

produce industry with its affiliated service and solution-provider industries, to develop committed partnerships to engage in proposal development towards a future-scoping, but flexible and evolving, programmatic road map for necessary knowledge and practical solutions in produce safety.

8. CPS Foundational framing of the next decade of research

Multiple awards are imagined for this 2022-2023 award period to address “end to end” supply chain risk models and the related scientifically designed road map for future CPS funding investments. This research priority is relatively open to conceptually design and implementation focus. However, a guiding perspective for CPS is that overly generic and broad supply-chain models are not likely to be consistent with award priority expectations. Similarly, highly specific, and extensively narrow supply chain models are of lower priority. The call for proposals is open to integrated systems defined by commodity, region, and combined channels of distribution marketing to point of service or point of purchase. If adequately justified, this end-to-end concept may extend to consumer handling as related to time, temperature, washing recommendations and storage risk assessments.

Supply chain risk models (SCRM) commonly address the interconnectivity of system risk and vulnerabilities against current and prospective mitigation practices. Supply-side SCRM matrices align practices and scales of operation with sources of initial contamination, factors favoring persistence, cross-contamination, amplification, and all barriers to implementation of characterized preventive controls and effective corrective measures. SCRM outcomes identify critical operational knowledge gaps and limitations to risk management due to diversity and complexity of suppliers, limited system transparency, and absence of data-sharing and cooperative trend analysis. Similarly, post-farmgate influences on supply-originated sources of contamination or contamination introduced during transportation, processing, wholesale handling, and retail handling follow comparable pathways for analysis. Proposals should consider comprehensive treatment of end-to-end factors including but not limited to:

- Risk type
- Risk likelihood
- Risk duration
- Risk predictability
- Risk interactions
- Risk reducers
- Risk amplifiers
- Risk impact

To encourage creative, multidisciplinary approaches and provide for an iterative implementation and solutions aligned outcomes, awards will be based on a planned

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These continuation funding reviews are not intended to be overly prescriptive or impactful of the experimental design but planned to provide industry input and guidance to optimize the anticipated outcomes for shared learnings and immediate adoption. Ideally, in addition to risk mapping a specific, or model, supply chain, the anticipated outcome may be an initial quantitative risk assessment tool. However, the system analysis, at this time, may only be or largely be best addressed and suited for a qualitative analysis. Both approaches and varying combinations are needed as a foundation for innovating methods, protocols, and systems-based approaches to

address broad needs in root cause analysis.

Categories for this research proposal request are open but may include any of a diverse categorized or broadly based subset of the fresh produce supply chain. Examples include a broad general supply chain model, large commodity or category model (i.e., leafy greens, fresh market tomatoes, citrus and/or tropical fruit, controlled environment agriculture, pome and or stone fruit, netted melons, and similar categories within certified organic management). At this time, proposals are invited to address supply-chain risks centered in or involving trading channels in the United States, Mexico, Central America, Canada, the EU, Australia/New Zealand, Chile, Peru, and South Africa.

It will be essential for any organization, institution, or multi-institution consortium to provide strong evidence for an administrative structure prepared to execute an award contract in a timely manner.

Proposals should reflect and incorporate a deeply investigative compilation and analysis across the matrix of current practices from field production to processing and marketing. Evidence of a systematic approach and accessibility to current publicly and even privately available knowledge is expected to facilitate the review process. CPS encourages proposal developers to incorporate focused and prospective quantitative microbial risk data development experimental objectives in Year 2 and if a Year 3 research component is included. An initial Year 1 analysis of the selected supply chain risk map should precede finalization of any experimental research program to be developed in discussion with a CPS industry technical panel. The data and “state-of-the science” assessments should result in outcomes which define and illustrate what industry (food safety managers and professionals) should unequivocally know, what we unequivocally don’t know, what we think is known and is testable to determine the functional knowledge, and the applicability or limitations of the current science of Good Agricultural Practices and supply chain food safety systems. Review and award decisions will place a higher priority in proposals which have the greatest potential to for transferability to serve as a template for multiple commodities and regional systems.