and dairy income per milch cattle per day (Rs. 42.06 to 42.21) after adoption of crossbred cattle. It has also shown that there are significantly higher treatment impacts of crossbred cattle adoption on consumption of milk and meat and employment over the counterfactual non-adopters. The results of Double-Hurdle Model indicate various socio-economic and infrastructural factors such as education and experience of the household head, awareness about AI technology, government support, distance to AI centre, all-weather road and market, herd-size, etc. are found to significantly influence the decision to adopt AI technology, factors such as experience of the farmer, access to credit and local breeding bull, herd size and perceived risk associated with AI adoption are found to have significant influence on intensity of adoption of AI technology. The finding recommends that facilitating the farmers with dairy development programmes such as subsidized feed and green fodder seed distribution may help to motivate farmers towards adoption of AI. Furthermore, deployment of more AI technicians in the rural areas of the state and castration of local breeding/scrub bull will help in increasing the adoption rate of AI technology. If risk perception of the farmers can be reversed through better extension services and awareness programme, the rate of adoption and use intensity of AI are likely to increase in the state.