Ministry

Agriculture and Irrigation

Describe: Basic Job Details

Position

Position ID

Position Name)

Food Scientist, Crops

Current Class

Requested Class

Scientific 3

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Vacant

Organizational Structure

Division, Branch/Unit

TIFS / FBPB / Food Science & Development Section

Supervisor's Position ID

Supervisor's Position Name

Director

Supervisor's Current Class

Senior Manager (Zone 2)

Design: Identify Job Duties and Value

Changes Since Last Reviewed

Date yyyy-mm-dd

Responsibilities Added:

- In addition to an emphasis on crops-based product and processing expertise this position has taken on additional responsibility for the advancing value added product development and processing also in the area of specialty food products such as plant protein, starch, fibre, and oil; meat analogues; and beverages.
- All employees are responsible for Occupational Health & Safety. This has been added to the job description.

Responsibilities Removed:

- Position responsibility to lead applied and scientific research program, and sourcing and preparing grant applications and scientific publications. The position develops and executes inter-disciplinaly research programs in provincial, national and international scopes. Since the last update of this job (Scientific 5) description, these responsibilities are no longer pursued at current position (Scientific 3).

- Identifying and prioritizing applied research needs of the crops processing industry. This position is no longer responsible for identifying, initiating and seeking funding to lead applied research projects. This position will be responsive to research projects that industry brings to the Alberta Food Centre (AFC) to design and execute. This is captured under Job Outcomes 1 and 2 below.

Job Purpose and Organizational Context

Why the job exists:

The Alberta Food Centre (AFC) is responsible for developing and commercializing new food products and ingredients unique to Alberta. The AFC fosters growth and commercialization of food companies serving local and global markets. The holder of this position works as a member of the Food and Bio Processing Branch's Food Science and Development (FSAD) Section, leading work in value added product development and processing for clients and stakeholders based in Alberta.

This scientific position responsible for advancing value added product development and processing through consultation with industry, initiating, designing, conducting and directing product and process development in all commodity sectors with an emphasis on all Canadian-grown crops, including grains, pulses, oilseeds, other special crops (i.e. hemp, soybeans, cannabis, etc.), vegetables, and small fruits. Projects may include bench top development, pilot plant scale-up, commercialization and/or in-house development at the client's facility. This position provides consultation and advice to industry clients and other FSAD team members. This position will lead innovative projects, contributing to the launch of new products and specialized crop processing technologies fostering strategic processing and business alliances with industry stakeholders. This position will support industry led research by planning, designing, and conducting scientific research and commercialization projects that are provincial in scope and impact.

Working with industry clients, the position will require a detailed understanding of the technical and scientific aspects of food processing as well as developed competency skills necessary for effective communication with industry clients and management of multiple projects. This position is provincial in scope and reports to the FSAD Director.

Responsibilities

1. Provide scientific and technical leadership to food processors in the development and commercialization of new, market responsive/receptive ingredients, food and beverage products and processes with emphasis on processed valued added crops, such as grains, pulses, oilseeds, special crops, vegetables, and small fruits. This includes plant proteins, starch, fibre, and oil; meat analogues; and beverages.

Key Activities

- Identify and lead innovative opportunities for new value-added products and/or adoption of new processing technologies.
- Identify market opportunities and consumer trends through market intelligence, networking and communicating new ideas with industry partners, department colleagues and academic researchers.
- Create partnerships and strategic alliances to address opportunities of utilizing value chain principles along the food continuum.
- Evaluate concepts, products, and processing plans to aid in the growth of a viable, competitive value-added agriculture and agri-food industry.
- Initiate, design, conduct and direct food product and process development activities relevant to Alberta's food processing industry to realize new products and/or processes opportunities,

increased productivity and/or cost effective product and processes.

- Work with clients and other partners to identify client/project objectives, design, coordinate and conduct developmental project in the laboratory, pilot plant, incubator or external commercial facility to meet the requests and needs of industry clients.
- Support industry led research by planning, designing, and conducting scientific research and commercialization projects that are provincial in scope and impact.
- Document experimental procedures and data, interpret experimental results and prepare reports for industry clients.
- Oversee the production of new products by clients utilizing the AFC for interim processing.

2. Establish mechanisms with industry clients and stakeholders to identify strategic innovative opportunities that address industry issues and serve as a catalyst for economic development and competitiveness for Alberta's value-added food processors with an emphasis on Alberta-grown crops and plant-based food processing sectors.

Key Activities

- Liaison between groups in industry (processors, equipment and ingredient suppliers), academia and other research institutes.
- Work with industry clients and suppliers to evaluate the potential adaption and adoption of new technologies which may include leading industry initiated applied research projects.
- Transfer scientific data into a product or process that can be commercialized.
- Work with clients to identify and implement processes to improve efficiencies, yields and production costs.
- Troubleshoot associated problems with start-up processes and production changes.

3. Provide knowledge and technical skill to the agri-food industry, academia, research institutes and department divisions to maintain and foster a globally competitive industry.

Key Activities

- Provide coaching, training and advice to individual clients through the course of their product/ process development and interim processing projects.
- Provide consultation to a broad range of clientele, responding in a timely manner with relevant technical information in a variety of areas of food science, specializing in crops, plant protein processing, ingredient technologies and food regulations.
- Provide training to industry through equipment / ingredient / process demonstrations.
- Organize and participate in seminars, courses, workshops and conferences.
- Provide scientific reports, information bulletins, and personal communications for target markets or publication.
- Work with clients, staff and partners to build and transfer knowledge and technical skills.

4. Maintain and enhance scientific, technical and competency skills in order to provide leadership to the department and the industry.

Key Activities

- Increase understanding of strengths, opportunities and trends in crops processing through participation in scientific interest groups, on industry committees and department teams.
- Research existing knowledge and expertise that could be shared, adapted and adopted in Alberta's value-added crops and plant processing industries and be applied to innovative applications.
- Stay abreast of new technologies through contact with equipment suppliers, ingredient manufacturers and other research and development institutions.
- Establish and maintain a strong network of peers and close relationships with Alberta's food industry.
- Maintain membership in appropriate professional associations and scientific groups (i.e. Canadian Institute of Food Science and Technology, International Institute of Food Science and Technology).
- Independently seek opportunities to continue to advance knowledge and/or technical training in new areas of value-added processing technology.
- Independently seek opportunities to continuously improve Alberta public service competencies that will complement scientific expertise.

5. Occupational Health and Safety

- This position is responsible to actively participate in activities required by the Worksite Health & Safety Committee.
- This includes reviewing occupational task inventories and hazard assessments.

Problem Solving

Typical problems solved:

This position involves extensive problem-solving with the position's diverse demands and wide scope of projects. The role requires identifying new problems and finding timely solutions to resolve them. The projects, technologies, and market demands continuously evolve and change, necessitating the ability to adapt and reinvent approaches as needed. Each client has unique objectives that require customized solutions, demanding a high level of agility.

When working on complex and unknown processes for client projects, creative thinking becomes essential. Unique processes must be devised within the capabilities of the current equipment to achieve desired results. This may involve reviewing scientific publications and/or technical processing materials to gather relevant methods and conducting bench-top experiments to meet the specific requirements of each client's project. Overseeing the manufacturing of product for sale as the scientific project lead one will experience unforeseen deviations in production as a result of equipment failure, human error in processing steps and/or ingredient addition. This position must evaluate the situation, adjust processing on the spot and/or present an option for reworking the material.

The problem-solving responsibilities extend beyond individual projects to encompass a variety of product and processing problems. Involvement includes assessing and evaluating new products and technologies for alternative applications within the processing industry. Additionally, playing a role in designing industry research projects, analyzing and interpreting scientific data, preparing reports is part of the responsibilities. Analytical abilities are crucial in developing Standard Operating Procedures for new product development. Given the nature of working with new product lines, the encountered problems may be less known, and solutions may be unknown. Identifying industry needs in terms of value-added processing, elevating the role to a strategic level that goes beyond mere creativity and problem-solving, encompassing a more comprehensive approach.

Types of guidance available for problem solving:

Existing off-the-shelf solutions do not adequately address the diverse needs of all client service projects.

The ultimate solution may require innovative approaches. Conducting literature reviews is crucial for drawing inspiration from other fields and discovering applicable concepts. Additionally this position will have project discussions with other scientists and/or processing technologists and/or reaching out to others in industry such as equipment/ingredient suppliers for solutions/guidance.

Direct or indirect impacts of decisions:

Results have a major impact on the industry as the findings are used for adaptations and/or introductions of new products, processes and/or technologies to the Province of Alberta, and some across Canada. Demonstrate technical creativity and support business development colleagues.
The impact of the section's work can be seen in the introduction of numerous new products to the market each year, the assessment and introduction of new technologies and the start-up of new companies and local jobs created annually.

Key Relationships

Major stakeholders and purpose of interactions:

Internal:
· Section Staff: To lead, support and collaborate on projects. Source of technical expertise and information for staff.
· Other Staff: To liaise with other departmental staff on common goals and services
· Section Director: To communicate regarding specific assigned projects including, equipment assessment and procurement recommendations, and sector strategic priorities.

External:
· Industry clients: To act as project leader for industry initiated projects, identify priorities, provide information services.
· Producer groups and industry organizations, universities, private industry both large and small and research and technology organizations. External clients can range from individual entrepreneurs to multi-national corporations
· Private sector companies, equipment, ingredient and packaging suppliers.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Other	Science	

If other, specify:

Advanced degree (M.Sc or PhD) in Food Science/Technology, Cereal Science, or Grain Science.

Job-specific experience, technical competencies, certification and/or training:

Education:

- Bachelor's Degree in Food Science or related field with 6 years experience in the food processing/research industry with specific experience in crops processing (post-harvest) and crop-based product development.

Equivalency:

- Ph.D in Food Science or related field with 2 years related experience.
- Masters Degree in Food Science or related field with 4 years related experience.

Knowledge:

- Specialized knowledge of crop processing technologies, and specialty food processing utilizing grains, pulses, oilseeds, vegetables and small fruits grown in Canada.
- Specialized knowledge in extraction and fractionation of plant constituents, such as plant proteins, starches, dietary fibres and ingredient functionality.
- Advanced knowledge of food chemistry, microbiology, food engineering and scientific research principles.
- Specialized knowledge of analytical techniques and assessment of physicochemical, functional, and rheological properties.
- Knowledge of policy and regulations for the processed food sectors.
- Knowledge of global trends in agriculture, food and related industries.
- Knowledge of relevant research being conducted globally.
- Knowledge of the individual food processors in the province.
- Knowledge of the Safe Food for Canadian Regulations, principles of HACCP (Hazard Analysis Critical Control

Points) and GMP (Good Manufacturing Practice), and trained in WHMIS (Workplace Hazardous Material Information System).
- Knowledge of the goals and strategies of the Ministry of Agriculture and Irrigation and the Alberta Food Centre.
- Knowledge of department policies in human resources, finance and information technology.

Skills and Abilities:
- Project management skills to coordinate several concurrent projects and deliver accurate and high quality results within an appropriate timeframe.
- Be creative and original in product/process development and problem solving.
- Conduct independent and innovative research using advanced research methodologies.
- Possess leadership skills with adaptability and flexibility to work in a team environment for the common project goal.
- Effective communication and listening skills to understand client's needs and to effectively disseminate information and results to individual clients or large groups.
- Write in both scientific language for technical publications and plain language for non-scientific populations.
- Assimilate and evaluate scientific literature and data.
- Possess supervisory skills to manage client activities, technical staff and personnel in the project.
- Ability to deal with a wide range of production problems where no set solution exists.
- Ability to coach and mentor clients in all aspects of food processing.
- Provide mentorship to junior scientists and technical staff.
- Utilizes Microsoft 365 (Word, Excel, PowerPoint) and specialized software applications for the execution of projects and reporting on project results.
- Operate a wide range of laboratory and commercial processing equipment.
- Possess a current Alberta Driver's License.

Behavioral Competencies

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Systems Thinking	○ ○ ◉ ○ ○	Takes a long-term view towards organization's objectives and how to achieve them: • Takes holistic long-term view of challenges and opportunities • Anticipates outcomes and potential impacts, seeks stakeholder perspectives • Works towards actions and plans aligned with APS values • Works with others to identify areas for collaboration	1.Understanding interconnected project elements: Recognizing the interdependencies and interactions among various components within a project. This including understanding how changes in experimental variables, methodologies, or data collection techniques can impact the overall research and development out comes. 2. Integrative decision making in projects: collaborating with colleagues and clients to make informed decisions. 3. Modeling APS values while serving a diverse range of industry clients with their project objectives.

Creative Problem Solving	○ ○ ○ ◉ ○	Works in open teams to share ideas and process issues: • Uses wide range of techniques to break down problems • Allows others to think creatively and voice ideas • Brings the right people together to solve issues • Identifies new solutions for the organization	1.Designing innovative experiments and methodologies to address complex scientific problems 2.Generating creative solutions by thinking outside the box and proposing novel idea 3. Identifying emerging industry areas and developing projects to address them 4.Facilitating collaboration among multidisciplinary teams to solve complex problems 5.Taking initiative to anticipate and address potential challenges during product processing.
Agility	○ ○ ◉ ○ ○	Identifies and manages required change and the associated risks: • Identifies alternative approaches and supports others to do the same • Proactively explains impact of changes • Anticipates and mitigates emotions of others • Anticipates obstacles and stays focused on goals • Makes decisions and takes action in uncertain situations and creates a backup plan	This position collaborates with partners/ stakeholders in development and interim processing projects and works directly with external clients. It requires an ability to manage and react to unanticipated changes. The position requires to create backup plans, to think outside of box, to be proactive to manage and mitigate changes. The position should hold high level of agility to provide customized solution to each client. Specifically: 1. Adapting quickly to changing project priorities and reallocating resources as needed 2. Embracing new technologies and methodologies to improve research efficiency and effectiveness 3.Managing multiple projects and deadlines with strong organizational and time management

			skills 4.Being comfortable and adaptable in dynamic working environments with unexpected changes 5.Collaborating effectively with colleagues and clients from diverse backgrounds and disciplines
Drive for Results	○ ◉ ○ ○ ○	Works to exceed goals and partner with others to achieve objectives: • Plans based on past experience • Holds self and others responsible for results • Partners with groups to achieve outcomes • Aims to exceed expectations	This position understands how the unit contributes to the goals of the Division and Ministry. Examples of Drive for Results can be: 1. Serving clients to foster growth and competitiveness in the value added food processing industry. 2. Using knowledge and expertise this position designs product development projects, provides solutions to address industry challenges and oversees interim processing to achieve targeted results. 3. Collaborating effectively to accelerate progress and achieve meaningful results while holding other accountable for their contribution. 4. Overcoming obstacles and persistently working towards achieving desired outcomes.

Assign

The signatures below indicate that all parties have read and agree that the job description accurately reflects the work assigned and required in the organization.

Employee Name	Date yyyy-mm-dd	Employee Signature
Supervisor / Manager Name	Date yyyy-mm-dd	Supervisor / Manager Signature
Director / Executive Director Name	Date yyyy-mm-dd	Director / Executive Director Signature
ADM Name	Date yyyy-mm-dd	ADM Signature
DM Name	Date yyyy-mm-dd	DM Signature