



WP3

Multi-dimensional comparison of a global, a regional, and a local bread chain – Italy  
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Introduction

Italy & UK: comparison over three bread chains

- I. Global: Mulino Bianco Pan Bauletto (IT) – GC (UK)
- II. Regional: Sourdough Tuscan Bread (IT) – ISB (UK)
- III. Local: Floriddia's – CRAFT (UK)

Shared attributes

- Biodiversity
- Technological innovation
- Nutrition

Italy – Local vs Global

Geographic distance: Km between each stage of the chain (agricultural production to consumption)

Governance: Degree of control that “local actors” and “global actors” exert over the supply chain

Know-how: Milling and baking technology. Ingredients and recipe

Territoriality: Role of territory in shaping product identity

Research Questions

1. How do the global and local dimensions of the wheat to bread chains address nutritional value?
2. What is the role of technological innovation in the global/local wheat to bread chains?
3. How do the local/global dimensions of the wheat to bread chains contribute to biodiversity and preservation of traditional varieties?

Methodology: Data collection

- Primary data gathering was performed qualitatively: in-depth semi-structured and unstructured interviews with actors of the three wheat to bread chains and experts, as well as meetings at firm's headquarters
- Secondary data was collected from case studies' websites and related materials, other EU research projects

Results: Selected Attributes and Indicators

ATTRIBUTE	INDICATOR	STAGE(*)	UNIT	Global	Regional	Local
Biodiversity	Number of wheat varieties within baking flour	A, B	Integer	6	9	>12
	Registration of wheat varieties within a repertoire	A	1 = Yes; 0 = No	0	1	1
	Intention to use traditional varieties	A, B	1 = Yes; 0 = No	0	1	1
	Farming system	A	0 = Conventional; 1 = Low input; 2 = Organic	0	0	2
Resource use	Amount of non renewable energy	A, M, B	MI/kg bread	18.2	NA	22.5
Pollution	Packaging material and recyclability	B	0 = Any material, non recyclable; 1 = paper with plastic window, recyclable after separation; 2 = paper or plastic, recyclable; 3 = paper or plastic with instructions for disposal	3	1	2
	Global Warming Potential	A, M, B	g CO2 eq/kg bread	1012	NA	1800
Nutrition	Inclusion of wheat germ within Type of whole grain flour	M, B	1 = Yes; 0 = No 0 = all purpose flour only/no whole grain; 1 = flour made "whole" by adding bran; 2 = originally "whole"	0	1	1
	Discontinuous leavening	B	1 = Yes; 0 = No	0	1	1
	Sourdough	B	1 = Yes; 0 = No	0	1	1
	Additives to improve flour	B	1 = Yes; 0 = No	0	1	1
	Salt	B	g/kg bread	11.5	0	3
	Preservatives	B	0 = Yes, chemical; 1 = Yes, natural; 2 = No	1	2	2
	Starters to speed up leavening	B	1 = Yes; 0 = No	0	1	1
Technological innovation of baking process and facilities	Intended to improve the economic efficiency	B	1 = Yes; 0 = No	1	1	1
	Intended to reduce the environmental impact	B	1 = Yes; 0 = No	1	1	1
	Intended to improve the	B	1 = Yes; 0 = No	1	1	1
Traceability of Origin	Upstream traceability system	A, M, B, R	1 = Yes; 0 = No	1	1	1
	Information on traceability to the consumer	B	1 = Yes; 0 = No	0	1	0
Information	Possibility for the consumer to check the production process	A, M, B	1 = Yes; 0 = No	0	0	1
	Types of available product's information (to the consumer)	R	1 = Legally required only; 2 = Extended nutritional labelling; 3 = Origin of raw materials (ingredients); 4 = Other additional information	4	3	3
Value Creation and Distribution	Information publicity	B	1 = Legally required only; 2 = Information on the baking company; 3 = Food processing standards; 4 = Annual financial report; 5 = Corporate responsibility report; 6 = Additional data	6	3	3
	Distribution of profit (%)	A, M, B, R	[(€/kg wheat)/(€/kg bread)* wheat to bread's conversion coefficient]*100	5.8-6.8	8.8	10.8
Affordability	Price of case study bread with respect to the price of a generic	B, R	%: [(€/kg c.s. bread - average €/kg comparable bread)/average €/kg]	28	61	100
Food Waste	Unsold bread (%)	R	(amount unsold/amount purchased)*100	0	>5	0
	Effort to reduce bread waste	B, R	1 = Yes; 0 = No	1	1	1

(\*) A = Agricultural production; M = Milling; B = Baking; R = Retailing

Case studies: Bread in Italy



- ✓ Industrial soft bread
- ✓ Shelf life: 45 days
- ✓ Recipe and baking: internal R&D
- ✓ Wheat's origin: Italy & East-EU
- ✓ Wheat breeds suitable for baking only
- ✓ Conventional farming
- ✓ Flour: 60% privately owned mills (Italy), 40% imported (France)
- ✓ Purchased wheat and flour have to meet strict hygienic and sanitary requirements
- ✓ Roller milling only
- ✓ Flour “made whole”; no wheat's germ
- ✓ Continuous baking: bakers' yeast only
- ✓ Baking: Italy only
- ✓ Retailing: groceries and mass distribution in Italy only

- ✓ Craft traditional bread
- ✓ Sold freshly baked; shelf life: 5 days
- ✓ Recipe and baking have to comply with a product specification
- ✓ Application for PDO label submitted
- ✓ Universities of Florence and Pisa selected wheat breeds and standardized the sourdough
- ✓ Origin of wheat: Tuscany only
- ✓ Agreed wheat's varieties only
- ✓ Conventional farming
- ✓ Milling and baking: Tuscany only
- ✓ Discontinuous baking: sourdough only
- ✓ All purpose flour; wheat's germ included
- ✓ Retailing: currently, bakeries' shops and mass distribution in Tuscany only; prospectively, other Italian sub-regions and small exports



- ✓ Craft traditional bread
- ✓ Sold freshly baked; shelf life 5-7 days
- ✓ Recipe and baking: internal development
- ✓ All chain stages on-farm
- ✓ Organic farming and seed saving
- ✓ Heritage and locally adapted populations of soft, durum and emmer wheat cultivated on-farm or purchased from neighbouring organic farmers
- ✓ Suitable populations are selected in collaboration with an Italian seed saving association
- ✓ Stone milling (bulk) plus roller milling (germ rich bran); wheat's germ included
- ✓ Retailing: local groceries, SPG, on-farm and on-line shops

Global vs Local: critical issues

... it is a matter of “feasibility”

- Scale: continuity of raw material provision and distribution to retailers; hygienic and sanitary constraints
- Flexibility: degree of required standardization of the product delivered
- Time span: geographical location of plants and retailing centers
- Shelf life: organoleptic features
- Know-how: heritage