SCIENCE & TECHNICAL INDUSTRY PROGRAM RESULTS

IMPROVING SENSORY PROPERTIES COMMITTEE

2025/2026 RESULTS TO DATE PREPARED JANUARY 2026

PULSE CANADA

SCIENCE & TECHNICAL INDUSTRY PROGRAM RESULTS:
IMPROVING SENSORY PROPERTIES COMMITTEE

MEMBERS:
Prairie Fava, Roquette, Pepsico

Members of this committee have a mutual interest in understanding and exploring novel ways to improve the sensory properties of pulses and ingredients.

SUMMARY OF 2025-26 ACTIVITIES:

- 2 meetings were held with committee members (May 28, July 16)
- 3 major priority areas of common interest were identified by committee members from the aforementioned activities:
    - Root-cause understanding of off-flavours and sensory defects
        - Mechanistic understand of "why" off-notes form
        - Pathways for development, interactions between compounds, influence of raw material variability
    - Faster, more reliable and scalable sensory/analytical tools
        - Lack of rapid, predictive and practical analytical and sensory methods for commercial R&D
    - Bottlenecks in sensory related to ethics, throughput and cost
    - Bridging the gap towards more integrated, application-drive sensory research
        - Limited ability to predict sensory outcomes based on processing conditions
        - Better alignment between ingredient functionality and final product sensory performance
        - Focused, better-communicated strategies
- During an in-person meeting at IFT, the committee came up with a project design which would explore the impact of product packaging, specifically protein and fibre nutrient content claims, on consumer acceptance. Two potential collaborators were approached and the decision was made by committee members to move forward with the University of Manitoba, who would address the scope through a conventional sensory panel. An agreement is currently being drafted and work will begin in early 2026 to kick off the project

PROJECTS TO DATE:

Year	Title	Description	Outcomes/Deliverables	Status	Funding
2023-2024	Impact of Storage and Packaging on Sensory Properties of Pulses	Three (3) year project to evaluate the effects of storage (duration, temperature, and relative humidity) and packaging materials on the sensory profile of whole pulses and their ingredients (whole yellow pea, whole faba bean, pea protein isolate and dehulled faba bean flour)	Research publication(s) highlighting the influence of storage conditions on proximate composition, chemical compounds associated with off-flavours, and sensory profiles of peas and faba beans. Trained HQP in flavour chemistry and sensory analysis.	Leveraged funding was secured from MB SCAP. Project will begin April 2026.	Total Budget: $318,740 $20,000 from STIP $105,001 from Pulse Canada Additional funding being sought
2023-2024	Industry Workshop on Pulse Flavor Solutions	This virtual event will highlight multifaceted approaches to addressing pulse flavour challenges. Presentations and/or demonstrations as part of the event will feature promising research and existing commercial solutions in priority areas including breeding, process optimization, seed pre-treatments/ ingredient modifications, and food product development solutions.	A series of on demand presentations highlighting the latest research to address pulse flavour challenges. Live Q&A session for industry to engage, provide feedback on the commercialization potential of presented works, and identify future research priorities in this area.	Complete	Pulse Canada in-kind Saskatchewan Food Industry Development Centre sponsorship: $1,000 Manitoba Agriculture's Food Development Centre: TBD
2024-2025	Influence of pulse ingredients to alter key sensory attributes in foods	Literature review on North American consumer and sensory science studies evaluated pulse inclusion in baked goods, gluten-free products, high protein products, snacks and plant-based beverages	Research publication highlighting the largest barriers to acceptance of pulse-containing products, considering the nuances between food product categories, and opportunity areas of improvement for future research and food product development efforts.	The second draft has been recently completed and will be sent for committee review in early 2026.	$30,000 STIP Confirmed

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2025-2026	Understanding the role of packaging, sensory experience and nutrient claims on consumer perception and recall of pulse-based foods	This project aims to generate actionable consumer insight into how foods containing pulse ingredients are perceived at first exposure and after a short delay. The research will assess consumer acceptability of packaging, product appearance, aroma, flavour, texture, and overall liking, as well as the influence of nutrient claims on these perceptions. A follow-up evaluation conducted 24 hours after the initial assessment will examine retention of sensory impressions and packaging-related claims. Findings will support food manufacturers in optimizing both product formulation and on-pack communication to improve consumer acceptance of pulse-based foods	Final written report highlighting consumer perception data by treatment incorporating insights on packaging and claim influence on acceptance and retention	In Progress	$30,000 STIP Confirmed
2025-2026	AI enabled flavouromics platform for predicting sensory performance of pulse ingredients and foods.	This project will integrate existing Pulse Canada sensory and instrumental datasets into an AI-enabled flavouromics platform to predict flavour, off-flavour, and overall sensory performance of pulse ingredients and foods. Multivariate and deep learning models will link chemical and compositional data to sensory outcomes, enabling a scalable, pre-competitive tool to support ingredient selection, processing optimization, and product development.	Integrated flavouromics data, predictive sensory models, identification of key sensory drivers, technical summary & interpretation and framework for ongoing platform expansion.	In Progress	UofM: in-kind as part of on-going collab-oration with Pulse Canada

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