INCREASING RELIABLE, SCIENTIFIC DATA AND INFORMATION ON FOOD LOSSES AND WASTE IN SOUTH AFRICA

DSI Waste RDI Roadmap
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Presentation by Prof Suzan Oelofse

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Background

- Previous food waste estimates are based on assumptions relevant to sub-Saharan Africa
- South Africa is more industrialised that the majority of countries in the region
- Food systems are more sophisticated
- Food production is dominated by large scale farming
- Processing is dominated by four large companies
- Highly concentrated food retail market with seven companies accounting for 80% of all retail sales

Aim of the study

To support South Africa's domestication of SDG 12.3 by generating reliable scientific data and evidence, across the food supply chain and across different food types, appropriate for South Africa.

Scope of project

- Highlight the (i) flaws/weaknesses in the assumptions and (ii) gaps in data used in the 2007-2012 food waste research (which was the best available data and methodology at the time)
- Refine the methodology for food waste estimates in South Africa through the following key work streams:
  - Review all relevant available documents, reports, theses and scientific literature on food waste in South Africa and Africa; and
  - Collect new, primary data to fill identified data gaps or address weak assumptions, throughout the South African supply chain(s)
- Undertake updated calculations of the magnitude (quantity) of food waste in South Africa based on the refined methodology, and using more recent data (e.g. Department of Agriculture Forestry and Fisheries (DAFF) and Associations, production data, etc.).

Approach and methodology

- Critical analysis of the assumptions used in 2010-2015 estimates
  - Are the commodities used in the assumptions relevant to the South African context?
  - Are the production systems, harvesting methods, processing technologies, and retail systems implied by the assumptions appropriate for South Africa?
  - Are the scale of operations implied in the assumption relevant for the commodities in the South African context?
- Critical analysis of the methodology used to calculate food waste in SA
- Update the food waste estimate for SA

Results

- Methodology is appropriate
- Assumptions needs to be updated to reflect local conditions
  - Locally produced commodities
  - Local agricultural and production practices
  - Local processing technologies
  - Typical scale of operations

Percentage losses at each stage of the supply chain by commodity group (2013 vs 2021)

Commodity group	Agricultural production		Post-harvest handling and storage		Processing and Packaging		Distribution		Consumption	
Year of assumption	2013	2021	2013	2021	2013	2021	2013	2021	2013	2021
Cereals	6,0	1,0	8,0	5,8	3,5	36,5	2,0	2,0	1,0	14,5
Roots and Tubers	14,0	10,0	18,0	9,8	15,0	9,0	5,0	2,3	2,0	1,5
Oil seeds and pulses	12,0	1,0	8,0	38,4	8,0	60,0	2,0	2,0	1,0	17,0
Fruit and Veg	10,0	9,0	8,0	18,3	25,0	31,6	17,0	5,5	5,0	20,5
Meat	15,0	6,0	0,7	5,22	5,0	0,0	7,0	7,0	2,0	10,0
Fish and seafood	5,7	0,5	6,0	0,44	9,0	31,1	15,0	7,0	2,0	2,0
Milk	6,0	1,0	11,0	12,0	0,1	3,0	10,0	3,4	0,1	14,0

Food loss and waste estimate - 2021

Commodity group	Average annual Food production (1000t)		Post-harvest handling and storage		Processing and Packaging		Distribution		Consumption		Total
	Food entering	**Food waste**	Food entering	**Food waste**	Food entering	**Food waste**	Food entering	**Food waste**	Food entering	**Food waste**	**Food waste**
Cereals	10 265,60	**102,66**	10 162,94	**589,45**	9 573,49	**3 494,33**	6 079,17	**121,58**	5 957,58	**863,85**	**5 171,86**
Roots and Tubers	1 818,00	**181,80**	1 636,20	**160,35**	1 475,85	**132,83**	1 343,03	**30,89**	1 312,14	**19,68**	**525,55**
Oilseed and pulses	304,20	**3,04**	301,16	**115,64**	185,51	**111,31**	74,21	**1,48**	72,72	**12,36**	**243,84**
Fruit and Vegetables	3 730,40	**335,74**	3 394,66	**621,22**	1 206,45	**381,24**	2 392,20	**131,57**	2 260,63	**463,43**	**1 933,20**
Meat	3 576,80	**215,68**	3 361,12	**175,45**	3 185,67	**0,00**	3 185,67	**223,00**	2 962,67	**296,27**	**910,40**
Fish and seafood	366,44	**2,75**	363,69	**1,60**	362,09	**119,85**	242,24	**16,96**	225,28	**4,51**	**145,66**
Milk	2 722,40	**27,22**	2 695,18	**323,42**	2 371,75	**782,68**	1 589,08	**54,03**	1 535,05	**214,91**	**1 402,26**
Total	22 783,84	868,89	21 914,95	1 987,14	18 360,82	5 022,23	14 905,58	579,51	14 326,07	1 875,00	10 332,77
Waste % of food entering each stage of the value chain		3,81		9,07		27,35		3,89		13,09	

Only 43.5% of output from post-harvest handling and storage of fruit and vegetables are processed. The remaining 56.5% is added at distribution stage again.

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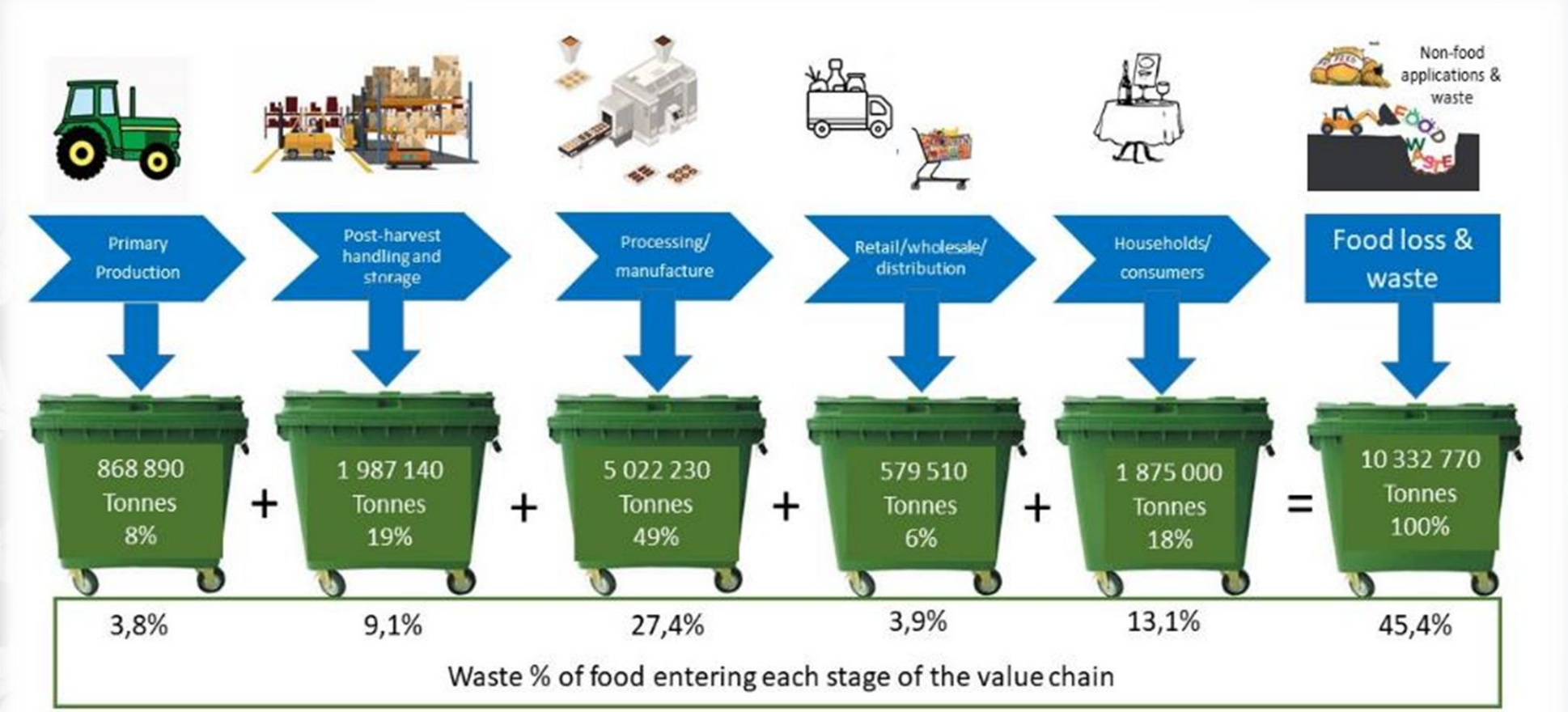
Food losses and waste along the value chain



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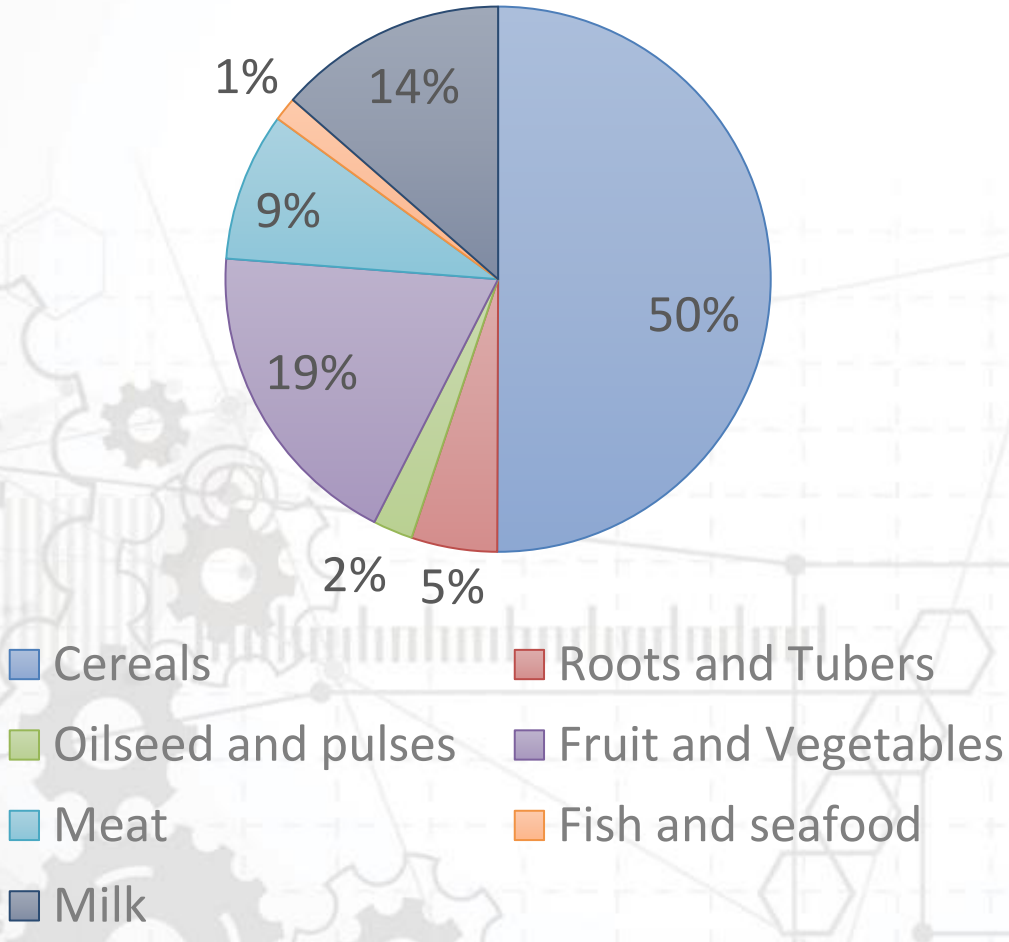
Food losses and waste by commodity type



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Conclusions

- Methodology used in the early assessments is appropriate
- 10.3 million tonnes of food losses and waste is generated in SA per annum
- 34.3% of local production but 45% of available food (production plus imports less exports) in South Africa is wasted.
- The order of magnitude of the losses and waste are aligned with earlier estimates of 10.2 million tonnes per annum
- Assumptions were not aligned with local conditions in South Africa
- The spread of the losses across the value chain is different
- 49% of losses and waste occur during processing and packaging
- 18% losses at the consumption stage as compared to the 5% from earlier estimates
- 50% of all losses and waste is attributed to cereals

Recommendations

- There is a need for more large studies to enable extrapolations of data to larger areas.
- There is a lack of data on the informal or less formal food production and processing systems along the value chain

END