Farmers: food producers and breeders

• 80% of food produced by smallholder farmers in Asia and Africa

• They also produce 80% or more of seeds
Commercial plant varieties

- Uniformity
- Displacement of ‘farmers’ varieties’
- Genetic erosion
Ireland: Great Famine-1845/1852

- Two-fifths of the population reliant on potato
- Approximately one million people died and a million more emigrated (the island's population fell by 20%-25%)
- Potato blight
Farmers’ seeds

- Conservation of biodiversity
- Heterogeneity
- Adaptability
- Affordability
Conservation and use of farmers’ seeds

- Implementation of ‘Farmers Rights’ (conservation of traditional knowledge)
- Support of community and public genebanks
- Reform of seed and intellectual property laws (sui generis regimes)
- Recognition of the rights of peasants and other people working in rural areas
New technologies

- Lack of infrastructure
- Scale of production
- Complexity
- Cost
- Intellectual property (patents, know-how, designs)
Appropriate technologies

- small-scale,
- labor-intensive,
- energy-efficient,
- environmentally sound
- self-sufficiency
Innovation policies

• The design of innovative food systems should ideally support pro-poor and frugal agricultural innovations, promote the participatory engagement of smallholder farmers, recognize local and traditional knowledge systems, facilitate gender equity and be clearly linked to economic empowerment and livelihoods (para. 57)

• The role of science, technology and innovation in ensuring food security by 2030, Report of the Secretary-General, E/CN.16/2017/3