

AGRICULTURAL MICROBIOLOGIST I

This is professional microbiology work in the food, feed, and pesticide laboratory in the Department of Agriculture.

Employees in this class perform a wide variety of laboratory procedures to evaluate food, feed, pesticides and occasionally cosmetics that are produced, processed or marketed in the state to ensure that they are microbiologically safe and are of the quality claimed by the producers. Under the general supervision of a lead microbiologist, employees examine products for sanitary indicators, spoilage, pathogenic organisms, disinfectant efficacy against claimed organisms) and antibiotic assay to ensure that products meet declared label claims. Employees rotate among the food, feed and pesticide units for cross-training purposes, for weekend technical support in the completion of tests, for emergencies and for support when unusually large numbers of complaints are received. Assignments in the units normally last from 6 to 12 months. Work may include other related duties as assigned.

I. DIFFICULTY OF WORK:

Variety - Employees analyze food, feed, and pesticide samples using a wide variety of routine and non-routine laboratory procedures to evaluate the safety, wholesomeness and label claims of products. Employees perform cultural, morphological, serological and biochemical quantitative and qualitative evaluations to isolate and identify microorganisms. Employees occasionally prepare media, biological and chemical reagents and culture organisms.

Intricacy - Using well-established laboratory procedures, employees independently perform routine and non-routine analysis of food, feed and pesticide samples to identify and isolate pathogenic organisms and evaluate product claims and their efficacy on targeted organisms. Employees receive samples, determine the appropriate procedure to conduct and perform tests to determine the safety and/or effectiveness of a product. Work includes the performance of a variety of routine and repetitive numerative techniques that serve to test for and identify sanitary indicators, food-borne pathogens, spoilage organisms and antibiotics in medicated samples and disinfectant efficacy. However, initial test may lead to very intricate, exacting, non-routine, non-repetitive procedures with numerous steps and decision making points in analyzing, isolating and identifying specific organisms. Employees determine when to cease or continue tests and also retrace and evaluate inconsistencies in test results and determine causative reasons. Employees maintain, receive, catalogue and store samples and maintain detailed records of tests. The majority of tests are time restrictive and require excellent organizational and manual dexterity skills. Employees use a variety of lab instruments that require some adjustment and calibration.

Subject Matter Complexity - Employees must have a complete understanding of the theoretical aspects of microbiology laboratory procedures in the identification and isolation of microorganisms and evaluation of product claims.

Guidelines - Employees reference appropriate state, federal industry and relevant scientific journal laboratory procedures that may include troubleshooting procedures.

II. RESPONSIBILITY:

Nature of Instructions - Work assignments are typically made on a weekly basis. For inspection samples received, employees independently identify and initiate the procedures to be conducted. For complaint samples, employees are given written instructions and what organisms to test for. More detailed instructions may be required for new product types.

Review - Work is visually observed for accuracy while procedures are in progress. Problems encountered in the course of conducting tests with quality control, identification, or test results are discussed with the lead microbiologist for the respective area. Positive results or failures are closely reviewed by the lead microbiologist and in some cases samples are retested before conclusions are rendered.

Scope of Decisions - Work may affect the general public, livestock, health facilities and/or food, feed and pesticide industries.

Consequence of Decisions - Positive results of tests and/or the most complex or controversial work are closely reviewed internally, limiting the employees' direct accountability should errors occur. False negatives may result in undue harm and illness to livestock and a large segment of the general public.

III. INTERPERSONAL COMMUNICATIONS:

Scope of Contacts - The majority of work is discussed with coworkers that perform similar work functions. Occasionally, employees discuss work with field inspectors.

Purpose of Contacts - With coworkers, employees provide interpretation of results for the purpose of obtaining, presenting, reporting or explaining technical information. Employees occasionally instruct and explain technical information to field inspectors regarding sampling procedures and sanitary surveys.

IV. OTHER WORK FACTORS:

Work Conditions - Work is performed in a laboratory setting that is generally agreeable, but requires constant safety precautions.

Hazards - Employees may be exposed to pathogenic organisms, irritant chemicals, and a variety of equipment and glassware. While employees are continuously exposed to a variety of elements, the likelihood of severe or fatal injuries is relatively minor if safety precautions are followed.

V. JOB REQUIREMENTS:

Knowledges, Skills, and Abilities - Working knowledge of the microbiological techniques involved in the extraction, culture, isolation and identification of pathogenic bacteria. Working knowledge of the microbiological techniques involved in the quantitative and qualitative analysis of antibiotics in feed and food products. Working knowledge of the microbiological techniques involved in the efficacy evaluation of disinfectants. General knowledge of morphological and cultural characteristics of microorganisms. Ability to understand and practice aseptic and sanitary laboratory techniques. Ability to perform multiple tests under stringent time restrictions.

Minimum Training and Experience - Bachelor's degree in microbiology, food science or a related curriculum from an appropriately accredited institution and one year of related experience; or an equivalent combination of education and experience.

Special Note - This is a generalized representation of positions in this class and is not intended to identify essential functions per ADA. Examples of work are primarily essential functions of the majority of positions in this class, but may not be applicable to all positions.