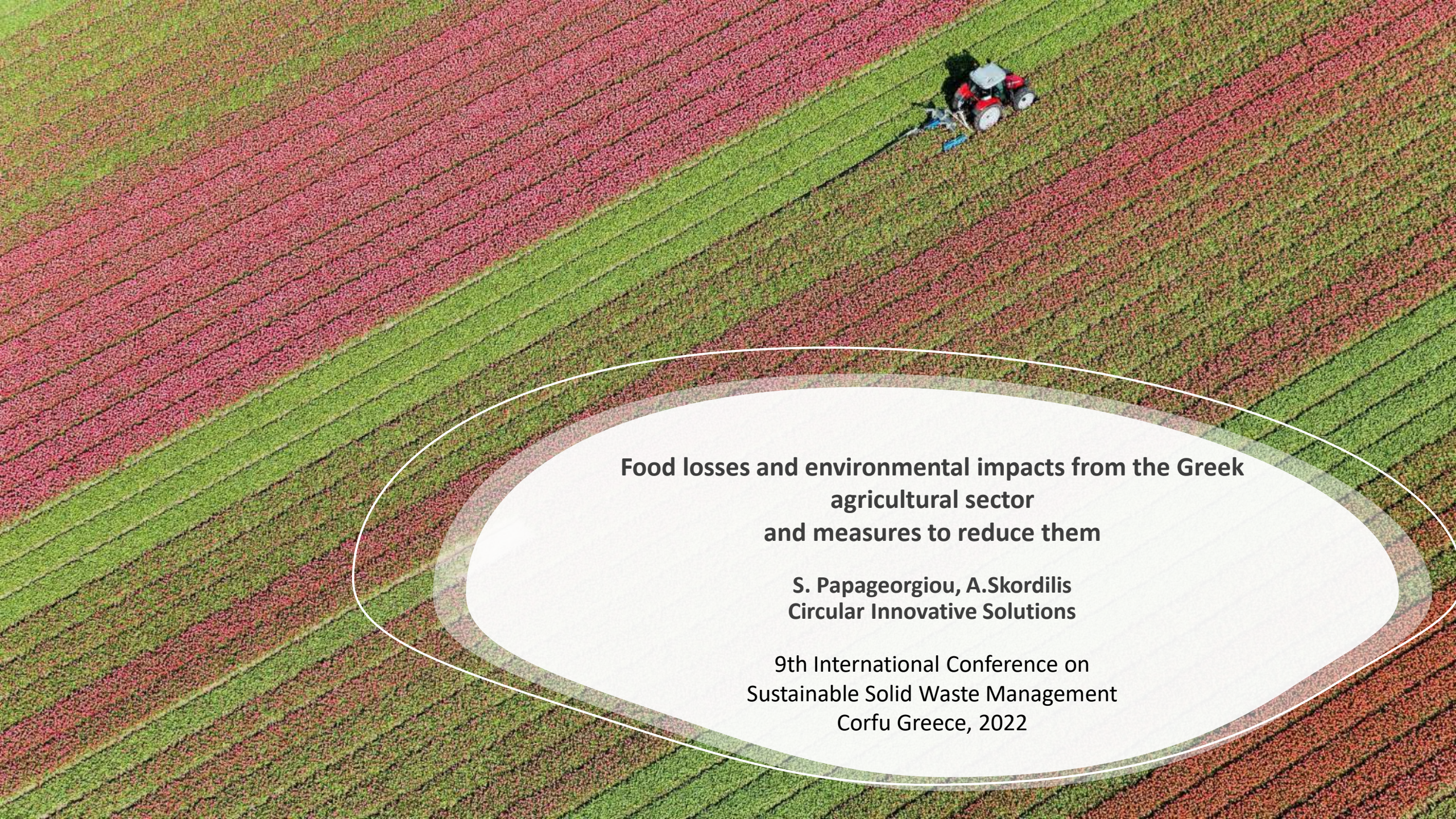
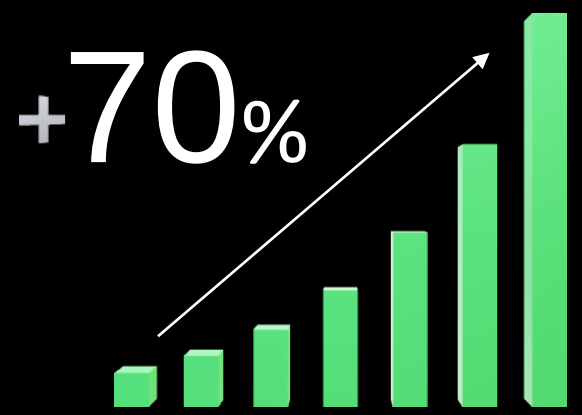


# Food losses and environmental impacts from the Greek agricultural sector and measures to reduce them

**S. Papageorgiou, A.Skordilis**
**Circular Innovative Solutions**

9th International Conference on
Sustainable Solid Waste Management
Corfu Greece, 2022

Estimated Food production needs by 2050



# Agenda for 2030: Sustainable Development Goals (SDGs)
*12: Responsible Production and Consumption*

Target 12.3

*''By 2030, halve per capita global Food Waste at the retail and consumer levels and reduce Food Losses along production and supply chains (SC), including post-harvest losses''*

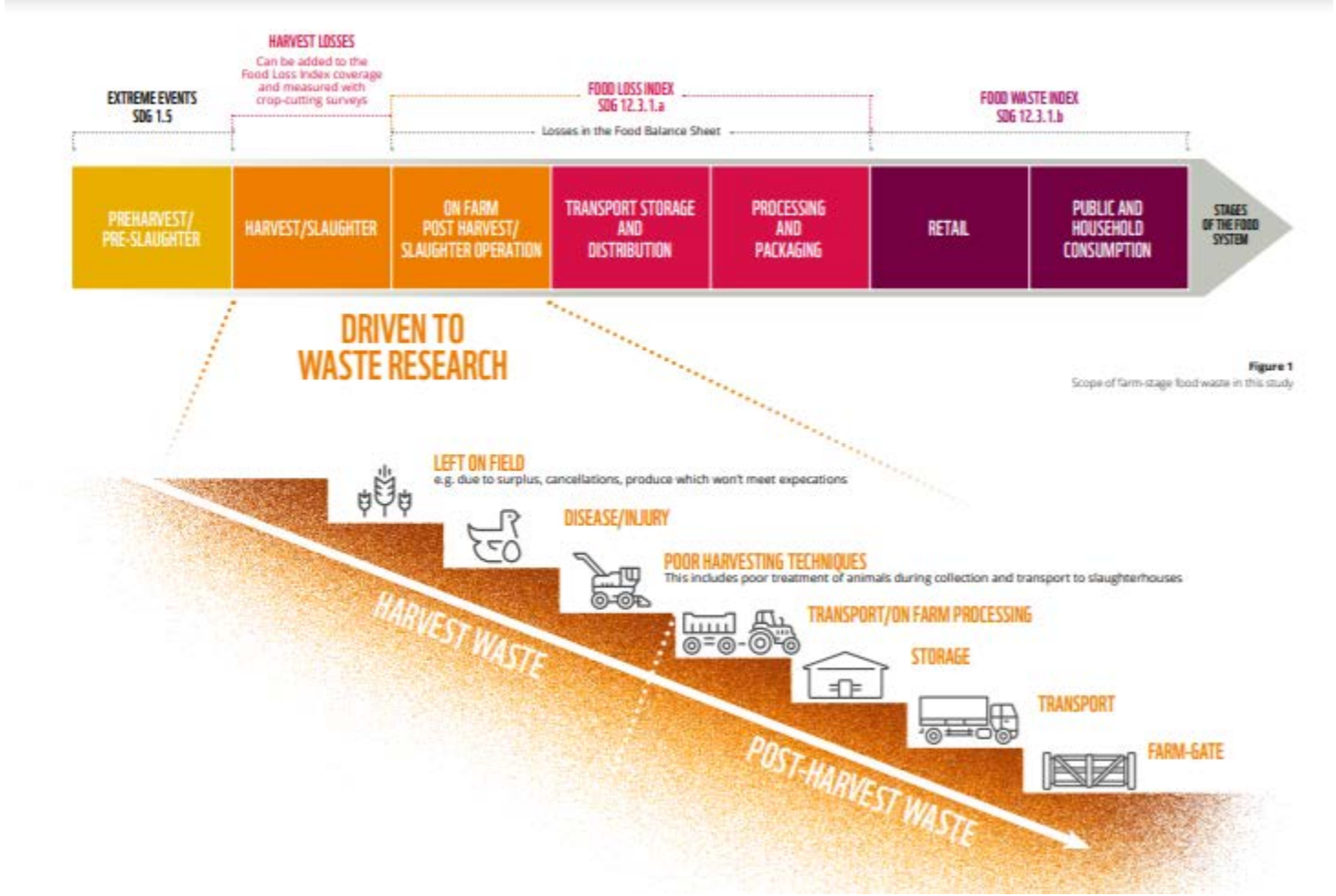
# Study purpose

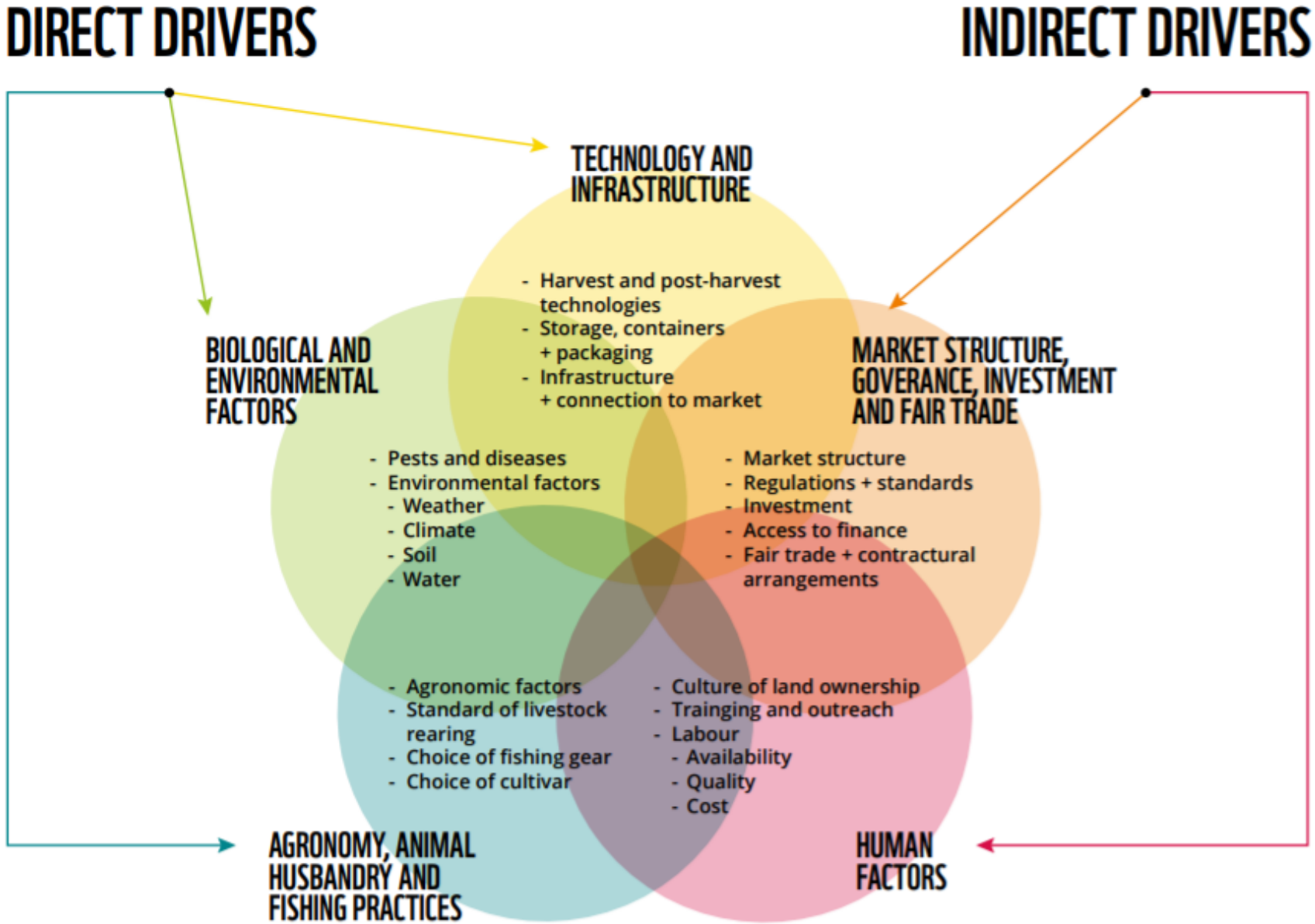
This study examines food losses and reduction measures in the Greek agricultural sector.

-> Agriculture in Greece has always been a reference point for economic and social life

## The food supply chain starts in the primary or agricultural sector

The term '*food loss*' is frequently used to refer to agricultural production that is lost unintentionally because of a variety of factors.




DIRECT DRIVERS
INDIRECT DRIVERS
TECHNOLOGY AND INFRASTRUCTURE
- Harvest and post-harvest technologies
- Storage, containers + packaging
- Infrastructure + connection to market
BIOLOGICAL AND ENVIRONMENTAL FACTORS
- Pests and diseases
- Environmental factors
- Weather
- Climate
- Soil
- Water
MARKET STRUCTURE, GOVERANCE, INVESTMENT AND FAIR TRADE
- Market structure
- Regulations + standards
- Investment
- Access to finance
- Fair trade + contractural arrangements
- Agronomic factors
- Standard of livestock rearing
- Choice of fishing gear
- Choice of cultivar
- Culture of land ownership
- Trainging and outreach
- Labour
- Availability
- Quality
- Cost
AGRONOMY, ANIMAL HUSBANDRY AND FISHING PRACTICES
HUMAN FACTORS

# Environmental impacts

greenhouse gas emissions

land and soil degradation

pollution and water usage

# Environmental impacts

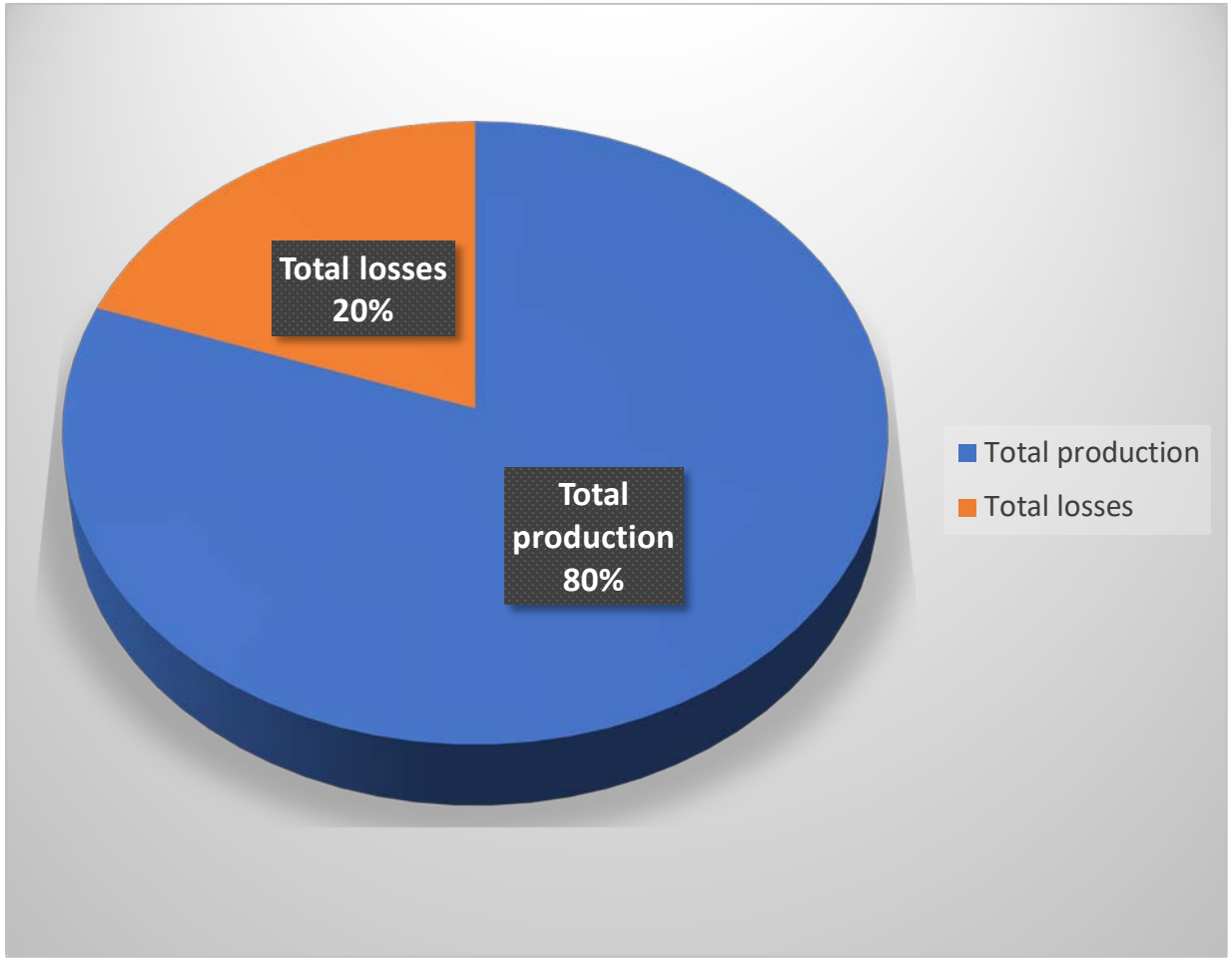
Table 1: Environmental impacts from food losses in the agricultural sector

| | |
|---|---|
| **Greenhouse gases (Kg $CO_2$eq)** | **3.5 million tons / year** |
| **Eutrophication( KgPeq)** | 330 tons / year |
| **Ozone depletion (mgCFCeq)** | 130 000 tons / year |
| **Photochemical oxidation (KgNMVOC)** | 20130 tons / year |
| **Acidification (Kg $SO_2$eq)** | 33 000 tons / year |
| **Water consumption (L)** | 30 million l / year |

# Results

- estimates were made based on the data given by HSA
- the produced quantities of agricultural products are 11980 tons per year
- losses are estimated to be 600 tons per year, representing the 5% of the total production
- Waste that could be generated by rinds and shells is 1670 tons per year.
- In total, the losses of the above are 2270 tons per year, representing the 20% of the production

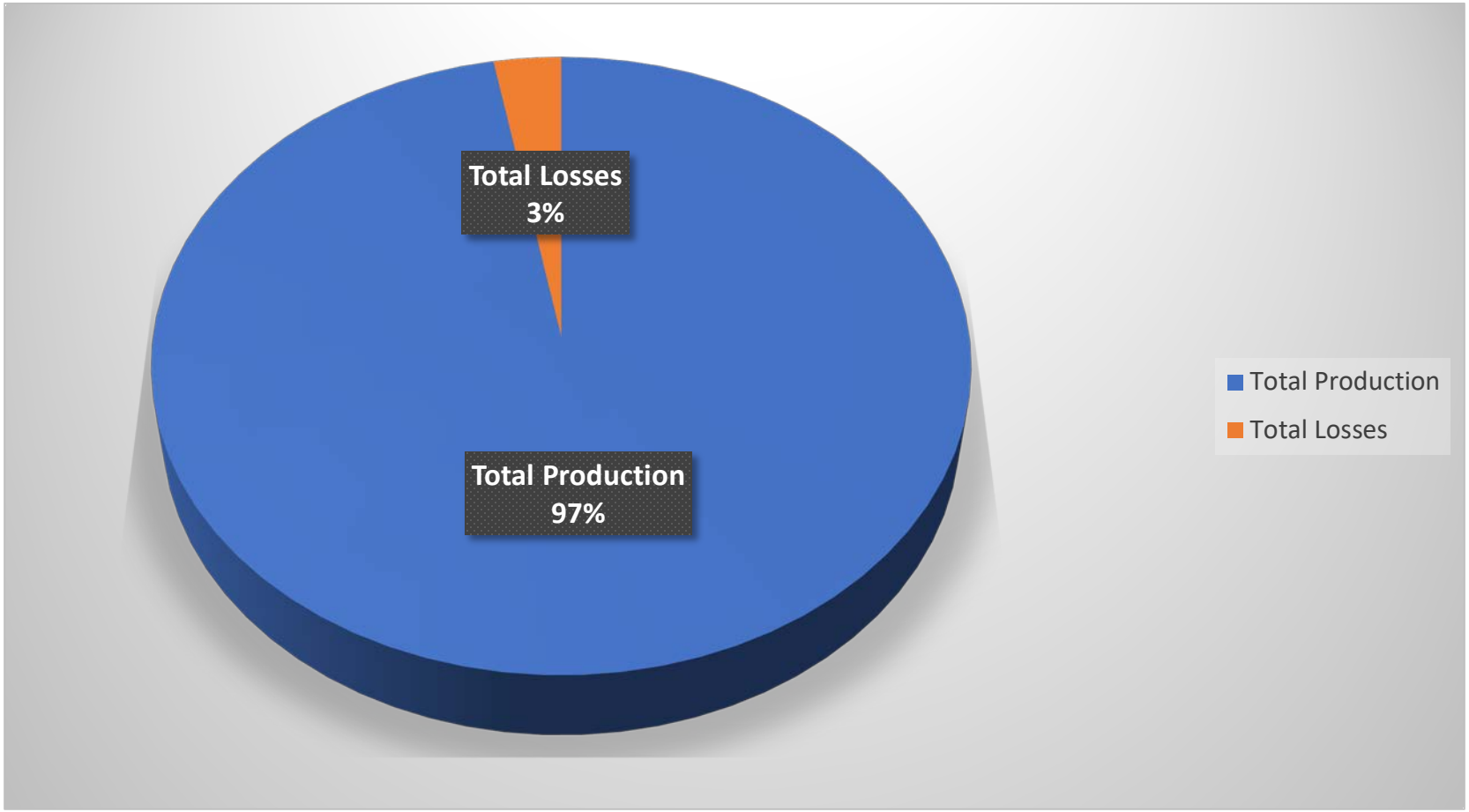
# Food loss in numbers




Before the prevention

| Products | Product losses (tons/year) | Rind and shell losses (tons/year) |
|---|---|---|
| Crop production (crops,barley,rice,corn) | 72,3 | 822 |

# Food loss in numbers




After the prevention

# Solutions

- Use of Technology (IOT systems)
- Advanced storage facilities
- Development of Knowledge and Skills
- Development and Management of Collaborative Relationships
- Donations
- Utilization (composting or energy production)

# Conclusions

- Agro-stage interventions can no longer be focused on technology alone
- Developing ambitious targets for pre-retail food loss and waste and more granular reporting of food losses
- Developing region- and culture-specific ground-level interventions to target the direct drivers of farm-stage food loss
- Communication, coordination, cooperation between producers and cooperatives can significantly reduce food loss levels
- Donations - Sharing is caring


THANK YOU FOR
YOUR ATTENTION!!!