

# OFFICIAL FEEDBACK FORM

<b>DIALOGUE DATE</b>	Monday, 27 September 2021 10:41 GMT -04:00
<b>DIALOGUE TITLE</b>	Seed System (seed development, management, and distribution) for a sustainable food system Location: Baton Rouge, LA, United States
<b>CONVENED BY</b>	Sandeep Chapagain/ American Seed Trade Association (ASTA)/ Seed Science Foundation(SSF)
<b>DIALOGUE EVENT PAGE</b>	<a href="https://summitdialogues.org/dialogue/46594/">https://summitdialogues.org/dialogue/46594/</a>
<b>DIALOGUE TYPE</b>	Independent
<b>GEOGRAPHICAL FOCUS</b>	United States of America

The outcomes from a Food Systems Summit Dialogue will be of use in developing the pathway to sustainable food systems within the locality in which they take place. They will be a valuable contribution to the national pathways and also of interest to the different workstreams preparing for the Summit: the Action Tracks, Scientific Groups and Champions as well as for other Dialogues.

# 1. PARTICIPATION

## TOTAL NUMBER OF PARTICIPANTS

40

## PARTICIPATION BY AGE RANGE

0-18

19-30

31-50

51-65

66-80

80+

## PARTICIPATION BY GENDER

Male

Female

Prefer not to say or Other

## NUMBER OF PARTICIPANTS IN EACH SECTOR

Agriculture/crops

Fish and aquaculture

Livestock

Agro-forestry

Environment and ecology

Trade and commerce

25

Education

Communication

Food processing

Food retail, markets

Food industry

Financial Services

Health care

Nutrition

National or local government

Utilities

10 Industrial

10 Other

## NUMBER OF PARTICIPANTS FROM EACH STAKEHOLDER GROUP

Small/medium enterprise/artisan

Large national business

Multi-national corporation

Small-scale farmer

Medium-scale farmer

Large-scale farmer

Local Non-Governmental Organization

International Non-Governmental Organization

Indigenous People

Science and academia

Workers and trade union

Member of Parliament

Local authority

Government and national institution

Regional economic community

United Nations

International financial institution

Private Foundation / Partnership / Alliance

Consumer group

Other

## 2. PRINCIPLES OF ENGAGEMENT

### HOW DID YOU ORGANIZE THE DIALOGUE SO THAT THE PRINCIPLES WERE INCORPORATED, REINFORCED AND ENHANCED?

The event was curated in two different main sections. First, presentation and discussion session and second, survey for the participants and other seed and food sector related peoples to know their opinion regarding seed system for the sustainable food system. In the seminar and open discussion session, we invited mainly agriculture graduate students, researchers, faculty members, and some industry people. There were forty participants in total. The seminar focused on the UN food summit, its objectives, and the importance of independent dialogue at the beginning, later discussed different seed systems, including production, processing, and distribution. In addition, we presented about formal seed system, informal seed system, and intermediate seed system along with their features. We discussed insights into sustainability for the food system from the global perspective. We presented and discussed seed systems' critical functions, including production and distribution of quality seeds, Innovation, regulation of seed ensures seed quality, and metrics to measure seed systems for sustainable food systems. Finally, we discussed some perspectives for sustainable seed systems such as seed saving, seed conservation, and seed sharing practices for sustainable food systems. After the discussion seminar, we prepared a set of questionnaires to know your opinion about what type of seed system can help the sustainable food system cope with climate change in the future. Seed innovation is the most critical factor for feeding the world. We need Innovation to meet and manage the numerous challenges, management to give us the focus and develop and execute production and delivery systems, and distribution from the global perspectives must be effective in a micro and macro situation. Though sustainability has many definitions, so sustainability is a multi-layered and multi arena.

### HOW DID YOUR DIALOGUE REFLECT SPECIFIC ASPECTS OF THE PRINCIPLES?

We found different divergent opinions among the participants. The opinion differs with the working sector such as academia, industries, and farming. Moreover, the opinions regarding the seed system and food sustainability differ in different countries. Overall, the solution needs to be manifold – much like a web – so that our food supply (seed supply) is not dependent upon only a few sources. Genetic diversity needs to be encouraged in our local and global policies, especially "flexible, hearty varieties" that are better able to deal with changes in or extremes in climate conditions. diversity enhancement programs at the local levels should be pursued and fostered. ( such as parish agents inviting local growers to share their seed samples from heirloom varieties, etc., and then encouraging the cultivation of these diverse kinds of crops/fruits/vegetables within their regions.

### DO YOU HAVE ADVICE FOR OTHER DIALOGUE CONVENORS ABOUT APPRECIATING THE PRINCIPLES OF ENGAGEMENT?

# 3. METHOD

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The outcomes of a Dialogue are influenced by the method that is used.

**DID YOU USE THE SAME METHOD AS RECOMMENDED BY THE CONVENORS REFERENCE MANUAL?**

**Yes**

**No**

# 4. DIALOGUE FOCUS & OUTCOMES

## MAJOR FOCUS

Seed is one of the most crucial elements in the livelihoods of agricultural communities. A seed system is critical for a sustainable food system, ensuring the availability of high-quality seeds of a wide range of varieties in time and affordable to farmers and stakeholders for crop production. However, the seed system varies among developed and developing countries. In several developing countries, farmers have not yet been able to fully benefit from the advantages of using high-quality seeds due to different factors, such as insufficient seed production, distribution, marketing, quality assurance systems, and other bottlenecks due to lack of good seed policy on critical issues including access to credit for input. This report provides a deep dive into the perspectives of people engaging in agronomy, plant breeding, and the seed sector about sustainable seed systems for the sustainable food system. Voice of the combination of these stakeholders and participants need to be heard for a sustainable food system. This report aims to identify ways to make a better seed system for sustainable food systems globally.

### ACTION TRACKS

- Action Track 1: Ensure access to safe and nutritious food for all
- Action Track 2: Shift to sustainable consumption patterns
- Action Track 3: Boost nature-positive production
- Action Track 4: Advance equitable livelihoods
- Action Track 5: Build resilience to vulnerabilities, shocks and stress

### KEYWORDS

- Finance
- Innovation
- Human rights
- Women & Youth Empowerment
- ✓ Policy
- Data & Evidence
- Governance
- Trade-offs
- Environment and Climate

## MAIN FINDINGS

### Main Finding

Based on the survey response, about 83.3 % of the participants were heard about UN food summit. The majority of the participants were from farming families. Around 22.2 % of the participants were beside the farming family. Similarly, around 79% of the participants were from the rural area. Participants worked in different crops, including wheat, corn, rice, soybean, lettuce, hay, alfalfa, sweet corn, and beans. In which more participants were working in wheat crop. Regarding seed sharing practices, 77.8% of the respondents knew about formal and informal seed sharing practices, and 17% knew only commercial seed practices. The majority of the participants agreed that seed sharing is a sustainable practice, and around 17% disagreed regarding seed sharing for sustainable agriculture. Similarly, two-thirds of the participants thought seed preservation or seed sharing helped in food security, biodiversity, and cultural identities. In addition, more than 60% of the participants thought that seed sharing practices affect the seed industry's economy. We found different opinions from participants from different sectors. The main finding is that collaboration with industry and farmers with appropriate government policy is needed for seed system for the sustainable food system. Only the informal system and formal systems could not be the solution; therefore, intermediate (participatory breeding approach) might help for a sustainable seed system. To feed the increased global population, climate innovative high yielding variety development is necessary, which can be done only by money invested research. Therefore seed sharing may provide resources, and the seed industry or breeding sector will develop a variety. Therefore, a sustainable seed system must be appropriately combined with research, policy, and collaboration among farmers and stakeholders.

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## OUTCOMES FOR EACH DISCUSSION TOPIC

We found several different opinions for the significant discussion about the seed sharing practice and economic stability by farmers and industrial and future food sustainability. The primary discussion topic outcomes are summarized as follows.

### Role of research and extension

Extension researchers should be at the forefront of the search for flexible and successful heirloom varieties, and the development of heirloom varieties (ones that create fertile vigorous seeds) should be fostered and encouraged region by region. Though seed sharing is viable for many smallholder and subsistence farmers, these two practices must co-exist because much of food security depends upon higher yields, which cost money to develop via research. The seed must be preserved, purified, and sold to farmers (quantity, quality).

### Participatory breeding approach and seed sharing

Seed sharing is essential for the preservation of biodiversity and the economic wellbeing of small marginal farmers. There is a need for an integrated model where both farmers and private industry can benefit. The private industry should help form cooperatives to encourage participatory breeding efforts to develop high-yielding varieties suitable for their agroclimatic regions. Similarly, seed sharing can be good practice for species where Innovation is not essential. Where the Innovation is important, there needs to be an economic incentive for the developer to continue Innovation.

Overall, Seed sharing helps in food sustainability by growing a same type seed in various geographical locations.

Temperature, photo period requirements and genetic make of seeds might change over time. Therefore, seed sharing is a way for future food sustainability.

### Seed sharing approach with mutual benefit among farmers and industry

Response: Sharing the seed of improved version of existing is beneficial from both sides. Farmers must share the improved varieties among themselves, and private industry needs to improve and demonstrate advanced version this create the competitive environment which is advantageous for both farmers and industries. To maximize the benefits of plant breeding, intellectual property protection is critical to encourage future investment in development of new cultivars. In addition, understanding that plant breeders are professional developers of new diversity and value, and farmers are professional users of this, to grow food, cooperation, and coordination between these two groups is essential.

### Seed sharing to preserve biodiversity and culture

Seed sharing might be the one solution to what we currently see climate change cause erratic weather patterns, forcing crops to withstand extreme circumstances and new diseases. To combat this, we will need to continue providing better varieties designed to withstand heat, cold, drought, flooding, wind, and disease pressure. In this case, seed sharing as a net positive is in a similar gardening environment or specific heirloom crops. However, Seed sharing does not guarantee will help to make accessible quality seeds to the growers. One major component to increase yield is the quality seed. Incentivizing seed sharing among small farmers by big seed industries promotes biodiversity while also providing valuable germplasm to big companies which could be pivotal in frontier research. Therefore, seed sharing may help save the indigenous seeds to preserve diversity.

Moreover, the commercial seed industry should be prioritized by the central sector of government rather than farmers. For example, in the Philippines, seed sharing between farmers makes seed accessibility sustainable, resulting in food sustainability. But most of the time, seed sharing is just a resilient practice whenever the seeds of variety that a farmer prefers are unavailable. For a long-term solution to seed access, the commercial seed industry should make their seeds readily accessible.

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## AREAS OF DIVERGENCE

Here we summarized the divergence opinions is as follows:

### Collaborative scientific advancement:

The best way to improve sustainability is through collaborative scientific advancements that allow for less environmental damage while providing profitability from farmers to consumers. While at the same time, having common sense regulation prevents extreme cases of soil and water damage. Seed development falls under Innovation and tomorrow's challenges globally. The goals of any definition of sustainability used today are essential to long-term success but must complement and allow for seed innovation, food production, and food delivery to billions of people in an affordable manner. Any part of sustainability that hampers creates unsustainability of the system. Each grower deserves to have an opportunity to obtain and plant good quality, a reliable seed of the crop they wish to cultivate. As long as this criterion could be satisfied, varied development, conditioning, storage, transport, and distribution models could be of value.

### Government policies and management

The seed system must be based on the mutual expertise and recognition of the expertise of others, based on science and enabled by sound government policies. Seed development, management, and distribution must be the government agenda, especially in developing countries. We should disagree with sharing the seed (seed without economic cost), because it must have a price (tangible), and someone with knowledge has to maintain the purity and the individuality of the variety/seed. This issue is extremely important. Therefore, the government, policymakers, and stakeholders should make an initiative towards seed accessibility, management, and distribution, helping the farmers and the whole agriculture sector.

Furthermore, research and extension workers should aim for profitable, resilient, and sustainable agriculture through responsive, balanced, environmentally sound, and partnership-based research, development, and extension. Moreover, the effort should be as global as possible but managed more locally, based on the regional climate and needs. Distribution of seed needs to be done carefully- as pest organisms can often come with seed source. If adaptive varieties of seed are shared to different world regions with similar climate conditions, this needs to be done with much care and oversight.

### Maintaining genetic variability and distribution

The development of variety developed so that it lasted longer and possible to incorporate many genes that are as good as possible. The distribution of variety must be fragmented into both hands, public and private, to avoid monopolies. Moreover, variability maintaining depends on the crop, for the crop that has been in cultivation for long we need to maintain variability, so need seed sharing. For those crops, which is just starting for cultivation, we need formal seed production to give good standards into seed varieties. Research areas that are perhaps neglected regarding genetic diversity. In addition, Epigenetic differences among varieties of crops need to be further studied and applied to our understanding of diversity among food crops and their ability to thrive in changing climatic conditions.

### Farmers participation with research institute and industries

Farmer's participation is vital for seed development, management, conservation, and distribution to accomplish a sustainable food production system. Research institute and industries should develop in participation to growers, and their evaluation in the grower's field would be best approach for the development and management of seed. While private industry's role in developing high-yielding crop varieties to secure world food production is important, lack of access to such improved varieties to small and marginal farmers in developing and underdeveloped countries due to the high cost of seed does not help increase food production on this planet. Therefore, an intermediate and hybrid system of seed systems is needed to develop a sustainable food production system.

### Money invested in research for commercial seeds

It appears that the most incredible advances in seed development occur when users pay for seed. That income fund fuels Innovation with the developer. This "pay for seed" system is sustainable if value is created. Money invested research is utilized in developed countries, but more fraction of income is spent on food in many countries. Part of the issue is that so many people's livelihoods in developing countries are based off small parcels of land. In those cases, they can not produce enough grain on such a small parcel to pull themselves out of poverty. Therefore, sustaining the growing population will acquire money invested in research for commercial seeds and improve the efficiency of small shareholder farming operations and their respective supply chain. In addition, value chain development with incentives to each end user. The open-source genetics is an important part of a sustainable agriculture system. However equally important is a system that incentivizes research and Innovation for business. To develop the Innovation, a return on investment needs to be a part of the seed system.

### Intellectual property protection

To develop the future see varieties in sustainable way, intellectual property protection is essential. A strong intellectual property protection allows plant breeders or seed developers to be rewarded for their efforts. Ultimately, which promotes research and development to enhance crop production and resource conservation.



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