Environmental Product Declaration

In accordance with ISO 14025 for:

Durum Wheat from organic and conventional cultivation

from

COOPERATIVA PRODUTTORI AGRICOLI RASPOLLINO

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): *Arable and vegetable crops 2020:07 v. 1.0 (UN CPC 011)*
PCR review was conducted by: *The Technical Committee of the International EPD® System, info@environdec.com.* Chair of the PCR review*: Maurizio Fieschi* Review dates*: 2020-09-30 until 2020-10-26*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *DNV Business Assurance Italy S.r.l.* *In case of accredited certification bodies:* Accredited by: *Accredia*
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.

Company information

Owner of the EPD:
Cooperativa Produttori Agricoli Raspollino - 0564 401189
Responsabili: Francesco Cellini, Alessio Bellini
Responsabile commerciale/amministrativo: Tiziana Frangini
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Description of the organisation:
The agricultural economy movement in 1950s and 1960s, saw the birth of the Cooperativa Produttori Agricoli Raspollino in February 1954, with the aim of coordinating and managing the small landowners who were settling in the localities of Raspollino, Barbaruta, and Casotto Pescatori.
In the following years, the organisation consolidated its position in the municipality of Grosseto with the construction of a lot of wheat storage centers and increasing the agricultural land cultivated with cereals and legumes.
Then, the mechanical equipment acquiring has allowed the cultivation of about 1000 ha of land per year in the municipalities of Grosseto, Castiglion della Pescaia, Gavorrano, Scarlino, Magliano, Scansano and Orbetello.
Moreover, the potential storage of products reaches 65000 quintals of cereals in the locality of Barbaruta and Casotto Pescatori.
Despite periods of floods and droughts, the Cooperative has always been able to maintain a great production target, thanks also to the compactness of the corporate structure over the years.
In this moment, Cooperativa produttori Agricoli Raspollino has just about 180 members with a cultivation area of approximately 3000 hectares.

Name and location of production site:
Località Barbaruta, 58100, Grosseto (GR), Italy

Product information

Product name:
Grano duro – Durum wheat

Product identification:
Cultural practices aimed at quality improvement with certified seeds and ensuring the full traceability of the product

CPC code: UN CPC 011

Geographical scope: Italy

Product description:
Durum wheat obtained from conventional and biological cultivation.

Variety of wheat:
Durum wheat

Collection period:
June-July

Storage system:
Refrigeration in silos in order to maintain 11-13° C constantly.

Chemical section:

	UM	Conventional cultivation	Biological cultivation
Proteins	%	14,4	11,9
Moisture	%	11	10,3
Wet gluten	%	32,6	26,6
Yellow index	-	12,7	10,2

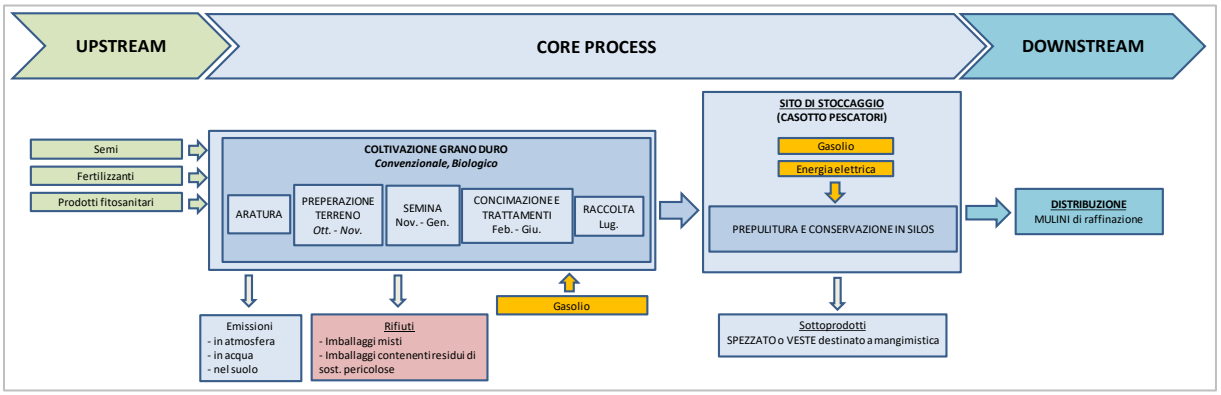
LCA information

Functional unit / declared unit:
1 kg of distributed durum wheat

Time representativeness:
Harvesting of year 2020

Database(s) and LCA software used:
SimaPro 9.1.1.1, database Ecoinvent 3.6

System diagram:



Description of system boundaries:
Cradle to gate

Cut-off rules:
Consumptions and raw materials that generate over 99% of the impacts were considered.
The environmental loads in the use stage by the mill are excluded.

Data quality:
Most of data were considered site specific, provided directly from the company management system. Proxy processes have a contribution of less than 10% of the overall impacts, in accordance with the EPD standard.

Allocation:
The allocation of energy consumption was carried out according to the mass principle.
For the co-products production, the allocation was solved with the economic principle.

Content declaration

Product

Materials / chemical substances	kg	%	Environmental / hazardous properties
Durum wheat	1	100	-

Distribution

Distribution practice:

Unpacked

Environmental performance

The emission factors are consistent with the methodologies available on www.environdec.com.
The CO_2 biogenic uptake in the product is excluded as it is an intermediate product.

Potential environmental impact - Durum Wheat from conventional cultivation

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.	1,22E-01	2,24E-01	5,38E-02	4,00E-01
	Biogenic	kg CO_2 eq.	9,75E-05	4,07E-04	1,64E-05	5,21E-04
	Land use and land transformation	kg CO_2 eq.	3,92E-03	1,72E-04	1,96E-05	4,11E-03
	TOTAL	kg CO_2 eq.	1,26E-01	2,24E-01	5,39E-02	4,04E-01
Acidification potential (AP)		kg SO_2 eq.	1,20E-03	2,50E-03	2,46E-04	3,95E-03
Eutrophication potential (EP)		kg PO_4^{3-} eq.	6,92E-04	2,06E-03	4,90E-05	2,80E-03
Photochemical oxidant formation potential (POFP)		kg NMVOC eq.	4,57E-04	1,72E-03	2,96E-04	2,47E-03
Abiotic depletion potential – Elements		kg Sb eq.	6,92E-06	9,37E-06	1,48E-06	1,78E-05
Abiotic depletion potential – Fossil resources		MJ, net calorific value	8,81E-01	2,57E+00	8,10E-01	4,26E+00
Water scarcity potential		m^3 eq.	7,85E-01	2,08E-02	2,34E-03	8,08E-01

Potential environmental impact - Durum Wheat from biological cultivation

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.	9,35E-02	2,73E-01	5,11E-02	4,17E-01
	Biogenic	kg CO_2 eq.	7,12E-05	4,31E-04	1,56E-05	5,18E-04
	Land use and land transformation	kg CO_2 eq.	6,19E-05	2,04E-04	1,85E-05	2,85E-04
	TOTAL	kg CO_2 eq.	9,37E-02	2,73E-01	5,11E-02	4,18E-01
Acidification potential (AP)		kg SO_2 eq.	1,93E-03	2,14E-03	2,33E-04	4,31E-03
Eutrophication potential (EP)		kg PO_4^{3-} eq.	1,42E-03	1,43E-03	4,64E-05	2,89E-03
Photochemical oxidant formation potential (POFP)		kg NMVOC eq.	3,84E-04	2,03E-03	2,81E-04	2,70E-03
Abiotic depletion potential – Elements		kg Sb eq.	4,17E-06	1,21E-05	1,41E-06	1,77E-05
Abiotic depletion potential – Fossil resources		MJ, net calorific value	6,36E-01	3,38E+00	7,68E-01	4,79E+00
Water scarcity potential		m^3 eq.	1,97E-01	2,24E-02	2,21E-03	2,22E-01

Use of resources - Durum Wheat from conventional cultivation

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,392	0,198	0,012	1,602
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,392	0,198	0,012	1,602
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,938	2,654	0,827	4,418
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	0,938	2,654	0,827	4,418
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0	0	0	0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0
Net use of fresh water		m^3	0	4,15E-05	0	4,15E-05

Use of resources - Durum Wheat from biological cultivation

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3,032	0,216	0,011	3,259
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	3,032	0,216	0,011	3,259
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,679	3,498	0,784	4,961
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	0,679	3,498	0,784	4,961
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0	0	0	0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0
Net use of fresh water		m^3	0	9,56E-06	0	9,56E-06

Waste production and output flows

Waste production - Durum Wheat from conventional cultivation

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0	1,52E-06	0	1,52E-06
Non-hazardous waste disposed	kg	0	1,19E-03	0	1,19E-03
Radioactive waste disposed	kg	0	0	0	0

Waste production - Durum Wheat from biological cultivation

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0	1,34E-07	0	1,34E-07
Non-hazardous waste disposed	kg	0	1,45E-03	0	1,45E-03
Radioactive waste disposed	kg	0	0	0	0

Output flows - Durum Wheat from conventional cultivation

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	5,36E-04	0	5,36E-04
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

Output flows - Durum Wheat from biological cultivation

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	6,54E-04	0	6,54E-04
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

References

- Product Category Rules: Arable and vegetable crops 2020:07 v. 1.0, UN CPC 011, 012, 014, 017, 0191, valid until 2024-12-07
- General Programme Instructions of the International EPD® System, version 3.01, based on ISO 14025 and ISO 14040/14044
- Grano duro, Cooperativa Produttori Agricoli Raspollino, LCA Study Report
- Association of issuing bodies (AIB), European residual mixes, Results of the calculation of Residual Mixes for the calendar year 2020, v. 1.0, 2021-05-31
- Green Economy Report CONAI Ed. 2020
- Electricity price for non-household consumers – biannual data (from 2007 onwards), Eurostat
- IPCC, 2013: Climate Change 2013: The Physical Science Basis. Stocker, T.F. et al. Cambridge, United Kingdom and New York, NY, USA, 1535 pp
- Environmental Assessment of Products, Volume 2: Scientific Background, Hauschild and Wenzel, 978-0-412-80810-4, 566 pp
- Environmental life cycle assessment of products: guide and backgrounds (Part 1), Heijungs, R. et al., 1992
- A life cycle impact assessment method which comprises harmonised category indicators at the midpoint and the endpoint level; First edition Report I: Characterisation, Goedkoop M.J., et al. 2008
- Abiotic resource depletion in LCA, L. van Oers, et al. 2002
- The WULCA consensus characterization model for water scarcity footprints: assessing impacts of water consumption based on available water remaining (AWARE), Boulay A. M. et al, The International Journal of Life Cycle Assessment, vol.23, 368–378, 2018

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