A simple digital tool for tracking grape pomace flows in small wineries of Herzegovina

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Background

Grape pomace is a major agro-food by-product and a hotspot of food loss and waste (FLW) in wine-producing regions. Small and medium wineries in Herzegovina typically handle pomace using traditional practices, with little or no systematic recording of quantities and destinations. Simple, low-threshold digital tools can help wineries visualise their pomace flows and explore prevention and valorisation options without requiring sensors or specialised software.

Objectives

This pilot study aims to:

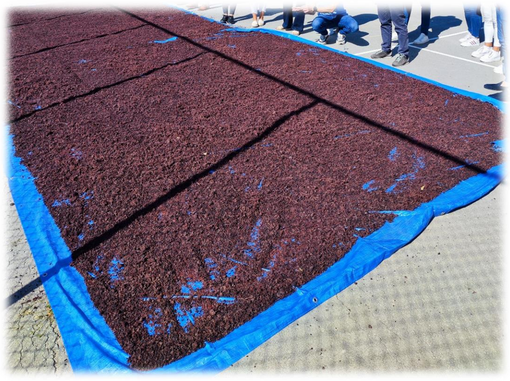
- design a lightweight Excel/Google Sheets template for recording grape pomace flows in small wineries;
- capture essential data on processed grapes, pomace quantities and current uses;
- generate basic indicators and charts for internal decision-making and communication;
- provide a replicable data structure that can be shared within the FoodWaStop WG5 network.

Digital template

The spreadsheet includes the following core fields:

- Winery ID, Harvest year, Date
- Processed grape (kg), Pomace (kg)
- Main use (composting / green manuring, distillation, landfill / disposal, combined multiple uses, grape flour and oil)

Built-in formulas and simple charts compute total pomace per winery and harvest, shares of each main use, and approximate pomace-to-grape ratios.



Study design

Data were collected from seven wineries in Herzegovina for the 2025 harvest season. Each row in the dataset represents a processing batch (“tura”) with information on processed grapes and corresponding pomace. Seasonal totals reported by wineries were, where needed, decomposed into representative batches based on typical daily processing capacities.

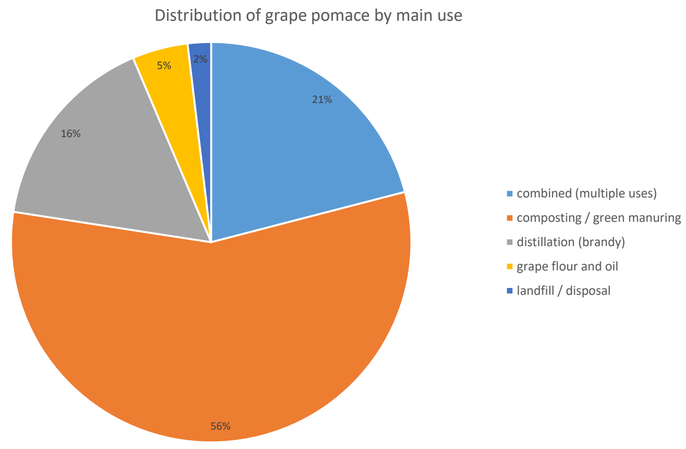
Winery ID	Harvest year	Date	Processed grape (kg)	Pomace (kg)	Main use
Winery 1	2025	22.8.2025	35 000	8 500	composting / green manuring
Winery 1	2025	23.8.2025	40 000	10 000	distillation (brandy)
Winery 1	2025	25.8.2025	45 000	11 000	distillation (brandy)
Winery 1	2025	26.8.2025	32 000	8 000	composting / green manuring
Winery 1	2025	27.8.2025	38 000	9 000	composting / green manuring
Winery 1	2025	28.8.2025	42 000	10 000	composting / green manuring
Winery 1	2025	29.8.2025	30 000	7 500	distillation (brandy)
Winery 1	2025	30.8.2025	44 000	10 500	distillation (brandy)
Winery 1	2025	1.9.2025	31 000	7 500	grape flour and oil
Winery 1	2025	2.9.2025	33 000	8 000	grape flour and oil
Winery 2	2025	30.8.2025	25 000	5 800	composting / green manuring
Winery 2	2025	1.9.2025	25 000	5 800	composting / green manuring
Winery 2	2025	2.9.2025	25 000	5 800	composting / green manuring
Winery 2	2025	3.9.2025	25 000	5 800	composting / green manuring
Winery 2	2025	4.9.2025	25 000	5 800	composting / green manuring
Winery 2	2025	5.9.2025	25 000	5 800	distillation (brandy)
Winery 2	2025	6.9.2025	30 000	7 000	distillation (brandy)
Winery 3	2025	29.10.2025	15 000	3 300	composting / green manuring
Winery 3	2025	30.10.2025	15 000	3 300	composting / green manuring
Winery 3	2025	31.10.2025	15 000	3 300	composting / green manuring
Winery 4	2025	10.9.2025	5 000	1 500	landfill / disposal
Winery 5	2025	9.9.2025	20 000	5 000	landfill / disposal
Winery 6	2025	13.9.2025	15 000	4 000	distillation (brandy)
Winery 6	2025	13.9.2025	15 000	4 000	composting / green manuring
Winery 7	2025	1.9.2025	70 000	17 500	combined (multiple uses)
Winery 7	2025	2.9.2025	72 000	18 000	combined (multiple uses)
Winery 7	2025	3.9.2025	73 000	18 250	combined (multiple uses)
Winery 7	2025	4.9.2025	75 000	18 750	composting / green manuring
Winery 7	2025	5.9.2025	76 000	19 000	composting / green manuring
Winery 7	2025	6.9.2025	77 000	19 250	composting / green manuring
Winery 7	2025	8.9.2025	78 000	19 500	composting / green manuring
Winery 7	2025	9.9.2025	79 000	19 750	composting / green manuring
Winery 7	2025	10.9.2025	80 000	20 000	composting / green manuring
Winery 7	2025	11.9.2025	74 000	18 500	combined (multiple uses)

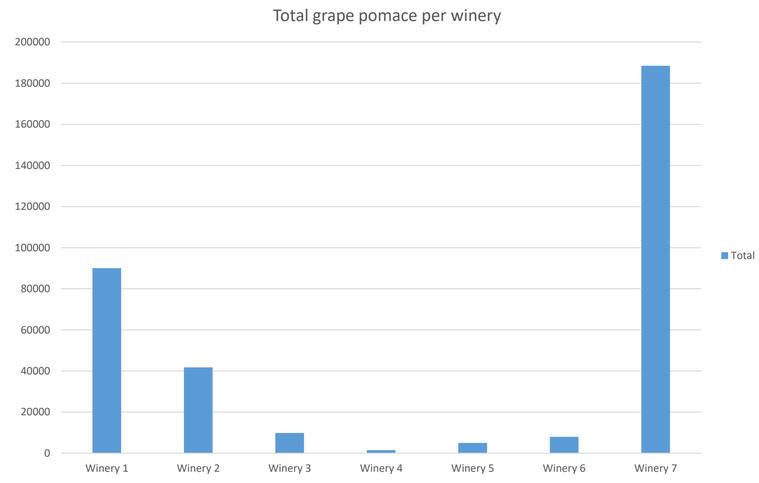
Preliminary results (2025 pilot dataset)

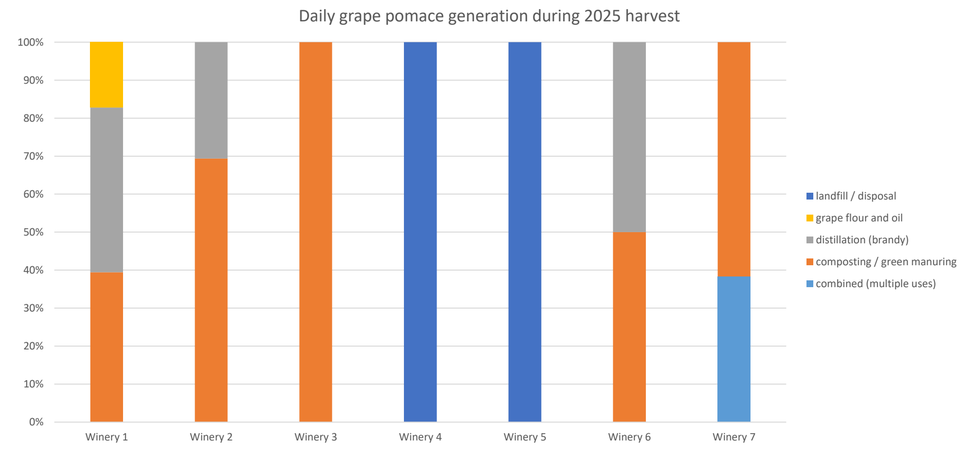
- Total processed grapes across seven wineries: **1 404 000 kg**
- Total grape pomace recorded: **344 700 kg**
- Average pomace-to-grape ratio: **≈ 24.6 %**

Distribution of pomace uses (by mass):

- **56.5 %** – composting / green manuring
- **21.0 %** – combined multiple uses
- **16.2 %** – distillation (brandy)
- **4.5 %** – grape flour and oil
- **1.9 %** – landfill / disposal







Conclusions and links to FoodWaStop WGs

- The simple spreadsheet-based tool was easy to apply and compatible with existing winery workflows, while already revealing clear patterns in pomace generation and use.
- Most pomace is retained in circular pathways (composting, multiple uses, distillation, flour/oil), but a small fraction is still landfilled and could be targeted by FLW prevention strategies.
- The case study supports **WG5** on cross-cutting strategies and smart systems, interfaces with **WG3** (quantification) through harmonised pomace data, and with **WG4** (valorisation) by highlighting different valorisation routes.

Acknowledgements

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