

SPECIFIC CONSIDERATIONS FOR GENE EDITING AND SOCIETAL ENGAGEMENT

Beyond the basics, here are some questions to consider specifically for gene editing that may affect why, when, who, and how to engage.

PROBLEM FRAMING

- **Where are you in your product development cycle?** Are you scoping out what problems to work on? Looking for input to prioritize what research and development you pursue? Have you chosen a problem and a species to edit? Have you already developed a product? Where you are in the timeline affects your decision space, the influence engagement can have, and the questions that might be asked.
- **What problem are you trying to solve?** Climate resilience? Disease resistance? Nutrition? How does gene editing fit into the problem overall, and what role can it play in addressing the problem? What are the other alternatives to solving the problem? How does the problem that you're trying to solve affect who you might need to engage?
- **Product developer and past engagement.** Are you a private sector company? A public sector research institution? A nonprofit? What's your overall mission, and how does this effort fit in? How might this identity affect your stakeholders and networks, and levels of trust? How might your existing and past relationships or engagements affect this new engagement?
- **How does this specific product fit into broader societal dialogue on gene editing?** Are the biggest questions you have for this engagement about this specific product, or are they more general? How does this affect the role of the individual product developer and the potential to partner with other researchers and developers in broader dialogue?

WHAT ARE YOU EDITING?

- **What organism are you thinking about editing?** A plant? An animal? A microbe? How might this affect general engagement context and strategies?
- **What kind of edit(s) are you thinking about?** Are they relatively 'simple,' non-transgenic edits? Is it a single edit or multiple? Is it transgenic or GMO? Is it a gene drive? How does this affect the regulatory and societal considerations for this product?
- **Source of varietal being edited.** Is the organism/varietal that is being edited a commonly used/ consumed species? Is it a species or varietal with cultural significance, sovereignty, and/or access and benefit considerations for historically marginalized and/or Indigenous communities?
- **Source of edits being introduced.** Do the new traits being introduced already exist somewhere in nature in this species? Do they exist in the region where the new product will be produced or introduced? Are they designed to mimic traits in other, non-related species? Are they being identified and/or sourced from a species or varietal with cultural significance, sovereignty, and/or access and benefit considerations for historically marginalized and/or Indigenous communities?

ADDITIONAL SOCIAL, CULTURAL AND ENVIRONMENTAL CONTEXT

- **Where is this organism grown, produced, or living in the natural environment?** What are the geography, climate, culture, demographics, and socioeconomic considerations? How does this affect who you need to engage and the factors affecting whether/how you develop this product?
- **Who is the target audience or consumers for this product?** What are the cultures, demographics, and socioeconomic considerations? How does this affect who you need to engage and whether/how you develop this product?
- **What is the cultural relevance of the product?** Is this a dietary staple? A traditionally important species or food? Are there cultural and/or sovereignty considerations associated with its production and/or use in Indigenous cultures? Are there elements of the crop other than the edited trait in question that may affect receptivity? For example, is color, size, or texture of a food important culturally?
- **Environmental considerations.** Will this organism be grown only in a controlled environment? Will it be intentionally released into the wild? What are the considerations for gene flow from a controlled to a natural environment? What are the potential environmental risks (i.e., deforestation) and benefits (i.e., restoration? Pesticide reduction? Reduced water use or GHG emissions) of this product?
- **Public health considerations.** How might this product affect nutrition or food security? Pesticide exposure? Pathogen and disease flow among other species and humans?

REGULATORY, LEGAL AND TRADE CONTEXT

- **What additional regulatory considerations exist?** How does the country of production and/or consumption/use affect the regulation for this product? Are the relevant regulatory system(s) likely to approve this product? Are they set up well to handle this type of edit or product, or is this a novel test case? What societal engagement do they require, and how does the regulatory process affect other forms of engagement?
- **What transparency and market considerations exist?** Will this product be subject to labeling requirements, such as for products containing genetically engineered DNA? Does it have origin-based labeling requirements? Will the product be listed on product registries?
- **Intellectual property context.** Who owns the editing technology? Is the genome of the organism publicly available? Are there special licensing agreements that are needed? How will IP for the edited product be shared or protected? Have you considered technology access in the context of other institutions and communities that you might be working with to create this product? Could the IP landscape hinder or help in engaging certain communities? Could it serve as a mechanism for benefit sharing?
- **Context of other available products or options, markets, and trade.** Are there other, non-gene edited products that could provide a viable alternative to using gene editing? How will co-existence of gene edited and unedited products occur in the marketplace? How might this affect trade and exports?