SYTRA transition of food systems

From feed to food paradigm : Development of food cereals in Belgium

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I. Introduction

a. CONTEXT

In the current European and global frameworks, a lot of attention is given to the issue of climate change, prompting the development of a diversity of strategies and regulations at different geographical and administrative levels, all aiming at multiple sustainability objectives. In that general context of urgency and associated will of transition, the agricultural and food systems get a lot of attention. In order to accompany the actors of the sectors in possible ways of transformation, the FUTURES4FOOD project (F4F) aims at setting up dynamics of exchange between actors of the sectors. It facilitates discussions, collaboration, and proposals, at national and/or regional levels, on transition scenarios and trajectories for the coming years. F4F focuses on two sectors: the cereal sector and the protein transition in human nutrition. The present report documents the cereal case. The project was conducted by four teams: the Sytra team from UCLouvain, the teams from the Sfere Institute (Bioeconomics) and the Institute for the Future from KULeuven, and a team from the Flanders Business School, also attached to KULeuven. The project was led with a strong transdisciplinary and inclusive approach, mobilizing a multitude of actors of the sector in every step. For the present report and documented case of cereals, Sytra led the research with the technical collaboration of Sfere for the analysis of the sector and with the support of FBS for the social learning part of the process.

This project benefited from a national funding of Belspo (Brain-beand 2.0, 2018-2023). It ran from 2021 to early 2025.

b. OBJECTIVES OF THE PRESENT DOCUMENT

This document comes as a final output of the project and process. It aims at taking stock of the results collected by the research teams along the process thanks to the rich transdisciplinary approach. This complete report has the objective of serving and supporting the actors and stakeholders in search of specific results obtained for the food cereal sector, which has gone through an exciting and dynamic phase in the last three years.

c. F4F GUIDING PRINCIPLES

FUTURES4FOOD (F4F) is grounded in the principles of Transdisciplinary Research (TDR), which combines epistemological approaches with both qualitative and quantitative methods focused on problem framing, complexity tackling, multi-actor approach and future-oriented thinking. This approach is co-creative, involving stakeholders in addressing "wicked" societal problems. The principles of transdisciplinarity are central to:

- i. Understanding the complexity of problems.
- ii. Acknowledging the diversity of perspectives from both the life-world and scientific viewpoints on problems, goals, and solutions.
- iii. Bridging abstract and context-specific knowledge; and
- iv. Developing knowledge and practices that advance the common good.

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The underlying philosophy being that the successful implementation of transitions relies not only on sound academic research but also on the active engagement of relevant actors and stakeholders through a social learning process.

d. STRUCTURE OF THE DOCUMENT

The structure of the chapters follows the chronological course of the project which was rhythmed by the organization of two focus groups in Wallonia in 2022-2023 and 5 national workshops led between May 2022 and January 2025.

The conclusion chapter opens the way to the broad perspectives shaping the cereal sector.

e. COMPLEMENTARY REPORTS

The project was developed around two strong objectives:

- 1 the development of a relevant methodology for engaging actors in transition process and
- the production of a toolkit of knowledge that would serve the sector for the identified transition.

The present report consolidates all the results relating to the cereals sector obtained throughout the workshops and interviews that were led along the project. The first chapter "Context" captures some of the elemets that can be found in the "Baseline of the cereal sector", that was established in the start of the project and updated end 2023.

Another report entitled "Guidebook for starting a national dynamic in the food sector" consolidates all the methodological process that was implemented to engage the actors and develop a national dynamic and a baseline document consolidates data gathered on the sector.

II. Methodology of the F4F project

The F4F project was developped on a four years long period. The methodology chapter gives an overview on the different steps that composed the main block of research that were led by the F4F teams. The following chapters document the results of each of those blocks in order to equip the actors with key deliverables and support for action.

f. INTRODUCTION

The present document should serve the actors of the sector in the follow-up of the project and in the follow-up of the aspiration that was developed throughout the process:

"By 2030, one out of four breads, biscuits and beers consumed in Belgium are produced with Belgian grains, and one out of five is organic."
"By 2050, one out of two breads, biscuits and beers consumed in Belgium are produced with Belgian grains, and one out of three is organic."

The present chapter briefly introduces the methodology mobilized to reach the different results that were obtained along the national process led by the research teams of the F4F.

Another report entitled "Guidebook for starting a national dynamic in the food sector" gives an extensive description of those methodological steps and how they facilitated the engagement of actors from one block of action to another.

g. A COMMON UNDERSTANDING OF THE SECTOR

a. Sector baseline and actors mapping

The goal of building the baseline is to foster a shared understanding of the sector, aligning the diverse perspectives and insights of various actors and stakeholders. This shared understanding is crucial for effectively addressing the sector's critical challenges and translating them into actionable research questions. This national analysis was intended to serve as a foundational reference for collective dynamics.

It was presented during a webinar to which a broad range of stakeholders in the sector were invited. The webinar was recorded, and the materials were shared on the Sytra research team's website¹.

The baseline was built on an extensive literature review of various reports and data produced on the sector in Wallonia, Flanders and Brussels in the last years and 25 semi-directed interviews.

The baselin includes sociologic, technical and economic data as well as information on the stakeholders and actors involved in the sector.

b. Causal map

A causal map illustrates the sector, its constituents value chain and the relation in between actors. Those dynamic relations and situation lead to **points of tension**. This causal map has been developed in three main stages :

 $^{\rm 1}$ The link to the webinar, given on June 17 $^{\rm th}$ 2022.

• Stage 1: A first draft of the map based on the reviewed literature, then completed by the interviews .

This first step involves documenting the different segments of the cereal value chain, their associated actors and products and putting them in a scheme (map). The first identification of relationships that exist between these segments is documented (e.g.:"influence").

Stage 2 : Description of the interactions

A combined analysis of the general organization of the sector (though the development of baseline, and actors mapping) and its sustainability concerns made it possible to provide a general overview of the key challenges faced by the sector. Key causal relations and tensions between value chains actors and steps could then be added on the value chain map.

Stage 3 Comments and reactions from the actors

The causal map was first shared in a focus group, then reviewed by the research team before being presented again —for completeness's sake and adhesion—during the first national workshop. The improved causal map was then used throughout the whole project as a common reference for the actors.

c. Stakes identification and description

Inspired by the scenario approach of the F4F project and the Sytra expertise on "Barriers and levers", it was decided to engage the actors in a collective reflection based on a "barrier analysis approach". Barriers can be defined as: "A specific factor of a system that hinders the adoption of innovative practices and strategies" (Courtois et al. 2024)¹.

In the present project, the concept of "stakes" was initially and eventually fully mobilized (instead of "barriers") to facilitate communication with the actors. Through interview analysis and exchanges organized in two focus groups led at the walloon level, six stakes were identified and localized on the causal map. The national dynamic would then be started with the objective of adapting and validating the identified stakes.

d. Start of the national dynamic (Workshop 1)

Once a broad common horizon of research, as well as a shared focus on reflection and action, is defined by an initial group of actors, it becomes easier to engage new actors, particularly at the national level. The first national workshop allowed the group to discuss and adopt a common understanding of the sector with the support of the causal map and the six stakes.

¹ When barriers are stronger than drivers promoting change, the current production system is strengthened and self-perpetuated, creating a lock-in (Weituschat et al. 2022). (Courtois et al. 2024)

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h. ENGAGING AT THE NATIONAL LEVEL

a. A sequence of workshops to build a national dynamic

Through a sequence of five national workshops, a national dynamic was created. Each workshop would tackle different objectives contributing to the next one and to the feed to food reflection.

Table 1: Sequence of workshops led in the framework of the F4F project - for the cereal case

Workshop #	Title	Objectives			
& Date					
		Build a national, shared analysis of the			
Workshop 1	"Tackling complexity of the	situation,			
(May 2023)	chain"	Confirm and detail the causal map and the			
		existing stakes,			
Workshop 2	"Choices for the Future: What	Build narrative and roadmaps for each of the			
(Octobor 2022)	direction should we take to move	stakes			
(October 2023)	closer to our envisioned future?"				
		Confirm the aspiration			
Workshop 2	"Get organized to reach the	Get some inspiration from actors in the			
(January 2024)	envisioned future."	room Identifiy working groups to tackle			
(January 2024)		some of the axis of work defined by the			
		aspiration			
WorkShop 4	"Inspiration/Reflection and	Get some inspiration from actors in the			
(June 2024)	inspiration/ Reflection and	room Follow-up on the work done by the			
(Julie 2024)		working group			
Workshop 5	" Pofloction and action "	Share results from the group			
(January 2025)	« Reflection and action »	Look at the future perspectives			

i. A COLLECTIVE ASPIRATION FOR THE FUTURE

a. Crafting visionary narratives for each stake (Workshop 2)

Building upon the completed stakes analysis, the participants to the national dynamic are invited to reflect on each of those stakes and:

- Outline potential actions required to bring this vision to fruition,
- Identify specific obstacles and determine the measures necessary to overcome them.
- Assess what critical elements—such as information, data, stakeholders, or insights—are
 missing for this national initiative to advance toward the envisioned future.

b. Proposition of an aspiration by the research team (Workshop 3)

Drawing from the narratives and tentative roadmaps developed by the groups during Workshop 2, the research team undertook the task of creating one global comprehensive aspiration. This consolidated aspiration synthesizes the key ideas and ambitions shared by participants and for each obstacle. This aspiration serves as a unified vision. The proposed aspiration is prepared between Workshop 2 and Workshop 3, where it is presented for group discussion and potential validation.

c. Four axes of work carried out by four working groups (Workshop 4 & 5)

The aspiration is structured around five developmental axes. During the third national workshop, participants are invited to collectively explore how to advance toward the agreed aspiration. The objective is to establish a couple of working groups as the foundation for new learning communities. Based on the participants' interests, four working groups are established and tasked with the identification of a concrete set of actions to be undertaken over the following year. They are also asked to define a timeline for the execution of these actions. Those actions will be led in between workshops and shared in plenary session in Workshop 4 and 5.

j. ASPIRATION VS REALITY

a. How realistic the aspiration can be?

How realistic is the aspiration and how much of an opportunity it can represent to develop food grains seeds in Belgium. A range of calculations were done by the research team led to check the reality and feasibility of the aspiration regarding current wheat and barley production.

Those calculus mobilize official data of consumption from the different sectors. The loss and conversion rates were collected in Sytra's previous work and through interviews led with the sector. The aspiration targets bread, biscuits as well as beer. A focus was however given to bread and biscuits in most of the discussion.

III. Context of the cereal sector in Belgium

The cereal sector is a major production at the Belgian scale. Its importance has led to different technical and economic specializations according to the regions. What is vibrant in the sector as a matter of transition in the Farm to fork policy context? Starting from an analysis of the context, progress was made toward a common understanding of the sector.

2. INTRODUCTION

A dedicated document covers the results of the literature review, the baseline construction and the actors mapping exercice. This document is available on the website of Sytra.

The following paragraphs present key data that detail the socio-economic importance of the sector. More importantly this chapter illustrates the research questions that emerge as vibrant for the sector and that led the F4F project to focus on the transition to more food cereals as a key transition topic' for the cereal sector.

3. CEREALS, MAJOR CROPS IN BELGIUM

Cereals for grains occupy **324 655 ha in Belgium in 2023**, which represents 38% of arable lands or 24% of the total UAA. They occupy a greater area in Wallonia (185 845 ha; 25% of the region's UAA) than in Flanders (137 766 ha; 22% of the region's UAA), both in absolute and relative terms (Figure 1)



Figure 1: Areas (ha) and share of total UAA (%) of cereals for grains in Belgium, Flanders and Wallonia in 2023.

Source: Statbel 2023

a. What is produced?

The main cereals in terms of areas in 2023 at the national level are, in decreasing order, winter wheat (62% of grain cereals area), grain maize (16%), winter barley (14%) and spelt (3%). The other crops account for less than 2% (Table 2). Rye and meslin, as well as malting barley, are grown on very small areas with a recent increase related to a growing marked interest in developing malting barley to supply local beer production value chains. A similar situation is observed for rye and oats for the production of locally processed products (food valorization).

Commenté [CA1]: Add link

¹ In the report « Guidebook for starting a national dynamic in the food sector" – this is referred as the framing of the research.

Table 2: Distribution of grain cereals area (ha) in Belgium in 2023.

	Belg	ium (ha)	Flande	rs (ha)	Wallonia (ha)		
Cereals for grains	324 655	100%	137 766	100%	185 845	100%	
Wheat	203 755	63%	70 357	51%	132 703	71%	
Winter wheat	201 713	62%	69 786	51%	131 256	71%	
Spring wheat	2 0 4 2	1%	571	0%	1 447	1%	
Grain maize	52 648	16%	45 681	33%	6 930	4%	
Barley	48 863	15%	18 189	13%	30 549	16%	
Winter barley	45 222	14%	17 277	13%	27 834	15%	
Spring barley	3 641	1%	912	1%	2 715	1%	
Spring barley (except malting	2 500	1%	798	1%	1 688	1%	
barley)							
Malting barley	1 141	0%	114	0%	1 027	1%	
Spelt	8 859	3%	845	1%	7 975	4%	
Triticale	5 681	2%	1 764	1%	3 890	2%	
Oat and mix of summer crops	2 932	1%	267	0%	2 614	1%	
Rye and meslin	1071	0%	540	0%	526	0%	
Other cereals	846	0%	124	0%	658	0%	

Source: Statbel, 2023

b. Regional differences

Significant differences can however be observed between Flanders and Wallonia (Table 2 and Figure 2).

In general, areas of cereal crops are more important in Wallonia. For instance, the area of **wheat** in Wallonia is double that of Flanders (132 703 ha vs. 70 357 ha respectively). Similarly, **malting barley** and **spelt** are currently mainly cultivated in the Walloon Region. **Grain maize**, on the other hand, is much more present in Flanders (45 681 ha) than in Wallonia (6 930 ha)



Figure 2: Distribution of cereal crops in Flanders and Wallonia in 2023. *Source: Statbel, 2023*

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c. Produced volumes

In terms of volumes, cereal production in Belgium amounted to 2 886 860 tons in 2023. The leading crop by volume is winter wheat with 1 740 570 tons produced in 2023 (i.e. 60% of total production), of which about two thirds are produced in Wallonia. The second crop in terms of volumes, is grain maize with 640 352 tons in Belgium in 2023 (i.e. 19% of total cereal for grains production), of which nearly 90% are produced in Flanders. The third crop in terms of volumes is winter barley with 376 929 tons in Belgium in 2023 (i.e. 12% of total cereals for grains production), of which about two thirds are produced in Wallonia (Table 3). In general, the distribution of production volumes between crops and regions follows that of areas discussed above.

Table 3: Areas, yiel	ds and volumes of	of the different cereals	cultivated in Belgium in 2023
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		Belgium			Flanders			Wallonie	
Cereals for grains	UAA (ha)	Yield (T/ha)	Vol (T)	UAA (ha)	Yield (T/ha)	Vol (T)	UAA (ha)	Yield (T/ha)	Vol (T)
Total	324 655		2 886 860	137 766		1 353 560	185 845		1 524 929
Winter wheat	201 713	9	1 740 570	69 786	9	606 196	131 256	9	1 128 501
Grain maize	52 648	12	640 352	45 681	12	566 392	6 930	11	73 493
Winter barley	45 222	8	376 929	17 277	9	152 354	27 834	8	223 595
Spelt	8 859	6	51 045	845	4	5 938	7 975	3	44 859
Triticale	5 681	6	34 369	1 764	6	11 088	3 890	6	23 095
Oats (mix of summer crops)	2 932	4	11 388	267	4	1 137	2 614	4	10 013
Spring barley	2 500	4	9 767	798	5	4 081	1 688	3	5 627
Spring wheat	2 042	5	10 030	571	5	3 061	1 447	5	6 823
Rye and meslin	1 071	4	4 042	540	4	2 280	526	3	1 732
Malting barley	1 141	5	5 713	114	5	592	1 027	5	5 121
Other crops	846	3	2 655	124	4	441	658	3	2 070

Source: Statbel, 2023

d. High Belgian yields

Cereal yields in Belgium are very high, ranking among the highest in Europe. Winter wheat yields in Belgium exceed 9T/ha, significantly higher than the European average of 5,4T/ha (DG Agriculture, 2021). Grain maize also reaches high values: around 10 T/ha on average in Belgium, compared to 7,3T/ha on average at the European level. These high yields in Belgium are the result of an investment in research and selection of high-yielding varieties that took place throughout the second half of the 20th century as well as a choice of privileging high yield varieties to be valorised in forage and starch industry to the detriment of food grain cereals production, that are characterized by a lower yield, about one ton lower per hectare (Interviews, 2021).

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e. Reach of a plateau in the last ten years - 2013-2023

Recent trends confirm that yields have not increased in recent years (see Figure 3 for the evolution of winter wheat, winter barley and spelt over the 2006-2020 period). Yields and production volumes were generally higher in 2019 compared to 2018 and 2020 due to the unusually dry conditions experienced those two years. 2015 remains a specular year followed by the low results of 2016.



Figure 3: Recent evolution of yields (t/ha) of winter wheat, spelt and winter barley in Belgium in 2013-2023. *Source: Statbel, 2023*

Exceptional year 2016

In 2015, yields were high, surpassing those of 2014, and prices were attractive. This favorable situation led to an increase in the area sown in 2016. Unfortunately, 2016 was a catastrophic year for the cereal sector, with particularly low yields due to unfavorable weather conditions.

As a result of this setback in 2016, the area sown with cereals fell sharply in 2017, farmers preferred to dedicate their areas to other production in the following years. Thanks to better price conditions starting 2018, the area increased again.

Alternating drought and intense rainfall – Exceptional years becoming normal years

2018¹ and 2020 were two years of intense drought and water use restrictions in some parts
of the country, with greater need for insurance and state intervention to compensate
agricultural losses.

¹ The year 2018 was marked by a long period of drought and abnormally high temperatures, comparable to those observed in 1976: very low rainfall during the spring, almost two months without rain in June and July and summer temperatures well above normal. These conditions had a significant impact on crops, particularly spring crops. However, variations in production from one year to the next are the result of variations in cultivated areas and/or yields. (Horticultural and Agricultural Report, 2020)

- 2021 has proven to be a year with very unstable weather, characterized by irregular temperature and rainfall conditions in relation to the seasons and strong disparities between the north (Flanders) and the south (Wallonia) of the country. During the cereal harvest period in Wallonia, an extremely rainy summer caused flooding in the fields, creating difficult harvesting conditions and placing exceptional pressure on producers and downstream actors. While Flanders was spared of the flooding during the harvest period, it still suffered from a cool, rainy summer that affected both the yields and quality of the wheat harvested, as well as the market value of the products.
- **2022** was a good year with good results for the yields. The wheather condition were once again "peculiar" : rainy and not so cold winter with sunny spring and summer characterized by high temperature. The yields were good and this led to an increase of surface to be planted in 2023. (Jacquemain 2022)
- 2023 has been characterized by very hot and dry episodes followed by very wet period. Qualified as « unique year », the quality of the wheat was average with some already germinated on the field because of the rain.
- 2024, as we write this report, the conclusions on the results of year 2024 are pretty similar for Belgium and France. Very bad weather conditions which led to lower yields and a low weight. However, most of the classic quality criteria remain pretty high – leading once again to an "exceptional year" – with "exceptional" conditions and exceptional results.

The increasingly frequent variations of weather conditions. in recent years are becoming a new norm forcing all actors to question their choices of seeds and quality criteria, modes of production and diversification options.

f. Organic agriculture

Studying the diversity of production systems and their evolution is no easy task as there are no official statistics or accounting mechanisms in place. The only exception is organic agriculture, for which sectoral organizations exist, which facilitate the monitoring of the production system. **Evolution**

Organic agriculture has experienced steady and significant growth over the past years in Wallonia. In 2023, there were 9 931 ha of organic grain cereals¹, representing 5% of the total grain cereals² UAA (Biowallonie, 2021). This is much higher than in Flanders where organic production only represents 1,4% of the total UAA (ILVO 2021). In organic production, oats join the top 3 of the most cultivated cultures. Sarrasin and small spelt appear more specifically in organic production.

¹Additionally, there are over 6 278 ha of mixed cereals-leguminous crops.

Table 4: Distribution of cereals production in Wallonia in 2023

Cereals (ha)	2021	2022	2023	Evolution
Total	9 618	10 535	9 861	3%
Winter wheat	2437	2522	3124	24%
Spelt	2571	3004	1740	-42%
Oat	1351	1484	1563	5%
Barley	1216	1372	1184	-14%
Triticale	998	761	1192	56%
Grain maize	728	847	443	-48%
Rye	255	367	416	14%
Sarrasin	62	78	113	44%
Small spelt		100	86	-14%
Source: Biowallonie, 2023				

g. Economic importance of cereals

Price of production in Belgium

As cereals are traded worldwide as global commodities, their prices present a high volatility, with important inter- and intra-annual variations. Local cereals prices are thus directly affected by the world market and the international geopolitical context, as experienced recently with Russia's invasion of Ukraine in February 2022. These important long-term and short-term fluctuations are illustrated in Figure 4. Prices also depend on the quality and the destination of the cereals (feed or food), which is determined based on a series of quality criteria (as explained in more detail below).



Figure 4: Evolution of prices for food wheat, feed wheat, feed barley and feed maize in Belgium over the 2011-2022 period (left) and over the 2020-2022 period (right). *Source: FEGRA, 2022*

The price given by FEGRA at the national level is indicative. When we compare them with the price documented by the Walloon administration, those differ a bit: they are lower. Final prices are always confidential, being decided on and sealed in a contract.



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Figure 5: Price trend of wheat, barley and spelt Source: Etat de l'agriculture wallonne, 2024 Value of production and processed products in Belgium

Cereals production represents 620 million euro (Etat de l'environnement, Statbel, 2023), which accounts for 6 % of the value of national production. Milk and pigs represent the two major contributing sectors (Figure 6) The whole of grain work represents 1 825 million euro. First stage of transformation: Wheat flour production accounts for 496 million (27%) of that sector. (Statbel, 2023).



Figure 6: Value of agricultural production of each region (Milliards of euro)

Commenté [PB2]: C'est une drôle d'unité.

Source: Etat de l'agriculture wallonne, 2023

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Distribution and use of cereals in Belgium

Cereals have a wide range of possible uses and associated value chains. In 2013, the Walloon Research Centre for Agriculture (CRA-W) carried out a major research project on the Walloon cereal sector. This work, based on the collection of quantitative information supplemented by qualitative interviews, led to the identification and documentation of the different ways of valorizing cereals produced in Belgium. This study revealed the low percentage of cereals dedicated to human food (less than 10%), and the high percentage of cereals that are channeled to livestock as animal feed on the one hand (nearly 50%) and to the energy sector on the other hand (about 30%). This distribution, emphasized by Sytra in a baseline and prospective study of the Walloon cereals sector (Antier, 2017), raised reflection and a significant interest in the food grain sector in Wallonia. Recent studies in Wallonia document the number of 10% as part of cereals valorized in the food sector for Wallonia. An equivalent volume is mentioned by some actors in Flanders (Interviews, 2020). In the present document this share of 10% will be considered as the national average.

Based on recent industrial data from Statbel (2023), the last column of Table 5 gives a temptative update of this distribution. This update does not lead to the observation of major changes; however those are based on industrial final numbers and lack therefore an evaluation of the flow in the mid of the chain from the industrial actors to check the aggregated data shared by Statbel. Moreover, those data consolidate Belgian and imported products and do not help in a proper evaluation of the competition of usages of Belgian cereals.

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	CRA-W (RW) (2010)	CdP (National level) (2016/2022)	Present study (National level)	Comments for present study data
Food	6%	25%	24%	Industrial data
Flour			16%	(Statbel 2024)
Oatmeal and semola			8%	(Statbel 2024)
Feed	29%	32%	33%	Calcul/Estimation
Brans and residues			6%	(Statbel 2024)
Other			27%	
Fuel (& Starch for CRA-W)	29%	27%	23%	Estimation/ Source CdP
Starch			4%	(Statbel 2024)
Seed		1%	1%	
Self-use	3%	15%	15%	Estimation/ Source CdP
Export	8%			Export of wheat already considered and excluded
Fiber	25%			No info collected
Total	100%	75%	100%	

Table 5: Temptative estimation of percentage of wheat distribution and valorization at the national scale

Source: Statbel 2024, Collège des producteurs, Sytra Calculus

Products flows

The figures for the circulation of cereals at national and between the two regions are complex to obtain and produce. Moreover, with the port of Antwerp, Belgium endorses a role of platform and entry point in Europe for many products. It is therefore difficult to separate local consumption of imported products, and the volumes transferred directly to export. A recent scheme, presented hereunder, has been developed for Wallonia by the *Collège des producteurs* (SoCoPro 2019; Socopro 2020).



Figure 7: Scheme of winter wheat fluxes in Belgium (Socopro 2020)

4. CAUSAL MAP

a. Map of the segments of the chains

An extensive actors and stakeholders mapping was done and is documented in the baseline document. However, stronger than words, an image can serve the understanding of a sector. All this report, only the following map is mobilized as it has been used throughout the whole process: It served as:

- A basis for the common understanding of the chain
- A basis for discussion and the elaboration of the causal map
- A common document "of reference" for the community of actors.



Figure 8: First mapping of the cereal sector and value chains

b. Map of initiatives

Based on previous work done at the Walloon level a map of initiatives was developed in the project. This map should serve as a comprehensive map of existing initiatives in Belgium that support the development of food grain cereals. It consolidates different segments of the chain and actors of different sizes..



Figure 9: Belgian map illustrating the initiative that exist in the food cereal sector

Source: New data for Flanders and data based on work done by Collège des Producteurs and Diversiferm. Already consolidated in (Amrom et al. 2023) with the authorization of the authors College des producteurs and Diversiferm.

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c. Causal map

A combined analysis of the general organization of the sector (baseline and actors mapping) and its sustainability concerns made it possible to provide a general overview of the key challenges faced by the sector. Key causal relations and tensions between value chains actors and steps were added on the value chain map presented in Figure 8 and led to the creation of Figure 10..

This map shows the various tensions (in blue) that exist within the Belgian cereals sector. These tensions can take several forms and result from different interactions of external elements:

- Interactions between actors at different stages of the value chain (e.g. interactions between farmers and collectors).
- Interactions between actors within the same stage of the value chain (e.g. farmer-farm interactions).
- Role of major actors throughout the value chain (e.g. collectors are present at different stages of the value chain and, as such, have an important potential to structure its organization).
- Role of external contexts (political, economic, environmental or socio-cultural) on the organization of the value chain (e.g. influence of international conflicts, such as the war in Ukraine), as well as legal context that will for instance push the *seed and input dealers* to change their offer or that could help to regulate the inflation of the price of land.

Collective improvement

This map was further improved in the first national workshop. Hereunder, are mentioned two general reflections shared in the workshop, one concerning the situation of cereals in Belgium and a second considering the posture towards transition:

• The absence of the "Cocorico" effect in Belgium (socio-cultural context)

There is a need to work at the national level in Belgium rather than solely at the regional level. A need to take pride in our activities on a national scale. This unity must be achieved not only from a political standpoint but also from a cultural perspective. Currently, projects—and essentially everything—are carried out at the regional level, even though Belgians share the same land and face the same challenges. It is urgently necessary to move toward a national vision and approach.

• A reflection on the identification of one or multiple starting points for the transition.

Is there a singular starting point, or are multiple points of entry required to start a transition? Is it the sole responsibility of one actor or one factor of the context? For smaller actors, multiple starting points are often activated simultaneously. The reflection on the need for multiple starting points of te transition has been made visible on the map.

Figure 10: Causal mapping of the sector



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d. Identification of the research questions

The analysis of interviews conducted with 25 actors led to the identification of seven key topics/questions.

Segment of the chain	Themes	
Production	Conservation & organic agriculture: a common horizon?	
Production	Sustainable cereals production in Belgium: the role of intercropping as a key practice for sustainable production?	
Production	Spelt & einkorn: the good choice of resilient food cereals for Belgium/Wallonia?	
Collection and Sale	Sort-Collect-Store-Sell: the important role of collectors in the cereals and proteins sectors?	
Collection and Sale	Uncompetitive price of food cereals vs price for feed & energy	
Processing & consumption	Fragile sustainability of European milling activity	
Processing & consumption	Ongoing trend: Actors develop their own value chain: multiple big and small value chain development	

Table 6: List of themes proposed for further research and possible engagement with the actors

Source: The analysis of the interviews led by Sytra and Sfere teams

All of those research questions could be integrated in the large frame of "food cereals development" in Belgium.

The national dynamic would be started within this large frame of "the transition of the cereal sector towards greater food cereals production".

"In the near future, we will sustainably produce more cereals for human consumption in Belgium."

"Dans un avenir proche, nous produirons de manière durable plus de céréales destinées à la consommation humaine en Belgique »

> "In de nabije toekomst zullen we in België op een duurzame manier meer granen voor menselijke consumptie produceren"

IV. Stakes identification and definition

"In the near future, we will sustainably produce more cereals for human consumption in Belgium." Some hindering factors ban this transition. They have been identified by the actors throughout interviews and validated through focus groups and national workshops. This chapter consolidates and details the stakes that were identified as major ones affecting the sector and potential transition .

Ó SYTRA

a. INTRODUCTION

As mentionned in the methodology, stakes resulted from the results of a focus group led in Wallonia and the analysis of the interviews led with the actors of the sector.

b. WHAT ARE THE STAKES ?

e. Formulation of the stakes

Based on the analysis of the minutes of the focus group and of the interviews led, six stakes were formulated by the research team. Those were also located on the map of the segments of the chain:

A. Increase in the production of "value-added" cereals (destined for human consumption)

- Located at the production level/segment
- B. Shift in production methods and access to tailored advice and suitable seeds,
- Located at the upstream segment: seeds access and technical/advisory services
- C. Greater remuneration, enhancement of practices and distribution of value along the chain,
 Located at the interface of the different segments
- D. Availability of adapted storage facilities desired futures from a transition perspective?
 Located at the collectors' segment
- *E.* Improvement of the intermediate and final value of food cereals: through quality criteria, what processing tools and what final value?
 - Located at the processing actors, counting on their input and return to the rest of the chain on their needs
- F. Cross-cutting issue Greater understanding between segments and between regions,
 - As a transversal obstacle when this understanding is lacking

a. Improvement of the stakes

The stakes were shared and submitted for improvement and validation in the two first national workshops. This iterative validation of the stakes enabled the actors to discuss, detail and improve the definition that was developed for each of them. Figure 11 illustrates the localization of the stakes on the causal map.

Figure 11: Identification of stakes and their localization on the causal map



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c. DESCRIPTION OF EACH STAKE AND SUGGESTION FOR ACTION

a. Stake A - An increase in the production of "value - added" cereals

It seems necessary to change the initial paradigm: the main objective should be to produce "food" quality, with intermediate quality being valorized for starch producers or other players who make sourdough. Finally, lower quality should be valued for feed and, ultimately, energy. This paradigm shift should be accompanied by a change of perspective to ensure that only co-products such as bran are considered and used for ethanol or other uses with other added value.

A pragmatic perspective would be to progress toward an increase of hectares and production of food cereal: from 10% (current percentage) (Delcour et al. 2014; Socopro 2020) to 15% or 20%). While progressive, this drastic change will require a strong increase in demand, as well as important engagement and motivation from the different actors of the chain.

Suggestions:

• A good follow-up of the uses of cereals in Belgium would be key to pilot this transition.

Stake B - A shift in production methods and access to tailored advice and suitable seeds

Yields of bread and food cereals are lower, so they are often excluded from standard yield tests, which makes it more difficult to obtain quality criteria. In Wallonia and in general, trials and their changes are too rapid and undermine the monitoring of certain varieties with good results. This rotation of tests is also problematic in crop association trials (if varieties are withdrawn from the catalogue or are no longer tested). In Flanders, very few food varieties are registered: there seems to be little interest.

The Belgian seed catalogue is not considered as a national overview but results from a combination of the Flemish and Walloon

Therefore, there is a strong need for the identification of the crops that are well suited to Belgium and for the development of strategies for growing and processing them (milling, etc.) to ensure the production of qualitative finished products.

Suggestions:

- Seeds: Make it compulsory to test the five main seeds in each category, at least for Quality 1
 seeds being the ones for bread-making and the seeds for biscuits making, to obtain more
 accurate, local data. Much of the information currently used comes from the catalogues of
 neighboring countries.
- Seeds: Ensure that similar varieties are compared with each other. A Q1 variety should not be compared with a Q4: they differ in several aspects and if they are compared solely in terms of yield, for example, there is a risk of deciding based on partial information.
- In relation to markets: Exchange with the processing actors to facilitate the setting up of tests
 and selection in research institutes for niche and quality varieties. This could be facilitated if
 agreements and guarantees are given by the rest of the players in the sector (e.g 10-year
 commercial agreement),
 - Moreover, get in touch with downstream companies and consumers so that they can
 indicate what they need and define a variety (e.g. Q1 or Q2, some have certain technical
 requirements and, based on these requests, it is then interesting to draw up a contract
 and establish production).
 - The advisory bodies insist that they do not encourage the production of bread-making wheat without a promise to buy, as there is a risk of ending up with unsold batches: it is important to recognize and consider that it is risky (for farmers) to switch everything to breadmaking cereals. Nevertheless, the technical approach must also evolve to support farmers and minimize this risk.
- **Sustainable production :** Put forward the added value of Belgian test conditions that favor limited input and therefore more resilient production systems.
- Sustainable production: The participants also felt that it is possible to move towards 30% organic and 70% conventional cereal production: To reach the 30% organic target, it is important to break it down by cereal: for wheat, we are at 1.9%. In food and short distribution channels, we are at 50% organic and 50% conventional. In feed, it will be difficult to go all the way to 30%. It's important for the sector to be aware of the nuances so that policies can effectively capture these nuances and develop activities accordingly.
- As far as legume-cereal trials are concerned, we need to continue and increase trials to find varieties that go well together, particularly for human consumption. A lot of research is currently being done on feed (cattle feed), but it is just as important to increase research into these combinations for cereals and pulses intended for human consumption (food).
c. Stake C - Remuneration, enhancement of practices and distribution of value along the chain

To support value-added cereals, it is necessary to promote the specific practices they require by communicating more explicitly about their production costs and their local, artisanal character. These cereals and their resulting products represent techniques and know-how that are not currently reflected in the prices paid to farmers. This applies to all practices that contribute to sustainable agriculture and their resulting products.

This is very striking given that the price paid for cereals used in animal feed or the energy sector is very competitive in Belgium. In other words, the difference in price between value-added wheat and wheat for other sectors is often considered too small to cover the risks of lower yields and income.

Furthermore, the development of food cereals on the one hand and sustainable practices on the other require security and/or a sharing of risk-taking by the players in the chain: some participants mentioned the introduction of mixed contracts, i.e. prices made up of fixed and variable components, or the importance for producers of diversifying their income.

The difficulty of remunerating the various links in the chain is also explained by the fact that the chain and its players are integrated into a global market: it is the MATIF ("Marché à termes des Instruments Financiers - Euronext Paris SA") that sets the price.

Suggestions:

- Use the world market price (MATIF transmitted by FEGRA) as a basis and try to be above it.
- Provide a clear definition and transparency on what composes "Belgian flour" to clarify communication to consumers: is it Belgian grains or foreign grain processed by a Belgian mill?
- Support the development of fair price chain, risk-sharing along the chain, adaptative contract that facilitate the engagement of actors in those chains.
- Need to establish communication and discussion with the retail sector: with a 50% market share, they are the ones who make the market, and now the craftsmen are disappearing, to the benefit of the retailers. In Belgium, the market is so small that the retail sector and small local businesses face the same challenges, and if there is no discussion or collaboration, the retailers will continue to go for the low prices.
- It's important to get organized in the quality chains so that those actors can bring quality products in sufficient quantities to supermarkets too these chains need to be just as professional in their logistics and development.
- An interprofessional organization could be set up to meet these diverse needs.

d. Stake D- Supply of storage facilities - the desired future from a transition perspective

It seems essential to maintain enough storage units. However, it also seems essential to provide specific allotments in these storage areas that can accommodate different product qualities. What is today's situation and what are the perspectives?

Few critical observations on today's situation:

- Insufficient consideration for high quality products and therefore insufficient adequate allotments available for quality products
- **Risk sharing:** When a trader dedicates an allotment to cereals of a particular quality and they are not harvested in the end, this represents a very high cost for the trader and therefore a risk that it is difficult for him to assume on his own.
- Lack of traceability for the farmers: It also appears that 30% of the cereals that passed through the trading points were of unidentified quality (outside the four classic categories Q1, 2, 3 and 4): this figure is alarming and represents a financial risk for both farmers and the collection and trading organizations.
- Inequality in the chain: If storage is to be qualitative, it must be accompanied by a sorting and a drying phase. Who has the sorting tools? Moreover, there is a lack of trust as presented in the following point:
- Lack of trust in-between the segments: According to several testimonials and discussions in June, on-farm storage is emerging and developing for various reasons. Farmers want to retain control of their produce and ensure that it is properly valued (to avoid quality being sold/bought at a lower quality), but also to avoid the costs and additional costs demanded by the collection companies (drying costs, problems of consistency in weighing). Abusive practices (farmers manipulating the weight sold by playing on the moisture content of the grain, and traders manipulating the volumes and quality received) by the various players have gradually reduced confidence between them, leading to changes in storage practices.
- End of permits for the collecting points: According to a study carried out by CPDT in 2018 for DGO3 and DGO4, some storage sites are reaching the end of their environmental permit validity: what is the current situation?

Suggestions:

- Reactivate and follow the federal administration's role in monitoring measuring machines at collection points to restore trust between collectors and farmers.
- Make it transparent which infrastructure exists and what their specific capacities are, as this is
 not always clear to actors of the sector (e.g existing structures, interest of each collector fow
 what quality, existing initiatives in the chain to work on food products).
- Communicate the volumes of different qualities of wheat passing through collection areas
- Ensuring that Q1 and Q2 wheat is valued appropriately: it appears that 30% of cereals that have passed through trading outlets are of unidentified quality (outside the four traditional categories

Q1, 2, 3 and 4): this figure is alarming and represents a financial risk for farmers as well as for collection and trading organizations.

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- Consider risk-sharing contracts: in terms of dedicated allotments, taking out contracts and the risk of non-delivery
- Maximize opportunities to work together and pursue exchanges between players to collectively address risk management aspects throughout post-harvest activities.
- Support and monitor on-farm storage initiatives to guarantee the same food quality and safety in shorter supply chains.
 - e. Stake E Improving the value of food cereals: quality criteria, what processing tools and what final value?

It is crucial to identify criteria and standards in terms of food quality, and to build a better bridge between production and demand of agri-food companies, to develop added value in Wallonia and secure markets for food grain producers.

CRA-W's ValCerWal project will contribute to this precision of food quality and better knowledge of varieties and their quality. There is also a need to differentiate ourselves from neighbouring countries by developing high-quality products, and to achieve this we need advice tailored to the purpose of the cereals grown, as is the case in France.

In addition, using these high-quality local products requires new expertise, and it is crucial to ensure that expertise exists to develop these products: training courses in milling and baking need to be relaunched. Finally, the primary processing sector (mills) seems to be characterised by major tension between large, under-utilized processing facilities and a proliferation of small-scale initiatives with results that are yet little known.

Suggestions:

- Production tends to take place in Wallonia, while processing expertise is more likely to be found in Flanders: there is a need to establish greater lines of exchange of expertise, specific needs and constraints between the upstream and downstream sides of the chain.
- Ensure that the expertise exists both to cultivate these varieties and to promote their products : using local quality products requires new skills, making it necessary to relaunch training courses in milling and baking.
- Tackle the renewal of millers and bakers: who is taking over the bakeries?
- Keep all the actors in their diversity of size around the table to discuss the future of food cereals
- Establish communication and discussion with the retail sector.
- Differentiate ourselves from neighboring countries by developing high-quality processed products and better communicate the qualities of Belgian cereals and flours (low input resistant seeds, biscuit-making seeds).

f. Stake F - Cross-cutting issues - Greater understanding between links and between regions

During the discussions held in focus groups, a lack of knowledge and communication between players was identified. There is consequently a demand for greater collaboration between farmers and other players in the chain, as well as better risk sharing between segments in the chain.

At the same time, the need for and interest in closer collaboration with Flanders was reiterated several times.

Suggestion:

• Pursue the exchange dynamic: hence the need for an "Interprofessional organization" was put forward by several players. There is currently some discussion for the development of a Food Cereals Working group at the Agrofront level, which could evolve into an "interprofessional organization".

V. A common aspiration on future

This chapter presents the common aspiration that was adopted by the participants to the F4F project as a common guide for action and reflection at the national level.

d. INTRODUCTION

To further engage the actors in a operational reflection and potential roadmap of actions, the research team proposed "a common aspiration". This proposal is supposed to be more concrete than the framing and sufficiently clear for actors to engaged towards it.

e. A COMMON ASPIRATION TO LEAD THE WORK

Based on the results of future-oriented exercise led in workshop 2, an ambitious aspiration, phrased as a sentence, is proposed to the group

"One out of two breads, biscuits or beers sold in Belgium

is produced with Belgian grains and one out of three is organic."

The aspiration is developed into a list of objectives, as presented on the following page.

a. Validation and refinement of the aspiration

Discussion was led by the participants of the workshop to validate that aspiration. Few remarks were made on the initial formulation :

- The proposed sentence is ambitious, well-crafted, and clear as a communication tool.
- However, to make it more robust and actionable, the aspiration would benefit significantly
 from including concrete milestones, such as targets for 2030 and 2050. For instance, the
 period leading up to 2030 could focus on gradually increasing the production of food-grade
 wheat and shifting practices to achieve measurable progress. These timelines would provide
 clear checkpoints to track and evaluate progress over time.
- Possible to nuance the sustainable modes of production: A discussion emerged regarding the exclusive emphasis on "organic" as the recognized mode of sustainable production. Participants questioned the possibility to include other sustainable farming practices under the aspiration. However, no alternative modes of production were identified that would offer the same level of clarity for effective communication.

b. Final proposal

After integrating these insights, the following phrasing was proposed and agreed upon:

"By 2030, one out of four breads, biscuits and beers consumed in Belgium are produced with Belgian grains, and one out of five is organic.

By 2050, one out of two breads, biscuits and beers consumed in Belgium are made of Belgian grains. One out of three is organic."

Commenté [PB3]: Quel est le lien avec la page 40 ?

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By 2030, one out of four breads, biscuits and beers consumed in Belgium are produced with Belgian grains, and one out of five is organic

By 2050, one out of two breads, biscuits and beers consumed in Belgium are made of Belgian grains. One out of three is organic."

Thanks to

An increased demand for Belgian cereals

- Direct demand from individuals: consumers are looking for products made from Belgian grains
- Demand from businesses to develop ZeroNetCarbon activities (requires additional political • commitment)
- Demand from businesses/industry engaged in a common objective of resilience and ٠ sustainable food systems across the country (requires additional political commitment)
- Canteen demand (public exemplarity) (requires additional political commitment) •

A secured access to means of production

- Access to land is monitored and facilitated for food projects (vs energy or leisure projects)
- Investments in research and development into the quality of food seeds are supported. This research has at least two objectives to develop robust seeds adapted to organic and sustainable agriculture specifications under Belgian agronomic and weather conditions,
- to enhance the quality criteria and cereal processing techniques that will enable Belgian foodgrade cereals to be used in processing channels.

A political and economic commitment to this ambition

At the Regional level

- Policy framing and norms for a minimum demand within public canteens •
- Policy framing and norms to encourage the consumption of Belgian cereals by individuals, and • companies
- Investments in research and development into food-grade cereal seeds adapted to organic and sustainable farming specifications

At the federal level

- Reactivation of the federal role of verification of measurement tools at collection points •
- Development of a national working group on the resilience of national agricultural systems • A consideration of prices in the sector

- Develop a remunerative price guarantee to work towards a decent wage for farmers
- To ensure a fair distribution of value along the chain with maximum transparency •
- Maintain and/or manage to offer quality products at prices affordable for everybody
- Involve downstream players and supermarkets in this political commitment

• All of that to be supported and discussed by an Interprofessional body for food cereals

VI. Reality check of the scenario

The aspiration sets up target and objectives: how realistic are those? The targeted number were tested in regards of Belgium' current situation of production. This chapter details the calculus that were led to assess the feasibility. The targets for 2030 are almost reached while the target of 2050 would require a dubbling of the current surface of wheat dedicated to food.

f. ASPIRATION VS REALITY

How realistic is the common aspiration can be and how much of an opportunity it can represent to develop food grains seeds in Belgium? The present chapter will answer those two questions. The aspiration targets bread, biscuits as well as beer. Considering the use of wheat for the first and barley for the latter, the results hereunder are split.

a. Few data of reference

The production of wheat in Belgium has been raising the last three years, reaching a volume of 1 740 KT on 201 713 ha (Stabel, 2023). This raise can mainly be explained by the good prices obtained on the market because of the conflict situation in Ukraine and limited harvested in different parts of the world. In the following projections, we will mobilize the data of year 2022 to align all the reference data that are used in our scenario exercise. Therefore, the considered reference will be the volume of 1 718 KT from a surface of 185 413 hectares (Stabel, 2023).

Table 7: Production of wheat in Belgium from 2021-2023

Production of	winter	Belgium	BCR	Flanders	Wallonia
wheat (Tonnes)					
2023		1 740 570	5 873	606 196	1 128 501
2022		1 718 785	5 166	577 495	1 136 124
2021		1 521 593	5 200	527 391	989 003

Source: Statbel, 2023

Table 8: Production of wheat in hectares in Belgium from 2021-2023

Belgium	BCR	Flanders	Wallonia
201 713	671	69 786	131 256
185 413	557	60 950	123 906
188 410	637	63 169	124 604
	Belgium 201 713 185 413 188 410	Belgium BCR 201 713 671 185 413 557 188 410 637	Belgium BCR Flanders 201 713 671 69 786 185 413 557 60 950 188 410 637 63 169

Source: Statbel, 2023

b. From field to flour

Along the chain, from the field to the final product, the primary product will be, in different intensity disregarded, sorted, cleaned, transformed and processed ending in combination of a volume of final product and a volume of co-products.

The table hereunder details those different steps and associated rates of loss or transformation according to each step. The acknowledgement of those rate and their inclusion in the present discussion is key to evaluate the netto and brutto demand of food grains, based on the final volume of consumed products.

Table 9: Table of conversion - Explanation of each step

Table of conversion	Explanation
Loss at the start of the chain	
Loss of production	Includes :10% of downgrading + other loss in transport
Transformation rate at the	Includes all the small other grains, or dirt that will be cleaned
cleaning activity step	by the collector or the miller
Yield of grinding white flour	This step is the first major transformation process. It will
	create co-products to be valorized in the feed chains
Flour to bread (Ratio 5/8) -	
Addition of water	Include the hydration step of the flour to model the bread
Drying process	The heating and cooking process of the final product
Loss at the end of the chain	Will vary according to the chain (industrial, artisanal)
Part that is valorized in co-	Includes the downgraded products that will be integrated in
products	feed chains
Loss on consumption	Includes the waste in the retail and direct consumption steps.
Total	An addition of the multiple rates
Source: Ademe, CRA-W (interviews), College	e des producteurs

Table 10: Table of conversion: table of values

Table of conversion	Loss	Rate of conversion
Loss on the start of the chain	21%	79%
Loss on production	15%	
Loss on cleaning activity	6%	
Yield of grinding white flour	12%	88%
Flour to bread (Ratio 5/8) -	-47,50%	136%
Addition of water	-62,50%	160%
Drying process	15,00%	85%
Loss on the end of the chain	17%	83%
Loss on process (Ademe) - industrial	10%	
Loss on consumption	7%	
Total		78%

Source: Consolidation of sources

Commenté [PB4]: Un figure serait utile.

Commenté [PB5]: Je ne comprends pas le 2,5.

c. Belgian consumption and needs for food grains

In Belgium, according to sources, we estimate the consumption of bread to range from 90g/day (APAQ-W, 2022) to 122g/day (Food consumption Survey, ECA, 2014), which - accounting for 11 763 650 inhabitants in Belgium in 2023 - amounts to

- 386 436T/year when consuming 90g/day and,
- 523 835 T/year in Belgium consuming 122g/day.

Of course, spelt, oat and other cereals enter bread making process, however, in this document the scope is limited to winter wheat as it is the major cereal used for bread production in Belgium.

Applying the table of rate of conversion, we can estimate a brutto demand of "bread" flour and of bread cereal grains. Belgian consumption – with the estimation of 122g/day- requires a production of a 667 536 tons of winter wheat grains.

Table 11: Evaluation of the need for food grains - for Belgian consumption and for milling activities

	Belgium - HYPF4F
Consumption of bread per capita and day (g) (FGBB 2022)	122
Population	11 763 650
Consumption of bread (tons)	523 835
White breadmaking flour needed (tons)	464 064
(Netto) Wheat breadmaking grains needed (tons)	527 345
(Brutto) Wheat breadmaking grains needed (tons)	667 526

Source: Population (Statbel 2023, F4F Calculus, 2024

Similarly, based on the estimation of consumption of 15,7kg/year, rounded to 16T (Choprabisco, 2022), a total amount of 105 165 Tonnes of "Biscuit" winter wheat grains is needed to cover Belgian consumption of biscuits.

Table 12: Evaluation of the need for food grains - for Belgian consumption and for biscuit production activities

	Belgium - HYPF4F
Consumption of biscuits per capita per year (kg) (FGBB 2022)	15,7
Population	11 763 650
(Netto) Consumption of biscuits (tons)	184 689
(Brutto) Consumption of biscuits (consumption + waste) (tons)	187 275
White breadmaking flour needed (tons)	81 440
(Netto) Wheat breadmaking grains needed (tons)	92 545
(Brutto) Wheat breadmaking grains needed (tons)	105 165

Source: Population (Statbel 2023), F4F Calculus, 2024

d. Consumption versus production - a quick reality check

Considering the distinct yields value for the different varieties and modes of production, we can associate estimations of hectares needed for the different products.

Table 13: Distinct yields for different modes of production

Yield (conventional 2023)	T/ha
Bread making wheat ¹	7,3
Biscuit wheat ²	>8,63
Forage wheat ²	8,63
Organic yields (2023)	T/ha
Bread making wheat ¹	4,5
Biscuit wheat ¹	5,5

Source: 1) CRA-W (Interview, 2025), 2) Statbel

e. Aspiration for Belgian consumption

By 2030

"By 2030, one out of four breads, biscuits and beers consumed in Belgium are produced with Belgian grains, and one out of five is organic." Considering that a quarter of the bread and biscuits consumed in Belgium should be of Belgian origin, and that a fifth should be organic, we can calculate the different needed volumes. We calculated a volume comprised between 102 and 166 kT for bread and 26kT for biscuits. The column general gives information on how this volume relates to current produced volumes. It only represents a limited part of current production – between 6 to 10% for bread and around 2% only for biscuits. If we consider the relation to estimated current food wheat grain production, then the ratios are more impressive while still adequate to current production: being 57% to 95%.

Table 14: (Brutto) Volumes needed for F4F 2030 aspiration (Tonnes) - Based on Belgian individual consumption

	Needed volumes (NV)	4/5	1/5	TOTAL	%	%
	(Tonnes))	conven	organic	(Tons)	Gener	Specialize
		tional			al	d grains
Bread	- NV of breadmaking	81 745	20 436	102 181	6%	59%
90g	wheat grains					
Bread	NV of breadmaking	133 505	33 376	166 881	10%	97%
122 g	wheat grains					

— From feed to food paradigm : Development of food cereals in Belgium $50 \; / \; 98$

Commenté (PB6): Les rendements peuvent être intégré au tableau 13. Les chiffres de rendement doivent être cohérents avec la base de donnée Sytra.

Commenté [PB7]: D'où vient ce chiffre ? Pas cohérent avec la baseline il me semble.

Commenté [PB8]: J'éviterais de parler du "current food wheat" car il date de 2010...

								Ó	SYTRA
Biscuits	NV of	biscuit	wheat	21 033	5 258	26 291	2%		-
	grains								
Source: Sta	tbel, F4F (Calculus, .	2024						

For surface matters, a similar observation can be done. The need of surfaces for bread products is limited ranging from 8 to 14% but if we consider current production, it will require 67% to 109% of it. For biscuits production, only 2% of the total current wheat surface is needed. As for the volumes, the surface currently dedicated to biscuit wheat cereal production is not documented. It is therefore not possible to evaluate the ratio of specialized grains.

Table 15: Surfaces needed for F4F 2030 aspiration(ha) – Based on Belgian individual consumption

	Needed surfaces (NS)	4/5 conventio nal	1/5 organi c	Total (Ha)	% General	% Specialized grains
Bread - 90g	NS of breadmaking wheat grains	11 198	4 541	15 739	8%	67%
Bread - 122 g	NS of breadmaking wheat grains	18 288	7 417	25 705	14%	109%
Biscuits	NS of biscuits wheat grains	2 437	956	3 393	2%	-

Source: Statbel, F4F Calculus, 2024

Based on those relatively encouraging results, the scenario for 2050 will require greater ambition in terms of volume and surface.

By 2050

For Belgian consumption again, the needed quantity is reasonable in regard to todays' general production of wheat – from 204 KT to 333 KT (representing a share of 12 to 19% of general cereal production). However, considering current specialized grains production it ranges from 119 to 194% indicating an important lack of food grain on the market.

Table 16: (Brutto) Volumes needed to answer to F4F 2050 aspiration

	Needed volumes (Tonnes)			2/3	1/3	TOTAL	%	% Specialized
			conventio	organic	(Tons)	General	grains	
				nal				
Bread	Needed	volumes	of	136 922	67 439	204 361	12%	119%
- 90g	breadmaking	wheat	grains					
	(Belgian consu	umption)						

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	Bread	Needed	volun	nes	of	223 621	110 142	333 763	19%	194%
	- 122 g	breadmakir	ng whe	eat	grains					
		(Belgian co	nsumptio	on)						
	Biscuit	Needed v	olumes	of	biscuits	35 230	17 352	52 583	3%	31%
	S	wheat	grains		(Belgian					
		consumptio	on)							
Î										

Source: Calculus, F4F, 2024

Same goes for the need of hectares.

Table 17: Surfaces needed for F4F 2050 Aspiration

	2/5	1/5	TOTAL (Ha)	%	%
c	conventiona	organic		General	Specialized
	1				grains
Needed hectares of breadmaking	17 413	10 292	27 706	14%	122%
wheat grains (Belgian					
consumption)					
Needed hectares of breadmaking	28 787	17 014	45 801	22%	202%
wheat grains (Belgian					
consumption)					
Needed hectares of wheat food	4 082	3 155	7 237	4%	-
grains (Belgian consumption)					
	leeded hectares of breadmaking vheat grains (Belgian onsumption) leeded hectares of breadmaking vheat grains (Belgian onsumption) leeded hectares of wheat food rains (Belgian consumption)	conventiona I leeded hectares of breadmaking 17 413 wheat grains (Belgian onsumption) leeded hectares of breadmaking 28 787 wheat grains (Belgian onsumption) leeded hectares of wheat food 4 082 rains (Belgian consumption)	conventiona organic leeded hectares of breadmaking 17 413 10 292 wheat grains (Belgian onsumption) leeded hectares of breadmaking 28 787 17 014 wheat grains (Belgian onsumption) leeded hectares of wheat food 4 082 3 155 rains (Belgian consumption)	Leeded hectares of breadmaking 17 413 10 292 27 706 wheat grains (Belgian onsumption) Leeded hectares of breadmaking 28 787 17 014 45 801 wheat grains (Belgian onsumption) Leeded hectares of wheat food 4 082 3 155 7 237 rains (Belgian consumption)	leeded hectares of breadmaking 17 413 10 292 27 706 14% wheat grains (Belgian onsumption) 28 787 17 014 45 801 22% wheat grains (Belgian onsumption) 28 787 17 014 45 801 22% wheat grains (Belgian onsumption) 28 787 17 014 45 801 22% wheat grains (Belgian onsumption) 4 082 3 155 7 237 4%

Source: Calculus, F4F, 2024

f. Conclusions on belgian individual consumption

As an intermediate conclusion, it can be summarized that as of today the need is of:

- 667 526 Tonnes of bread wheat grains to cover Belgian bread consumption and,
- 105 165 Tonnes of biscuit wheat grains to cover Belgian biscuits consumption.

When integrating the F4F's aspiration in those numbers, it can be stated that:

For 2030, considering a current and optimistic production of already achieved 10% of bread grain cereals, the current production could be sufficient to cover the aspiration 2030 (97% of the specialized grains) if all the food grains were channeled to the Belgian markets.

For 2050, a major increase in food grain cereal production would be necessary – multiplying by two the volume and surface to reach 19% of current wheat production

For both aspirations, organic production will require specific attention. In 2022 only 2522 ha of organic winter wheat were cultivated in Wallonia. A very limited surface is produced in Flanders. It would be necessary to support an increase of 5 000ha in 2030 (reaching 7417ha) and of 15 000 ha in 2050 (reaching 17 014 ha).

g. Industrial consumption

Belgian counts a fair number of milling and processing industries. Therefore, in respect to this major economic sector, it is important to have the information of the needed volumes of grains to keep an active milling activity. In 2022, a total of 961 013 T of wheat and meslin flour was registered, if we consider this amount to be only wheat, this production of flour requires **1 382 355,56 T** of wheat grains.

Table 18: Grains needed for Belgian milling activities

	Belgium – HYPF4F
White food flour actual production (tons) - (Statbel, 2022)	961 014
(Net) Needed wheat food grains (tons)	1 092 061
(Bruto) Needed wheat food grains (tons)	1 382 356
Wheat total grains production actual (tons) (Statbel, 2022)	1 718 785
Source: Stathal EAE Calculus 2022	

Source: Statbel, F4F Calculus, 2023

However, the proper percentage of what is exported and what is kept for domestic consumption is not well documented at the national level.

h. Aspiration for industrial consumption

For the industrial demand, if we apply the aspiration of consumption to the production volume, we can calculate the needed volume.

Aspiration by 2030

The volume needed for milling activity is 345 kT which represents 20% of current winter wheat production. This also represents the target for consumption with the aspiration 2050.

Within this amount of flour, a bit less than 60 kT would be dedicated to biscuit production. With this hypothesis, we tackle again the need for a better tracking of the different quality wheat – at the production level, but at the process level as well.

Table 19: (Brutto) Volumes needed for industrial activities, using F4F 2030 aspiration

	Needed volumes	4/5 conventio nal	1/5 organic	TOTAL (Tons)	% General	% Specialized grains
Bread	Needed volumes of breadmaking wheat grains (For milling activity)	276 471	69 118	345 589	20%	201%
Biscuits	Needed volumes of biscuit food grains (tons) (Belgian production)	47 337	11 834	59 171	3%	

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Source: Calculus, F4F, 2024

Table 20: Surfaces needed for industrial activity according to F4F 2030 aspiration

	Needed surfaces (NS)		4/5	1/5 organic	TOTAL	%	%
			conven		(Ha)	General	Specialized
			tional				grains
Bread	NS of	breadmaking	37 873	15 360	53 232	29%	226%
wheat grains							
Biscuits	s NS of wheat food grains		5 485	2 152	7637	4%	
	(Belgian	production)					

Source: Calculus, F4F, 2024

Aspiration by 2050

The volume needed for milling activity is of 691 kT representing 40% of actual production and 402% of what is currently produced. Within this volume of flour, 118 kT would be dedicated to biscuit production.

Table 21: (Brutto) Volumes needed for industrial activity according to F4F 2050 aspiration

	Needed volumes (NV)	2/3	1/3	TOTAL	%	% Specialized
		conventio	organic	(Tons)	General	grains
		nal				
Bread	NV of breadmaking wheat	463 089	228 089	691 178	40%	402%
	grains					
Biscuits	Needed volumes of biscuit	79 289	39 053	118 342	7%	
	food grains (tons) (Belgian					
	production)					
Source: Ca	Iculus EAE 2024					

Source: Calculus, F4F, 2024

Table 22: Surfaces needed for industrial activity according to F4F 2050 aspiration

	Needed surfaces	2/3	1/3 organic	TOTAL	%	% Specialized
		conven		(Ha)	General	grains
		tional				
Bread	Needed hectares of	63 437	50 686	114 123	62%	485%
	breadmaking wheat					
	grains (For milling					
	activity)					

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Biscuits	Needed	hectares of	9 188	1022	10 209	1%	
	wheat	food grains					
	(Belgian	production)					

Source: Calculus, F4F, 2024

— From feed to food paradigm : Development of food cereals in Belgium 56 / $\frac{98}{98}$

i. Global conculsions

Those different estimations and calculus lead us to optimistic observations for 2030 and ambitious for 2050.

With a consumption of 122g/ind/day for bread and 15,7 kg/year for biscuits, the need is of:

- 667 526 Tonnes of bread wheat grains to cover Belgian bread consumption and,
- 105 165 Tonnes of biscuit wheat grains to cover Belgian biscuits consumption.

The needed volumes and surfaces to respond to Belgian consumption, with the greatest ambitions ("One bread and biscuits out of two..."), are

- By 2030: 166 KT of bread grain cereals representing 94% of current food production (representing 10% of today's general production)
- By 2050: 333 KT of bread grain cereals representing 194 % of current food production (representing 19% of today's general production)

If we consider the industrial demand only, it will require greater number and area,

- By 2030: 345 KT of bread grain cereals representing 201% of current food production (representing 20% of today's general production)
- By 2050: 691 KT of bread grain cereals representing 402 % of current food production (representing 40% of today's general production)

VII. Roadmap of actions

The participants in the F4F project organized themselves in four working groups to progress toward the common aspiration. This chapter presents the tasks they assigned themselves and the results gathered along the last year of the project as well as some ways forward as potential support for action.

g. INTRODUCTION

Recognizing the ambition of the aspiration, the group opted to expand its focus to four key axes of work rather than the two initially proposed, i.e. the national multiplication of food cereal seeds and promotion of demand. The participants were divided into four working groups, each tasked with developing a comprehensive action plan for 2024, building on prior discussions and the shared aspiration. The selected axes of work and their corresponding action plans are detailed below.

Table 23: Actions to be done by the different working groups in the year 2024

WG A	What?					
Development of	National meeting between the seeds' actors: need for greater exchanges					
the multiplication	between them					
of food cereals	Develop a theoretical plan for greater collaboration on the food grains					
seeds in Belgium	development and their processing tests					
	(Important to have the key seeds well followed in Belgium)					
	Develop a research program common to both regions to develop the					
	industrial quality test for bread and biscuit production (it will be necessary					
	to get the private sector involved in this research again)					
WG B	What?					
Demand for	Quantify demand of households					
belgian grains	Quantify demand of businesses					
	Quantify demand of canteens					
	Develop long term project of canteen supply with Belgian cereals					
	Workshop: Canteen supply in Brussels Region: what regulatory framework?					
WG C	What?					
Distribution of	Define the cost of each actor along the chain					
value along the	Make models of tripartite contracts available. (Organize them with					
chain	production, process, and purchase)					
	Respect the cost of each actor of the chain					
	Get a better understanding on the price consumers are willing to pay for					
	different products					
	Development of cooperatives: important to group actors and follow their					
	dynamic					
	Need of strong political decisions: VAT rate, fiscal advantages for companies					
	that use Belgian cereals					
WG D	What?					
Political and	National meeting with the sector actors to check the interest and need for					
economic support	the development of an interprofessional body					

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5. WORKING GROUP A - MULTIPLICATION OF FOOD CEREAL SEEDS IN BELGIUM

a. Introduction

The availabilities of well know and locally tested bread and biscuit cereal seeds will influence the farmers and help them to change practice changes. The working group dedicated to analyzing the "Multiplication of food cereal seed" aims to overcome obstacles "A" and B namely:

- A: Increase in the production of "value-added" cereals (destined for human consumption),
- B: Shift in production methods and access to tailored advice and suitable seeds

Inspired by the Holland ambition and based on the great expertise of CRA-W and Inagro involved in the working group A, the group organized itself with actors external of the F4F dynamic.

b. Current situation and critical observations

Currently there is limited investment and interest for food cereals research in the current trials' networks. Those are more dedicated to the evaluation of varieties that would be valued as feed-fuel or starch products. This situation results in several critical points, listed by the committee:

- No high-quality baking varieties,
- No quality analysis in Flanders,
- For what concerns basic quality analysis available in Wallonia, the Zeleny infrared is the most used, while there is a need for other reference methods
- For what concerns, advanced quality analysis availability in Wallonia, tests are limited to one data per year and variety only, for 1 level of protein content only.
- No baking and no biscuit test are made on the varieties.

Moreover, this focus on non-food products leads to high first fraction of nitrogen on the fields and too much treatment to assess robustness of the variety and/or to reach bread quality wheat with low quality ones. It gets even more peculiar when considering the important milling activity and bakery associated products that are present in Belgium. The economic activity of those industrial units is great and the demand of wheat for keeping those milling activities up to speed is as great. In the past, FEGRA had a market and standards specification. For the last 10 years, high quality wheat has been less valued as it raised limited interest from the actors: food wheat is not a product with a potential of export as our neighboring countries have developed strong food cereals production. FEGRA has no food standards anymore, the communicated standards are based on feed products. The growing initiatives that want to develop sustainable local grain production and to include sustainable local winter wheat in their process encounter difficulties finding quality seeds and quality grains on the market.

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c. Future situation and associated challenges

Those two elements, greater investment in feed-fuel-starch and high nitrogen uses must be considered and therefore challenged by a mid-term perspective (short-term regarding seed research). Three specific trend are worth mentioning:

- By 2030, practices will have to be adapted to be led with a highly reduced use of fertilizers, seeds varieties development with limited fertilization trials (as already well developed in Belgium) will be key on the market.
- The increasing interest in low carbon local wheat: it is already ongoing and will further increase in the private sector. This reality, supported by European and national funds, will create the demand for high quality and adapted seeds.
- Finally, but not lastly, the European ban on thermal cars will create a drop in demand for fuel wheat – changing the current distribution (balance) of demand and production for fuel adapted wheat.

The existing conventional winter feed-fuel-starch wheat variety trials network in Flanders and Wallonia is not funded and therefore not dedicated (not the priority) to assess food (breadmaking and biscuit-brewing) varieties. The funding sources of those networks would be strongly reluctant to integrate food wheat varieties if it is not their scope. In addition, in those trial networks, the volume of trial is limited. If there are new trials but the funding amount doesn't change, it means that other trials must be stopped. Therefore, there is a need for a specific funding of "A conventional winter food (breadmaking and biscuit-brewing) wheat variety trial Belgian network".

d. Horizon

Considering the realistic potential exposed in the scenario exercise and an increasing demand for locally sources cereals, a will of resilience in response to the fragility of long chain supply, the good resistance of food wheat varieties to changing climate condition and the good yields for biscuits quality wheat production – it seems key to invest in foods quality seeds multiplication.

e. Activities led

Development of a technical committee to further tackle the question (first meeting April 15th)

The technical group is composed of different institutions:

- The agronomic evaluation network of commercial cereal variety trials:
 - \circ $\,$ Flanders: landbouwcentrum Granen (LCG) network: INAGRO and UGENT $\,$
 - \circ $\;$ Wallonia: CePICOP network published in Livre Blanc
- Advanced technological analysis of the commercial cereal variety trials

 CRA-W

- Standardized Belgian baking method (NBN 12-001)/AACC biscuit test

 UGENT
 - Multiplication of food wheat varieties

Jorion Philip Seeds
 The presence of JPS is important as they have a specific interest in food cereals and biscuits varieties.

f. Proposition: A theorical plan of what is needed

Development of the theoretical plan for greater collaboration on the food grains development and their processing test

- Food wheat varieties trial network
 - High baking quality (Q1A and Q1) (2/3) (High extensibility / High yellow color)
 - Biscuit-brewing (Q4B) (1/3)
 - Reference varieties and upcoming varieties (Organic varieties network ITAB)
- Agronomical trials (yield, diseases, lodging, ... ; 4 blocs)
 - Varieties trials: 2 pedoclimats (Flanders silt-sand; Wallonia silt) standard conventional farming → 30 varieties
 - Efficient nitrogen trial: 2 nitrogen levels in addition to var. trial \rightarrow 15 varieties
 - Efficient fungicide trial: 0 and 1 fungicides-growth regulator treatments in addition to var. trial \rightarrow 15 varieties
- Processing tests
 - Basic quality tests: Grain cleaning, Proteins content, SW, TKW, Hagberg, Zeleny, Hardness
 - Advanced quality tests: Alveographe Chopin, Mixolab +, RVA AGNO3, Color
 - Buhler MLU white flour milling
 - Breadmaking test: Belgium baking method (NBN V 12-001) (volume-size, color, texture, ...)
 - Biscuit test: AACC method (volume-size, color, texture, ...)
 - Micro-malting and brewing quality tests: Subcontract micro-malting

g. Added value of Belgium for this research proposition

- Resilience: Food cereal trials should be considered as a step towards food system resilience. Belgium, more than neighboring countries, has developed on field trials that mobilize less fertilization. Based on the successive global crises and the upcoming changes in regulation and therefore in demand, it is crucial to proactively think and work on the resilience of our pool of food quality and low-input seeds.
- **Great experience in both regions:** This research plan would not start from scratch. There is expertise and great experience in both regions of the country on those three aspects of the proposed research.

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- Belgian weather conditions are well adapted to biscuits wheat varieties, German market has a limited production of biscuit wheat production, and this could be a way to develop a Belgian specificity.
- The food wheat seed market is gaining importance, with lots of actors finding it difficult to encounter quality seeds on the market.

h. What's next?

Today, a budget has been estimated. This one could vary with the inclusion of specific organic trials. The duration should be 10 years. Meetings were held with FlandersFood and Wagralim in April 2024 to present them their ambition. A first common project has been submitted for Interreg fund in January 2025.

a. WORKING GROUP B - DEMAND FOR BELGIAN GRAINS

a. Introduction

The demand for Belgian cereal production will influence the commitment of mid-chain stakeholders to adopt practice changes, invest in equipment, and enhance the valorization of food cereals. The working group dedicated to analyzing the "Demand for Belgian cereals" aims to overcome obstacles "D" and "E," namely:

- D: Storage facility supply: What are the desired futures in a transition perspective?
- E: Improving the valorization of food cereals in terms of quality criteria, transformation tools, and final valorization.

b. Current situation and critical observation

This demand is however not easy to grasp for several reasons:

- It can be calculated at different stage: collect, processors, retail or end-consumers,
- Belgium is a pretty small country and the cereal sector a competitive market, therefore the sharing of data on volume and price is limited,
- The use of belgian grain is not documented by processors, whereas it could be a key data to report on in a resilience perspective: knowing the flow of local grain/flour throughout the chain would be a key data to collect and track along the years to motivate either the farmer, or the processors and consumers (retail and end-users) if specific policy support is given to that orientation.

In the following exercice, the participants shared data that enabled us to partially document the different steps and build some first understanding of the demand. For the processors, retail and end-users' data, the considered scope is the national scale.

c. Future situation and associated challenges

As developed by the working group A, different trends can be considered as having an influence on the demand:

- The aforementioned increasing demand for low carbon local wheat grain that could greatly trigger the demand for Belgian grains,
- The repetition of international conflict putting tension on cereals (among other products) circulation,
- The increase of demand for local products,
- The multiplication of irregular however serious climate events that have a strong impact on local and international markets, available volumes and prices of products.

d. Horizon

Considering the realistic potential exposed in the scenario exercise and an increasing demand for locally sources cereals, it seems key to invest in the tracking of Belgian/quality primary and processed products along the chain of actors: from demand to production.

e. Activities led



Analyzing and updating the global flows and usages of Belgian and imported products

Figure 12: Different component of Belgian demand to be documented by the working group in order to lever obstacles D & E

Several actors have tried to shed some light on the different uses and valorization of the cereals in Belgium and more precisely in Wallonia. (Delcour et al. 2014) documented the distribution of volume between food, feed, fiber, starch, fuel and exports for various cereals. In 2020, (Antier, Petel, et Baret 2020) had confirmed and further documented those numbers. (Socopro 2020) has also made the exercise of attaching volumes to those different flows (See Annex 3).

f. Collection of information from various actors within and outside the working group.

Demand from the collectors

In Wallonia, as documented by the (Socopro 2020) in their strategic plan for food cereal development, two large actors represent 2 thirds of the collect of cereals in Wallonia. They both

collect all types of quality cereals and would value them in different value chains (feed, fuel, starch, food) according to client, contracts and market values. The importance of each way of valorization

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remains, however, quite confidential. Throughout the research, we could still document that one of the big actors already collect a fair

- 500 hectares of bread wheat grain,
- 1500 hectares of biscuit wheat grain,
- 150 hectares of malting barley.

Smaller collectors are also susceptible to storing food grain cereal – we can therefore estimate that larger surfaces, than the ones identified, are already cultivated.

Using documented yields (Table 13) , volumes can be estimated and put regarding the F4F 2030 scenario.

This comparison could indicate that the bread and malting barley are, currently, integrated in other circuits of collection and sale, while the biscuit is quite well integrated in longer chains and greater size actors.

Table 24: Conversion of surface to volume of food and drinks production

number of hectares for food and drink cereal grains (Interviews, 2024):

Hectares	Yields (T/ha)	Volume (Tonnes)	F4F- 2030
			Scenario
500	5,5	2 750	2%
1500	8,6*	12 900	49%
50	4,99*	249,5	2%
	Hectares 500 1500 50	Hectares Yields (T/ha) 500 5,5 1500 8,6* 50 4,99*	HectaresYields (T/ha)Volume (Tonnes)5005,52 75015008,6*12 900504,99*249,5

Source: *Yield of 2023 from Statbel and ** calculation from Sytra,

Demand from the millers

The amount of industrial produced flour per year in Belgium reaches 961 KT in 2022 and up to 1,1 million T in 2023 (Statbel, 2023). The co-products of this milling activity are mostly directed to feed industry¹.

According to (Socopro 2020), three main actors gather 75% of Belgian production - being Dossche mills, Paniflower and Ceres. Those actors are members of the Royal National Association of Millers.

The use of Belgian grain for the production of flour is not documented yet and would represent a key data to collect and follow in the course of a paradigm shift.

¹ According to (Socopro 2020), a percentage of 25% of the raw products is then directed to feed production.

According to (Socopro 2020) again, the Walloon production of flour only represent 3% of the milling activity in Belgium, considering both "industrial" and "artisanal" flour and most of the Walloon milling activity seems to rely on Belgian (food) wheat.

Table 25: Value and qua	intity of products	of grain process	and starch products	(1 st processing stage)
-------------------------	--------------------	------------------	---------------------	------------------------------------

NACEBEL	Activity	Millions euro	KTons
106	Products of grain process and starch products	3 086	3 700,72
1061	Products of grain process	1 825	2437
10611	Rice	255	178
10612	Cereals and vegetable flour	965	1 304
1036121	Wheat flour	496	1 103
10613	Groats, semola, pellets and other cereal- based products	503	531
10614	Bran and other milling residues	102	424
rce : Statbel. 202	3		

Therefore, applying the ratio of 3% of the 1,1 million T of flour produced in 2023 leads to the evaluation of a volume of 33 100 Tons of wheat flour.

Applying the different rates of transformation calculated above (70% including the rate on the start if the chain and the yield of grinding white flour), this production of flour would demand 47 612 Tonnes of food wheat grains¹.

⇒ A demand of 47 612 Tonnes of food wheat grains from the walloon millers

Demand from the retail

According to recent analysis of APAQ-W (APAQ-W 2025), bread buyers would equally purchase their bread in bakeries (69%) than in supermarkets (62%). Those numbers can be challenged by other surveys that indicate that consumers privilege supermarkets for their general purchase (bread included).

In terms of market share data based on spending value (GfK Belgium) on bread, supermarkets accounted for 37.8% of expenditures in Wallonia in 2021, making them the primary place of purchase, followed by bakeries at 30.9% (APAQ-W 2022).

In Brussels, supermarkets held an even higher market share of 46.3%, while bakeries ranked third as a purchasing location at 15.8%, behind the "Others" category, which represented 16.1% (APAQ-W 2022).

In Flanders, traditional supermarkets (DIS 1) dominated the other market channel (organic included), capturing a 43% market share. The specialized channel, which includes specialty shops such as bakeries, butchers, organic food stores, and other general food retailers like Bio-Planet,

¹ Final products multiplied by a factor of transformation of 75%. The calculus is then: 33 100 ***1/75%**.

ranked second with a 31% market share. Between 2016 and 2022, this specialized channel lost market share to DIS 1.

Those percentage and purchase behavior highlight the critical role of retail in driving a paradigm shift. Many supermarkets now offer freshly baked bread on-site to meet customer demand and leverage the enticing aroma of baking bread as a marketing strategy. Additionally, some retailers have integrated bread into their range of locally produced products.

As an example, Colruyt; through the F4F project, has shared its initiatives for promoting local offerings.

Bio-Planet, the organic branch of Colruyt, has taken significant steps to introduce three types of locally sourced bread in their stores. This effort involved establishing regular contacts and signing contracts with seven farmers to secure 150 tons of organic and locally produced flour.

To add value to this flour, they have established a supply chain involving a miller and two large bakeries. Currently, the production volume is limited to 150 tons per year but has the potential to increase up to 4.5 times (approximately 675 tons per year) to meet the demand for bread. However, any expansion is carefully considered, balancing growth opportunities against the strict price limit set for consumers. The price cap determined by the Colruyt Group is \pounds 7 per kilogram (Interviews, 2024).

Other retailers are also joining the local bread market, each defending specific qualitative criteria, not specifically organic.

- Louis Delhaize' (XXX) has developed a specific commercial relation with Copain group : an
 innovative local industrial bakery that strives to defend the presence or organic bread in
 supermarkets without sacrifice on the quality, the price and the social and environmental
 mode. Copain group has also developed an offer of pastry products made of Belgian bread.
- Delhaize Group works with the large Group La Lorraine. To respond to the demand for local bread, they've branded themselves "Belhaize in the last months". Moreover, they have developed the "Rustik" bread, which represented 14 breads in 2022. Those products are supported by a specific narrative: "working with a farmer in Flemish Brabant, a miller and a bakery". For those two last actors, they are both among the largest actors in Belgium: Paniflower is the miller and La Lorraine, the bakery. In 2023-24, the consortium has gone one step further, promoting the use of local wheat responding to the regenerative technical specifications². La Lorraine group has developed relationships with 40 farmers in Flanders and Wallonia to develop that production. For the current 8 Delhaize "Rustik" breads, 3000 T of sustainable Belgian wheat have been harvested.

¹ Press acrticle of L'Echo: <u>https://www.imbc.be/wp-content/uploads/2024/03/Copains-LEcho-Mars-2024.pdf</u>

² Fevia website, <u>https://www.fevia.be/fr/actualites/la-lorraine-et-ses-partenaires-construisent-une-chaine-localede-pain</u>

- **Carrefour Belgique**' also has its own local offer with the label "Filière Qualité Carrefour, Bon et engage". In this offer the bread is present with four types of "Tradition Bread 100% Belgian". The technical specification put forward are "cooked on stone, Belgian origin, Zero pesticides flour, reduced content in salt and fat". The narrative also includes a farmer located in Wallonia this time- and a miller (Moulins Meyers). The processing actor for those local quality bread is once more: "La Lorraine Group".
- Lidl launched the "Pain Paisible Because bread needs time and rest" in 2021. This offer of bread was said to be "produced" in Belgium with very limited information on what is Belgian.² Those breads do not appear on their website and may have been stopped.

¹ Carrefour belgique, website: <u>https://www.carrefour.be/fr/inspiration/filiere-qualite/cremerie/pains/bread.html</u>

² Website consolidating marketing offers: https://xn--dpliants-b1a.be/lidl/semaine-20-du-17-05-2021-au-22-05-2021page-4-rgoyw

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Table 26: Consolidation of the retail demand in Belgium

Retail branch	Name of the bread	Local?	Technical Specification	Volume of cereals mentioned (T)	Offer of breads	Price in shops
Louis	« Louis brand »	Belgian	Organic Organic			
Delhaize		cereals	and			
			regenerative			
Delhaize	Rustique/Rustik	Belgian		3000	8	Not available
	bread	cereals				in shops
						(Janbuary
						2025)
Carrefour	Tradition bread	Belgian			4	
	100% belgian	wheat				
Colruyt	Belgian Organic			150	3	4,95 euro/kg –
	bread					6,50 euro/kg
Lidl	"Quiet Bread"					
	Pain paisible					

Source: Multiple articles, see end of page reference

Alternative retail circuits have offered organic bread options since their inception and have now expanded to include local offerings. However, the volumes for these channels remain undocumented. Two key players in this sector, Sequoia¹ and FARM², collaborate with various bakery partners: **Le Bon Pain³** and **Benoit Segonds** supply bread to Sequoia shops, while **La Boulangerie Belge et Bio⁴** provides bread to FARM shops and some Sequoia locations. Additionally, the bakery **Hopla Geiss** supplies bread to **Brut by Farm**.

In Flanders, the bakeries involved in alternative retail circuits remain weakly documented.

⇒ A demand of 50 000 Tons of local regenerative wheat that could be more if other retail actors join the dynamic.

Demand from the bakery/bread processors

Another way to look at it would be to consider the suppliers of those retail: with two major actors: **Copains** as a new key emerging actor for local and quality bread and **La Lorraine**, as the historic bakery supplier for Delhaize and Carrefour.

Those two actors have been vocal about their perspective:

 COPAINS currently sells 30.000 breads/day in supermarkets and will keep on developing in the upcoming years⁶:

¹Website of Sequoia: <u>https://www.sequoia.bio/produits/?cn-reloaded=1</u>

² Website of Farm: <u>https://farm.coop/producteurice/la-boulangerie-belge-et-bio/</u>

³ Website of Bon pain : <u>https://www.bonpain.bio/</u>

⁴ Websiet of la Boulangerie belge et bio : <u>https://boulangeriebelgebio.be/</u>

⁶ Press acrticle of L'Echo: <u>https://www.imbc.be/wp-content/uploads/2024/03/Copains-LEcho-Mars-2024.pdf</u>
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- \circ $\,$ 30.000 bread of 800 grammes can be equaled to 24 000T of Bread $\,$
- Using the documented rate of conversion, this could be estimated to a current demand of 30 583 Tons of grains,
- La Lorraine group has declared to be willing to play a significant role in the Belgian supermarket bread market: they are mentioning a target of 50 000 Tonnes by 2027¹.

With a confident actual demand of 30 KT of grains from COPAINS with an expected increase and a potential demand for 50 KT for local regenerative wheat- more subject to market and EU regulation, that information can serve as a benchmark for process and retail sector's overall bread requirements.

Demand from the end-users

Since 2021, APAQ-W has developed a consumer observatory activity. This observatory has conducted two relevant studies that can be utilized for the current topic; A couple of interesting elements, extracted from those (Observatoire de la consommation 2023; 2022) are presented hereunder. Over eight out of ten Belgian consumers purchase bread at least once a week, with the average Belgian spending €53.45 annually on bread. However, in Wallonia and Brussels, a decrease in bread expenditure has been observed. In 2021, the annual spending on bread was €43,80 in Wallonia and €46 in Brussels. On the other hand, spending on organic bread has increased. According to APAQ-W, the average price of bread in 2021 was €1.89 in Wallonia and €1.87 in Brussels, both higher than in 2016.

Criteria of choice

Supermarket shoppers tend to prioritize price, geographic proximity, and accessibility, making price a critical factor for this group. In contrast, bakery customers value the quality and freshness of the products above all. Those who purchase bread at open-air markets often emphasize supporting the craft of the "artisan boulanger." However, criteria such as the "origin of the flour" or the presence of quality labels or organic certifications are less significant for consumers when it comes to bread, pastries, and *viennoiseries*. Regarding consumer behavior toward short supply chains, **58% of surveyed consumers in Wallonia and Brussels** mentioned bread and bakery products as part of their purchases. In terms of market share within short supply chains, the share of bread in short supply chains dropped by 12.9% between 2016 and 2021, however it still represents a significant portion: bread ranks indeed highest at **29.6%**, followed by meat (21%) and other products.

In Flanders, VLAM published a report on domestic organic consumption habits, noting a sharp rise in organic bread purchases. From 2016 to 2022, there was an **80% increase in organic bread consumption** (VLAM 2023). The information on local content

¹Belgian press, published in august 2024, L'Echo: <u>https://www.lecho.be/entreprises/alimentation-boisson/des-pains-</u> la-lorraine-vendus-chez-delhaize-issus-de-l-agriculture-regenerative/10560808.html

Productcategorie	Eenheid	2023+	Evolutie 2022 vs 2016
Witte consumptiemelk	Liter (000)	3.571	-15,6%
Kaas (excl. vrs witte)	Ton	1.117	22,0%
Vlees/gevogelte	Ton	7.293	169,6%
Vleeswaren	Ton	1.392	112,1%
Aardappelen	Ton	6.143	24,0%
Rijst/droge deegwaren	Ton	1.169	33,7%
Bloem	Ton	476	-16,3%
Vers fruit	Ton	14.721	51,4%
Verse groenten	Ton	14.246	39,2%
Natuurlijke fruitsappen	Liter (000)	1.323	3,5%
Eieren	Stuks (000)	29.908	47,8%
Brood	Stuks (000)	10.101	80.0%

Table 27: Domestic organic product consumption, 2023.

Source: (VLAM 2023)

Those results indicate well a strong increase of organic bread and therefore a search from the consumer for qualitative product even though less appreciated in (Observatoire de la consommation 2022). There is therefore a market opportunity for organic bread cereal production.

Unfortunately, the biscuits are less studied and documented, but they could also represent a large demand as well.

Conclusion on demand for belgian grains

- ⇒ Collector: A demand of 12 900 T of biscuit grains, of 2 750 Tonnes of bread wheat grains and of 250 Tonnes of malting barley
- ⇒ Walloon artisanal and industrial bakeries: A demand of 47 612 Tonnes of food wheat grains from the walloon millers
- ⇒ National Industrial bakeries supplying the Belgian retail: COPAINS with a current demand for 30 KT and La Lorraine with a potential demand of 50 000 Tonnes of local regenerative wheat

g. What's next?

This chapter shows how fragmented the data are and how a consildation of those : in terms of volume, quality, value chains could benefit the whole chain especially the updstream actors and farmers in getting confidence in the market.

A next step would ideally to develop a regular documentation of millers and processors for Belgian products in their various and multiple qualities (Q1,Q2, Q3, Q4; bread/biscuits/patisserie/etc.)

b. WORKING GROUP C: DISTRIBUTION OF ADDED VALUE Along the value chain

The group met only once. The information gathered hereunder are shared experience from different actors: Farm4Good, Molensnova, Copains, Colruyt group. Those can be discussed and used as food for thoughts. They are framed and therefore limited by the framing of the interviews and data collection along the project.

a. Introduction

The question of price, fair remuneration as well as production and distribution of value along the chain will, as the demand for Belgian cereal production, influence the commitment of actors to increase their production, to adopt practice changes, to invest in equipment, and to take all the risks associated with those changes. The working group dedicated to analyzing the "Distribution of the added value along the chain" aims to overcome obstacles "C" and touches upon the "E" as well:

- C Remuneration, enhancement of practices and distribution of value along the chain
- E Improving the valorization of food cereals in terms of quality criteria, transformation tools, and final valorization.

The remuneration of each segment is key and represents a crucial gamechanger when the discussion is on the introduction of new products or changes of practices (Antier et Riera 2022). Currently, as shared by the actors during the interviews and workshops, food cereals and moreover sustainably produced food cereals represent techniques, risk-taking and know-how that are not currently reflected in the prices paid to farmers. The price of bread is carefully looked at by consumers and therefore bakers and the retail segment are putting pressure on the whole chain.

b. Current situation and critical challenges

Starting from the seed and inputs levels, the scarcity of qualitative food grains urges the actors to find solutions in neighboring countries which withhold a first risk (Interviews, 2022 & 2024). The price paid for the seeds and more specifically quality seeds will influence the costs of the producer and its revenues. Even more so that, in Belgium, the delta of price paid to farmers for food cereals is a major non- incentive for the change. The average delta of price between feed and food was indeed under 10 euros from 2012 until 2020, with a slow increase to less than 20 euros in 2022 (Erreur ! Source du renvoi introuvable.). This very small valorization is often voiced as a major hindering factor to conversion. Indeed, it may cover the difference of volume produced on the field when sold as Q1 (Food/bread quality) is indeed reached but does not cover up the loss if the smaller volume harvested is downgraded.

Table 28: Delta of market price between food and feed wheat

Year	∆ price (euro/T)
2012	6,48
2013	6,42
2014	9,39
2015	9,25
2016	8,57
2017	9,37
2018	4,33
2019	6,53
2020	7,36
2021	11,37
2022	18,45

Source: Prix de Marché, SPW, 2025

- The yields differ between "feed-fuel-starch" quality cereals and food cereals, the latter are lower. This difference is striking for organic production. (

). Furthermore, the risk of downgrading is great, (15-20%: one year out of five) multiplying the financial risks taken up by the farmer.

Along the project, the downgrading step has led to discussion and important insights related to the organization of the chain more than other elements:

- The post-harvest process steps drying and sorting- are key to improve the quality of a batch of cereals. As shown by Godin (livre blanc/Présentation FEGRA). Those steps are usually done by the collectors, banning the farmers from managing this step of possible quality check and improvement,
- **The disappearance of the national qualitative indicators published by FEGRA–** making the Belgian food quality wheat absent from the (European) market and putting the farmers in difficulty/weak situation of bargain when negotiating with the collectors
- **The low investment in food (and drink) grain cereals value chain along the years**, has led the collectors to disinvest in those chains, losing a certain expertise and needed process and infrastructures to qualitatively welcome those high-quality production in smaller volume.

c. Sharing of experience

Within the F4F dynamic, Farm4Good shared its experience on the share of value along the chain. Their example is presented here.

Farm4Good

The starting point for the Farm4Good approach is the desire to offer producers a fair price and then to integrate this fair price into the value chain so as not to create inequalities between the links in

the chain. Several objectives and points for attention and/or innovation guide the implementation of this approach:

- To guarantee fixed margins for producers and therefore avoid fluctuations as far as possible,
- Ensuring that each link in the chain is guaranteed a minimum price,
- Consider the possibility of smoothing prices along the chain so that the whole chain is not affected by more expensive flour.

Where do we start? To start with the realities on the ground! F4Good's support began with a search for precise documentation of cultivation costs. It was important to document them in all their diversity. After calculating average growing costs and adding a certain margin based on an expected yield (with certain yield assumptions), it was easy to see that the market price was not in line with these initial desiderata.

What are the different ways of approaching the distribution of value along the chain? The F4Good cooperative has opted for total transparency in its cost calculations when negotiating with the other links in the chain. And they are trying to continue this work of transparency in product pricing.

Challenges

- For each of the value chains: it is essential to be able to stabilize the material (in terms of volume and quality) before moving on to the processing stage but this stabilization takes time.
- As the network grows, it takes on board a diversity of models and therefore of expected costs and prices.
- The network does not have control over all the links in the chain (it does not have its own storage
 or sorting facilities), so setting up a new supply chain is highly dependent on downstream players
 and their willingness to adopt a collective network approach rather than a supply chain
 approach.
- At this stage, the Farm4Good cooperative is taking all the risks.
- The priority is for farmers to be able to ensure good results every year because the economic stakes are becoming too high,
- However, the cooperative is making this promise while remaining connected to the realities and risks taken by farmers.
- The need to reinvent ourselves every year: to adjust to new situations, to the difficulties of the year, to the need to re-calculate costs and to find the right prices.
- Develop an R&D axis, to be able to keep the possibility to improve the product, to guarantee its adequacy with the rest of the chain by developing new recipes, for example but especially to be able to guarantee a continuous quality of delivery.
- The fact that the network is so young means that they are in a learning and partnership dynamic - but it is important to reach a stabilization phase.
 - d. What's next?

Further exchange of good practices between actors.

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c. WORKING GROUP D: GAIN GREATER SUPPORT FROM THE LEGAL AND ECONOMIC CONTEXT

a. Introduction

The group met only once. However, the committee members are directly engaged with the sectorand actively contribute to this type of reflection.WhatarethepossiblereferencesinBelgium?

Several key dynamics were identified:

- The Agrofront: A national initiative with a significant impact.
- The supply chain initiative: an inter-sectorial national initiative
- Milk.be: the branch organization for milk and dairy products
- Belpotato: The interprofessional organization established for the potato sector.
- The Fruits and Vegetables Interprofessional Organization in Wallonia: Known as IFFruits et Légumes, this organization represents a more complex network of actors.
- The national Task force : established in 2024 by the FOD/SPF and Cabinet of the national Minister of Agriculture Clarinval. Two meetings were led, and 10 emergency measures were decided on.

b. Agrofront

Agrofront is composed of the Walloon Federation of Agriculture (FWA), Boerenbond (BB), and the Algemeen Boerensyndicaat (ABS). While the legal status of Agrofront remains unclear, as it is the sole national structure for the representation of agriculture, it benefits to facilitated access to federal negotiations, which grants them the ability to represent and defend the interests of the sector and/or the interest of their respective members.

c. The supply chain Initiative1

Since 2009, a structured dialogue has existed between various segments of the agrifood supply chains. This initiative, based on voluntary participation, aims to address common or segment-specific issues arising from interactions between different actors. The members of this concertation include:

- BFA: Representing feed products
- Agrofront: Representing farmers and the production segment
- FEVIA: Representing the food industry
- COMEOS: Representing the retail and trade segment
- UNIZO and UCM: Also representing the retail and trade segment

¹Website of the Supply Chain Initiative: <u>https://supplychaininitiative.be/fr/code-de-conduite/ketenoverleg/</u>

These members have developed a "Code of Conduct" 'to guide the various segments and product chains. The introduction of the precises that "The signatories parties attach great importance to a strong partnership with the food chain based on the three pillars of sustainable development (economic, ecological and social). In order to better handle future problems, the undersigned organizations with to improve collaboration and foster partnerships amon all operators, while preserving contractual freedom"

The goal of the Supply Chain Initiative is to encourage as many enterprises as possible to sign and adopt this code of conduct. There isn't much documentation on their impact nor actions.

d. Product-Related Organization - MilkBe²

The Belgian Confederation of the dairy industry maintained informal relationships with Agrofront for many years. In 2019, they decided to establish an officially recognized branch organization: **MilkBe**. This organization represents milk producers, as well as buyers, collectors, and processors. MilkBe works on developing quality technical specifications, manages the **Monimilk**³ monitoring network, oversees the **Botulim funds**, and focuses on sustainability, product quality, and improving relationships within the supply chain. To address the latter, the organization offers a platform for mutual agreements and has developed a *Code of Conduct*, which outlines "clear minimum provisions to be preferably agreed upon between both parties."

e. Product-Related Organization - Belpotato

Given the economic and agronomic importance of the potato sector in Belgium, the Algemeen Boerensyndicaat (ABS), Belgapom, Boerenbond, Fiwap, and the Walloon Federation of Agriculture (FWA) formed the potato interprofessional organization in 2020. The founding members represent the production segment. The organization's economic role and the promising perspective of its development have spurred further cooperation among stakeholders. Belgium is a leading exporter of potato-based products, currently producing 5 billion tons and employing 5,000 people.

The organization's priority actions include contributing to the sustainability of the chain (both environmentally and socially), ensuring the availability of potato seeds, strengthening contractual relations within the chain, advancing research and development, providing market information, and managing the transition post-CIPC.

In 2023, the organization successfully negotiated a *Code of Conduct* for contracts between production, collection, and industrial actors at the federal level (Belpotato 2022). These shared challenges—contracting, seed availability, sustainability, and R&D support—could also be addressed by a food cereal interprofessional organization. However, the food cereal sector has not yet reached a level of economic development that could generate the same enthusiasm for collaboration.

¹The code of conduct is available here: https://supplychaininitiative.be/_library/_files/Code_140610_EN.pdf

² Narrative proposed on the website, <u>https://www.milkbe.org/fr/a-propos</u>, <u>https://www.milkbe.org/nl/over-milkbe</u>
³ Monimilk: <u>https://www.milkbe.org/fr/themes/qualite/monimilk</u>

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Remark: Its development remains challenging, particularly in terms of financing (currently a fee of $\notin 1$ per hectare of potatoes), and it has yet to reach full operational capacity.

f. Product-Related Organization - Interprofession des Fruits et Légumes de Wallonie

The interprofessional organization for fruits and vegetables in Wallonia was established in 2014¹. Its primary mission is to facilitate communication and cooperation between different actors and segments within the fruit and vegetable supply chain. It consists of three colleges, each focusing on specific segments:

- Production: Representing associations of producers
- Packaging, Transport, and Processing: Including farmer organizations and wholesalers
- Retail: Including companies that wish to join the interprofessional body.

g. An inspiration from France

The College des Producteurs, active in F4F, has organized in the last trimester of 2024, a meeting with InterCéréales : a french interprofessionnal body that represents the cereal value chains -18 cereals -by gathering all the economic actors of the chain

Intercéréales "brings together and coordinates stakeholders within the sector to "build the sector" with the dual objectives of maintaining and improving the competitiveness of the French cereal industry, while also promoting French expertise, the quality of cereal production, and cereal-based products both domestically and internationally."

This role enables Intercéréales to facilitate dialogue among all stakeholders, particularly when addressing common challenges and issues."²

Hereunder some insights on the funding and spending of Intercéréales³ :

Budget

The budget for the 2022–2025 agreement is based on the ten-year average and is set at \in 38 million in voluntary contributions (CVO).

The compulsory Volunteer contributions (CVO) are of

- €0.63 per ton of collected cereals, a contribution collected from cereal producers (18 vereals)
- ± 0.03 per ton of collected cereals, a contribution collected from cereal collectors.
- €0.20 per ton of bread-making flour produced, a contribution collected from milling companies.

¹Website of the Interprofession: <u>https://ifel-w.be/</u>

² The presentation done by Intercéréales to the Commission Céréales of the College des producteurs, November 6th 2024 ³ Idem

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Allocation of the CVO

- 72% of the contributions are allocated to funding research and development, foresight, and sector-related initiatives, with their implementation entrusted to ARVALIS. The allocation of the CVO is governed by an action agreement based on proposals from the relevant committees.
- 28% of the contributions are allocated to funding communication, promotion, information campaigns in France and internationally, sector animation and initiatives, as well as scientific, economic, and foresight studies.

This funding mechanism and ambition could be an important source of inspiration for the sector.

h. Presence of a task force: a favorable context?

In 2024, a specific agrifood taskforce was established to address the needs of the production segment and tackle the challenges related to price formation within the agrifood sector. The taskforce's goal is to collaborate on solutions that meet the demands of farmers and other supply chain actors, ensuring the smooth functioning of the markets.

During the first meeting, discussions focused on the creation of a **"Fair Price Label"**, aimed at ensuring that all actors participate in price setting through collaboration. Three working groups were formed to address the following areas:

- The legal aspects of commercial contracts,
- The objectification of price and margin evolution using data from the Price Observatory',
- Raising awareness about local products and labeling.

The outcomes of these working groups led to the definition of **ten emergency measures**², which were discussed in a second meeting of the taskforce. One key proposal was the development of sector-specific organizations, such as the one established for the potato sector (Belpotato), which would be supported by the **SPF/FOD Economy** as the convenor and facilitator. This sector-specific approach is critical to addressing the unique characteristics of each sector.

The follow-up by the ministry and/or administration on these ten measures remains unclear. However, given the continuity of responsibilities within the agriculture sector, there is potential for these measures to be further pursued and implemented.

This perspective presents a favorable opportunity for organizing the food and drink cereal sector.

Price observatory of SPF economy: <u>https://economie.fgov.be/fr/propos-du-spf/organisation/observatoires/observatoire-des-prix</u>

² The website of College des producteurs: <u>https://collegedesproducteurs.be/actualite/2024/la-task-force-alimentation-saccorde-sur-10-mesures-urgentes-en-faveur-des-agriculteurs/</u>

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i. What's next

This chapter shows the existence of multiple pathways to organize and discuss a sector. The actors in favor of the organization of the food and drink cereals sector could therefore rely on those multiple experiences and lessons learned. With those few open doors, it would be necessary to further document:

- The Business Club of APAQ-W1 as a facilitator and support agency to develop new markets at the national and international levels.
- The different possible finance mechanisms of those interprofessional bodies
- The minimum contribution needed to have a working organization
- Which support can be given by the FOD/SPF Economy for a food and drink cereal interprofessional organization

¹The website of the business club: https://www.apaqw.be/fr/business-club-apaq-w

VIII. Conclusions

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d. CONCLUSIONS

- The national dynamic led to concrete analysis of the stakes that hinder the development of food cereals production in Belgium
- The common analysis can lead to common actions of actors of both regions
- Between 2020 and 2025 there's been some drastic change in the sector, and this report comes as a support for further action in a more favorable context
- The ambitious aspiration is good piloting tool leading to a concrete objective of dubbling the surface of cereals dedicated to food

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Annexes

Annex 1. List of actors pinned on the map of initiatives

	Name	Township	Organic	Activity	Volumes (t/year)
001	Ferme Raymakers	Hélécine	Organic	Agriculture	
002	Ferme d'Emeville	Havelange	Organic	Agriculture	
003	Ferme qui bouge	Clavier	Organic	Agriculture	
004	Simon Coelembie	Kruisem		Agriculture	
005	t Kleinhof Vechmaal	Heers	Organic	Agriculture	
006	Boer&compagnie	Leuven		Agriculture - Milling	
007	Ferme Baré	Jemeppe-sur-Sambre	Organic	Agriculture - Milling	<250 T
008	Ferme de l'Espinette	Beauvechain	Organic	Agriculture - Milling	<=50T
009	Ferme de la Roussellerie	Mouscron	Organic	Agriculture - Milling	<=50T
010	Ferme du Foyau	Momignies	Organic	Agriculture - Milling	<= 25T
011	Ferme du Gala	Genappe	Organic	Agriculture - Milling	<= 25T
012	Ferme du Gibet	Soignies	Biodynamic	Agriculture - Milling	<=50T
013	Ferme de Corioule	Assesse	Reasonned	Agriculture - Milling	<= 25T
014	Ferme de Grange	Anhée	Organic	Agriculture - Milling	<=50T
015	Ferme de Warelles	Enghien	Reasonned	Agriculture - Milling	<250 T
016	Ferme du Habâru	Léglise	Organic	Agriculture - Milling	<=50T
017	Ferme du Hayon	Meix-devant-Virton	Organic	Agriculture - Milling	<= 25T
018	Ferme du Val Notre Dame	Wanze	Organic	Agriculture - Milling	<=50T
019	Ferme Gathy / Terroirs et passion	Wasseiges	Reasonned	Agriculture - Milling	<250 T
020	Ferme Schalenbourg	Donceel		Agriculture - Milling	<250 T
021	Les Farines de l'Escaille	Namur	Organic	Agriculture - Milling	<=50T
022	Moulin de Maugretout	Walcourt	Reasonned	Agriculture - Milling	<=50T
023	Moulin de la Baronne	Marche-en-Famenne	Organic	Agriculture - Milling	<=50T
024	Bakkerbrood/ Kortewegnatuur	Kortessem	Organic	Agriculture - Milling - Bakery	
025	BroodNodig	Zemst		Agriculture - Milling - Bakery	
026	Hoevebakkerij De Hasseleer	Sint-Pieters-Leeuw		Agriculture - Milling - Bakery	
027	Hoevebakkerij Van Doren	Mechelen		Agriculture - Milling - Bakery	
028	Moulin du Foyau	Mons	Reasonned	Agriculture - Milling - Bakery	<=50T
029	Ferme du Bas Roteux	Vaux-sur-sûre	Organic	Agriculture - Milling - Bakery	<= 25T
030	Ferme du pré aux chênes	Momignies	Organic	Agriculture - Milling - Bakery	<=50T

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031	Ferme de l'Abreuvoir	Tournai	Organic	Agriculture - Milling - Bakery	<=50T
032	Ferme du Château	Namur	Organic	Agriculture - Milling - Bakery	<= 25T
033	Ferme d'Hamawé	Virton	Organic	Agriculture - Milling - Bakery	<=50T
034	Ferme du Point du jour	Quévy	Organic	Agriculture - Milling - Bakery	<= 25T
035	Ferme de la malmaison	Gembloux		Agriculture - Milling - Bakery	<=50T
036	Ferme Melotte	Jodoigne		Agriculture - Milling - Bakery	<=50T
037	Histoire d'un grain	Thimister-Clermont	Organic	Agriculture - Milling - Bakery	<=50T
038	Flientermolen cvba	Galmaarden	Organic	Milling activity	
039	Heetveldemolen	Galmaarden	Organic	Milling activity	
040	Ijzerkotmolen	Zwalm	Organic	Milling activity	
041	Les serres Henricot	Mont-Saint-Guibert		Milling activity	<=50T
042	Les grands blés	Saint-Georges-sur- meuse	Organic	Milling activity	<1000T
043	Moulin à vent de Tromcourt	Couvin	Organic	Milling activity	<=50T
044	Moulin de Chérin	Gouvy		Milling activity	<=50T
045	Moulins de Ferrières	Héron	Organic	Milling activity	<250 T
046	Moulin de Gerny	Rochefort	Organic	Milling activity	<=50T
047	Moulins de Hollange	Fauvillers		Milling activity	<=50T
048	Moulin de Lafosse	Manhay		Milling activity	<=50T
049	Moulins de Montigny	Héron		Milling activity	>1000 T
050	Moulins de Moulbaix	Ath		Milling activity	A façon
051	Moulin d'Odeigne	Manhay		Milling activity	<=50T
052	Moulins de Vencimont	Gedinne	Reasonned	Milling activity	<250 T
053	Moulin Dussart	Chastre		Milling activity	<=50T
054	Moulins de Statte	Huy		Milling activity	>5000 T; 500 T en Bio
055	Moulins du Val Dieu (Anciennement Meyers)	Plombières	Reasonned	Milling activity	>1000 T
056	Moulin Jespers	Rebecq		Milling activity	>1000 T
057	Moulin Nova	Frasnes-Lez- Anvaing	Reasonned	Milling activity	>1000 T
058	Ceres SA	Bruxelles		Milling activity	>20 000T
059	Boulangerie Bon pain	Evere	Organic	Milling-Bakery	<1000T
060	Boulangerie Delhaye	Marche-en-Famenne		Milling-Bakery	<= 25T
061	Meule & Co	Dinant		Milling-Bakery	<= 25T
062	Cultivae	Perwez		Collect- Food grains	
063	Altergrain/HOGENT	Gent		Research	
064	Granennetwerk Pajottenland	Beersel	Organic	Farmers network	
065	Epeautre d'Ardenne	Martelange		Farmers network	

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066	Bel'grain	Gembloux		Farmers network	
067	Farm For Good	Havelange	Organic	Farmers network	
068	Land Farm and Men	Havelange	Organic	Farmers network	
069	Les 4 fermes	Wavre		Farmers network	
070	Réseau Radis	Namur		Farmers network	
071	Pomona Puur Natuur cvba	Sint-Niklaas	Organic	Collect-Distribution	
072	Bettie	Attert		Collect-Distribution	
073	Ceinture Alimentaire Charleroi Metropole (CACM)	Charleroi		Collect-Distribution	
074	Le Comptoir Paysan	Beauraing		Collect-Distribution	
075	Coopérative Ardente	Saint-Nicolas		Collect-Distribution	
076	Coprosain	Ath		Collect-Distribution	
077	Coquelicoop	Jurbise		Collect-Distribution	
078	Сооресо	Charleroi		Collect-Distribution	
079	COOF	Fernelmont		Collect-Distribution	
080	Fermes en vie	Marche-en-Famenne		Collect-Distribution	
081	Halle de Han	Rochefort		Collect-Distribution	
082	Macavrac	Wavre		Collect-Distribution	
083	La mauvaise herbe	Nassogne		Collect-Distribution	
084	Nos racines	Herve		Collect-Distribution	
085	Oufticoop	Liège		Collect-Distribution	
086	Poll'n coop	Ottignies-Louvain-		Collect-Distribution	
087	La P'tite Ruche	Houffalize		Collect-Distribution	
088	R.E.L.A.IS. Coop	Rochefort		Collect-Distribution	
089	Réseau Paysan	Libramont-Chevigny		Collect-Distribution	
090	Unis Verts Paysans	Malmedy		Collect-Distribution	
091	Vervîcoop	Verviers		Collect-Distribution	
092	WooCoop	Waterloo		Collect-Distribution	
093	Bakkerij Verlot	Affligem		Bakery with local	
004	D 11 1	Nr. 1. 1		grains	
094	Broodbroeders	Mechelen		Bakery with local	
095	De Zotte Morgen	Mechelen	Organic	Bakery with local	
				grains	
096	Feelkeshof	Zottegem	Organic	Bakery with local	
097	Korst	Leuven		Bakery with local	
				grains	
098	LINA's ambachtelijke	Mortsel	Organic	Bakery with local	
099	Pain Pure	Lokeren	Organic	Bakery with local	
			5.5mm	grains	



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Annex 2 : Final causal map

Figure 13: Causal map improved by the participants' inputs,

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