

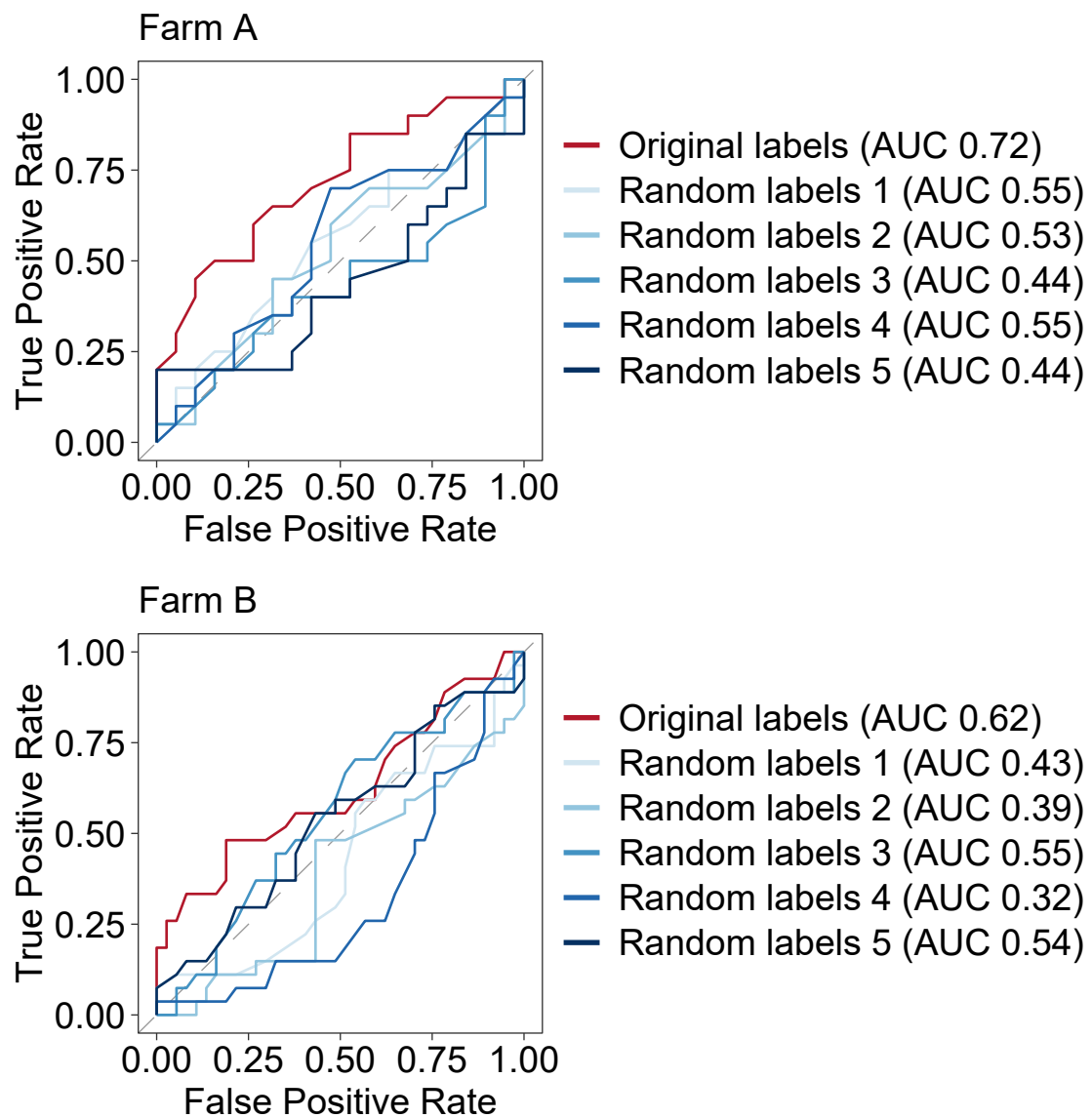


Figure S4. Random forest model validation using randomly permuted labels. Label permutation tests were performed by assigning random labels to the samples across five independent iterations and re-running the RF classifier to evaluate performance under a null scenario.